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## HUNGARIAN FOREST MANAGEMENT TENDENCIES AT THE BEGINNING OF THE XXI CENTURY

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### ABSTRACT

Today, the forest is a key element of natural resources, the most complex natural (ecological) system in the continent. Because of its environmental impact, it is also a vital condition for healthy human life. In addition to its dominant role in regulating the quantity and quality of waters, the forest defines the nature of the landscape, preserves the richness of wildlife species and, being a renewable natural resource, continuously improves the state of the environment, while producing raw materials, energy sources and food. The present area and condition of forests have evolved over centuries of human activity. Due to their territorial fragmentation and the environmental damage forests are exposed to, we can only count on the indispensable survival, protective effect and products (yields) of forest communities if we treat them professionally and protect them from damaging effects, excessive use and stress, ensuring the diversity and appropriate harmony of their flora and fauna. The forest area of Hungary has grown dynamically over the last decades, however, in the European Union, we are one of the countries with less favourable indicators in this field. This study deals with the current issues of forest management in Hungary (forest area, forest land proportion, forest-tree supply, afforestation, forest health, logging) focusing on the direction and extent of positive and negative changes in this field.

### KEY WORDS

Forest area, forest land proportion, forest-tree supply, afforestation, forest health, logging, Hungary.

The forest is an ecosystem including the habitat as an integral part. The natural vegetation and fauna of the forest (together with the tree and the wildlife reserve) and the other natural and environmental values associated with the forest must be considered as a unit. As a habitat, it provides assurance for the survival of wildlife, it protects the soil, waters, cleans the air, gives rest to people, is a landscape element, while also providing material goods (Solymos, 2010).

One of the main principles and objectives of forest management in Hungary is the consistent and sustainable management of forests as a natural resource, which, at the same time, must meet the forest-focused environmental, social, recreational and consumption needs of society. Therefore, in addition to the owner, it is the society (the state) and not the users that are involved in financing forestry (Komarek, 2005b, 2007b, Solymos, 2010).

Due to its recoverability, within its natural distribution area, the forest, in contrast to many other ecosystems, can replenish and reproduce goods harvested there to satisfy human needs. Since a significant part of these goods - primarily wood - cannot be replaced with any other things, available only to a limited extent, or it is an environmentally friendly product or service that satisfies a basic need, we must attempt a reasonable forest management (Perczel, 2003).

Most of our forests are utilised by the public in the agricultural economy, with their mere existence they serve public objectives, with social, protective, holiday and recreational services. All this is true for the state and municipal forests. In our country, most public forests are in a recreation area, a landscape conservation area, a national park or they serve other recreational, environmental and nature conservation purposes, they are open to the public, therefore they are considered a public place and their maintenance is subject to budget

support. All forests that have been created by public afforestation with total state subsistence and any new forest to be built for which the state provides support must be regarded as a private forest serving public purposes (Komarek, 2005c, 2007a, 2007b, Schiberna, 2001, Solymos, 2010).

As a result, forest management needs significant state support in market economies as well (state support means contributing to the extra costs of public service in the forest). The yields of forests provide low income (especially low return on equity), however, compared to other agricultural sectors, they are not even nearly supported. In the long run, the socio-budgetary support of uneconomic forests lacking resource is indispensable (Komarek, 2005a, 2005b, Solymos, 2006)

Domestic forests cannot be regarded as fully self-sustaining environmental systems as their present form has developed over centuries of human intervention and farming. Maintaining a large part of the forests in their present form and the usual level of services provided to society can only be carried out in the framework of good forest management (Komarek, 2005c, 2007a, 2007b, Schiberna, 2001, Solymos, 2010).

Over the past decades, the area extracted from agriculture has been growing since the regime change, with the increase of the integration degree of settlements, increasing dynamics of housing construction, greenfield industrial and other investment space requirements, road network and infrastructure development. The negative impact of this process on the quality of the environment is somewhat counterbalanced by the increase in the forest land proportion (Komarek, 2008, Yahid et al., 2006).

The forest, as a living community and habitat, depending on natural factors and human activity, is an indispensable part of the natural environment. It is also a renewable natural resource, so it must remain constant and it is important that it grow as possible. All this is done in accordance with the ownership and the public interest, its services and products are sold with market value. Accordingly, the forest area, its crop and income generation potential, ecological and intangible value cannot be reduced.

The forest should be used and utilised in a way and at a pace to maintain farming opportunities for future generations while the forest can conserve its biodiversity, nature, production, renewal and viability and meet the needs of the conservation and economic requirements, fulfil its role in reaching natural and environmental, health-social, tourism, educational and research purposes. Nevertheless, the rational use of the produced environmentally friendly, material return that is indispensable for society must not be abandoned either. Sustainability must be ensured in forest management. Sustainability means not only quantity but also quality (profitability, infrastructural services, protection effects). Ensuring profitability is a fundamental interest of professional and sustainable forestry. Financial support for farmers under unfavourable natural conditions is justifiable. The demand for forest products can only be met based on goods and services that can be provided by sustainable forest management. It is undesirable to reduce demand for wood consumption; the society should be encouraged to use wood, as the most environmentally friendly raw material, more widely (Komarek, 2008, Yahid et al., 2006).

The role of forests and wood in the next century can be greater than ever. Due to the long production cycle, we must prepare ourselves in time to ensure the needs of society at the right level. This means that forest management should have a place, better judgment and possibilities than before, in the agricultural sector as well as in the resolution of national economic tasks. In connection with this, it is helpful to accomplish the development of forestry and wood economy in harmony with other sectors, to ensure the best possible integration of the agricultural sector (Solymos, 2006, 2010).

The increase of the Hungarian forest area is far from what is accepted in the long-term programmes considered optimal, where sometimes the lack of financial resources has a significant role. Afforestation requires substantial capital; however, the return of the invested capital takes a relatively long time (Komarek, 2007b, 2008).

## MATERIALS AND METHODS OF RESEARCH

For the analysis, we used the county and national statistical data provided by the Hungarian Central Statistical Office (KSH) as a data source. From the data, I developed indicators that enabled time and territorial comparative analysis of some Hungarian forest management indicators and the presentation of the main trends of the changes that took place. The analysis covers the past two decades.

In recent years, the transformation of Hungarian agriculture has led to significant temporal and territorial changes in forestry as well. These changes make it necessary to carry out studies that provide answers to the question if there were positive or negative changes in forestry, and which Hungarian regions have increased or decreased in this field during the past few years. To answer these assumptions, I applied mathematical-statistical methods for my analysis.

## RESULTS AND DISCUSSION

Over the past 17 years, the size of the forest area was continuously increasing in Hungary. In 2017 the forest area was 1939.7 thousand hectares, which increased by 9.6%, that is 170.1 thousand hectares, compared to that of 2000 (Figure 1).

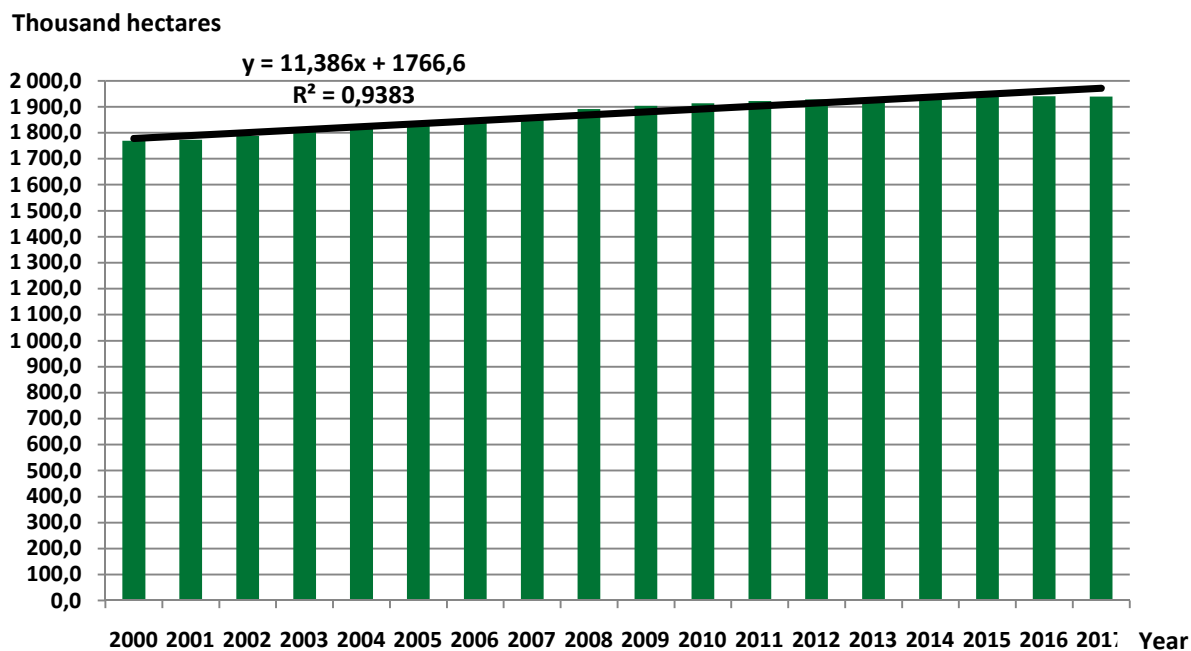


Figure 1 – Forest areas in Hungary, 2000-2017 (Source: Author's calculations, based on KSH data)

Forest areas are concentrated in Hungary. Extensive forests, mainly due to geological and climatic conditions, mostly developed in the hilly areas of Northern Hungary and Southern Transdanubia. In 2000, out of the counties it was Bács-Kiskun County that had almost the largest forest area (169.6 thousand hectares), which was 9.6% of the national value. Zala (168.8 thousand hectares - 9.5%), Borsod-Abaúj-Zemplén (165.6 thousand hectares - 9.4%), Somogy (162.1 thousand hectares - 9.2%) and Pest (130.7 thousand hectares - 7.4%) Counties also accounted for significant forest areas. The counties listed above gave 45.1% of the forest area of Hungary. Due to continuous afforestation, there was an increase in the forest area of the counties by 2017 compared to the base year (2000), which resulted in territorial changes at county level. That year, the largest forest area was in Borsod-Abaúj-Zemplén County (211.6 thousand hectares - 10.9%). The forest areas of Somogy (179.0 thousand hectares - 9.2%), Bács-Kiskun (175.9 thousand hectares - 9.1%) and Pest (165.3 thousand hectares - 8.5%) Counties were also outstanding.

The proportion of forests - forest area from the total area - varies greatly depending on the territorial features. In 2000, the forest density in Hungary was 19.0% on the national average, which increased steadily over the 17 years and reached 20.9% in 2017 (Figure 2).

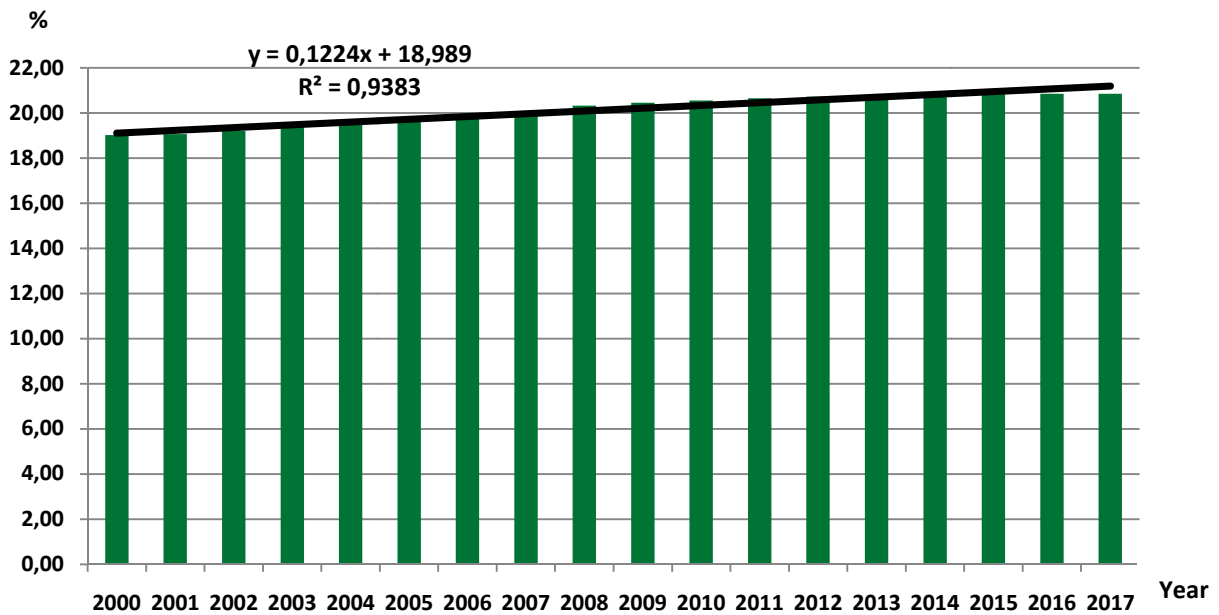


Figure 2 – Forest cover in Hungary, 2000-2017 (Source: Author’s calculations, based on KSH data)

In 2000, the lowest number of forest areas in the region was in Central Hungary, however, the forest land proportion was higher than the national average (20.3%). Western Transdanubia and Northern Hungary have the largest forests, and the forest land proportion is well above the national average (19.0%), as most of their territory consists of hills. The forest land proportion in Western Transdanubia was 28.8%, while in Northern Hungary it was 28.4% at the time of the research. The least afforested area was Northern Great Plain (11.1%), where agricultural land is significant. Among the counties, the proportion of forests in Nógrád is exceptionally high (41.4%), and it is also considerable in Zala (39.4%), Somogy (28.6%) and Heves (28.2%). The forest land proportion was the smallest in Békés (2.3%) (Figure 3).

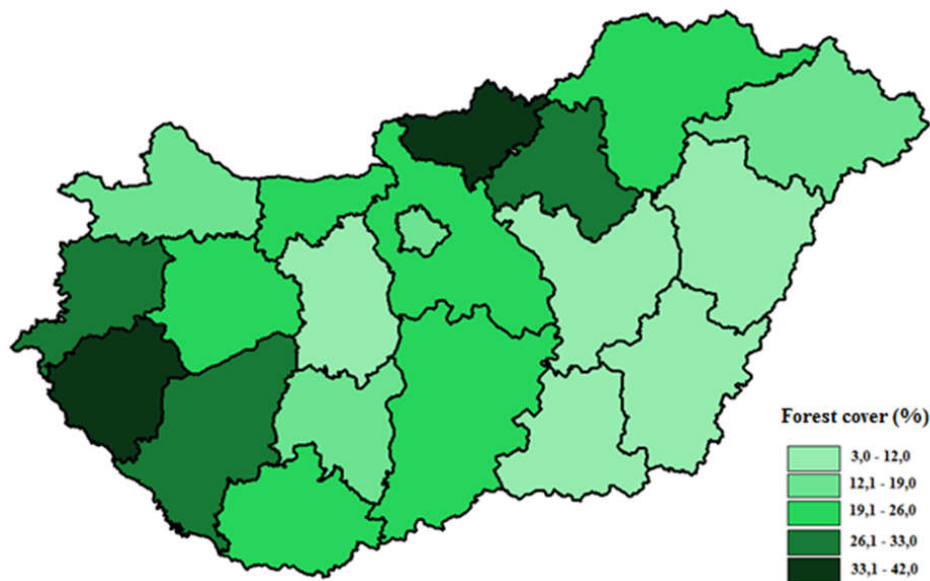


Figure 3 – Forest cover in Hungary by counties in 2000, % (Source: Author’s calculations, based on KSH data)



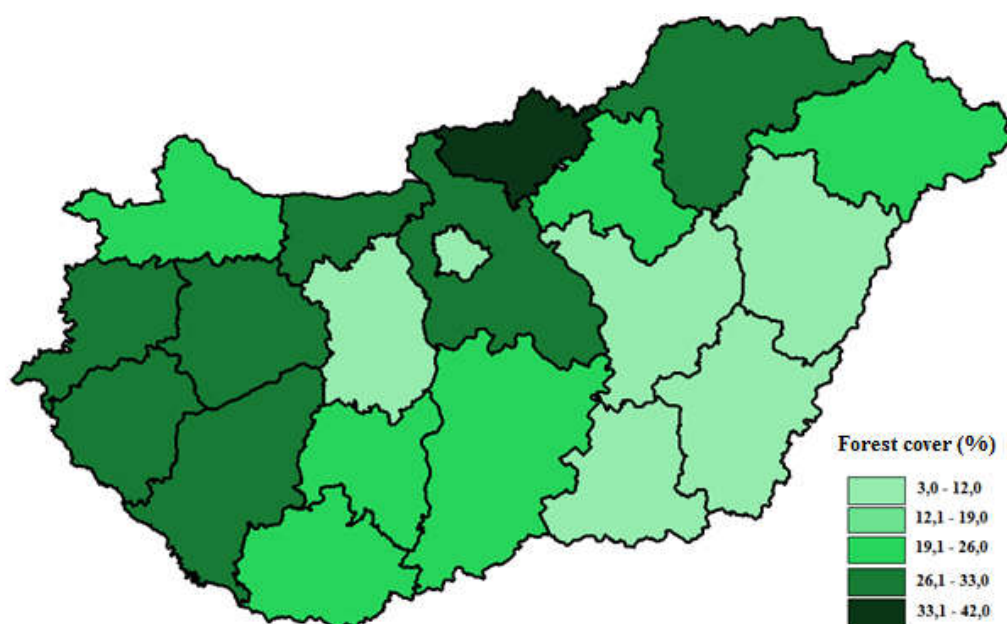


Figure 4 – Forest cover in Hungary by counties in 2017, % (Source: Author's calculations, based on KSH data)

In 2017 there were no major changes in the order of forest land proportion in the regions. Due to the growth of forest areas, the forest land proportion of almost all regions has increased from 2000 to 2017. The exception is Western Transdanubia, where it has declined from the previous 28.8% to 26.3%, caused mainly by a smaller disruption of the balance between afforestation and logging. As far as the other regions are concerned, Central Hungary still has the smallest forest area, yet the forest land proportion in this region (22.6%) exceeds the national average (20.9%). At the same time, Northern Hungary had the largest forest areas (399.8 thousand hectares) and forest land proportion (30.5%) in the year of the examination. Despite the increase in the forest area of recent years, the Northern Great Plain is still the least afforested (12.5%). Out of the counties it is in Nógrád (39.5%), where the ratio of forests is still much higher than the national average. In addition to Nógrád County, Zala (32.7%), Somogy (31.6%), Veszprém (31.2%) and Borsod-Abaúj-Zemplén (31.2%) are also above the national average. The proportion of forests in Békés remains the smallest among the counties (4.7%) (Figure 4).

*Forest areas by purpose.* Because of the new legislative changes that came into force in 2009, the proportion of forests for protection purposes - already more slowly though - continued to grow at the expense of the forests for economic purposes (Table 1). Forests for protection purposes include forests for soil protection, water protection, settlement protection and nature conservation.

Table 1 – Hungarian forest areas by purpose, %

Name	2000	2016
Economic purpose	74.5	61.6
Protection purpose	23.2	37.3
Other purpose	2.3	1.1
Altogether	100.0	100.0

Source: Author's calculations, based on KSH data.

*The composition of forest areas and forest tree supply by tree species.* The varied tree composition of Hungarian forests is determined primarily by the geographic location of the country, the climatic, hydrographic and soil conditions of the Carpathian Basin. Today, 63.3% of the forest area is native tree species, 36.7% is occupied by non-native or indigenous species (acacia, red oak, some pine species) or cloned varieties (noble poplar tree). In 2000,

85.9% of the 1769.6 thousand hectares of forest land was covered with deciduous trees, 14.1% were pine trees while 89.5% of the forest area, which increased up to 1939.7 thousand hectares, was covered by deciduous tree species and 10.5% by pine species in 2016 (Table 2).

In 2000, oak forests covering more than 367,000 hectares of hardwoods accounted for 21.1% of the wooded forest area. Oaks had more than 387,000 hectares (20.7%) of timber-covered forest areas, an increase of 5.4% in 2016, compared to 2000. The growth during the examined period was mainly due to Békés and Szabolcs-Szatmár-Bereg Counties. The calculations show that the areas covered by the oaks increased, however their share from the national forest area decreased. Thus, the ratio of tree species shifted in the forest areas changed from 2000 to 2016, favouring acacia, poplar or other hardwood species. Nowadays approximately 20.0% of the oaks occur in Borsod-Abaúj-Zemplén County. Oaks are the most common species in the Northern Hemisphere, mainly the Cornish oak appears in great numbers. Somogy County also accounts for more than 10% of the oaks in the country, mainly thanks to the common oak. The distribution of oaks by age varies widely. On 12.0% of the area, there are trees over 10 years old, while on 9.5% of the area the tree population is over 100 years old. Considering the national territory, the former age group can be found in Somogy County, while the latter was in Borsod-Abaúj-Zemplén county with the highest proportion. The oak tree stock in 2000 was 82.8 thousand cubic meters, which increased to 87.1 thousand cubic meters in 2016. By contrast, the share of the national living tree stock fell from the previous 25.4% to 23.3%.

Table 2 – The composition of Hungarian forest areas and forest tree supply by tree species

Tree species	2000		2016	
	Area (%)	Living tree (%)	Area (%)	Living tree (%)
Oak	21.1	25.4	20.7	23.3
Turkey oak	11.4	13.1	11.3	12.6
Beech	6.2	12.0	5.9	10.7
Hornbeam	5.9	5.5	5.2	4.7
Acacia	21.5	12.1	24.4	13.6
Other hardwood	4.5	4.4	6.2	5.9
Poplar	9.8	6.5	10.5	8.4
Other softwood	5.5	5.8	5.3	6.5
Scots pine	8.3	10.0	6.2	9.4
Black pine	4.1	3.3	3.2	3.1
Other pine species	1.7	1.9	1.1	1.8
Altogether	100.0	100.0	100.0	100.0

Source: Author's calculations, based on KSH data.

Oak is also a significant tree species (Turkey oak), which is one of the main components of Hungary's most widespread forest associations, oak forests, in addition to Cornish oak. It occurs in medium mountains and hilly areas, mostly at 250-400 meters above sea level. In 2000 Turkey oak covered about 199,000 hectares of forest area, which grew to more than 211,000 hectares by 2016. This represented a 6.0% increase from the base year to the examined year. The area of the oak grew in all counties except Komárom-Esztergom and Baranya Counties. Turkish oak covered 11.4% of the forest areas in 2000, which fell back to 11.3% of all forest areas by 2016. The largest area of Turkish oak is in Veszprém county, which exceeds 36 thousand hectares. 15.0% of the Turkish oak is 71-80 years old. While the proportion of areas aged 10 years or younger is the highest in some of the Great Plain counties (Csongrád, Békés, Hajdú-Bihar), 18.0% of Turkish oak woods in Budapest is over 100 years old. The living tree stock of the Turkish oak was 42.5 thousand cubic metres in 2000, which increased to 46.9 thousand cubic metres by 2016. Like that of the oak, its share of the national living tree stock decreased by 0.5 percentage points from 2000 to 2016.

Beech trees form forests on hilly areas over 600-meter altitudes and on lower, but more humid Transdanubian regions. In Hungary, in 2000, their territory was more than 107,000 hectares, which rose to 111,000 hectares by 2016 (5.9% of the forest area). The growth is due to Győr-Moson-Sopron and Vas Counties. 26.0% of beech is in Borsod-Abaúj-Zemplén

(Bükk-Hills), 16.0% in Veszprém (Bakony), 14.0% in Zala (Göcsej), and in Heves County (Mátra, Bükk) where their share was 10.0%. Out of the forests 22.0% are over 100 years old and also 22.0% is between 81 and 100 years old. Considering the capital and the counties, the youngest (8.7%) forests were in Somogy while the rate of the oldest (31.0%) was the highest in Budapest. Beech is a native tree species in Hungary; it can be used in many ways and its wood is easy to work with, and it is also of great importance for environment and nature conservation. In 2000 the living tree stock of beech was 39.1 thousand cubic meters, which increased to 39.7 thousand by 2016. At the same time, the proportion of the living beech stock compared to the national figures decreased from the base year to in the examination year by 1.3%.

In 2000, hornbeam had nearly 103,000 hectares (5.9%) share of the Hungarian forest area. By 2016 its area fell back to 97 thousand hectares (5.2%). Its widespread associations are the oak-hornbeam forests, which occur mostly in hillsides and mountain ranges at the altitude of 400 to 600 meters. The largest area is in Borsod-Abaúj-Zemplén County (Bükk, Zempléni Hills). The hornbeam-Cornish oak forests have a significant area in Baranya County (Mecsek), Zala and South Somogy, in Zselicség. 14.0% of the hornbeam belonged to the age group 71 to 80 years, while the proportion of the younger than 10 years was 2.8%, and the age of more than 100 years was 6.8%. In the other age groups, their proportion spread between 6.8% and 13.0%. The group of 1 to 10 years of age had a share of 54.0% in Hajdú-Bihar, which has relatively small hornbeam area. At the same time, 22.0% of them in the Budapest area was older than 100 years in 2014. The living tree stock of hornbeam in 2000 was 17.9 thousand cubic metres, which decreased to 17.4 thousand by 2016. This is also reflected in their share of the national stock, as it declined by 0.8 percentage points from 2000 to 2016.

The most common tree species in Hungarian forests is the acacia, providing 21.5% (373.3 thousand hectares) of all forest areas in 2000. By 2016 its area increased to 455.0 thousand hectares, which represents an increase of 21.9% compared to the year of the examination. The largest areas are in Bács-Kiskun County (60.2 thousand hectares), but Szabolcs-Szatmár-Bereg (56.4 thousand hectares) and Pest County as well (47.8 thousand hectares) have significant acacia areas. The area of this non-native tree species expanded in the examined period, mainly in the acacia-rich Szabolcs-Szatmár-Bereg and Bács-Kiskun Counties. 31.0% of the acacia forest area was aged between 11 and 20 years, 27.0% were in the age group of 21 to 30, and the proportion of the 1 to 10 years was 21.0%. The share of other age groups was 21.0%. Out of the counties, Csongrád has the highest proportion (33.0%) of young acacia forest (not older than 10 years). Its wood can be used in many ways: it is important firewood, because it can burn well even if it is moist, and its rich inflorescence makes it excellent for the bees to collect honey. On poor soils often, it is the only type of tree that can be considered for afforestation. The living acacia tree supply in 2000 was 39.2 thousand cubic meters, which increased to 50.7 thousand cubic meters in 2016. Growth is also reflected in the share of the national stock, as its share increased by 1.6% from 2000 to 2016. The area of other hardwoods in 2000 was 78.3 thousand hectares, which increased to 115.9 thousand hectares by 2016. This means about a 48% increase within 16 years. The living tree supply of other hardwood in 2000 was 14.3 thousand cubic meters, which rose to 22.1 thousand cubic meters in 2016. The increase is also reflected in the share of the national living tree supply, as its share increased by 1.5 percentage points from 2000 to 2016.

Poplar trees made up 56.6% (169.5 thousand hectares) of the softwood area (265.5 thousand hectares) in 2000, with a share of 6.9% of all forest areas. In 2016, the area increased from the previous 169.5 thousand hectares to 196.3 thousand hectares, an increase of 15.8% compared to the base year. Poplar(hybrid) plantations are used mainly as alleys and tree plantations on the river floodplains but also on other agricultural areas. Their occurrence is most common in Szabolcs-Szatmár-Bereg and Pest Counties (17-17%). The living tree supply of poplar was 21.0 thousand cubic metres in 2000, which increased to 31.4 thousand by 2016. This is also reflected in its share of the national living tree supply because the rate increased by 1.9% from the base year to the examination year.

The indigenous Hungarian poplar, composed of several tree species, occur mainly in the plains, in the floodplain groves, in the deeper parts of the sandy areas of the Great Plain, and 44.0% of their forests are in Bács-Kiskun County (Homokhátság). The proportion of the Hungarian poplar area in 2000 was 2.9%, which increased to 4.4% by 2016. There are many poplar breeds that are currently in public use, which are also suitable for energy tree plantations due to their intense growth, good roots tendency and renewal ability. The living tree supply of Hungarian poplar grew by 1.5 percentage points from the base year to the year of the examination.

In 2000, the area of other softwood was almost 96,000 hectares (5.5%), which increased to 98,000 hectares by 2016. The proportion of the tree species was as follows: 22.0% linden, 21.0% willow and 7.3% other softwood. Alder or partly ash woods that are rich in moor-tree species and mostly covered in water in summer, mainly consist of alder. They inhabited especially the wider, flat valleys of hilly lands. More than half of the alder area is in Somogy County (Belső-Somogy, Zselic, Zákányi Hills). Alder is a soft tree suitable for aquatic constructions. The linden is typically a mixture-tree in the Carpathian Basin: it is frequent in the oak-and-hornbeam, beech, oak, floodplain woods and in rocky habitats. The largest linden forests were in Somogy, with a proportion of 27.0% out of the total area and Baranya County had a considerable linden area as well (22.0%). The linden are probably the easiest, best carving wood available from any tree species. In the floodplain forests, the willow-poplar groves - also known as softwood - are the most common near the rivers. Nowadays, willow trees are planted on energy plantations due to their rapid growth. The willow woods occurred mostly in Győr-Moson-Sopron County (Szigetköz, Hanság) and Baranya County (10.0% and 11.0%), while other species in this category were in Somogy (41.0%). The living tree stock of other softwoods increased by 0.7 percentage point from 2000 to 2016.

In 2000, the pine forests owned 243.5 thousand hectares (14.1%) of Hungarian forest area, out of which 59.0% was forest pine, 28.9% was Australian pine and 12.1% was other pine. By 2016, its area decreased to 195.0 thousand hectares, representing a 20.0% decline from the base year to the experiment year. Out of the pines, the area of other pines decreased to the greatest extent (33.6%). In case of forest pine, the decline was 20.0% and for the black pine it was 14.0% from 2000 to 2016. Pine forests are located on 143,7 thousand hectares, mainly in Western Transdanubia, the largest area in Vas County (Alpokalja). One-third of the forest area is 31-40 years old, and one-fifths is 41-50 years old. The proportion of 10-year-old or younger forests is 1.5% (the highest in County Vas County), but there are also trees aged over 100 years, with a share of approximately 0.8%.

Black (or Australian) pine had a 4.1% share of domestic forests in 2000. By 2016 its proportion within domestic forests decreased to 3.2%. In recent decades, it has been installed in dry sandy sites, which is why more than half of it is in Bács-Kiskun County. Its territory in all counties - except Jász-Nagykun-Szolnok - is less than in previous years.

Out of the other pine species the Norway spruce (73.0%) is the most common, ahead of the red spruce (16.0%) and other species (11.0%). Spruce is a typical species of the continental climate requiring a minimum of 700 millimetres of rainfall per year, while in the rest period it prefers cold sites, therefore it is present mostly in Vas (25.0%), Zala (22.0%) and Borsod-Abaúj-Zemplén (23.0%). The total spruce-covered forest land decreased by almost 10.0%, it fell back in each of the counties with a considerable size spruce area. The red spruce is the typical tree of mountains in the Northern Hemisphere. In Hungary, like spruce, they occur in higher, precipitous areas in Zala, Vas, Borsod-Abaúj-Zemplén Counties. The living tree supply of pine species in 2000 was 49.6 thousand cubic meters, which rose to 53.4 thousand cubic meters in 2016, however their proportion from the national supply declined by 1.2% from the base year to the reference year.

*Afforestation.* One of the main objectives of forestry policy is to increase the forest area through afforestation, up to a 26-27% forest proportion level. In the vegetation period of 2000/2001 the total area of completed afforestation was 13.1 thousand hectares, which decreased to 2.5 thousand hectares for the 2012/2013 vegetation period. From the vegetation period of 2006/2007, except for the year of 2011/2012, the size of the completed

afforestation area decreased continuously. Meanwhile, there is a high proportion of areas where, for some reason, successful afforestation is delayed. Among the complex causes why success takes that long, the role of weather extremes is significant. During the period under investigation, the highest proportion of area expansion occurred in Bács-Kiskun, due to the completed acacia, Hungarian poplar, and other softwood areas as well as the pine forests. Beech planting was accomplished in Borsod-Abaúj-Zemplén alone, while pine afforestation was declared as complete only in five counties (Pest, Győr-Moson-Sopron, Borsod-Abaúj-Zemplén, Bács-Kiskun and Csongrád) (Table 3).

Table 3 – Afforestation (ha) by years

Year	Afforestation	Replacement	Total
2000/2001	13 150	2 366	15 516
2001/2002	14 830	2 339	17 169
2002/2003	12 015	3 013	15 028
2003/2004	7 574	4 007	11 581
2004/2005	7 657	1 782	9 439
2005/2006	13 989	1 019	15 008
2006/2007	18 948	1 341	20 289
2007/2008	7 332	2 108	9 441
2008/2009	5 168	1 135	6 303
2009/2010	5 096	864	5 960
2010/2011	2 803	658	3 461
2011/2012	4 537	472	5 009
2012/2013	2 530	720	3 250
2013/2014	1 287	312	1 599
2014/2015	318	134	452
2015/2016	158	142	300

Source: Author's calculations, based on KSH data.

Overall, it can be observed that due to the afforestation of recent years, Hungarian forest areas continued to grow.

*The health status of the forests.* One of the prerequisites for fulfilling a wide range of expectations for the forest is to preserve the health of the forest, and to improve it as far as possible. The health conditions of Hungarian forests are dominated by weather conditions (drought, frost, ice, wind) and some biotic damages (mushrooms, insects), but the magnitude of damage caused by the game population is not negligible either. When classifying a state of health, harms can be grouped into three main categories - biotic, abiotic and unknown.

Table 4 – Health status of Hungarian forests (2000-2016)

Year	Asymptomatic (%)	Damaged (%)			Dead (%)
		Weakly	Moderately	Heavily	
2000	34.3	41.4	18.9	3.0	2.4
2001	33.9	41.8	18.9	3.0	2.4
2002	34.3	40.6	19.5	3.1	2.5
2003	31.5	42.0	20.3	3.6	2.6
2004	34.8	39.0	19.6	3.8	2.8
2005	33.2	39.6	20.0	4.1	3.1
2006	36.8	40.5	16.9	2.9	2.9
2007	51.8	27.5	12.5	5.9	2.3
2008	60.7	23.2	10.8	2.5	2.8
2009	54.8	26.8	12.4	3.3	2.6
2010	49.3	28.9	14.7	4.4	2.7
2011	62.3	18.9	13.7	2.1	2.9
2012	59.5	18.4	15.4	2.5	4.1
2013	55.6	22.0	16.5	3.0	2.8
2014	52.4	23.5	18.2	3.0	2.9
2015	50.5	25.5	16.2	5.3	2.6
2016	33.8	31.6	26.3	5.8	2.5

Source: Author's calculations, based on KSH data

Their proportion changed only slightly in the past year. Biotic damage still accounts for most damage, with a share of 54.8% of the total. Considering biotic damage, the rate of insect damage is the highest (27.7%). This is followed by damage caused by various fungi (11.5%). Damage caused by human activity (6.9%), is mainly due to mechanical damage, approximation injuries. The rate of damage of other categories included here is 6.5%. Wildlife damage represents 2.2%. The second most commonly occurring injury category is an unknown source or degrading category. During the sampling, all the symptom groups that result from general degradation or linking damage of trees are included in this category. 33.2% of the damages belonged to this group. The abiotic damage, together with the fire damage listed separately, made up the 12.6% of the total damage.

Considering all the forest damage in Hungary in 2000, 34.3% of the trees were asymptomatic, 41.4% were weakly, 18.9% were moderately, and 3.0% were heavily damaged. The proportion of dead trees reached 2.4%. In 2016, 33.8% of the trees were asymptomatic, 31.6% were weakly, 26.3% were moderately, while 5.8% were heavily damaged. The proportion of dead trees increased by 0.1 percentage point in the reference year compared to the base year (Table 4).

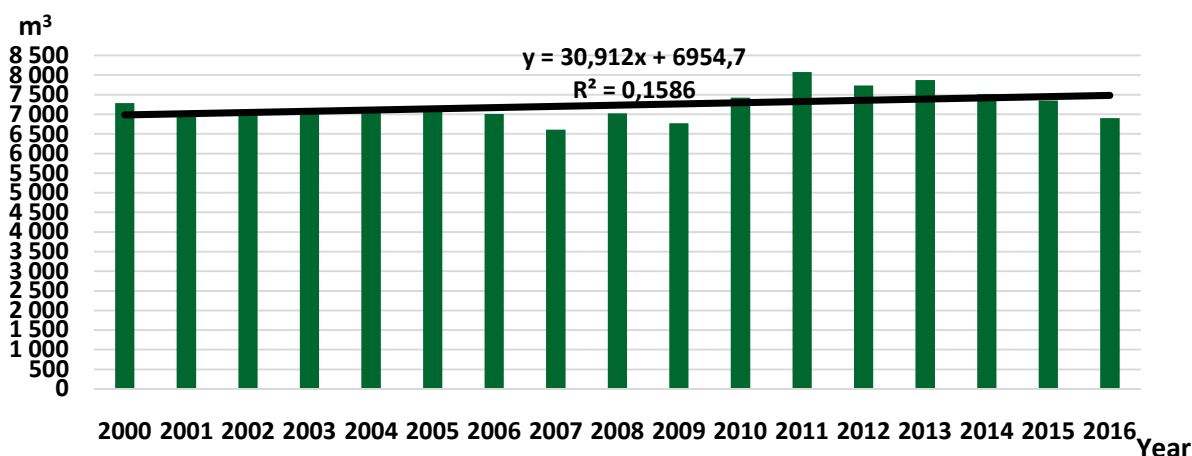


Figure 5 – Logging in Hungary (2000-2016), % (Source: Author’s calculations, based on KSH data)

Table 5 – Logging by tree species in Hungary (%)

Name	2000	2016
Oak	16.2	12.8
Turkey oak	13.8	10.6
Beech	9.4	9.8
Hornbeam	4.6	3.5
Acacia	20.5	19.3
Other hardwood	2.5	3.6
Noble poplar	14.7	14.5
Hungarian poplar	2.8	3.4
Willow	0.7	0.7
Other softwood	3.2	3.7
Pine	11.5	17.9
Total	100.0	100.0

Source: Author’s calculations, based on KSH data.

Comparing the forest health results to the data of previous years we can conclude that in 2016 a significant deterioration was observed in the health of trees. The proportion of asymptomatic trees decreased by 16.7% compared to 2015, while the proportion of endangered trees increased. The number of moderately damaged and heavily damaged trees also shows a slight increase. These changes may be considered more significant in contrast to the earlier low level of deterioration and it suggests that an unfavourable process has intensified in the forests, leading to a worsening of the health status of trees by 2016. All

these negative changes occurred even though the weather of the past year was favourable in the vegetation period. The amount of precipitation was more than the average and monthly average temperatures were usually free from extremes. Deterioration was triggered by unfavourable weather conditions in previous years, the accumulating effects which appeared spectacularly in 2016.

*Logging.* Logging in the forests of Hungary is based on the principle of sustainability. In 2000, the quantity of wood produced in 2000, that is 7287 thousand m<sup>3</sup>, fell back to 6906 thousand m<sup>3</sup> in 2016 (Figure 5). During the examined period, the development of timber production was uneven, but it had a growing tendency. Today, wood species that are most affected by logging are acacia, pine and noble poplar (Table 5). In 2016 there were 1336 thousand cubic meters of acacia produced, 1238 thousand cubic meters of pine, and 1000 thousand cubic meters of noble poplar (*Populus x. euramericana*) were produced.

## CONCLUSION

Significant changes have taken place in the forest management of Hungary since the years following the regime change. Positive as well as negative directions can be observed in the changes.

In the year of the regime change (1990), Hungary had 1695.4 thousand hectares of forest area, which (2017) increased to 1939.7 thousand hectares by these days. It meant a 14.4% change from 1990 to 2017. The steady growth of the forest-purpose areas has also resulted in an increase in the proportion of forests. Over the last 17 years, the proportion of Hungarian forest lands increased from the previous 19.0% to 20.9%. The impact of this is also reflected at regional level, especially in those areas where forestry still has unexploited reserves (e.g. lowland counties). Afforestation accomplished during the past years played an important role in the growth of forest areas and in the proportion of forest lands.

During the examination period, the ownership structure was transformed. The forests, which were previously the property of co-operatives, became privately-owned again, and even part of the public forests was privatized. Despite the changes in the ownership structure, the role of the state remains dominant. In the case of forest areas, the proportion of forests with protection purpose increased compared with the forests for economic use.

There were changes in the composition of the tree species on forest areas and in the living tree supply. The forest area of some species increased (e.g. oak, beech, acacia), while others decreased (e.g. hornbeam, pine trees). A similar trend was observed in case of the living tree supply by tree species. Changes in many cases resulted in a proportional shift in the composition of forest areas and in the living tree supply. In many cases, the forest area and / or living tree supply of the given species increased, however its share from the national total decreased, compared to previous years.

Studies confirm that the health status of our forests continues to be good. However, due to climatic conditions, forest health has deteriorated compared to previous years. While the ratio of asymptomatic trees declined, the rate of threatened trees increased significantly.

The annual timber production has changed recently, the most affected species in logging were acacia, pine and noble poplar.

In my opinion, changes in forest management (forest area, forest land proportion, living tree supply, afforestation) have been encouraging in recent years to reduce our previous backlogs in this field and to catch up with the opportunities we are facing in the European Union. At the same time, it is important to note that, in addition to positive changes, negative changes should not be strengthened (for example, the deterioration of the health status of forests, exploitation) in the coming period, hindering the future dynamic development of Hungarian forestry.

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## **POLICY EVALUATION ON SECURITY TREATY (THE LOMBOK TREATY) BETWEEN REPUBLIC OF INDONESIA AND AUSTRALIA**

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### **ABSTRACT**

Bilateral cooperation on security treaty and other treaties in any form must be based upon trust among parties involved. The inter-trusted sense will be easier to be developed if those parties having some similarities especially in their cultural dimensions. On the contrary, if the two countries having significant differences, such as culture, history, level of social development, economic and technological developments it would be difficult to build the sense of trust and respect with each other. The study on the entire focus of research used a qualitative approach, through in-depth-interview techniques and documentation of secondary data in the data collection process. Then the data were analyzed using the interactive model. So, policy implementation performance in the form of bilateral cooperation between heterogeneous countries in many aspects will be determined by answering the question to what extent is one country's people able to perceive positively toward the other country's people. The result of this research are; first, the process of drafting the bilateral security cooperation policy that produces a particular product policy, influenced by three factors such as: the policy base used in the process of drafting the policy, actors involved in the process of developing policy, and bargaining positions of related country upon other countries. Second, the success of bilateral security policy process determined by the perspectives or meaning that is given to the policy substance and the role of actors. Third, The impact of the bilateral security policy against a country not only military security, but also non-military security.

### **KEY WORDS**

Bilateral cooperation, security treaty, policy evaluation, Indonesia, Australia, Lombok.

According to Keating (2000) when New Order Administration assume in power over the Old Order Soekarno administration was the most advantageous moment to Australia post the 2<sup>nd</sup> World War. Without the emergence of Indonesian administration that's more focus on social economic development and commit to create cooperation with neighboring countries in Southeast Asian region, Australia would face three decades with full of threat, uncertain, and would certainly expending budget for the development of its defense capacity.

These reasons become basic consideration of Australia to build a kind and close cooperation with Indonesia. But in this relation, there are some issues especially related to misunderstanding, such as different perception among them, including Australia suspects upon Indonesia as national threat due to the Indonesian foreign policy in the past that was confrontational. According to Evans (1993), problems of that relations was due to the lack of balance point that hold the relation in stable condition. For him, these balance power must be at various level both intra government, non government organization, as well as intra community between the two states. In this relation, he assumes that these levels can build networking which if one of the networks is facing problem, another network is able to unite both countries while problematic level is being fixed.

According to William (2001), in the interest to keep a balance policy and to avoid excessive strategic alliance with world super power, Indonesia always claims as non US

coalition. Then, in December 1995 Indonesia tied formal security agreement with Australia. On the initial perspective of Indonesia, having an agreement with Australia was a constructive movement of its foreign policy by considering a couple of main reason; first, such agreement gives an alternative way to Indonesia in expanding its security and foreign policy, out of ASEAN tradition and without directly involved in super power competition. Secondly, it signaled to China that Indonesia could and would intensify its maritime security network to prevent what is considered by Indonesia to be hegemonic tendency in major sea shore and islands in Southeast Asia. Thirdly, the agreement is beneficial as confidence building measurement to convince Australia that Indonesia is not expansionist threat from Southeast Asia region as well as Southwestern Pacific (to Papua New Guinea). Fourthly, by affiliating to one of the US closest security alliances in the Asia-Pacific, the treaty uplifted Indonesia closer to US security network without necessarily enter strategic alliance with US formally.

The collapse of the Twin Tower of the World Trade Center (WTC), New York and the attack of Pentagon, the headquarters of the United States Department of Defense, in September 11, 2001, terrorism issues was since then considered to be a very important of the international agenda. The terrorism attack regenerate a change of paradigm change on security and national threat especially to US and its alliance countries. Since the 9/11 attacks the cooperation between Indonesia-Australia against global terrorism was initiated for the first time and agreed upon a Memorandum of Understanding on Combating International Terrorism. The MoU was a common action done by the two parties to follow up on the US foreign policy against terrorism. In the MoU stated that both countries could share intelligence information exchange in the effort to prevent, eradicate and fight against international terrorism.

Terrorism issue amounted to its peak following the 2002 Bali bombing on October and resulted a negative image from international community to Indonesia that was assumed as 'a terrorist nest.' In order to counter such international assumption, Indonesian government attempt to build and to create the role of Indonesian community in various international cooperation that was oriented to achieve national interest to rebuild its image and achieve the international trust.

During first period of Susilo Bambang Yudoyono administration October 2004 to 2009, Indonesia and Australia relations indicated that a good relations between the countries will be formed. This condition based on some reasons, such as a close personal relation between the two leaders, there had been discussion with Australian government before his presidency. Beside, there were some good points owned by Susilo Bambang Yudoyono that convince Australia to think positively about Indonesia. Due to this close and influential relationship of Indonesia and Australia, in 2005 the Prime Minister John Howard stated that: "Australia's bilateral relationship with Indonesia is a strategically important and very close one covering trade and investment security, intelligence and police cooperation, development cooperation, education and extensive people to people ties". (Angraeni, 2006).

However, some internal challenges remain exist during the period of Susilo Bambang Yudoyono administration. Those challenges include corruption issues, law enforcement and economic growth. Beside, Indonesia has to prevent misunderstanding upon international perception on international terrorism movement that occurred many times in last couple of years in Indonesia. Especially when Bali bombing II on October 1, 2005 causing the deficiency of the international community trust to Indonesia as Indonesia was assumed to be fail in countering terrorism. There were some reasons for the Indonesian government weakness and causing terrorists conducted their actions in Indonesia especially in Bali, such as the weakness on the related law, low level of education, high poverty rates, limited quality and capacity of the state intelligence institution. These four reasons made Indonesia as the most desirable place for terrorists to conduct their operations.

In this relation, during the period of the President SBY administration, terrorism issues became high priority and focusing on the effort to increase contra-terrorism cooperation especially with Australia, implemented by making new contra-terrorism policy to ensure the Indonesian national security (Wise, 2005:44). This new contra-terrorism policy was expected

to be able to conduct harmonious relations between the two countries. One of them was Aviation Security Capacity Building Project that had been signed on March, 2005 (Wise, 2005:74), as an attempt to prevent any access of terrorists into Indonesia via sea and ground channels through border lines.

On 3 – 6 April 2005, a bilateral meeting took place to sign Joint Declaration of Comprehensive Partnership between Indonesia and Australia by President Susilo Bambang Yudhoyono and PM John Howard in Australia. Both countries also agreed to form a new security framework intended to strengthening cooperation in security and supported the policies in various parts of Indonesia. The signing over the treaty of security cooperation framework done on November 13, 2006 known as the Lombok Treaty, the name originated where the event done, i.e. Lombok-West Nusa Tenggara. The document of treaty covered wide range of fields such as defense, law enforcement, terrorism eradication, intelligence cooperation, maritime cooperation, aviation safety and security, weapon of mass destruction deployment, natural disaster search and rescue, and people to people link. The extent to the policy implementation of bilateral cooperation the Lombok Treaty, and factors that inhibit its implementation are to be focus of this research.

## **THEORETICAL REVIEW**

In the traditional concepts, scientists tend to interpret security as free from all forms of dangerous threats, worries and fears as no physical (militarily) threat condition derived from outside. Lippmann (1943) summed up this tendency by stating: "a nation is secured to extend to which it is not in danger of having to sacrifice core values, if it wishes to avoid war, and able, if challenged, to maintain them by victory in such war."

Three important characteristics of the traditional security are: first, identifying 'national' as 'state'; second, threat is assumed as derived from outside of the state; and third, deployment of military forces to counter such threats. Wolfers (1952:484) concluded that major problem faced by every state is to build forces to deter or to defeat an attack.

In contrast to the traditional concept, contemporary discourse defines security in an inflexible manner and easy by including elements and perspectives of non military, but refers to all dimensions that determine state existence, including attempt to strengthening internal security through nation-building, food sufficiency, health facility, finance and trade, as well as nuclear weapon development. In this context, Thomas and Mathews recognize the existence of the non-military threat, but they do not fully leave tradition that assume a state as the most important entity. Their contributions lied particularly on security scope that no more limited on the military dimension. As a consequence of contemporary concept on security, the following terms come out such as; environmental security, food security, energy security, economic security, and human security, which showing that social and/or political entities could encounter threat in various fields of life.

The threat could be derived from foreign as well as domestic, such as transnational threat which is an outside threat but be able to resonate domestically. Principally, this threat is derived from outside state border, but it can create serious problem in the national state territory. Transnational threat could threaten the security component that exist in a country, such as threatening ideational and institutional.

The common ground between contemporary discourse and traditional on the security concept is state adequateness. The government as a representative of the society to implement state policy have to fulfill that adequate staleness element, especially how to keep the balance between coercive capacity, infrastructural power and unconditional legitimacy.

Source of threat against national security becomes wider in scope, not only covering the internal and/or external threat but also global threat without being classified as internal or external threat. In line with it, nature of threat has also been changing to be multidimensional. Threat becomes plural and cannot be limited as military threat, ideological, political, economic and cultural threats. Similar to military threat, ideological or political threats can emerge in variety of forms, such as certain pressure to change the objectives, form or structure of its political institution. In its most extreme form, political threat occurs especially if

there are differences in organizing principle among antagonistic states. For example, what Libya and Syria did toward some moderate government in Middle East such as Lebanon and Jordan, and America did against radical regimes in Latin America and Caribbean such as Cuba, Chile, Guatemala and Haiti. In softer form, political requirement that accompany all assistances bilaterally and multilaterally, can also be categorized as political threat. The more important of external threat is economic that sometime difficult to be defined clearly, because it seems ambiguous, non cross-boundary criteria and also at the same time does not meet the criteria to use the power.

What now days known as 'domestic security' can reach out to wider spectrum, starting from poverty, epidemic and natural disaster, social riots, criminals, inter-community clashes, armed separatist movement to armed insurgency. On the other hand, disturbance that occurs due to social gap could be assumed as serious threat toward human security, without to be the threat against the functioning of state government institutions and not a threat toward territorial integrity. Separatist movement that differ from armed insurgency is a direct threat relates to territorial integrity and the functioning of state government institutions.

Capacity to encounter dynamic global threat not only based on military capacity, but also the capacity of other element of national power, including government capacity to overcome them. Related government apparatus have responsibility to keep security, while military responsible to formulate things relate to defend tactic and operation. Certain threat must be encountered by instruments that appropriate, effective, efficient, and free from social dislocation, economic, political and ideological. The consideration on historical, geographical, ideological and contemporary political development must also be included into this calculation. The dynamics of relation between countries in economic dimension are not totally abolish the relevant context of geostrategic politics. As an archipelagic country like Indonesia, protecting national security is great endeavor to protect and to defend its maritime sovereignty with all existing resources. Sea line of communication, sovereignty of exclusive economic zone, and sovereignty over sea resources is as important as them in the ground. At strategic level, to defend from threat and existing challenges is to identify that challenge realistically. For the near future security over internal threat would still dominate the strategic thought in Indonesia. Due to social pluralism, economic disparities and regional disparities make national building and state building become serious problems. Indonesia is a political entity (a country) that is built on the foundation of plurality.

In the interdependency among nations, a state can not secure itself by threatening others. In order to actualize the same, the concept shifted from "security against" into "security with." What have been known as cooperative security, confidence building measures, and preventive diplomacy done bilaterally, globally as well as multilaterally is part of the efforts to answer this issue.

Essentially, partnership is a relation between two parties or more to achieve the objective. According to Teece (1992), partnership is "a formal cooperation among individuals, groups or organizations to achieve a certain goal or task". A good partnership is capable to get benefit or value added to those who conduct a cooperation, or in other word it can achieve a win-win solution." Value-added is not only in the forms of natural physics but also in the forms of increasing service capacity, (such as: education, training, manpower employment), increasing access, likes social cooperation, economic, education, security among cooperated states etc.

Basically, every country will face a limited territory because every country has geographical border recognized by all nations. It means that relation among nations prohibit one state to occupy over other state's territory. Limited territory leads every state devoting its own resources to increase the citizen welfare. It tends to strengthen itself by any means necessary such as economic, military-politic, and origin because of the assumption that foreign state can be a threat at anytime.

Linton (1995) argued some considerations that one state must cooperate with others, it is: "to achieve goals of common welfare (economic welfares, social, and maintaining common security) because some parties can not achieve them by themselves. Limited Resources (physical geography, social, economic) owned by each parties forcing to share

their resources by cooperate to each other. Partnership is not always intended to achieve a joint objectives, but can also have different objectives. The most important meaning of the partnership is sharing resources and mutually beneficial.

According to Eisler, Rione & Montuori (2001) there are several cooperation relationship model, first, domination relationship; it means the first party dominates the second one in carrying out the relationship. Second, subordination relationship, it means the second party control the first one, or the second party deliberately put themselves under the control of the first party in carrying out the relationship; and thirdly, partnership relationship, it means the first and second party are in the equal level where they resting on the trust, cooperation and respect each other.

Based on that explanation, theoretically the security cooperation between the Republic of Indonesia and Australia should be able to provide benefits on both sides in the aspects of politic, security, social and culture etc. Cooperation in the field of security based on background of resources and national interests between Indonesia-Australia will be able to meet the common interest, for example in the form of maintaining stability of the regional security, avoiding conflicts between the countries as well as a feeling of mutual respect in the aspects of defense and security. The cooperation not only provides benefits in the form of material, for example: the development of physical infrastructure and military weapons, but can also be in the form of capacity building, such as: improvement of bilateral relations, the improvement of the security service, courses, training, joint exercises that can be mutually beneficial (mutual benefit) to both parties.

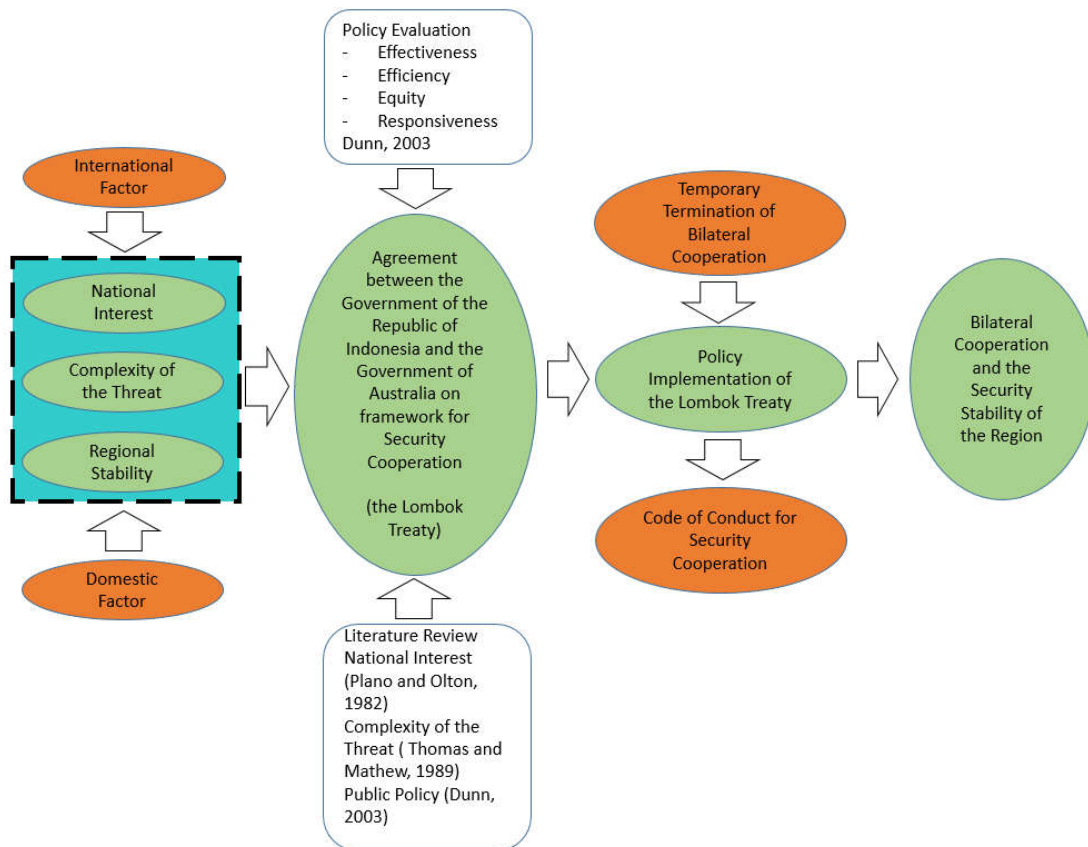


Figure 1 – Conceptual framework.

In addition to the theories related to defense and security, the study also deals with the analysis of public policy, because the Lombok Treaty is a policy product of the two countries, Indonesia and Australia. Researchers combine several theories of public policies, especially those related to public policy implementation model. Variables used by writer from the results of policy implementation model synthesis which is top-down, bottom-up, as well as other

variables in which the most dominant in the process of implementation of public policy, they are: (a) actor or organization of the policy implementer; (b) the mechanism or working relationship between implementer organization; and (c) environmental or policy implementation arena.

According to Winarno, actors in the process of policy formulation can be divided into two groups; they are official and non-official actors. (Winarno, 2002). Actors included as official are government agents (bureaucracy) executive (President, Governor, Mayor), legislature and judiciary. While those involving in non official including supporting groups, political parties and citizens of the state, expert planner as well as other individual. The organizational structure analysis use the organizational structure model of analysis, where the implementer organization were grouped into four groups, they are: (a) vertical approaches, (b) horizontal approaches, (c) assistance structure approaches, and (d) lead agency structure approaches. Analysis of the policy implementation environment using environment synthetic theory model of Nugroho and Van Waarden, such as: (1) history, (2) politic, (3) defense and security, (4) financial ability/economic, (5) governmental administration, (6) national technology ability, (7) natural resources, (8) social and cultural (9) nature and weather, (10) other policy. All selected aspects are considered relevant to the issue of this research, and conceptually can be described below.

## METHODS OF RESEARCH

The study on the entire focus of research used a qualitative approach, through in-depth-interview techniques and documentation of secondary data in the data collection process. Then the data were analyzed using the interactive model (miles, et al., 2014), with the component of data analysis consisting: data collection, condensation data, display data, and conclusions. Through the use of this method, researcher formulates a theoretically proposition data based, and also empirical model of the defense cooperation implementation process 'The Lombok Treaty'.

## RESULTS AND DISCUSSION

*The Process of Security Cooperation Policy (The Lombok Treaty) Framework Formulation.* The core policy that were used in preparing The Lombok Treaty, the first is foreign policy; a set of policy or any decision of the country to set the relationships with other countries by referring to the national interest of the concerning state. For Indonesia, foreign policy is policy, attitude and a step of the government of Indonesia taken for the purpose of building a relation with other country, international organization and any subject of international law to achieve national goals. So, Indonesian foreign politic is nothing but part of national politic described from the national intention and Indonesia national goals.

The second base is a common principles owned by Indonesia and Australia to see that regional cooperation or international level is the way to increase national and regional security as well as the purpose of United Nation in achieving world peace, especially peace in the zones of Asian region (Moertopo, 1974) .

The other base is a commitment to sovereignty, unity, independence and integrity of the territorial between the two countries to stay stable in Asia Pacific region, as well as the commitment not to be meddled in other country domestic affairs. Actually, the cooperation between Indonesia and Australia has been lasted since 1968, then the cooperation was set out to be Indonesia-Australia Defense Cooperation Program (DCP). The DPC establishes yearly regular meeting program and a routine joint military training between the two countries.

The fourth base is each country national interest. The Lombok Treaty mentioned one of the national interests such as the interest to eradicate security threat, whether they are in the sense of traditional or non-traditional threat. In this relation, the two countries need to increase their own capacity.

During the period of president SBY, the Joint Declaration on Comprehensive Partnership between the Republic of Indonesia and Australia was initiated. This declaration mentioned that the two countries have a commitment to enhance cooperation in the economic and technical sector, security cooperation, as well as to increase interaction between the societies. This declaration also mentioned the importance of cooperation to crack down terrorism that become the mutual concern, especially after the incident of the first Bali bombing in 2002. To this purpose, both countries have agreed to conduct cooperation in order to increase police capabilities, intelligence information exchange, and also cooperation in the immigration and customs. In addition, commitment to conduct close cooperation in the sector of maritime and maintain the security of sea area also become the main priority in respond to transnational crime threat which was commonly committed by sea transportation.

If we analyze a security agreement of the Lombok Treaty with the theory of neorealism, then we can also get the meaning of the security agreement of Lombok Treaty. Neorealism is the improvement of the realism theory, that perceiving the international relations as anarchy and positioning the country as the actor but not the main actor. According to neorealism, the main actor is international system. But not forever neorealist use the anarchy way in retaining its power. They use institution to gain the power. To achieve the power, neorealist people explained that all of the state must be associated with relative gains resulting from the efforts of agreement and international cooperation. In carrying out this cooperation, the neorealist applying zero sum system that include definition of agreement or treaty must give an advantage for neorealist people.

The role of actors in the implementation of policy is very important and is a key to the success of the policy. Holsti explained that the formulation of foreign purpose can not be separated from the role of actors in formulating them. Holsti also stated in order to understand a foreign policy as a whole, we need to put ourselves as policy makers and try to identify the objectives and interests, also understanding why policy makers choosing this various strategies and action to preserve or otherwise changing the situation. Policy and the other actors behavior (the policies and actions of other states) refers to the response or reaction from other countries upon the country in problem. For example of this case, in addition to Indonesia and Australia, is there another country that is actively participate or at least giving a respond to the Lombok Treaty security cooperation.

The role of actors for the policy implementation of The Lombok Treaty could also be analyzed from Edward III (1980) policy implementation model. According to Edward III, when bureaucratic structure is not conducive to the policy, it will cause the resources to be ineffective and impeded the implementation of policy. This bureaucratic structure includes some aspects, such as: organizational structure, division of authority, the relationship between units of related organization, and so the organizational relationship with other organization etc. Bureaucratic structure includes fragmentation dimension and standard operational procedure that will ease and homogenize the action of those responsible for implementation of the policy and carry out the related field. This dimension asserts that fragmented bureaucratic structure can increase the failure of the communication. In other words, fragmented organization will experience distortion in implementing the policy. In the context of implementation process of the Lombok Treaty, bureaucratic structure is elaborated in the authority of each institution of the two countries, namely foreign ministry, defense ministry, and other ministry related to the implementation of The Lombok Treaty. Coordination and communication inter institutions determined by each ministry of foreign affairs of the country, which serves as leading sector in any process of program implementation.

Policy implementation of The Lombok Treaty, obtained significant support from certain institutions such as:

- Defense Ministry, prepared an agenda of action plan to improve the quality of human resources in the field of diplomacy, i.e. in the form of modern management application, sending personnel to participate in various regional and international forum;

- Defense Ministry in cooperation with the ministry of State Owned Enterprises (SOE) undertaking efforts to revitalize defense industry. The Defense Ministry push the Ministry of Finance to give incentives made specifically for national defense industry who actively contributed for the modernization of defense equipment. The defense Ministry is also in collaboration with other government agencies to modernize its defense equipment's, such as: Lapan, PT. Len industry, PT Pindad, PT PAL, and PT Dahana etc.
- Defense Ministry involving academicians community from various colleges to implement an evaluation on defense diplomacy, and fully handle the Defense Attaché affairs that has been managed by BAIS TNI in order to optimize the defense diplomacy;
- Defense Ministry along with TNI headquarters, Army headquarters, Navy Headquarters and Air Force headquarters conducting close coordination to evaluate Defense Ministry-TNI internally in relation to defense cooperation that had been interwoven with other countries, issued blueprints of defense diplomacy after going through the process of drafting that involve all stakeholders of defense diplomacy; and promote the formation of Central Diplomacy of National Defense which is under the Defense Ministry as an organization to develop the concept of Indonesian defense diplomacy;
- Defense Ministry and TNI headquarter conducting evaluation of the defense cooperation performance especially to optimize defense cooperation in the border area according to the intelligence, operations and exercise, personnel and logistics.

The role of the defense ministry capacity in the process of the Lombok Treaty implementation can be explained from the perspective of Ripley and Franklin (1982), stating that the success of policy implementation determined by three factors:

- Compliance from street level bureaucrats to their superior in the operationalization program on the Defense Ministry, so that The Lombok Treaty terms can be implemented relatively right;
- Consistence in routine and absence of problems, either in coordination and communication between the Defense Ministry and the Ministry of Foreign Affairs and the other related ministry;
- Satisfactory to the performance of the Ministry, as predicted by the Indonesian government and Australia.

*Factors that inhabit the process of the Lombok Treaty implementation are:*

- The quality of human resources that are low, especially from Indonesia, not only in relation to the ability of mastery a foreign language, but also academic ability to support the establishment of the defense diplomacy purpose. Consequently, it's often that Indonesia to be in unfavorable position of the defense diplomacy, and facing difficulties to propose any new developments in the innovative multilateral defense cooperation;
- Limited standard of defense equipment, so that the cooperation program in the field of operations and exercise has not yet been optimized, and also affect the testing of equipment ability that involve an advance scenarios in joint exercises with other countries.

The impediment factors can be explained in the theory of strategic asymmetry. Strategic asymmetry makes cross-border cooperation in the security field became increasingly difficult, because of differences in each country, for example demography and military differences. The difference in the level of education, technology, and also homogeneity and the regional heterogeneity is also become the influencing factors to persistence of cooperation between the countries. (Singh, 2002, Metz, 2001). When Australia use its superiority, ability, and technology to affirm the superiority over Indonesia, so strategic asymmetry between Indonesia and Australia is in the positive dimension. On the contrary, when Australia use its superiority to give threats and to disturb Indonesia, then strategic asymmetry is in the negative dimension. Australian military training cooperation for



the Indonesian military personnel is superiority in positive dimension. But, the Australian policy in some cases such as turn-back boat policy to the water area and violating the boundaries of Indonesia is strategic asymmetry in negative dimension.

*Implementation Model of Indonesia-Australia Bilateral Defense Cooperation.* The implementation of Lombok Treaty has not been going effectively, as there are many impediment factors. First, the differences in the interests of between Indonesia and Australia. Among the ten points of Lombok Treaty that had been approved by the two countries, not all of them constitute the interests of each country. Indonesia has interest in several points of the treaty, while Australia also has interest by themselves in several other points of the treaty. As a consequence of the distinction on interests, the focus of each country in implementing the security cooperation agreement can not be fully optimized.

The second factor, the opposite perception between Indonesia and Australia. A cooperation can be successfully implemented if the parties involved having the same perception. In the context of relations between Indonesia and Australia, the perception between the two countries is difference. In fact, the perception between them is mutually incompatible.

The third factor, the asymmetry in the strategic force. Inequalities between Indonesian strategic forces and Australian strategic forces. According to research, the Australian strategic forces is superior compared strategic forces owned by Indonesia. A country with its superiority upon the strategic forces would tend to devalue the commitment of cooperation with other countries with the lower forces. A country having superiority on the strategic forces is likely more courageous to violate the cooperation agreement. In this relation, Australia more likely to be bold to violate the cooperation commitment of the Lombok Treaty, i.e. by tapping, violation of the boundaries, and issues related to immigrants without documents.

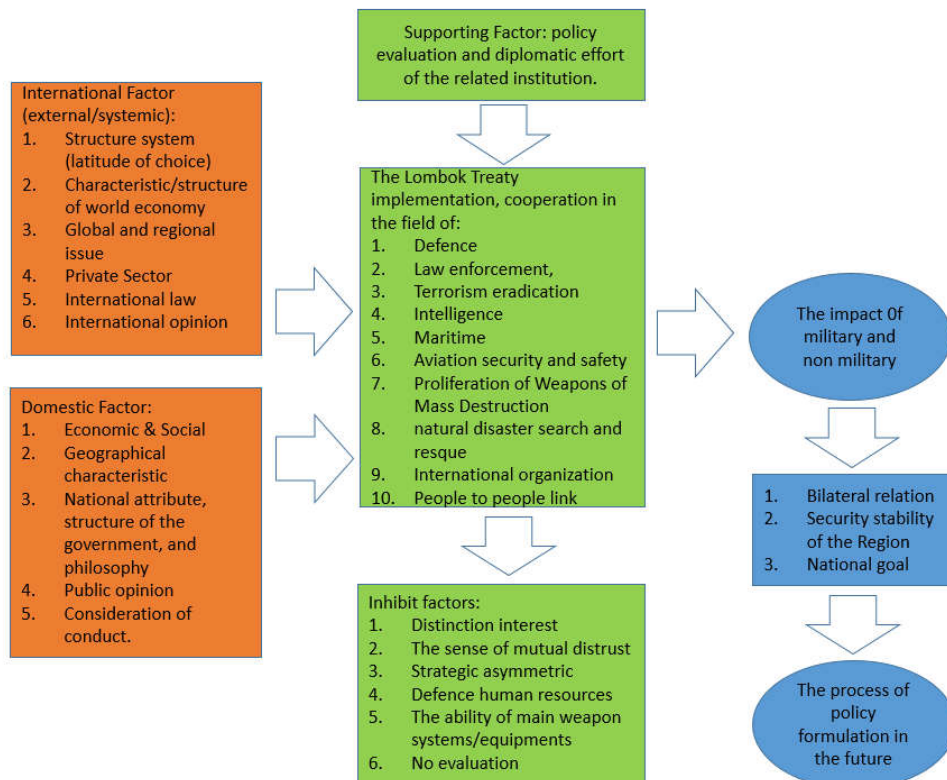


Figure 2 – Model of recommendation in the policy implementation of bilateral security cooperation Indonesia-Australia.

Based on the analysis of external factors, or factors coming from outside the state, researcher consider two most dominant external factors that influence the decision of

Indonesia to sign the Lombok Treaty, they are: first, global and regional issues, such as terrorism, global warming, cross country security, and also the nuclear issue. But, the most significant issue for the security of Indonesia and Australia is terrorism. Second, the role and policy of other countries, in this matter, Chinese position was very drastic in economic resurrection, political influence, and also military power. This clearly initiate Indonesia and Australia at that time to prepare the defense and security as well as counteracting of any possibilities of worse scenario by Chinese. The rise of China to expand its hegemony in Asia can be seen by the addition of the quality and quantity of military power, increasing Chinese influence in Southeast Asia and Asia Pacific as counterbalance to the presence of US power in the area.

The other external factor like international economic factor at the time that could be considered of being stable, not exerting any significant influence for Indonesia to sign this Lombok Treaty. In other words, International economic condition were not really encouraged Indonesia to sign the Lombok Treaty. International public opinion wasn't also in significant effect on the policy to sign the Lombok Treaty. Public opinion was actually tend to be negative and pessimistic in respond to the Lombok Treaty, but the government of Indonesia decided to sign the treaty and even ratifying the Lombok Treaty in 2007.

Researcher analysis based on the empirical data in the field and theoretical analysis, the weakness of the Lombok Treaty implementation is the lack of attention on the emphasis of impact aspect. The impact of the treaty can be seen empirically to be the impact on military and nonmilitary, however, impact on nonmilitary security become one thing that were excluded from the implementation process.

## **CONCLUSION AND RECOMMENDATIONS**

Based on the analysis and discussion that have been outlined in the earlier chapter, the conclusions can be drawn as follows:

- The process of drafting the bilateral security cooperation policy that produces a particular product policy, influenced by three factors such as: the policy base used in the process of drafting the policy, actors involved in the process of developing policy, and bargaining positions of related country upon other countries. Above these three factors, the aspect of national interest of the country which is included in the factor of policy base is a dominant factor that affects the formulation of bilateral security cooperation policy.
- The success of bilateral security policy process determined by the perspectives or meaning that is given to the policy substance and the role of actors, also to the forces that support and inhibit the process of policy implementation. Among the aforementioned factors, subjective factor which is a perception or meaning given to the state more dominant in influencing the success of policy implementation compared to the other factors.

Every actor involved in the implementation process of bilateral security policy impacted on the success of the sectors included in the cooperation. All related actors give meaning to the sectors included in the cooperation, in the sense of favorable to its national interests. While factors that support the policy implementation, especially the policy context that include three elements: power, interest and strategies of actors involved, because each country has the strategy, sources and authority position that determine the success of policy implementation.

The other aspect are compliance and responsiveness, its how the country being responsive to each interests and also to the aspects that can inhibit the achievement of policy goal. Factors that may inhibit are: low quality of human resources, limited ability of weapons/equipment, and the absence of comprehensive evaluation upon the policy implementation that has been experienced or previous cooperation. However, the main inhibit factor is come from other than policy; it is the problem from suspicion of each other and the existence of strategic asymmetry.

The impact of the bilateral security policy against a country not only for military security, but also non-military security. In those two factors, the effects can be positive and negative. If the impact is interpreted as an adverse impact to national interests of participating states, then the country tend to stop the process of policy implementation, both unilaterally and on the basis of the agreement. While the impact on military and non-military security will be positive if considering these three factors, first, the implementation of the policy is significantly beneficial to strategic interest of two countries, not only beneficial or adverse to one of related parties; second, must be based on the spirit of partnership that equal to each other, not superior and lower or superior and inferior; third, the two countries should always being proactive and open in the partnership, not the other way around, or what other term call "two faced politic". The three requirement must be expected in order to ensure the sustainability of security cooperation of the two countries in the future.

Based on these conclusion, especially the factors that support and inhibit the process of the Lombok Treaty implementation, the researcher propose some recommendation as follows:

In further examination, the problems that arise mostly caused by the presence of issues that were taken to the political forum and eventually affect the diplomatic ties between the two countries. Because the security cooperation closely follow the politic development of the country, then the rise and fall in the security cooperation of the two countries is actually adhering to the development, not because of direct friction between the two armed forces. There is always possibility for the problems which happened in the past to be repeated in the future. Hence, what problems arose is not to be avoided, but in fact must be faced with the right solution, so that they do not continue to happen in the period of generation to come. For that, it is required an effort from all related parties to avoid the emergence of problem that might be able develop into large problem.

Issues related to the violation of human rights in Papua, and the existence of OPM that could inhibit relationship between the two countries, a dialogue is needed to avoid any dispute from this issue and encourage Australia to realize that there should be a political commitment from Australia not to support any separatist movement in Indonesia.

Addressing significant differences in culture and language can be quelled through some programs such as 'country presentation' in exchange forum and military education between the two countries. With this program, the military personnel of the two countries will gradually understand the advantages and disadvantages of each culture, and respect to each other culture.

Apparent attempt from the two countries military is needed in order to continue establishing defense cooperation based on equal partnership. However, words or theory is not that easy as its practice in the field. For that researcher recommend that active dialogue and communication between military official of the two countries could be improved further in the future. Besides evaluation on the cooperation programs that have been going on so far need to be initiated in order to ensure the cooperation really meets the requirement and enable to improve professionalism of the two countries military.

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## THE AUTOREGRESIVE DISTRIBUTION LAG (ARDL) MODEL TO APPROACH BILATERAL TRADE OF INDONESIA – CHINA

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### ABSTRACT

The main objective of this research is to study the chances and obstacles of bilateral trade of China and Indonesia by using the Autoregressive Distribution Lag (ARDL) model approach. The time series data is used to estimate and evaluate empirical results based on annual data from 1987 to 2014. This is also to test the chances and obstacles of bilateral trade between Indonesia and China. The results show those market size and currency exchange rates are bilateral trade opportunities of Indonesia – China where the factors have significant influence in bilateral trade between Indonesia and China.

### KEY WORDS

ARDL Model, Bilateral Indonesia-China, market, trade.

The growth slowed further from 7.3% in 2014 to 6.9% in 2015, continuing a trend since 2010 as the economy of the People's Republic of China (PRC) shifts further toward a new normal in which domestic consumption and services are the main engines of growth, with the government increasingly focused on growth quality over quantity. Despite growth moderation, the PRC has doubled its GDP since 2009 to reach \$10.8 trillion in 2015, thus continuing to account for about a third of global growth in 2015, which is almost the same as in 2010 when it is then smaller economy was growing by double digits (Nakao, 2016).

On the supply side, rebalancing progressed further toward growth driven by the service sector. Services contributed an estimated 3.7 percentage points to GDP growth, while industry contributed 2.8 points and agriculture 0.3 points. The share of services in nominal GDP increased to 50.5% (Figure 3.9.2). Financial services performed particularly strongly, growth of retail sales remained robust, and the hospitality sector stabilized after 2 lean years in which an anticorruption initiative limited scope for lavish entertainment. Within industry, consumer-oriented manufacturing outperformed heavy industry, which continued to suffer from excess capacity, spillover from an ailing housing sector, and lower commodity prices. Heavy industry was the main factor behind the decline in aggregate industrial profits by 2.3% in 2015 (Nakao, 2016).

On the demand side, consumption was the main growth engine, contributing 4.6 percentage points to GDP growth, up from 3.7 percentage in 2014. Investment contributed 2.5 percentage points, down from 3.4 in 2014, while the contribution of net exports turned negative. The continuing structural slowdown in investment growth was most pronounced in real estate, which suffers from a large housing overhang. The government cushioned the correction by removing purchase restrictions, improving access to mortgages, relaxing down-payment requirements, and accelerating public housing construction and shantytown redevelopment. Real estate sales grew in recent months and prices increased, even as unsold floor space kept rising (Nakao, 2016).

The GDP share of trade in goods and services has declined over the past decade, even as it has increased in most other Southeast Asian economies. Although Indonesia is a large producer of palm oil, coal, rubber, and coffee, its total exports are less than 2% of global trade in goods and services. This points to the tremendous potential that expanding trade has for boosting demand for Indonesian goods and services, provided that a firm commitment to openness and global competitiveness is maintained. The growing use of nontariff measures such as import and export restrictions, and of state interventions to stabilize domestic commodity markets, ultimately weakens external competitiveness and

should be reconsidered (Nakao, 2016).

Stronger growth is seen for ASEAN. Aggregate growth in the 10 ASEAN economies is forecast to accelerate steadily from 4.4% in 2015 to 4.5% in 2016 and 4.8% in 2017. Growth will be led by Indonesia as it ramps up investment in infrastructure and implements policy reform that spurs private investment. Solid consumption and investment will provide a lift to the Philippine economy. Thailand's recovery is expected to gather momentum, and Viet Nam will sustain vigorous expansion. In contrast, Malaysian growth will slip further with low oil prices and weak external demand (Nakao, 2016). Growth in developing Asia is forecast to dip slightly. Gross domestic product (GDP) in the region will expand by 5.7% in 2016 and 2017, decelerating from 5.9% in 2015 in a difficult and uncertain global environment. Solid growth in India and a pickup in aggregate growth in the Association of Southeast Asian Nations (ASEAN) will help balance continued growth moderation in the People's Republic of China (PRC). Despite the slight dip, the region will contribute around 60% of global growth in the next 2 years, close to its contribution in the past 5 years (Nakao, 2016).

Indonesia and China have long established bilateral trade relations as a comparison of economic research. This is not only the cause of the two countries which is very popular in the world, but also adopted the differences in the development model undertaken. New economists have recently been interested in comparing major developments to compare giant economic developments due to spectacular economic growth performance in recent years. Furthermore, their economic growth increases significantly from the economic and political side. The authors are interested in institutional arrangements, which are capable of influencing economic performance in both countries.

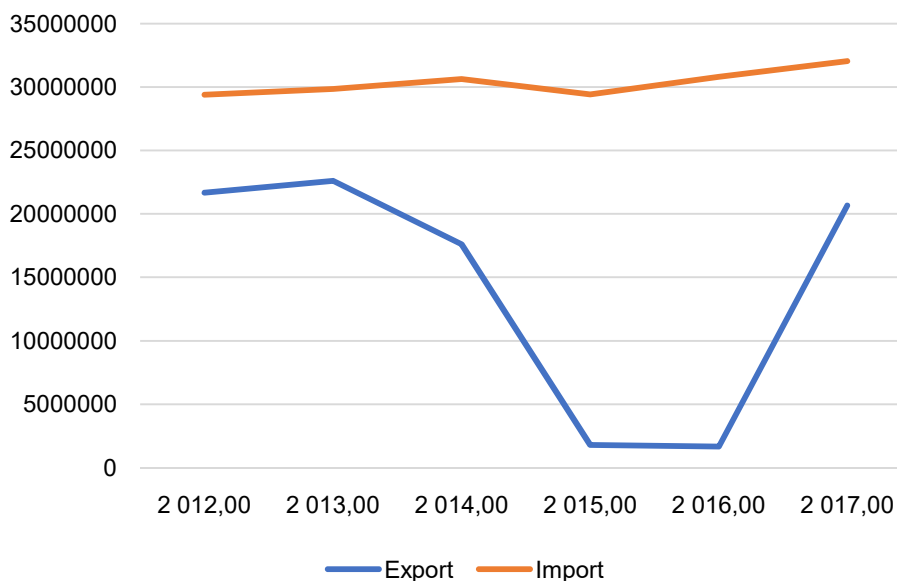


Figure 1 – Export-Import Activities of Indonesia – China

Figure 1 shows that Indonesia's exports to China are smaller than Chinese imports to Indonesia (Indonesian imports from China). This means that China, which has the world's largest population, is the market for Indonesian goods. In contrast, Indonesia's large GDP is a market for goods produced by China.

The purpose of this study is to examine the trend of bilateral trade between the two countries at this time and to apply future economic and trade cooperation between the two economies. This paper will add literature to the comparison of the two economies. Furthermore, it deals with economic analysis, to see the benefits in comparing bilateral trade co-operation between the two economic explorations.

This study uses time series data on bilateral relations between Indonesia and China, as well as to analyze bilateral trade opportunities and barriers. Opportunities and obstacles can be seen from the variables used such as market size and exchange rate.



## THEORY AND HYPOTHESIS

Trade flows between countries depend on a number of factors. Bilateral trade flows between two countries are assumed to be proportional to the level of their GDP. The GDP takes into account the fact that higher income economies tend to be more interested in product differentiation and specialization, thus they trade more (Fujimura & Edmonds, 2006).

Smith made a strong case for free trade by his example of absolute advantages. However, one question continued to puzzle thinkers: What if a country does not have an absolute advantage? David Ricardo in 1817 proposed what is known as the theory of comparative advantages to explain how trade can benefit countries even if they do not have an absolute advantage (Bjornskov, 2005). Now, country A has an absolute advantage in producing both products. A worker takes two hours to produce a cell phone compared to four hours in country B, and eight hours to produce a tonne of potato chips compared to ten hours in country B. The puzzle was that according to the theory of absolute advantages, country A should specialize in both products. That would leave country B with no means to pay for imports from country A, which in turn would stop all trade between the two countries. However, Ricardo saw the possibility of arbitrage – that it would pay for a trader to buy a product in one country, sell it in the other country, use his profits to buy a product in that country and bring it home to his own country where he could sell what he bought in the other country with a profit (Bjornskov, 2005).

A country has an absolute advantage in producing a good over another country if it uses fewer resources to produce that good. Absolute advantage can be the result of a country's natural endowment. For example, extracting oil in Saudi Arabia is pretty much just a matter of "drilling a hole." Producing oil in other countries can require considerable exploration and costly technologies for drilling and extraction—if indeed they have any oil at all. The United States has some of the richest farmland in the world, making it easier to grow corn and wheat than in many other countries. Guatemala and Colombia have climates especially suited for growing coffee. Chile and Zambia have some of the world's richest copper mines. As some have argued, "geography is destiny." Chile will provide copper and Guatemala will produce coffee, and they will trade. When each country has a product others need and it can be produced with fewer resources in one country over another, then it is easy to imagine all parties benefitting from trade. However, thinking about trade just in terms of geography and absolute advantage is incomplete. Trade really occurs because of comparative advantage (Taylor et al., 2014).

Welcome to Economics! defined specialization as it applies to workers and firms. Specialization is also used to describe the occurrence when a country shifts resources to focus on producing a good that offers comparative advantage.) Similarly, if Saudi Arabia can trade an amount of oil less than 60 barrels and receive in exchange an amount of corn greater than 10 bushels, it will have more of both goods than it did before specialization and trade (Taylor et al., 2014).

The underlying reason why trade benefits both sides is rooted in the concept of opportunity cost, as the following Clear It Up feature explains. If Saudi Arabia wishes to expand domestic production of corn in a world without international trade, then based on its opportunity costs it must give up four barrels of oil for every one additional bushel of corn. If Saudi Arabia could find a way to give up less than four barrels of oil for an additional bushel of corn (or equivalently, to receive more than one bushel of corn for four barrels of oil), it would be better off (Taylor et al., 2014).

David Ricardo argued that if each country specializes in its comparative advantage, it will benefit from trade, and total global output will increase. How can we show gains from trade as a result of comparative advantage and specialization? shows the output assuming that each country specializes in its comparative advantage and produces no other good. This is 100% specialization. Specialization leads to an increase in total world production (Taylor et al., 2014).

In small open economies like Ghana, external trade is an integral component of the nation's growth and development agenda. Consequently, the promotion of foreign trade has

been central to all government policies since 1956. Akin to other developing economies, particularly in Africa, Ghana's exports are traditionally dominated by a few primary products, namely, cocoa, timber, and unprocessed mineral resources (gold, diamond, bauxite and manganese), whilst imports are dominated by capital goods (such as machinery, transport equipment, chemicals and other intermediate inputs), foodstuffs, and fuels. Owing to the persistent decline in foreign exchange earnings from the principal exports, mainly due to sectoral and market constraints (Buatsi, 2002), the non-traditional exports sector has been accorded an unparalleled attention in attaining economic growth and development since 1986. As part of the external sector reforms implemented under the Economic Recovery Program (ERP) and Structural Adjustment Policy (SAP), the trade restrictive, import-substitution development strategy of the 1960s and 1970s was gradually replaced by a more liberalized, outward oriented and export-led growth strategy, with serious governmental efforts towards diversifying and broadening Ghana's export base into non-traditional items like pineapples, yams, handicrafts, canned and smoked fish, processed foods, and wood products etc. The openness of Ghana's external sector, as measured by the share of export plus imports in GDP, has been rising since 1982 from 0.06 in 1982 to 0.46 in 1992, to 116 in 2000 and then to 0.703 in 2010. However, it has not succeeded in spurring exports growth over the growth in imports, leaving the balance of trade in deficits for most of the years between 1982 and 2010 (Bonuedi, 2013).

GDP is defined as the current value of all final goods and services produced in a nation in a year. What are final goods? They are goods at the furthest stage of production at the end of a year. Statisticians who calculate GDP must avoid the mistake of double counting, in which output is counted more than once as it travels through the stages of production. For example, imagine what would happen if government statisticians first counted the value of tires produced by a tire manufacturer, and then counted the value of a new truck sold by an automaker that contains those tires. In this example, the value of the tires would have been counted twice—because the price of the truck includes the value of the tires (Taylor et al., 2014).

Gross Domestic Product (GDP) is defined as the market value of all finished goods and services produced in a country during a certain period of time (Jochumzen, 2010).

Note that we only include finished goods and services – that is, anything that is sold directly to the consumer. Electric power sold to a steel mill is not included while all the electric power sold directly to consumers is included. The reason is simply that we want to avoid “double counting”. Consider for example the production of cars. Car producers have parts produced by other firms which in turn have parts delivered by other firms and so on. If we were to count the value of everything produced by a firm, then most parts of a car would be counted several times. This is why only the value of the finished car is used in the calculation of GDP. Note, however, that if a firm buys a robot that it uses in the production of cars, then this robot is counted (if it is produced in the same country). The car producer is then the “final consumer” of the robot – no value is added to it and it is not resold to another firm (Jochumzen, 2010).

GDP includes production that is exchanged in the market, but it does not cover production that is not exchanged in the market. For example, hiring someone to mow your lawn or clean your house is part of GDP, but doing these tasks yourself is not part of GDP. One remarkable change in the U.S. economy in recent decades is that, as of 1970, only about 42% of women participated in the paid labor force. By the second decade of the 2000s, nearly 60% of women participated in the paid labor force according to the Bureau of Labor Statistics. As women are now in the labor force, many of the services they used to produce in the non-market economy like food preparation and child care have shifted to some extent into the market economy, which makes the GDP appear larger even if more services are not actually being consumed (Taylor et al., 2014).

David Ricardo, another English economist, answered that question by his comparative advantage theory which states that “A nation, like a person, gains from trade by exporting the goods or services in which it has its greatest comparative advantage in productivity and importing those in which it has the least comparative advantage” (Lindert, 1991).

Subsequently, a model given by two Swedish economists Eli Hecksher and Bertil Ohlin had extended the D. Ricardo's theory and developed an influential theory of trade. Heckscher-Ohlin model is enhanced from the simple model of D. Ricardo by adding capital and land alongside labor and fundamental factors. As one of the leading theories about the determinants of trade pattern of a nation, Heckscher-Ohlin model predicts that a country will export products of which the production use abundant factors intensively and import products of which the production use scarce factors intensively (Binh, Duog, & Cuog, 2010).

To be able to make reasonable comparisons of GDP over time, we must adjust for inflation. For example, if prices are doubled over one year, then GDP will double even though exactly the same goods and services are produced as the year before. To eliminate the effect of inflation we divide GDP by a price index and we define real GDP as GDP divided by a price index (Jochumzen, 2010).

One of the closest cousins of GDP is the gross national product (GNP). GDP includes only what is produced within a country's borders. GNP adds what is produced by domestic businesses and labor abroad, and subtracts out any payments sent home to other countries by foreign labor and businesses located in the United States. In other words, GNP is based more on the production of citizens and firms of a country, wherever they are located, and GDP is based on what happens within the geographic boundaries of a certain country (Taylor et al., 2014).

It is not very common to use CPI in the construction of real GDP. The reason is that CPI measures the price evolution of consumer goods while GDP includes investment goods as well as consumer goods. Instead, it is common to use a GDP deflator as a price index. The GDP deflator measures the price evolution of a basket whose composition is close to the composition of GDP. The difference between the CPI and the GDP deflator is fairly small however. To avoid confusion, GDP that is not adjusted for inflation is often called nominal GDP (Jochumzen, 2010).

The size of a nation's overall economy is typically measured by its gross domestic product (GDP), which is the value of all final goods and services produced within a country in a given year. The measurement of GDP involves counting up the production of millions of different goods and services—smart phones, cars, music downloads, computers, steel, bananas, college educations, and all other new goods and services produced in the current year—and summing them into a total dollar value (Taylor et al., 2014).

The Macroeconomic Perspective explained how to measure GDP, the challenges of using GDP to compare standards of living, and the difficulty of confusing economic size with distribution. In China's case, for example, China ranks as the second largest global economy, second to only the United States, with Japan being third. But, when we take China's GDP of \$9.2 trillion and divide it by its population of 1.4 billion, then the per capita GDP is only \$6,900, which is significantly lower than that of Japan, at \$38,500, and that of the United States, at \$52,800. Measurement issues aside, it's worth repeating that the goal, then, is to not only increase GDP, but to strive toward increased GDP per capita to increase overall standards of living for individuals. As we have learned from Economic Growth, this can be achieved at the national level by designing policies that increase worker productivity, deepen capital, and advance technology.

GDP per capita also allows us to rank countries into high-, middle-, or low-income groups. Low-income countries are those with \$1,025 per capita GDP per year; middle-income countries have a per capita GDP between \$1,025 and \$12,475; while high-income countries have over \$12,475 per year per capita income (Taylor et al., 2014).

The U.S. economy has the largest GDP in the world, by a considerable amount. The United States is also a populous country; in fact, it is the third largest country by population in the world, although well behind China and India. So is the U.S. economy larger than other countries just because the United States has more people than most other countries, or because the U.S. economy is actually larger on a per-person basis? This question can be answered by calculating a country's GDP per capita; that is, the GDP divided by the population (Taylor et al., 2014).

GDP per capita = GDP/population

GDP has nothing to say about the level of inequality in society. GDP per capita is only an average. When GDP per capita rises by 5%, it could mean that GDP for everyone in the society has risen by 5%, or that of some groups has risen by more while that of others has risen by less—or even declined. GDP also has nothing in particular to say about the amount of variety available. If a family buys 100 loaves of bread in a year, GDP does not care whether they are all white bread, or whether the family can choose from wheat, rye, pumpnickel, and many others—it just looks at whether the total amount spent on bread is the same (Taylor et al., 2014).

Exchange rates eventually move to offset exactly national differences in inflation. If U.S. monetary growth leads to a long-run doubling of the U.S. price level, while Germany's price level remains constant, PPP predicts that the long-run DM price of the dollar will be halved. This nominal exchange rate change leaves the real exchange rate between the dollar and DM unchanged and thus maintains Germany's internal and external balance. In other words, the long-run exchange rate change predicted by PPP is exactly the change that insulates Germany from U.S. inflation. (Krugman & Obstfeld, 2003).

Thailand has the opposite movement in its bilateral trade to Japan: a real exchange rate devaluation shock initially improved then worsened and then improved the trade balance (Onafowora, 2003)

**Real Bilateral Exchange Rate (RBER):** The real bilateral exchange rate is real exchange rate between the Ghana Cedi and the currency of the trading partners. It is thus the price of the Ghana Cedi expressed in terms of the foreign currency of the each trading partner. (Bonuedi, 2013).

The issue gained greater prominence in the economic debate from the 1990s onwards, when sustained deviations of exchange rates from their equilibrium values were suspected, rightly or wrongly, to be at the origin of global current account imbalances. From a macroeconomic point of view, exchange changes can have strong effects on the economy, as they may affect the structure of output and investment, lead to inefficient allocation of domestic absorption and external trade, influence labour market and prices, and alter external accounts. Hence, exchange rate shifts affect international trade both in direct and indirect ways. The indirect links are hard to isolate macro-economically, complex to describe, and empirically hard to test, as they have second, third or fourth round effects. This is why exchange rates are often treated in models as external (exogenous) variables. (Auboin & Ruta, 2011).

The first aspect of the relationship between exchange rates and trade, relates to exchange rate volatility. The basic argument which, increase exchange rate volatility would result lower international trade is risks and transaction costs associated with variability in the exchange rate (Nicita, 2013: 2). On the theoretical side the relationship between higher exchange-rate volatility and international trade transactions have been conducted by Hooper and Kohlhagen (1978). (Lotfalipour & Bazargan, 2014).

Most countries have different currencies, but not all. Sometimes small economies use the currency of an economically larger neighbor. For example, Ecuador, El Salvador, and Panama have decided to dollarize—that is, to use the U.S. dollar as their currency. Sometimes nations share a common currency. A large-scale example of a common currency is the decision by 17 European nations—including some very large economies such as France, Germany, and Italy—to replace their former currencies with the euro. With these exceptions duly noted, most of the international economy takes place in a situation of multiple national currencies in which both people and firms need to convert from one currency to another when selling, buying, hiring, borrowing, traveling, or investing across national borders. The market in which people or firms use one currency to purchase another currency is called the foreign exchange market (Case, Fair, & Oster, 2012), (Taylor et al., 2014).

Exchange rates can sometimes change very swiftly. For example, in the United Kingdom the pound was worth \$2 in U.S. currency in spring 2008, but was worth only \$1.40 in U.S. currency six months later. For firms engaged in international buying, selling, lending,

and borrowing, these swings in exchange rates can have an enormous effect on profits. (Case et al., 2012), (Taylor et al., 2014).

An exchange rate is nothing more than a price—that is, the price of one currency in terms of another currency—and so they can be analyzed with the tools of supply and demand. The first module of this chapter begins with an overview of foreign exchange markets: their size, their main participants, and the vocabulary for discussing movements of exchange rates. The following module uses demand and supply graphs to analyze some of the main factors that cause shifts in exchange rates. A final module then brings the central bank and monetary policy back into the picture. Each country must decide whether to allow its exchange rate to be determined in the market, or have the central bank intervene in the exchange rate market. All the choices for exchange rate policy involve distinctive tradeoffs and risks. (Taylor et al., 2014) (Case et al., 2012).

In *The International Trade and Capital Flows*, for example, we discussed how exchange rates are used to compare GDP statistics from countries where GDP is measured in different currencies. These earlier examples, however, took the actual exchange rate as given, as if it were a fact of nature. In reality, the exchange rate is a price—the price of one currency expressed in terms of units of another currency. The key framework for analyzing prices, whether in this course, any other economics course, in public policy, or business examples, is the operation of supply and demand in markets (Case et al., 2012), (Taylor et al., 2014).

GDP<sub>i</sub> (Gross Domestic Product) of Indonesia effect on bilateral trade of Indonesia-China. The increasing of Indonesia's GDP will affect the rise of bilateral trade between Indonesia and China. The results are supported by the research of (Bonuedi, 2013), (Raudonen & Freytag, 2012), (Dianniar, 2013), (Ghosh, 2003), (Martinez-Zarzoso & Nowak-Lehmann, 2003), (Hermawan, 2011), (Sohn & Yoon, 2001), (Kabir & Salim, 2010), (Zhang & Wang, 2015), (Effendi, 2014), (Binh et al., 2010), (Do, 2006), (Bahmani-Oskooee & Harvey (Khan, Khan, & Others, 2013), (Elshehawy, Shen, & Ahmed, 2014), (Sheriff & Herrera, 2017), (Bahmani-Oskooee, Harvey, & Hegerty, 2017) Fantazy, 2013), (Wang & Badman, 2007).

H<sub>1</sub>: GDP<sub>j</sub> (gross domestic product) of Indonesia exert effect on bilateral trade of Indonesia-China

GDP PER CAPITA<sub>i</sub>, the increasing GDP per capita of Indonesia shows the increasing of purchasing power of Indonesian people, this increase has an effect on bilateral trade of Indonesia-China. The results showed that the research was supported by the research of: (Martinez-Zarzoso & Nowak-Lehmann, 2003), (Sohn & Yoon, 2001), (Sherif & Fantazy, 2013), (Wang & Badman, 2007) (Hunter & Markusen, 1988)

H<sub>2</sub>: GDP PER CAPITA<sub>i</sub>, of China exert effect on bilateral trade of Indonesia-China.

GDP PER CAPITA<sub>j</sub>, increasing GDP per capita of China exert effect on bilateral trade of Indonesia-China. Increasing GDP per capita of China shows the increasing of purchasing power of Chinese people, this increase affects the bilateral trade of China. The results showed that they are supported by the research of: (Martinez-Zarzoso & Nowak-Lehmann, 2003), (Sohn & Yoon, 2001), (Sherif & Fantazy, 2013), (Wang & Badman, 2007) (Hunter & Markusen, 1988).

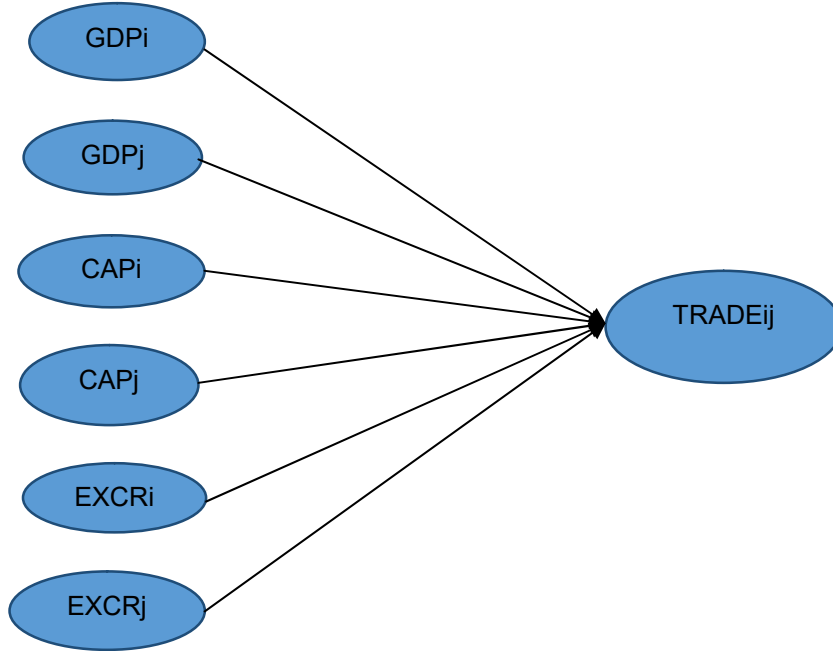
H<sub>3</sub>: GDP PER CAPITA<sub>j</sub> of China exert effect on bilateral trade of Indonesia-China.

EXCR<sub>i</sub> (exchange rate) of IDR to USD effect on bilateral trade Indonesia-China. The ups and downs of the USD against USD rate, will affect Indonesia-China trade. If the exchange rate or IDR against to USD rises, then export to China increases, because the price of exported goods goes up, profit will rise. Conversely, imports from China will decline, as the price of imported goods increases, if it remains imported then the omzet of the importer goes down or loss. Research was conducted by research of: (Binh et al., 2010), (Bonuedi, 2013), (Bahmani-Oskooee & Harvey, 2017), (Wang & Badman, 2007).

H<sub>4</sub>: EXCR<sub>j</sub> (exchange rate) of China or Yuan against USD exert effect on bilateral trade Indonesia China.

### THEORETICAL FRAMEWORK

Theoretical framework that examines the effect of Indonesia's gross domestic product, China's gross domestic product, Indonesia's per capita income, China's per capita income, Exchange rate of Indonesia, exchange rate of China against bilateral trade Indonesia-China is presented in the following figure:



Where:

- GDPi: Gross Domestic Product from Indonesia;
- GDPj: Gross Domestic Product from China;
- CAPi: Income Per Capita from Indonesia;
- CAPj: Income Per Capita from China;
- EXCRi: Exchange Rate from Indonesia;
- EXCRj: Exchange Rate from China.

Figure 2 – Theoretical Framework Research

### METHODS OF RESEARCH

The object used in this study is the financial data of Indonesia and China from 1987 to 2014. The samples are selected by using purposive sampling method. The data in this study are secondary data in the form of international financial statistic reports obtained from the Central Bank of Indonesia.

Jarque–Bera (JB) Test of Normality.<sup>20</sup> The JB test of normality is an asymptotic, or large-sample, test. It is also based on the OLS residuals. This test first computes the skewness and kurtosis measures of the OLS residuals and uses the following test statistic:

$$JB = n \left[ \frac{S^2}{6} + \frac{(K - 3)^2}{24} \right]$$

Where: n = sample size, S = skewness coefficient, and K = kurtosis coefficient. For a normally distributed variable, S = 0 and K = 3. Therefore, the JB test of normality is a test of the joint hypothesis that S and K are 0 and 3, respectively. In that case the value of the JB statistic is expected to be 0. (Gujarati, n.d.). Under the null hypothesis that the residuals are normally distributed, Jarque and Bera showed that asymptotically (i.e., in large samples) the JB statistic given in follows the chi-square distribution with 2 df. If the computed p value of

the JB statistic in an application is sufficiently low, which will happen if the value of the statistic is very different from 0, one can reject the hypothesis that the residuals are normally distributed (Gujarati, n.d.)

In regression analysis involving time series data, if the regression model includes not only the current but also the lagged (past) values of the explanatory variables (the X's), it is called a distributed-lag model. If the model includes one or more lagged values of the dependent variable among its explanatory variables, it is called an autoregressive model.

$$Y_t = \alpha + \beta_0 X_t + \beta_1 X_{t-1} + \beta_2 X_{t-2} + u_t$$

Represents a distributed-lag model, whereas  $Y_t = \alpha + \beta X_t + \gamma Y_{t-1} + u_t$  is an example of an autoregressive model. The latter are also known as dynamic models since they portray the time path of the dependent variable in relation to its past value(s) (Gujarati, n.d.)

### RESULTS OF STUDY

This data processing uses the Autoregressive Distribution Lag (ARDL) model (Gujarati, n.d.) which aims to determine the partial and simultaneous effect on bilateral trade between Indonesia and China. This model aims to know the significance of the market size of Indonesia and China market, the purchasing power of Indonesia and China, the exchange rate of rupiah (IDR) and Yuan against USD, affect the up and down bilateral trade between the two countries. In the implementation of the calculation using the program E-views 9.0. The starting point of the ARDL Model formulation is expressed as a function of the general specifications of Indonesian and Chinese trade. The main components of the model ARDL include market size and exchange rates of each country.

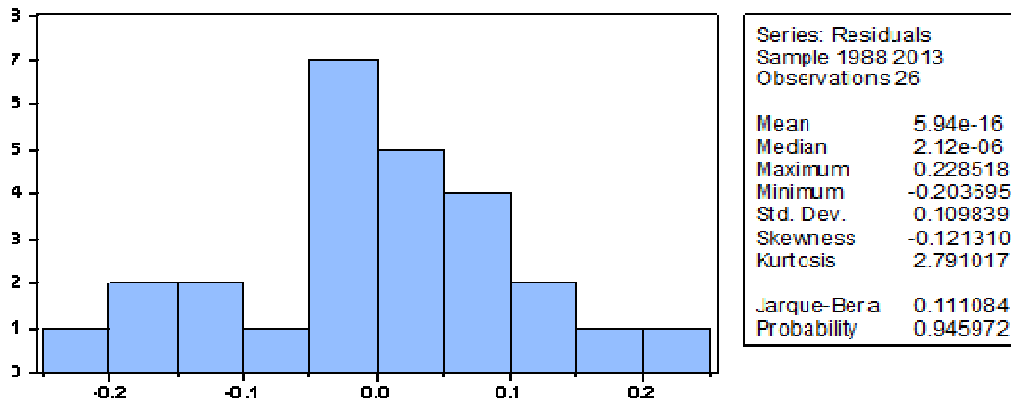


Figure 3 – Normality Test Result

The result of this study is shown in Table 1 and Table 2 below.

The first hypothesis (H1) state that the GDP<sub>i</sub> have a positive influence on the bilateral trade of Indonesia-China.

The size of the market as a key factor for bilateral trade between Indonesia and China means that a large Indonesian market is a market of Chinese manufactured goods exported to Indonesia. The GDP represents the amount of people's purchasing power, which is indicated by the total production of all existing firms in Indonesia, where the company issues funds to purchase raw materials, labor payments to process production, payment of administrative staff, general staff and sales staff. This large market has a very large production scale, so Indonesia needs raw materials, processed products and finished goods that have not been produced in Indonesia, imported from China. The results show that the rise of Indonesia's GDP impacts on Indonesia's trade rise to China significantly at the 5 percent level in the first year and a year earlier. And two years before it was not significant.

The second hypothesis (H2), state that GDP<sub>j</sub>, have a positive influence on the bilateral trade of Indonesia-China. Market size as a key factor for China's bilateral trade means that

China's large market is a market of Indonesian manufactured goods exported to China. Conversely goods produced in China are also exported to Indonesia, because these goods are not produced in Indonesia. The PDBj represents the amount of people's purchasing power, which is indicated by the total production of all existing firms in China, where the company issues funds to purchase raw materials, labor payments to process production, payment of administrative staff, general staff and sales staff. This huge market has a huge production scale, so China needs raw materials, in which processed and finished products that is not yet produced in China, imported from Indonesia. The results show that the national product rising of China on year (-1) may increase China's bilateral trade in Indonesia-China, but it is less significant. The decreasing national product of China on year (-2) may increase Indonesia-China's bilateral trade and it is significant.

Table 1 – Summary of Result of Testing Hypothesis

Hypothesis	Coefficient	t - Statistic	Prob	Information
H1: GDPi	(1) 4,20405	5,309588	0,0011	Take effect
	(-1) 1,609938	2,843848	0,0249	Take Effect
	(-2) 1,457574	1,764195	0,1211	No Effect
H2: GDPj	(1) 0,460533	3,564804	0,0092	Take effect
	(-1) 1,468132	0,840542	0,4284	No Effect
	(-2) -5,403143	3,369781	0,0119	Take Effect
H3:Per CAPITAi	(1) 0,242957	0,600729	0,5668	No Effect
	(-1) 0,553885	1,363379	0,2150	No effect
H4:Per CAPITAj	(1) 0,001429	0,82516	0,4363	No effect
	(-1) -0,005533	-3,435418	0,0109	Take Effect
	(-2) -0,000621	-3,551208	0,0093	Take Effect
H5: EXCRi	(1) 0,3969	0,953661	0,3720	No Effect
	(-1) 1,3672	3,452588	0,1003	No Effect
	(-2) -0,610035	-1,892523	0,0107	Take Effect
H6: EXCRj	(1) 7,3712	2,938535	0,0218	Take Effect
	(-1) -6,934972	-2,019055	0,0832	Take Effect
	(-2) -5,729464	-4,792536	0,0020	Take Effect
H10: Adj R <sup>2</sup>	0,994078	-	-	-
F-Statistic	234, 1566	-	-	Take effect
Prob	0,000000	-	-	Take effect

Table 2 – Hypothesis Testing Result

-	Hypothesis	Information
H1	The rising GDP of Indonesia on year (1) and one year before (-1) can rising bilateral trade Indonesia China and significant Year (-2) is not significant	(1)And (-1) Accepted, (-2) Rejected
H2	The rising GDP of China on year (1) can rising bilateral trade Indonesia China and significant. The rising GDP of China one year before (-1) can rising bilateral trade of Indonesia China and is not significant. The decreasing GDP of China two year before (-2) can rising bilateral trade of Indonesia China and significant.	(1)Accepted (-1) Reject. (-2) Accepted
H3	The rising per capita income of Indonesia can rising bilateral trade of Indonesia China and is not significant on year (1) and one year before (-1).	Reject
H4	The increasing per capita income of China can rising bilateral trade of Indonesia China and is not significant (1).. Year (-1) and (-2) decreasing of income per capita can rising Indonesia-China's bilateral trade is significant	Reject (1) Accepted (-1) and (-2)
H5	The rising exchange rate of IDR of Indonesia will increase bilateral trade of Indonesia China and is not significant on year (1) and (-1).The decreasing exchange rate of Indonesia will increase bilateral trade of Indonesia China on two year before (-2) and is significant	Reject on (1) and (-1). Accepted on (-2)
H6	The rising exchange rate of Yuan of China will increase bilateral trade of Indonesia China and significant on year (1). The decreasing exchange rate of Yuan of China will increase bilateral trade of Indonesia China and significant one year before (-1)and two years before (-2).	Accepted (1) (-1) and (-2)

The third hypothesis (H3), state that PER CAPITAi, income per capita is a measure of purchasing power per individual. Because if per capita income is high, then the purchasing power of demand for goods and services is very strong. Conversely, if per capita income is



low, then the purchasing power of demand for goods and services is less strong. The result of the research shows that positive beta coefficient means that the increase of per capita income of Indonesia influences the increasing of bilateral trade of Indonesia- China, although its influence is less significant both in the first year, one year before, and two years before.

The fourth hypothesis (H4), PER CAPITA<sub>j</sub>, per capita income is a measure of purchasing power per individual. If per capita income is of high value, then the purchasing power of the society towards the demand for goods and services is very strong. Conversely, if per capita income is low, demand for goods and services is less strong. The results show a positive beta coefficient which means that China's per capita income increase affects the increasing bilateral trade of Indonesia-China, although its influence is less significant in the year of one(1). A year before, and two years earlier has a significant influence.

The fifth hypothesis (H5), state that EXCR<sub>i</sub>, the USD exchange rate against USD, if the IDR exchange rate against USD is low, then the price of imported raw materials is low, so that the goods produced domestically and sold are low. On the other hand, if the IDR exchange rate against USD is high, then the price of imported raw material becomes high, plus the domestic production cost, the selling price is high, so the competition will be tighter both in domestic market and international market, or sales volume will decrease. The results show that the rise of the USD exchange rate against the USD has an effect on the rise of bilateral trade in Indonesia-China, although its influence is less significant in (1) and a year earlier 1). However, in the previous two years (-2) the exchange rate of USD against USD has decreased so that the effect on the bilateral trade increase significantly.

The sixth hypothesis (H6), EXCR<sub>j</sub> states that the Yuan exchange rate against USD is low, the price of imported raw materials becomes low in value, so that the goods produced and sold are low. But if the exchange rate of Yuan against USD is high, then the price of imported raw material becomes high, plus the domestic production cost, then the selling price is also high, so the competition in the market gets tighter, or the sales volume will decrease. The results showed that the rise of the Yuan exchange rate against the USD increased the bilateral trade of Indonesia-China, because with different economic management with Indonesia, then the price of Chinese production goods in the world market is still relatively low. and significant in year (1). A year earlier (-1), and two years earlier (-2) Yuan exchange rate against USD decreased so that its influence on bilateral trade of Indonesia-China is quite significant.

## CONCLUSION

H<sub>1</sub>: The rising of Indonesia GDP<sub>i</sub> impacts on Indonesia's export increase to China significantly at 5 percent level in the first year and a year earlier. And two years before it was not significant. This research is supported by research from: (Bonuedi, 2013), (Dainiar, 2013), (Ghosh, 2003), (Martinez-Zarzoso & Nowak-Lehmann, 2003), (Hermawan, 2011) (Sohn & Yoon, 2001), (Kabir & Salim, 2010), (Zhang & Wang, 2015), (Effendi, 2014), (Binh et al., 2010), (Do, 2006), (Bahmani-Oskooee & Harvey, 2017),

H<sub>2</sub>: The national rising product of China on year (1) may increase Indonesia-China's bilateral trade and it is significant. The rising product of China on year (-1) can increase bilateral trade of Indonesia-China and it was not significant. The decreasing national product of China on year (-2) may increase Indonesia-China's bilateral trade and it was significant. The research is supported by: (Raudonen & Freytag, 2012), (Bahmani-Oskooee et al., 2017), (Gómez-Herrera, 2012), (Elshehawy et al., 2014), (Sherif & Fantasy, 2013), (Wang & Badman, 2007).

H<sub>3</sub>: The rising income per capita of Indonesia can increase bilateral trade of Indonesia-China and it is not significant (1) and (-1). This research is supported by research from: (Martinez-Zarzoso & Nowak-Lehmann, 2003), (Khan et al., 2013),

H<sub>4</sub>: The increasing income per capita of China can increase bilateral trade of Indonesia-China and it is not significant (1). Year (-1) and (-2) decreasing of income per capita can increase bilateral trade of Indonesia-China which was significant. This research is

supported by the research from: (Sherif & Fantazy, 2013), (Wang & Badman, 2007 ), (Hunter & Markusen, 1988).

H<sub>5</sub>: The rising exchange rate of IDR of Indonesia will increase bilateral trade of China and it is not significant on year (1) and (-1). The decreasing exchange rate of Indonesia will increase bilateral trade of Indonesia China and it was significant on year -2). This research is supported by the research from: (Binh et al., 2010), (Bahmani-Oskooee & Harvey, 2017),

H<sub>6</sub>: The exchange rate rising of Yuan, China will increase bilateral trade of China and it is significant on year (1). The exchange rate decreasing of Yuan, China will increase bilateral trade of China and it is significant on year (-1) and (-2). This research is supported by the research from: (Bonuedi, 2013), (Wang & Badman, 2007).

## RECOMMENDATIONS

The role of the Government of Indonesia and private companies in terms of strengthening the trade relations with the Chinese government.

The role of the Indonesian government in fostering an increase in labor productivity in order to lower production costs and prices can compete in the international market.

The role of the Indonesian government in bureaucracy reform is mainly in the trade, ports sector so that time and cost can be more efficiently suppressed.

The role of the Indonesian government in terms of tax incentives, export credits to encourage the increase of exports.

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## **CHAYANOV'S SYNDROME AS FACED BY 'BAP' AGRIBUSINESS CORPORATION AND THE PEASANT COMMUNITIES LIVING IN AND NEARBY THE FORESTRY ESTATE CONCESSION**

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### **ABSTRACT**

The survival of the fittest apparently applies in stages of agribusiness development. What had become concern of Chayanov during pre-communist era in Rusia as being highlighted by D. Thorner (1966) for its relevance in the world of today, it has also become serious matter within economic life of modern Indonesia. The same concern given by the Government of Indonesia (GOI) has been clearly implied by the enactment of the Act #23/1997 and Act #25/2007 coined with Act #40/2007, which have to be responded by every large scale company. Among others is PT-BAP, an industrial forestry company established in 2004 acting as supplier to pulp & paper company that exist already in Sumatra but lack of raw material. This paper is based on a research work in 2017 that was aimed at examining the effectiveness of GOI policy on mandatory CSR viewed from the stand point of large scale company that gave response to the regulation by allocating fund for empowering people living in the surrounding. There were 3-objectives of the study: 1) How successful was the CSR program while facing which policy constraints and being supported by which conducive determining factors?; 2) What kind of benefits and how much financial gain particularly that the CSR could generate annually for the peasant community?; 3) What potential problems that might lead to which social conflict, should the CSR program become actually failed or non-existence? The research findings revealed that the CSR program launched by PT-BAP has so far been warmly accepted by the targeted people although not much significant achievement in terms of additional income that could be obtained by them each year since 2015. Several technical constraints and social hindrances existed, against which some strategic improvement in extension service and innovative business process must be introduced. Otherwise, the so called social entropy (psychological, ecological, economic and cultural entropies) would sooner or later bring social disputes to the company causing socio-anthropological disturbance to the industrial forestry agribusiness. Serious attention must be given in order to avoid Chayanov syndrome.

### **KEY WORDS**

Chayanov syndrome, socio-entropy, forestry, agribusiness.

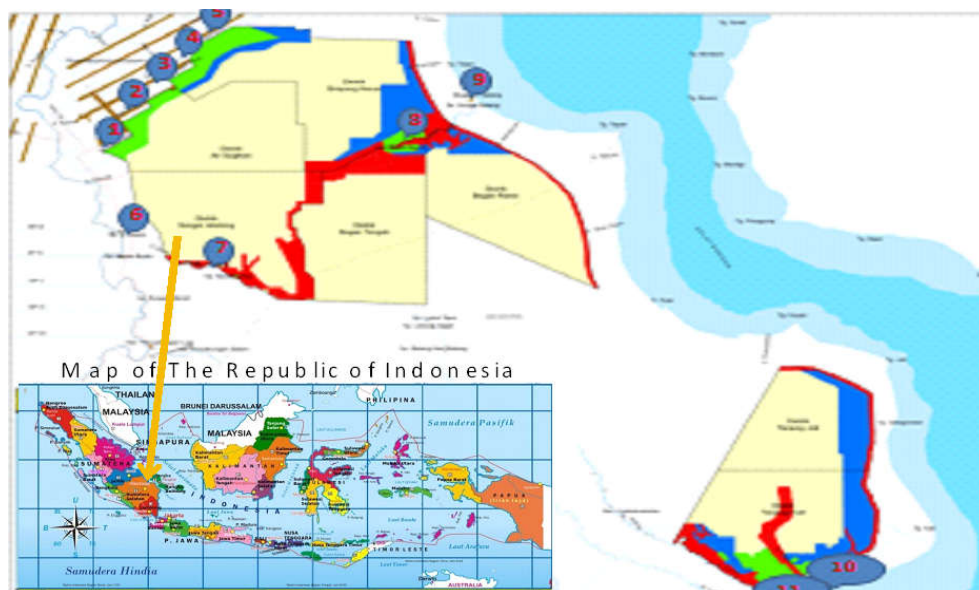
PT-BAP (*Bumi Andalas Permai* corporation) is an industrial forestry company that obtained investment permit for growing *Acacia sp* & *Eucaliptus sp* on a large size concession of about 133.441 HAs located near the strait of Bangka in the eastern part of South Sumatra Province, Indonesia. It is an agribusiness company specially designed to provide a pulp industry in Sumatra with additional raw materials. The GOI has got very strong commitment to support the company for its sustainability, as the value of national export of pulp and paper products alone grew in total at a fantastic rate, 17% in 2015. Surely, successful business activities of a company such as PT-BAP could give significant economic support to the country's fundamental economy.

However, when it comes to the issue of potential land disputes, it is factual that even in rural areas throughout the country nowadays there is high population density which requires more land for occupation and source of livelihood. Hence, large scale allocation of land resource for the sake of an agro-industrial company would sooner or later tend to create serious social tension and conflict. There would be potential risk to emerge, and that might create serious socio-economic problem, such as once in early Rusia being critically

anticipated by Chayanov (1920; in Thorner, D. 1966); in that it might trigger a negative situation, and herewith to be called as Chayanov's syndrome. It is therefore a worthwhile socio-economic study that could distil any lesson learned out of a 'success story' as experienced by PT BAP which has been envied by surrounding people who also need plots of land for livelihood.

*The Identified Problem & Importance of the Study.* The classic phenomenon about livelihood competition among small-holders farming community against large scale (rich & borguise) farmers had been known in the literature ever since a publication of manuscript on this issue by Chayanov (1923) of Rusia. The issue is actually still relevant even in this 21st century agribusiness era, as Thorner, D (1966) considered the Chayanov theoretical view so important as he intentionally translated the classic writing under an English title of "The Theory of Non-Capitalist Economic System". Truly speaking, what had become concern of Chayanov during pre-communist era in Rusia has also become serious matter within economic life of modern Indonesia. As clearly implied by the enactment of in Act #23/1997 (On Environmental Policy; in which CSR is voluntary) as well as Act #25/2007 and At #40/2007 (specific law for State Owned Business Corporation and Private Owned Business Corporation respectively; in which CSR is stated mandatory) the application of CSR policy has got the same spirit as known in the west (c.f. Kolefa, P. *et.al.* 2014; Fontaine, M.2013).

Given the fact that PT-BAP company's concession is at quite a distance far from the capital city of Palembang (about 3-hours by boat), and the area typified by tidal swamp and peatland type of soil, then it could have been considered a potential agro-ecosystem of the last resort to be grasped by people. There are actually 11 big villages of small holder farmers of mostly trans-migrants (Javanese settlers located there since 1982) that leave in surrounding of the BAP's concession. The small holders activities may be considered as traditional farming without blessed by irrigation but simple drainage system, that only allows farmers to produce mainly paddy once a year or twice at the most. As the agricultural area is quite far away from the main market, then no wonder if economic prosperity of the people there has still been quite slow to get improved over time. Hence social competition to obtain land plots could still become possible venture in the future. A kind of anticipation to such problem is badly expected, and a special research to assess the company's CSR fund dedicated particularly for community development (CD) program as a case study is certainly needed.



Note: The two green (dry land) and blue (wetland) areas still exist next to the 2-part of the BAP's concession are less than 39.372 HAs of reserved agro-ecosystem under control by PT-BAP, that may be accessible to group people of small farmers specially supported by CSR fund of PT-BAP.

Figure 1 – Geo-Position of The Study Area which is Near The Strait of Bangka, Sumatra

*Population Target and the Research Method.* In 2015 PT-BAP started distributing its CSR fund amounted to Rp1.2 billion dedicated to 5 different rural needs, as shown in Table-1 below. In terms of CD program, the district of Simpang Heran received the largest (36.7%) proportion. The CD money was used for helping 325 small farmers to cultivate part of the green belt (agro-ecosystem).

The farmers participant being organized into 13 CD-groups of 25 farmers each, and each person entitled to cultivate 1-HA of the reserved land area. The participant may choose to grow paddy and followed by corn (9 groups), or corn and then corn crops (by 4 groups). The participant may use the working capital of about Rp2 million/ HA as long as he wants, and he must passes the money to other person when he decides to quit from the CD program.

It was due to those reasons while also considering easiest accessibility to get to the peasant population, then Simpang Heran was chosen as the district of study. The farmer population of Simpang Heran was 590 head of families. They were mostly small farmers of paddy and other seasonal crops. Using simple random-sampling method 60 of them (10%) were interviewed led by a set of survey questioners.

Table 1 – Total Rupiahs of CSR Fund Distributed by PT-BAP for Five Different Sectoral Items, 2015

Sub-District	Economy (CD)		Health		Education		Cultural		Infrastructure		Total Value of CSR	
	Rp x000	%	Rp x 000	%	Rp x 000	%	Rp x 000	%	Rp x 000	%	Rp x 000	%
SimpangHeran	53.875,5	36,7	4.685,7	2,6	7.862,5	3,6%	39.350,0	14,4	200.000,0	51,2	305.773,7	25,3
Air Sugihan	50.475,0	34,4	28.664,0	15,8	16.550,0	7,6%	30.250,0	11,1	90.150,0	23,1	216.089,0	17,9
SungaiJelutung	22.500,0	15,3	14.400,0	7,9	49.400,0	22,7%	19.850,0	7,3	35.568,0	9,1	141.718,0	11,7
Tjg Jati &Kait	20.000,0	13,6	76.140,4	41,8	84.400,0	38,8%	78.650,0	28,8	65.183,8	16,7	324.374,2	26,8
BgnRame-Tgh	-	0,0	36.975,0	20,3	59.400,0	27,3%	21.600,0	7,9	-	0,0	117.975,0	9,7
Others	-	0,0	21.105,4	11,6	-	0,0%	83.041,0	30,4	-	0,0	104.146,4	8,6
<i>Total</i>	146.850,5	2,1	181.970,5	15,0	217.612,5	18,0%	272.741,0	22,5	390.901,8	32,3	1.210.076,30	

*Theoretical Framework and the Hypothesis.* For its sustainability, each industrial forestry company has got to maintain harmonious life within its social environment. This has to be a consistent part of environmentally sound but innovative management at either its primary farm stage as well as agro-industrial stage of production.

Unfortunately, the fortune of a big agribusiness company is not always parallel with the economic fate of the small-holders or peasantry. In this particular case, the two actors cultivate their land for a different commodities, although the people nearby may get opportunity to become labourers in the concession and gain extra income. Therefore, there could be Chayanov's syndrome to play around the 2-farming actors, that have unequal power to manipulate any threat coming from either technical or economic factors<sup>1</sup> to be influencing such farming life and the agribusiness endeavour. Failure to anticipate the problem it may become disastrous.

As being implied by the Chayanov theory on peasantry economics, the un-wanted syndrome should be tackled utilizing economic slot and momentum coming along with a pro-poor policy supposedly mandated (CSR) by the government. Of course the CSR fund may be available for fulfilling stakeholders' interests that exist that must be local specific to a particular district. In fact, only according to information in Table 2, only part of the CSR fund being focused on a CD program that may directly affect economic fortune of the people. Hence the following arguments may apply:

Define an average economic fortune as  $\delta Y = f(CD_{CSR})$  and  $\delta Y > 0$ , then for those people of limited income, assuming that baseline  $C_o = Y_o$  then there could be two alternative ways that each family would actually utilize  $\delta Y$  for zero or an additional consumption ( $\delta C$ ), such that: (1<sub>a</sub>)  $\delta C < \delta Y$  .... meaning that the family may get motivated positively; (1<sub>b</sub>)  $\delta C = \delta Y$  ....

<sup>1</sup> In the case of oil palm cropping which is highly water consuming due to non-stop emergence of its fresh fruit bunch along the productive years, then a big company that has got proper drainage system tend to close its water gates in order to maintain sufficient water availability within its concession during dry season regardless the fate of the neighboring small-holders who depend their farming fortune to be blessed only by mother nature (Sjarkowi, F. 2014). By the same token, accessibility of innovative package of production management is presumably much faster and easier to a big company as compared with those small holders peasantry (Sjarkowi, F. 2017). Had there been no effort what so ever specially dedicated to the SMEs (small & medium enterprises), then the big one may gain much faster and larger than the peasants, and social entropies may consequently emerge and tend to trigger social conflict.

meaning that the family may feel hopeless; (1<sub>c</sub>)  $\delta C > \delta Y$  .... meaning that the family may get intimidated constantly.

Outcome (1a) indicate successful implementation of the CD program, and otherwise for (1b); from either one of which some determining factors may be revealed.

The financial gained by each family of the CD participants may also be seen from 3 approaches towards more prospective farming performance, namely: (2<sub>a</sub>) Efficiency improvement; that surely lower the average production cost; (2<sub>b</sub>) Effectiveness betterment; that minimize waste but maximize essential yield; (2<sub>c</sub>) Sustainability achievement; that save energy and other resources for future use.

These 3-best performance would uplift financial gain directly and indirectly as well. Otherwise, persistently bad farming performance may encourage people to uplift income by simply increase size of land base, hence it tends to encourage incident of land encroachment within BAP's concession and also illegal deforestation. For this particular argument it will be interesting to detect as to which decision variable that actually influence the participant to join the CD-program. A regression equation of the following structure may be assessed using cross-sectional data collected from 60 respondents:

$$g(X_i) = \ln [F(X_i)/1-p(X_i)] = b_0 + \sum b_l X_l \text{ for } l = 1, 2, \dots, 7$$

Where:  $b_0$  = a constant.  $b_l$  = the parameters, for  $l = 1, 2, \dots, 5$ ;  $X_1$  = income;  $X_2$  = educational back-ground;  $X_3$  = group commitment;  $X_4$  = hard land preparation;  $X_5$  = land-plot size;  $X_6$  = land-plot distance far;  $X_7$  = existing water control. It was expected:  $b_1 > 0$ ;  $b_2 < 0$ ;  $b_3 > 0$ ;  $b_4 > 0$ ;  $b_5 < 0$ ;  $b_6 > 0$ , and  $b_7 < 0$ .

Enacting law on mandatory CSR as source of additional fund for financing various people mattered programs is supposed to be appropriate government intervention that must be taken as golden opportunity by the small holders as a peasantry group based agribusiness entity without having to get provoked by any kind of social sentiment. By so doing then the following social tendency could positively apply:

(3<sub>a</sub>) Small is weaken; then the peasants need to unite but institutionally manageable as a partnership business entity, without having to get provoked by external agent to trigger any socio-psychological entropy.

(3<sub>b</sub>) Small is beautiful (= agreeably abided by government law), then the more organized peasants may consistently adopt intensive production management without bringing with it socio-ecological entropy.

(3<sub>c</sub>) Small is flexible, then as formal business entity the more responsive peasantry power may easily get encouraged to innovate and capture added values, so as not to become agent of socio-economic entropy.

(3<sub>d</sub>) Small is risk-averter, then the peasantry group may generate trustful economic power and perform actively within an agribusiness system, and successfully free from causing any kind of socio-cultural entropy.

Of course achievement (3<sub>a</sub>) could bring stability with it, and (3<sub>b</sub>) could uplift productivity, and (3<sub>c</sub>) could give equality, while eventually (3<sub>d</sub>) could promote sustainability. Such group achievement is an essential element of controlling the Chayanov syndrome from coming into reality and causing social disturbance that may fail a social economic partnership deal.

## RESULTS OF STUDY

Doing agricultural activity to grow food crops such as paddy, corn and also cassava in tidal swamp area and sometime characterized with peat-land is not always an easy peasantry venture. The main constraint that has to be faced in this case is water management that must tackle need for water in terms of proper QQA (quantity that cannot be fully controlled; quality that tends to be lower pH although being influenced to some extend by sea tide, then; availability typified by excessive water level during wet or rainy season and deficit during dry season). Growing seasonal crop at time towards the end of wet season up until the beginning of dry season could give better chance to success, which was measurable

as positive net revenues, however small it is actually (see pre-CD performance, Table-2). Even so, the classic problems of pest and weed attack should still require serious attention for it might blow up incidental variable costs.

The role of a CD program provided by a big company, such as the capital intensive BAP-corporation that exists nearby villages, would certainly provide the peasants with much help, especially in the form of lending working capital, better technique and agronomic methods and other matters regarding marketing of the farm products. According to Table-2 above, very significant increase (nearly doubled or more) in productivity was achieved due to more intensive method of paddy crop production. In fact after harvesting paddy crops some small-holder farmers could continue its 'business' venture by growing corn, a seasonal crop that is usually more tolerant to a rather wet up to dryer condition and also saver from pest attack. By growing corn after paddy crop there could be additional income of about Rp2.0 million as net revenue obtained from around 1.500 Kg/HA of corn production on average.

Table 2 – Production & Revenue Achievement Before and After CD Program Dedicated by The BAP Corporation as CSR Courtesy to Its Neighbouring Peasantry Families, 2016/2017

Average performance	Trans-migrants		Local farmers	
	(Y)	(Y')	(Y)	(Y')
Production (Kg/Ha)	2.919	5.556	2.100	4.805
Price of paddy (Rp/Kg)	3.600	3.750	3.600	3.750
Revenue (Rp/Ha)	10.508.400	20.835.000	7.560.000	18.018.750
Production cost (Rp/Ha)	8.533.822	14.693.896	6.898.113	12.806.167
Income (Rp/Ha)	1.974.578	6.141.104	661.887	5.212.583

*Notes: (Y) = performance in 2014 (pre-CD program); and (Y') performance in 2016 (ex-post CD program). During 2015 normal data could not be compared with the 2016, because of severe and prolonged dry season followed by many land and forest fire disasters happened to fail many agricultural activities at that particular year.*

Clearly by having CD support from the company the small farmers really get empowered, although the achievable total income from seasonal crop production had not been high enough for the peasantry families to attain a consumptive status of prosperity. Surely limited land acreage and the isolated location of the trans-migrant settlement (quite far distance from central market, and river transportation facilities depend upon high tiding) had become the main factor that constrain the people to enjoy a better living condition so far. Although each trans-migrant family obtained 2.0Ha land plot to make a living, then the above information revealed some factual information about how hard they should be geo-physically and economically adapting alone year by year. No wonder if some of them decided to do illegal logging, and some might have to do inland water fishing and hunting while they could do those things in the middle of the bounty area controlled by rich mother-nature as previously available vastly.

Without such an empowering CD program that also allow them to utilize 1.0 HA of reserved land area within the BAP concession then the peasantry families living nearby the company with various physical and financial difficulties would sooner or later bring the people to a point of no return but to promote hostile claim to some acreages within and part of the concession area. Now they could do much better and very much more friendly to thank PT-BAP, because the new way of farming could also be applied in the allocated land that they had got ever since they arrived in the 'new' settlement area. Although not enough data yet available as of now (because positive effect of the production technique experienced in the CD plots towards those originally owned land plot still need to be assessed this year) but then the hypothesis that says  $\delta C < \delta Y$  as stated earlier seems to be valid and not rejected by any evident that so far obtained. There are vivid signs that give positive indication, meaning that the peasantry family really get motivated positively by the CD program.

The fact that labour intensive and traditional paddy farming could not give a better living standard to the trans-migrant and local farmers for quite so long provide clear reasons for the people to thank the BAP corporation that came quite recently but gave an opportunity for the peasants to be part of the company's CD-program, that had really been executed and successfully opened the participants mind towards a clear but peaceful progress. As clearly



implied by information in Table-2, the paddy crop farming got improved vividly in its production efficiency and farming effectiveness as well as promising sustainability.

Socio-Psychological Entropy	Weakness in Educational background	Formal	1.About 65% of the villagers got educated up to elementary school 2.Although most of the active villagers aged 25-45
		In – Formal	1. About 75 % of the villagers very rarely get innovative training on farming 2. Some people considered extension service lack of relevance, but more promotional business oriented
		Non – Formal	1.More involvement in rreligious activities but lower quality in substance 2.Many local opportunists play their role without respecting moral values
Socio-Ecological Entropy	Unidentified Location specific Best practice	Local wisdom	1. To new settlers in the frontier area, it may take long time to get wisdom 2. To the locals old local wisdom seem to be no longer relevant
		Local ignorance	1. Tendency to get influenced by consumerism 2. Lack of effort to do environmentally sound activities
		Local shortcoming	1. Influence of narcotics and liquor has penetrated villages 2. incidence of robber and stealing more frequently
Socio-Economic Entropy	Limited Source of Local Livelihood	Main source	1. Not all villagers get opportunity to cultivate and reserved, but; 2. Convertible portion of remaining ecosystem for agricultural land is getting scarce
		Additional sources	1. Villagers feel that job opportunity getting difficult to obtain. 2. More job tend to require more skill while villagers generally lack of skill
		Expectable source	1. Innovative and creative business activities have not yet began to grow. 2. Traditional ways of agricultural processing require more scientific touches
Socio-Cultural Entropy	Eroding Traditional Values	Coexistence values	1. Egoism seems to exist every where 2. Easiness to agree on critical issues no longer hold, need role of charismatic leader
		Collaborative values	1. Suspicious attitude happens to affect many people 2. Trust worthy has been so expensive
		Cooperative values	1. Rural institution cannot hold responsibility automatically 2. Among people of different villages get difficult to unite to tackle risk

Based on production and financial achievement at the CD plots, average efficiency improvement was indicated by performance index of BCR (pre-CD) =1.23 becoming BCR (post-CD) = 1.42 as achieved by the trans-migrant farmers, and BCR (pre-CD) =1.10 becoming BCR (post-CD) = 1.41 as achieved by the local farmers. Likewise, in terms of farming effectiveness, improvement in productivity had taken place in the plots by better group decision in choosing proper time to start seedling and planting paddy crop; for which the use of available water that very much depends on blessing of mother-nature could actually match the time schedule for step by step agronomic action in the land plots. Towards the end of paddy harvesting time, the CD program had successfully recommended the group participants to grow corn by taking advantage of the available organic remnants from paddy cropping.

It is interesting also to know what other factors that trigger the CD group members to join the program. The estimated logit function as shown by Table-3 below revealed that a variable named 'group commitment' was most influential to participating decision in the CD farming activity. Meanwhile the distance far of the land plots from home seemed to be significantly influential to the people willingness to join the program, and that may to some extent indicate that a tendency to do land hunting appeared to be rather strong. This tendency must remind all parties to be constantly alert against the possibility of social disruption that may hamper stakeholder's interest to maintain sustainability of all agribusiness activities in the location.

## CONCLUSION

The CSR program launched by PT-BAP has so far been warmly accepted by the targeted people; although not much significant achievement in terms of additional income.

Several technical constraints and social hindrances apparently still existed, against which some strategic improvement in extension service and innovative business process must be introduced.

There were several evident that might become unintended seeds of social entropy (psychological, ecological, economic and cultural entropies). Should they get triggered to grow, then social disputes might emerge to allow the 'Chayanov syndrome' to come into reality. Hence a better content of CD-program should be conducted by PT-BAP with more institutionalized way.

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## THE EFFECT OF RUPIAH EXCHANGE RATE AND INFLATION RATE TOWARDS COMPOSITE STOCK PRICE INDEX IN INDONESIA STOCK EXCHANGE

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### ABSTRACT

This study aims to examine the relationship between the rupiah exchange rate and inflation rates on CSPI in Indonesia Stock Exchange. The data used are secondary data of Rupiah exchange rate toward US Dollar and inflation rate data obtained from Bank Indonesia publication through [www.bi.go.id](http://www.bi.go.id) website and movement data of CSPI through website [www.finance.yahoo.com](http://www.finance.yahoo.com). Determination of the sample based on monthly time series data period December 2011 - January 2014 by using the method of saturated samples, i.e. as many as 48 samples. The data obtained were analyzed by multiple linear regression approaches. There was a negative influence of inflation rate on CSPI for the period of December 2011 - January 2014 with the regression coefficient of 0.279; the negative value indicates that there is a negative correlation of inflation rate to CSPI. While the relationship between the Rupiah exchange rate To CSPI showed a positive relationship with the regression coefficient of 0.888.

### KEY WORDS

Rupiah exchange rate, inflation rate, composite stock price index, prices.

Investment is a way of investment either directly or indirectly which aims to obtain a certain income as a result of the investment. Currently, investment in the capital market has been ogled many investors (Astuti, et al, 2013). Septyanto (2013) mentions that the capital market as a vehicle for the financial sector outside banks provides funds for businesses through the sale of shares, bonds, and derivatives. Theoretically, the rate of economic growth is positively correlated with investment. The economic growth of a country cannot be separated from the capital market itself which is measured in the Composite Stock Price Index (CSPI). The stock price index is a door, is the beginning of consideration to make an investment, because of the stock price index is known to the situation in general (Astuti, et al, 2013). The JCI describes a series of historical information about composite share price movements, up to a certain date. Usually, the stock price movements are presented daily based on the closing price on the stock exchange on the day. The index is presented for a certain period. The CSPI reflects a value that serves as a measure of the performance of a joint stock in the stock exchange (Taufiq and Kefi, 2015).

The Composite Stock Price Index is a reflection of the Indonesian economy when the CSPI shows a significant increase in the Indonesian economy is in a conducive condition and vice versa. To be able to find out what can help the movement of CSPI should be considered several factors such as SBI interest rate, inflation, rupiah exchange rate and global exchange like Dow Jones index (Sudarsana & Candraningrat, 2014). Economic growth is the development of activities in the economy that cause goods and services produced by the community increases. The Central Bureau of Statistics (BPS) reported that gross domestic product (GDP) or Indonesia's economic growth during 2017 reached 5.07 percent. This figure, according to BPS, is the highest economic growth figure since 2014. The growth of a country's investment will be affected by the level of economic growth in the country. The participation of Bank Indonesia in capital market or stock exchange aims to enable banks to have financial and fundamental support whereby it is essential for the sustainability of the bank itself (Parulian, et al, 2013). Currently, Bank Indonesia uses the SBI rate as one of the

instruments to control inflation. If inflation is felt high enough, Bank Indonesia will raise the SBI interest rate to reduce inflation (Nurwani, 2010).

The exchange rate is a very important economic indicator because the movement of the exchange rate has the wide effect on the economic aspect of a country. Currently the development of the economic system in a more open direction between countries. The exchange rate plays a vital role in the trading level of a country, which is the most critical for the majority of the free market economy in the world. The open economy is the occurrence of international trade between countries in the world. The existence of currency differences used in both importing and exporting countries will result in a difference in the exchange rate. The difference in the exchange rate of a country is principally determined by the amount of demand and supply of the currency (Krugman, 2005). The importance of exchange rate as one economic indicator makes it interesting to discuss and see the changes or fluctuations that can be influenced by various factors.

The ability of investors to understand and forecast future macroeconomic conditions will be very useful in making profitable investment decisions (Tandellin, 2007: 211). Information on the stock price index, stock price performance, corporate financial statements, etc., where such information data can be obtained through IDX (Indonesia Stock Exchange). Investment through the capital market in addition to providing results also has a level of risk that must be borne. If investments in the Stock Exchange can be carefully managed, it will bring far greater profits than investments in savings and time deposits. Steps that need to be done in minimizing the risk of investing in the capital market, investors must understand the investment well (Metro, 2015).

The view that low inflation is an important requirement for sustained economic growth became accepted after the great depression in the 1930s. Thus, low inflation is always considered as an objective of economic policy, it has been shown that volatility reduces economic growth and is worthy of our attention (Klomp and Haan, 2009). Inflation is a situation where there is excess demand for goods and services as a whole. Inflation has a negative and positive impact. In general, the impact of inflation may affect the distribution of income, allocation of production factors and national production, often in Indonesia inflation has a negative impact (Saputra and Nugroho, 2014). Factors affecting the inflation rate in Indonesia are interest rates, rising commodity prices and swings in foreign debt due to the depreciation of the US dollar and other foreign currencies (Panjaitan and Wardoyo, 2016). thus it is necessary to examine the factors that influence the movement of CSPI in Indonesia stock exchanges. According to Hussain, & Malik (2011) that the causality that runs from inflation rate to economic growth is an indication of the relationship that inflation indeed has an impact on growth. The relationship between inflation and economic growth under the cost-based price approach (Baltar, 2014).

The most important economic measures are monetary. They have many different names, are derived in different theories and employ different formulas; yet, they all attempt to do the same thing: to separate a change in nominal value into a 'real part' due to the changes in quantities and an inflation due to the changes in prices. Examples are real national product and its components, the GNP deflator, the CPI, various measures related to consumer surplus, as well as a large number of formulas for price and quantity indexes that have been proposed. The theories that have been developed to derive these measures are largely unsatisfactory. The axiomatic theory of indexes does not make clear which economic problem a particular formula can be used to solve. The economic theories are for the most part based on unrealistic assumptions (Hillinger, 2008).

## **METHODS OF RESEARCH**

This research is a study of empirical studies conducted on the stock exchanges of Indonesia. The object of this research is the data of rupiah exchange rate and inflation rate. The data used are secondary data of Rupiah exchange rate to US Dollar and Inflation rate data obtained from Bank Indonesia publication through [www.bi.go.id](http://www.bi.go.id) website and movement data of CSPI obtained through website [www.finance.yahoo.com](http://www.finance.yahoo.com). Determination of sample

based on monthly time series data for period of December 2011 - January 2014 by using the method of the saturated sample, which is counted 48 samples. The data obtained were analyzed by multiple linear regression approach.

## RESULTS AND DISCUSSION

Regression approach is used in this research to test the influence of inflation and rupiah exchange rate toward CSPI.

Table 1 – Simultaneous Test Results of Inflation rate and Rupiah Exchange Rate on CSPI

Model	Sum of Squares	df.	Mean Square	F	Sig.
Regression	28.250	2	14.125	33.899	.000 <sup>a</sup>
Residual	18.750	45	.417		
Total	47.000	47			
R = 0.775; R <sup>2</sup> = 0.601; Adj. R <sup>2</sup> = 0.583; Std. Error = 0.645					

Table 1 presents the model summary and Regression Analysis of Variance (ANOVA). From the table, the multiple correlation R Square=0.601, indicates that the model accounts for only 60.10% of the variance in CSPI, can be described by variations in change Inflation rate and Rupiah Exchange Rate, while the rest 30.9% is described by other variables which are not analyzed on this model.

The result of hypothesis test simultaneously shows that the inflation rate and the rupiah exchange rate simultaneously have the significant effect on CSPI ( $F(2, 45) = 33.89, p < 0.05$ ). This result shows that the inflation rate and the rupiah exchange rate can predict CSPI simultaneously. Partial test results are shown in Table 2:

Table 2 – Partial Test Results of Inflation Rate and Rupiah Exchange Rate on CSPI

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	6.516E-16	.093	-	.000	1.000
	Zscore(Rupiah Exchange Rate)	.888	.111	.888	7.968	.000
	Zscore(Inflation rete)	-.279	.111	-.279	-2.503	.016
a. Dependent Variable: Zscore(CSPI)						

Regression analysis results show that there is a significant influence Inflation rate to CSPI ( $\beta = -.279, p = 0.016$ ) as well as the effect of rupiah exchange rate on CSPI ( $\beta = .888, p = 0,00$ ) Result of significance test based on the regression model obtained the magnitude of the coefficient of inflation rate effect on the CSPI of 0.279. Regression coefficient indicates that if the inflation rate increased one unit then CSPI decreased by 0.279 where the rupiah exchange rate variable is assumed constant. Coefficient of exchange rate regression equal to 0.888. Regression coefficient a positive the value indicates that if the rupiah exchange rate rises by one unit then CSPI increases by 0.888 where the variable rate of inflation is assumed to be constant.

*Effect of Rupiah Exchange Rate toward Composite Stock Price Index (CSPI).* The result of the analysis shows that rupiah exchange the rate has the positive and significant effect to CSPI. This is in accordance with research conducted Nurwani (2010) which states that the exchange rate of rupiah has a positive and significant impact on the movement of composite stock price index. The exchange rate is often called the exchange rate (ex-change rate) is the amount of a particular currency that can be exchanged against one unit of another currency. The rupiah exchange rate against other currencies has an effect on the profit of a company, because the company using the production materials from abroad will experience an increase in the value of the debt if the value of the rupiah against the value of foreign currency decreased or depreciated, the exchange rate is very influential for companies that want to do investment (Putri, 2017).

Unlike the research conducted by Astuti, et al (2013), the rupiah exchange rate against the US dollar influences CSPI which can be seen from the result of significant and negative

influence on CSPI, so if the exchange rate (Exchange) Rupiah to Dollar has increased, decline and vice versa. Research conducted by Jayanti, et al (2014) also states that the rupiah exchange rate partially has a negative and significant influence on CSPI. Other research mentioned that the exchange rate of Rupiah has no significant the effect to CSPI listed in Indonesia Stock Exchange period 2011-2015 period, when there is a weakening of Rupiah exchange rate to US Dollar, Rupiah exchange rate can still stay in the range of Rp 10,819.32, the US economy in the midst of global crisis makes investors have confidence in the capital market in Indonesia despite the weakening of US Dollar and this condition is not very influential on CSPI (Salsabila, et al, 2016).

Appa Research (2014) shows that the appreciation of the rupiah exchange rate or the US dollar has a positive and significant effect on CSPI, the depreciation of the rupiah exchange rate against the US dollar has caused the stocks of import-oriented companies to decline which affects the declining interest of investors to invest in the capital market, so that companies using imported materials suffered losses due to higher production costs than the selling price of the product. This condition causes the decline in the value of CSPI in the stock exchange because investors are more interested in the shares of companies that have increased.

According to Joesoef (2008: 25) "the way the valuation of currency prices by declaring the many units of local currency required to obtain a unit of foreign currency called direct quotation". The formula for calculating direct quotation is as follows:

$$\text{Direct Quotation} = \frac{\text{the number of units of local currencl}}{\text{one unit of foreign currency}}$$

The decline in the rupiah exchange rate against foreign currencies (US dollar) has an impact on the rising cost of imported raw materials and equipment required by issuers resulting in higher production costs, in addition to the many issuers that have foreign debt so that the increase in the exchange rate will increase the debt burden borne by the issuer.

*Effect of Inflation Rate Toward Composite Stock Price Index (CSPI).* The result of the analysis shows that there is a negative and insignificant effect of rupiah inflation on CSPI. This is in accordance with Taufiq and Kefi (2015) research which shows that inflation has a negative and significant effect on CSPI. Inflation is very influential on the economy, Marunung (2016) states that Inflation is a tendency to raise prices continuously or can be interpreted as a decline in value of money as a whole, the higher price increases, and the more the value of money. The result of research (Tabi and Ondo, 2011) It is shown that increase in money supply increase growth and that growth causes inflation; however, an increase in money supply does not necessarily increase inflation.

In contrast to research Maurina, et al (2015) inflation has a positive but insignificant effect on CSPI, this is because during the period of observation the inflation rate is in the category of mild inflation because it is below 10%, so the results show that the inflation rate is not a determinant factor in explaining CSPI. The company may charge the cost increase to the consumer with a larger proportion so that the company's profits increase and will increase the company's ability to pay dividends and will provide a positive assessment on stock prices, so that investor interest to invest in stocks will increase and CSPI will increase.

Research Putri (2016) that partially inflation has a negative and insignificant effect on CSPI in the period 2011-2013, because of the rise of inflation into a negative signal for investors to invest in capital markets tend to release shares to switch investments in other forms, such as savings or deposits because assuming a higher risk, so switching investment in other forms will cause investors to make sales, thus lowering stocks and CSPI.

Inflation can cause adverse effects of decreasing the level of public welfare and worsening the distribution of income, people are reluctant to save, it can be profitable if the income earned is higher than the increase in production costs, long-term development prospects are getting worse and investment is decreasing (Appa, 2014). In addition, inflation can also have a positive impact, if inflation is mild it can encourage a better economy, which can increase national income and make people excited to work harder, save and invest

(Divianto, 2013). Inflation in 2013 was the highest since 2008, the crisis which reached 11.06%. That figure is an accumulation of previous inflation due to rising fuel prices. As for core inflation in December 2013 recorded 0.45%, core inflation year to date and year on year respectively 4.98%.

### **CONCLUSION AND RECOMMENDATIONS**

Based on the results and discussion in this study can conclude that there is a negative effect of inflation rate on the Composite Stock Price Index (CSPI) period December 2011 - January 2014 with a large influence of 0.279, a negative value indicates that there is a negative relationship inflation rate to CSPI. While the relationship between the rupiah exchange rate against CSPI shows a positive relationship of 0.888. These results suggest that the higher the rupiah exchange rate will increase CSPI. While inflation increases can decrease CSPI.

The results of this study provide recommendations For investors who want to invest in CSPI shares, it is advisable to better consider the information coming from within the country such as inflation rate and the rupiah exchange rate as indicators coming from abroad such as the index of capital markets of other countries. Such information is needed to predict the CSPI fluctuations needed for proper decision making. In addition, further research on the Composite Stock Price Index (CSPI), it is suggested to add or use other internal indicators such as GDP, the amount of money in circulation, the development of imported exports and factors originating from abroad (such as world gold prices, world oil prices, and other countries' stock indexes.

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## **RANK-BASED ESTIMATION FOR COBB-DOUGLAS MODELLING IN THE PRESENCE OF OUTLIERS**

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### **ABSTRACT**

Ordinary least square (OLS) has been widely used in estimating the Cobb-Douglas production function when analysing the empirical linkage between inputs and outputs. However, the estimates based on OLS technique may be biased by the presence of outliers. Rank-based regression estimation is resistant to outliers and may result in unbiased estimates. The objective of this study is therefore to investigate by use of Monte Carlo methods, the performance of the Rank-based regression and OLS methods in estimating the Cobb-Douglas regression model using data with and without outliers. Monte Carlo simulation results indicate that the estimates of the coefficients of the Cobb-Douglas regression model derived from the Least Squares and the Rank-based estimation methods are accurate and equivalent or close to their true values for normal data regardless of variability in sample size. For data with outliers, Least Squares method is affected by outliers and yields inaccurate estimates of the coefficients of the Cobb-Douglas model across various sample sizes. Rank-based estimation remains robust to outliers in large samples and provides estimates of the coefficients of the Cobb-Douglas Regression model that are accurate and nearly equivalent to their true values. The evidence from Monte Carlo experimentation suggests that the proposed Rank-based estimation is likely to do no worse than the OLS with normal dataset and promise to do better when the dataset has outliers within the Cobb-Douglas production function modelling context. The presence of outliers can bias the results of the OLS estimation of the Cobb-Douglas model and it is recommended that the use of Rank-based regression can be an appropriate method to avoid such biased estimates.

### **KEY WORDS**

Monte Carlo simulation, rank-based regression estimation, Cobb-Douglas production function, ordinary least squares estimation, outlier.

Agricultural economics literature has witnessed extensive use of the Cobb-Douglas production function as a major technique for applied production economics analysis. For example large number of research articles in agricultural economics (Anupama et al., 2005; Mandal et al., 2005; Mruthyunjaya et al., 2005; Pouchepparadjou et al., 2005; Shaheen and Shiyani, 2005; Srinivas and Ramanathan, 2005) have emphasized the use of the Cobb-Douglas production function. Notably, the application of the Cobb-Douglas modelling in these studies uses the OLS estimation methodology (Prajneshu, 2008).

However, the OLS technique used in estimating the Cobb-Douglas production function can lead to misleading results if its fundamental assumptions are not met. In the presence of a small amount of data that behaves differently from the vast majority of the observations (i.e. outliers), the fundamental assumptions of the OLS will be violated and may not be met.

In order words, the presence of outlier observations might bias the results of the OLS method. In an empirical application, Enaami, Mohamed and Ghani (2013) note that outliers could bias the results of the Cobb-Douglas estimation and they solve the problem by developing a new Cobb-Douglas model based on robust methods and the Partial Least Squares paths modelling for parameter estimation. In support of Enaami, Mohamed and Ghani (2013)'s assertion that OLS could bias the results of the Cobb-Douglas estimation in the presence of outliers, this study demonstrates that the Rank-based regression is an

alternative robust method to deal with the problem of bias estimates in Cobb-Douglas modelling context.

Thus an alternative approach to estimate the Cobb-Douglas model while concurrently dealing with the problem of outliers in the data is to employ Rank-based regression. Rank-based regression remains robust to the presence of outliers and has been successfully applied in the estimation of linear models in the presence of outliers as detailed in Jureckova (1971); Jaeckel (1972); McKean and Hettmansperger (1978) and Kloke and McKean (2015). However, very little research has been undertaken to explore the robust and successful Rank-based regression for the Cobb-Douglas production function.

When the production data is contaminated with outliers, Rank-based regression estimation will provide realistic estimates. However, less effort has been made to compare the Rank-based estimation and OLS methods for the estimation of the Cobb-Douglas model in the presence of outliers. The purpose of this research is therefore to investigate by use of Monte Carlo methods, the performance of the Rank-based regression and OLS methods in estimating the Cobb-Douglas production function using data with and without outliers.

The paper is organized as follows. The introduction is followed by the methodology which discusses the Cobb-Douglas model, Ordinary Least Squares (OLS) and Rank-based regression. The results and discussion present Monte Carlo simulations of Cobb-Douglas model and demonstrate the ability of Ordinary Least Squares and Rank-based regression to estimate true values of Cobb-Douglas data generating process. Finally, the paper ends with a conclusion.

## METHODS OF RESEARCH

*Cobb-Douglas Production Function.* The Cobb-Douglas production function is a particular form of production function widely used to represent the technical relationship between the amount of two or more inputs and the amount of output. The Cobb-Douglas production function was developed and tested against statistical development by Charles Cobb and Paul Douglas. In its most standard form for production of a single output with two inputs, the function is:

$$y = AL^{\beta} K^{\alpha}$$

Where:  $y$  = output,  $L$  and  $K$  are inputs (e.g. labour and capital).  $A$  is a scale parameter,  $\alpha$  and  $\beta$  are elasticities of produce ( $y$ ) with respect to the input variables.

Linearizing the Cobb-Douglas production function becomes:

$$\ln(y) = A + \beta \ln L + \alpha \ln K + u$$

For constant returns to scale:  $\alpha + \beta = 1$

Decreasing returns to scale:  $\alpha + \beta < 1$

Increasing returns to scale:  $\alpha + \beta > 1$

*Ordinary Least Squares (OLS) Estimation.* Regression analysis is one of the most widely employed statistical techniques (Takeaki and Hiroshi 2004: xi). The purpose is to illuminate any underlying association between variables by fitting equations to the observed variables, according to some model (Rousseeuw and Leroy 1987:1). The classic linear model relates the dependent or 'response' variable  $y_i$  to independent or 'explanatory' variables  $x_{i1}, \dots, x_{ip}$  for  $i = 1, \dots, n$ , such that:

$$y_i = x_i^T \beta + \epsilon_i \quad i = 1, \dots, n$$

Where:  $x_i^T = (x_{i1}, x_{i2}, \dots, x_{ip})$ ,  $\beta = \begin{pmatrix} \beta_1 \\ \vdots \\ \beta_p \end{pmatrix}$  and  $\epsilon_i$ , the 'error' term, is a random variable with expectation 0.

Define the design matrix  $\mathbf{X}$ , and the vectors  $\mathbf{Y}$  and  $\epsilon$ :

$$X = \begin{pmatrix} x_{11} & \cdots & x_{1p} \\ \vdots & \vdots & \vdots \\ x_{n1} & \cdots & x_{np} \end{pmatrix} = \begin{pmatrix} x_1^T \\ \vdots \\ x_n^T \end{pmatrix}, \quad Y = \begin{pmatrix} y_1 \\ \vdots \\ y_n \end{pmatrix}, \quad \text{and } \epsilon = \begin{pmatrix} \epsilon_1 \\ \vdots \\ \epsilon_n \end{pmatrix}$$

Now the classic linear model is  $y = x\beta + \epsilon$ . The least squares estimator aims to minimize:

$$\begin{aligned} \sum_{i=1}^n \epsilon_i^2 &= \epsilon^T \epsilon \quad (3) \\ &= (y - x\beta)^T (y - x\beta) \\ &= y^T y - y^T x\beta - \beta^T x^T y + \beta^T x^T x\beta \end{aligned}$$

At the minimum:

$$\frac{\partial}{\partial \beta} \left( \sum_{i=1}^n \epsilon_i^2 \right) = \frac{\partial}{\partial \beta} (y^T y - y^T x\beta - \beta^T x^T y + \beta^T x^T x\beta)$$

So the least squares estimator  $\hat{\beta}$  is the solution to:

$$x^T x \hat{\beta} = x^T y$$

As this minimises  $\hat{\epsilon}^T \hat{\epsilon} = \sum_{i=1}^n r_i^2$ . Thus when  $x^T x$  is non-singular the least squares estimator can be evaluated directly from the data:

$$\hat{\beta} = (x^T x)^{-1} x^T y$$

*Rank-Based Regression.* The aim of Rank-based regression as pertains to least squares, is to estimate the vector of coefficients,  $\beta$ , of a general linear model of the form:

$$y_i = \alpha + x_i^T \beta + e_i \text{ for } i = 1, \dots, n$$

Where:  $y_i$  is the response variable,  $x_i$  is the vector of explanatory variables,  $\alpha$  is the intercept parameter and  $e_i$  is the error term which is assumed as iid with probability density function (pdf),  $f(t)$ . It can be written in matrix notation as:

$$y = \alpha 1 + X\beta + e$$

Where:  $y = [y_1, \dots, y_n]^T$  is the  $n \times 1$  vector of response variable,  $X = [x_1, \dots, x_n]^T$  is the  $n \times p$  design matrix, and  $e = [e_1, \dots, e_n]^T$  is the  $n \times 1$  vector of error terms.

The only assumption on the distribution of the errors is that it is continuous, making the model general. The least squares estimator minimizes the Euclidean distance between  $y$  and  $\hat{y}_{LS} = X\hat{\beta}_{LS}$ . A different measure of distance which is based on the dispersion function of Jaeckel (1972) is used to obtain the R estimator and the function is given by:

$$D(\beta) = \|Y - X\beta\|_{\varphi}$$

Where  $\|\cdot\|_{\varphi}$  is a pseudo-norm defined as:

$$\|u\|_{\varphi} = \sum_{i=1}^n a(R(u_i))u_i$$

Where:  $R$  denotes rank,  $a(t) = \varphi\left(\frac{t}{n+1}\right)$ , and  $\varphi$  is a non-decreasing, square-integrable score function defined on the interval  $(0, 1)$ . Assume without loss of generality that it is standardized, so that  $\int \varphi(u) du = 0$  and  $\int \varphi^2(u) du = 1$ .

The R estimator of  $\beta$  is defined as:

$$\hat{\beta}_{\varphi} = \text{Argmin} \|y - X\beta\|_{\varphi}. \quad (9)$$

This estimator is a highly efficient one which is robust in the Y-space. A weighted version can attain 50% breakdown in the X-space at the expense of a loss in efficiency (Chang et al., 1999).

## RESULTS AND DISCUSSION

*Estimation of Cobb-Douglas Model using Rank-based Regression and OLS.* The Cobb-Douglas data generating process can be specified as follows:

$$\ln y = 1 + 0.7 \ln x_1 + 0.3 \ln x_2 + u \quad (10)$$

The independent variables  $x_1$  and  $x_2$  are obtained by taking exponential of uniform distributed random variables. For normal data, the errors  $u$  are normally distributed with a mean of 0 and a variance of 0.2 [ $u \sim N(0, 0.2)$ ]. For data with outliers, five observations of the errors generated for the normal data with values generated from the normal distribution with a mean of 0 and a variance of 0.2 is replaced with five observations from the normal distribution with a mean of 20 and variance of 0.2 ( $\varepsilon \sim N(20, 0.2)$ ).

The performance of the Rank-based regression and OLS in estimating the true values of the Cobb-Douglas model are investigated using 1000 regressions based on the Cobb-Douglas Model specified in Eq. (10). The Monte Carlo experiments are conducted under conditions of different sample sizes (50, 150 and 500) and coefficients of  $(\beta_0, \beta_1, \beta_2) \in (1.0, 0.7, 0.3)$  are assigned to the Cobb-Douglas model with normal data as well as the data with outliers. The parameters of the Cobb-Douglas model are assigned in the spirit of Behr (2015).

Monte Carlo simulation results obtained for the normal data are reported in Table 1. Results of 1000 Monte Carlo simulations indicate that the estimates of the coefficients of the Cobb- Douglas model obtained from the Rank-based regression analysis are accurate and close to their true parameter values for the normal data (data without outliers) with small and moderate sample sizes (50 and 150). The estimates of the coefficients of the Cobb-Douglas model obtained from the least squares methods are accurate and close to their true parameter values for the data without outliers (Normal data) with small and moderate sample sizes (50 and 150). Additionally, the estimates of the coefficients of the Cobb-Douglas model derived from the Least squares method and the Rank-based regression approach are accurate and equivalent to their true parameter values for normal data with large sample size (500).

Fundamentally, Table 1 demonstrates that in the absence of outliers, the OLS and Rank-based regression analysis performed well, with the averaged estimates all nearly equal or close to their true values of  $\beta_0 = 1.0, \beta_1 = 0.7, \beta_2 = 0.3$  regardless of the different sample sizes. These results are consistent with Ryan (1997) who asserts that robust regression estimation technique performs almost as well as OLS when the data has no outliers. Similarly, Chen, Tang, Lu and Tu (2014) noted that in the absence of outliers, OLS and Rank-based methods performed well, with the averaged estimates all nearly identical to the true values in linear regression analysis.

Table 1 – Normal Data (Without Outliers)

Sample Size	Properties of Data	Method	Estimates		
			$\beta_0$	$\beta_1$	$\beta_2$
N=50	Normal	OLS	1.05	0.64	0.31
		Rank Regression	1.04	0.70	0.34
Sample Size	Properties of Data	Method	$\beta_0$	$\beta_1$	$\beta_2$
N=150	Normal	OLS	1.03	0.70	0.30
		Rank Regression	1.02	0.70	0.30
Sample Size	Properties of Data	Method	$\beta_0$	$\beta_1$	$\beta_2$
N=500	Normal	OLS	1.00	0.70	0.30
		Rank Regression	1.00	0.70	0.30

Based on 1000 Monte Carlo Simulations.

Monte Carlo studies results derived for the data with outliers are reported in Table 2. Results of 1000 Monte Carlo simulations indicate that the estimates of the coefficients of the Cobb- Douglas model derived from the Rank-based regression analysis are accurate and close to their true parameter values for the data with outliers in large sample (500). Generally, as sample size increases from small through moderate to large sample, estimated coefficients of the Cobb- Douglas model move closer to their true parameter values in the Rank-based regression analysis.

The Ordinary Least Squares method performed poorly in the presence of outliers as illustrated in Table 2. In small, moderate and large samples of 50, 150 and 500 respectively, the Ordinary Least Squares (OLS) estimator performs poorly with its parameter estimates entirely different from the true parameter values of  $\beta_0 = 1.0, \beta_1 = 0.7, \beta_2 = 0.3$  as specified in the Cobb-Douglas data generating process.

Noticeably, the results of the Rank-based regression analysis are similar to that of the Ordinary Least Squares and close to their true values when the data contains no outliers. However, when the data contains outliers, Rank-based regression analysis remains robust to outliers in large samples whilst the least squares is influenced by outliers in small, moderate and large samples.

The results are consistent with previous studies. For example, Chen, Tang, Lu and Tu (2014) noted that in the presence of outliers, classic linear models yield extremely large estimates that are un-interpretable, whilst in contrast, the Rank-based regression model generated estimates close to their true values. Furthermore, Ryan (1997) notes that robust methods such as Rank-based estimation methods perform much better than OLS when the data has outliers. Similarly, the results is consistent with Jureckova (1971); Jaeckel (1972); McKean and Hettmansperger (1978) and Kloke and McKean (2015)'s assertion that Rank-based regression remains robust in the presence of outliers in the data. Additionally, Rousseeuw and Leroy (2003) asserts that OLS estimator is extremely sensitive to multiple outliers in linear regression analysis and it can even be easily biased by just a single outlier because of its low breakdown point. Chatterjee and Hadi (2006) also note that unlike OLS estimator, robust regression estimators provide robust estimates even in the presence of multiple outliers. The impact of outliers when using robust regression is minimized by giving smaller weight for outliers in the estimation procedure. These results also confirm the claims of Enaami, Mohamed and Ghani (2013) that outliers in production data bias the results of OLS, while robust regression methods provide unbiased estimates of the Cobb-Douglas model as noted in the Rank-based regression.

Table 2 – Data with Outliers

Sample Size	Properties of Data	Method	Estimates		
			$\beta_0$	$\beta_1$	$\beta_2$
N=50	With Outliers	OLS	5.31	-2.25	-1.30
		Rank Regression	1.08	0.62	0.30
Sample Size	Properties of Data	Method	Estimates		
N=150	With Outliers	OLS	2.30	-0.90	0.70
		Rank Regression	1.05	0.70	0.24
Sample Size	Properties of Data	Method	Estimates		
N=500	With Outliers	OLS	1.12	0.82	0.40
		Rank Regression	1.02	0.70	0.30

Based on 1000 Monte Carlo Simulations.

## CONCLUSION

The performance of Rank-based regression analysis has been explored in the Cobb-Douglas production function regression modelling. The results suggest that with normal data, the Rank-based regression approach yield comparable results to the OLS. However, when outliers are present in the data, the least squares provides inaccurate estimates of the coefficients of the true Cobb-Douglas model in small, moderate and large samples of data. Rank-based regression estimation, on the other hand, is resistant to outliers and provides exact estimates of the coefficients of the true Cobb-Douglas model in large samples. The Monte Carlo simulation results indicate that the Rank-based regression estimation can be considered an alternative to the OLS technique in estimating the Cobb Douglas production function and may yield accurate results in large samples when the data contains outliers. The evidence from the study suggests that the presence of outliers can bias the results of the OLS estimation of the Cobb-Douglas model while the Rank-based regression can be an appropriate method to produce unbiased estimates in the presence of outliers.

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**ANALYSIS OF PROFITABILITY, MARKETING ACTIVITIES AND E-COMMERCE  
IMPLEMENTATION ON FIRM VALUE: EVIDENCE FROM INDONESIAN CONSUMER  
GOODS LISTED COMPANIES IN 2014-2016**

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**ABSTRACT**

The purpose of this study is to examine the effect of profitability, marketing activities, and E-commerce implementation on firm value of consumer goods industry sector which's listed in Indonesia stock exchanges in 2014-2016 periods. The firm's value in this study is measured by using Tobin's Q ratio whereby it is the best predictor used to measure firm value and can be used to explain the financial condition of the firm and market conditions. The results showed that profitability and marketing activities had a positive significant effect on firm value while the e-commerce implementation had a negative non significant effect on firm value.

**KEY WORDS**

Profitability, marketing activities, e-commerce, firm value.

The purpose of the company establishment is to increase the prosperity of owners and shareholders by increasing the value of the company (Wahyuni, 2013). The firm value is the perception of investors to companies that are often associated with stock prices. For a company that trades stocks on the floor of the stock, maximizing the value of the firm is equal to maximizing stock prices, so that the stock market price is an indicator of the value of the company. While the stock market price itself is a description of the various policies undertaken management, so it can also be said that the value of the company can be based on management decisions. (Sudana, 2011).

Many strategies can be implemented by each company to respond to tight business competition conditions, whereby marketing activity is one of them. The main purpose of marketing activity is to improve the company's long-term financial performance while also creating sustainable competitive advantage (Kanagal, 2009). This was done so that the company can maintain the activity and existence of the company. Advertising is one of the most significant marketing activities affecting the company's performance so that managers tend to allocate resources owned in large quantities to advertise in order to increase sales and ultimately will impact on increasing the value of the company (Kim dan Joo, 2013). Research from Ryoo (2016) explains that aggressiveness in marketing activities can provide more premium and give rise to stock prices and market reaction.

Lately with the increase of internet users in the world then many companies are implementing E-Commerce on sales and marketing system. E-Commerce will facilitate the end consumer in recognizing and buying goods manufactured by the manufacturer so as to provide new methods in marketing and sales activities (Grandon, 2003). In addition, companies that have superior performance in the field of E-Commerce will have better customer relationships and improve the short-term performance of the company (Saeed, 2005). Research from Lee (2002) of companies in South Korea indicates that E-Commerce and E-Bussines have a significant impact on firm value and its development in the future. Implementation of E-Commerce can be seen from the availability of online stores, sales websites, and can be measured by the network advantage and the number of visitors from a website and online store (Rajgopal, 2001).

In addition, the company needs an analysis of financial statements to determine the company's ability to overcome financial problems and take quick and precise decisions.

The financial statements are sources of information related to the financial position and financial performance of the company. The financial data is analyzed further so that



information will be obtained that can support the decision made. These financial statements should describe all relevant financial data and have been established procedures so that financial statements can be comparable so that the accuracy of the analysis can be accounted for.

In addition to being useful to the company and its management, the analysis of financial statements is required by interested external parties such as creditors, investors, and governments to assess the financial condition and development of the company. Creditors use it to assess the level of liquidity and solvency of the company in paying its debts. Investors use it as a basis in determining the investment that will be implemented, from the financial statements investors can assess the level of profitability of the company.

Such information should at least allow investors to conduct a stock valuation process that reflects the relationship between risk and returns that match the preferences of each type of stock (Mahendra, 2012). Agustia (2012) shows that the level of profitability of the company can have a positive impact on the value of the company where the increase profitability can be started with the achievement of relevant economies of scale and efficiency of cost costs. The firm's value in this study is measured by using Tobin's Q ratio whereby it is the best predictor used to measure firm value and can be used to explain the true financial condition of the firm and market conditions (Sucuahi, 2016)

The author conducted a study on the firm values in the consumer goods industry sector (consumer goods) listed on the Indonesian Stock Exchange period 2014-2016. Data were obtained from the official website of Indonesia Stock Exchange and the company's website. In this study, the authors only focused on companies that consistently publish annual report and the financial report. Companies that do not have the completeness of the data will be removed from the population.

The consumer goods industry sector belongs to the manufacturing sector companies. Consumer goods themselves are goods that are often consumed by everyday society such as food and beverages, cigarettes, medicines, cosmetics, and household utensils.

The consumer goods industry sector is chosen because companies in this sector are the most heavily engaged in promoting their products or services. This can be seen in various media, such as print media, social media, and electronics such as television.

Therefore, companies in this sector are required to be able to assess the condition and development of financial performance as well as maintain the effectiveness in investment marketing activities in order to increase the value of the company and maintain the existence and able to increase the company's growth amid rapid economic growth and increasingly competitive business strict.

The results of this study contribute to the literature that can be used as a discussion by the various parties, especially related to E-Commerce Implementation and firm value. E-Commerce Implementation is expected to improve the firm value in stock exchange and enhance the firm profitability (Filson, 2002). On the other hand the implementation of E-commerce that requires a lot of cost can be a review of the company given the effects given are volatile and often seem to fluctuate for no reason.

## LITERATURE REVIEW

*Signalling Theory.* The signaling theory states that the company deliberately gives a signal to the market, thus it is expected that the market will react and affect the stock price of the company. If the company signal informs good news on the market then it is expected to increase the stock price, on the contrary if the company signal informs bad news then the company's stock price will decrease. In relation to this research, stock prices reflect the value of the firm.

The signals can be given by the company through the delivery of financial statements. These signals can be a signal of success or failure signal by management as the executing agent to be conveyed to the owner of the capital as the owner. Signals provided through the delivery of these financial statements, can indicate whether the management has performed in accordance with what has been agreed with the owner or not.

In its role as an executing agent, management has internal information more and more timely than the information obtained by investors, this is called information asymmetry. The existence of this information asymmetry makes it difficult for investors to know which companies are really performing well as reported in the financial statements and which are not.

Lack of this information makes investors tend to provide low prices for the company as a business of self-protection. To overcome this, companies must reduce the information asymmetry in order to increase the value of the company. One way to reduce the asymmetry of information is to provide strong signals to investors with the presentation of complete and relevant financial statements.

### HYPOTHESIS OF STUDY

*The Effect of Profitability on Firm Value.* Increased profitability of the company shows the company's better performance and better company prospects as well. Companies that have good prospects are highly favored by investors because they are considered to provide a good rate of return. Profitability measures the company's financial performance in generating profits using assets owned. So, investors catch an increase in profitability as a positive signal that can increase the value of the company.

Increase in firm value can be determined by earnings power from company assets. The higher the earning power the more efficient the asset turnover and the higher the profit margin earned by the company (Dewi, 2013).

H1: Profitability has a positive effect on Firm Value.

*The Effect of Marketing Activities on Firm Value.* Kim and Joo (2013) said in his research that advertising is one of the most significant marketing activity to the company's performance so that managers tend to allocate resources owned in large quantities to advertise in order to increase sales and ultimately will affect the increase in firm value. This indicates that the information about the greater marketing expense issued by the company to be a positive signal for investors that will affect the greater the value of the company.

H2: Marketing Activities has a positive effect on Firm Value

*The Effect of E-Commerce Implementation on Firm Value.* Filson (2002) in his research revealed that the E-Commerce has a positive influence on the value of the company in which the E-Commerce strategy will bring the company to a new environment that will bring a positive impact on marketing and sales to the final consumer. Such as more efficient use and more convenience stores offline promotion delivery by the company. It will be positively correlated to meningkanya performance of the company and increasing the value of companies in the stock market.

H3: E-commerce implementation has a positive effect on Firm Value

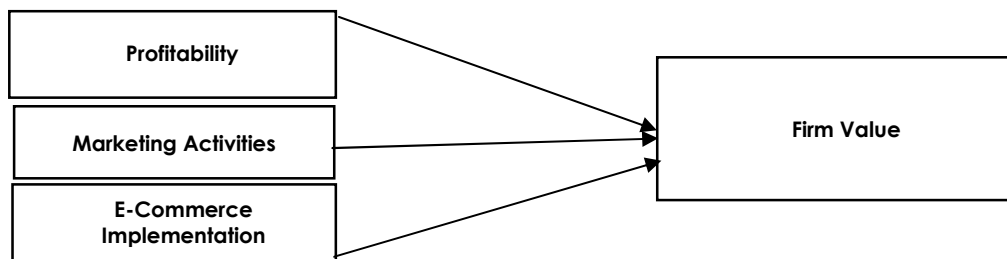


Figure 1 – Conceptual Framework

### METHODS OF RESEARCH

*Population and Sample.* The population in this study is Indonesian consumer goods manufacturing company listed on the Indonesia Stock Exchange from 2014 until 2016.

Sampling using purposive sampling with criteria published financial statements and annual reports as well as a complete display data for research purposes

*Operational Definition of Variables:*

*Profitability.* Profitability in this study using Return on Assets (ROA) ratio, which is the ratio used to measure the company's financial performance in generating profit using assets owned. Investors capture an increase in Return on Assets as a positive signal that can increase the firm value. So the higher the Return on Asset the higher the firm value. This ratio is chosen because it is comprehensive able to measure the overall financial statements for companies that promote profit. Return on Assets (ROA) ratio is formulated as follows:

$$\text{Return on Asset} = \frac{\text{Net Income}}{\text{Total Asset}}$$

*Marketing Activities.* Marketing activities are activities undertaken by companies to be able to inform the public of the existence of products or services offered by the company. Sharma and Sharma (2009, in Ciawi and Hatane 2015) stated that in calculating marketing expense in a study using multiple regression models can use the logarithm of the book value of marketing expense. The book value of marketing expenses is chosen because through this investor can see how far effort management to expand market segmentation by see how big of sacrifice of asset and source of capital owned.

The book value of marketing expenses is derived from the income statement or if included in the sales expense, the book value of marketing expenses can be found in the notes to the financial statements of the details of the sales expense. The name of the marketing expense account that is usually included in the sales expense is promotion or advertising. The calculation of marketing activities carried out using the following formula:

$$\text{Marketing Activity} = \text{LOG} (\text{Book Value Marketing Expense})$$

*E-Commerce Implementation.* E-Commerce is an enterprise business activity, where companies can market and sell their products directly to end customers via the internet. All promotions and information about the company's products will be displayed in online stores owned by the company. Implementation of E-Commerce itself can be seen from the availability of online store on the official website of the company and the official online store on other E-Commerce website such as tokopedia, bukalapak, etc.

E-Commerce variables are dummy and independent variables. Companies implementing E-Commerce are rated 1 and companies that do not implement E-Commerce are assigned a value of 0.

*Firm Value.* Dependent variable in this research is Firm value (TOBINSQ). The value of a firm is an investor's perception of the success rate of the firm that is often associated with the stock price or is the market value of the outstanding debt and equity securities of the company. In this study to determine the value of a firm, Tobin's Q. Tobin's Q ratio is the ratio of the market value of a company's asset as measured by the market value of the number of shares outstanding and the debt (enterprise value) on the replacement cost of the firm's assets (Lindenberg, 1995). The formula of Tobin's Q ratio used is as follows:

$$\text{Tobin's Q} = \frac{(\text{Share} \times \text{CP}) + \text{DEBT} + \text{INV} - \text{CA}}{\text{TA}}$$

Where: Share = Number of shares outstanding; CP = Closing Price; DEBT = Total Debt; INV = Inventory; CA = Current Asset; TA = Total Assets.

*Types and Data Sources.* This study uses quantitative data types of numbers or numbers that can be processed and analyzed using mathematical calculation techniques or statistics. Source of data in this research is in the form of secondary data. Secondary data can be obtained through books, journals, literature, internet, or other sources that do not involve direct observation of researchers. The following is the secondary data along with the data sources used in this study:

- The information of manufacturing companies of consumer goods industry sector listed in Indonesia Stock Exchange (IDX) period 2014-2016 obtained from sahamkok
- The financial statements of consumer goods industry manufacturing companies that have been audited and listed in Indonesia Stock Exchange (IDX) period 2014-2016 obtained from the Indonesia Stock Exchange (IDX) Web site (BEI)
- The annual report of manufacturing companies listed on the Indonesia Stock Exchange (BEI) for the period of 2014 - 2016 obtained from the Indonesia Stock Exchange (BEI) website,

*Data Collection Procedures.* Companies that have been sampled in this study have met the requirements that have been determined, namely:

- Consumer goods industry manufacturing sector listed on Indonesia Stock Exchange and have financial report during 2014 - 2016.
- Companies that provide complete data required in the study Throughout the year 2014 - 2016, the total sampled companies are 102 sample data.

*Analysis Data Method.* This study uses multiple regression analysis used to measure the relationship between two or more variables and show the direction of the relationship between dependent and independent variables (Ghozali, 2011: 96). Before the multiple regression calculations to determine the effect of independent variables on the dependent variable in unison, then will be tested classical assumptions. The classical assumption test is performed to meet the BLUES (Best Linier Unbiased Estimation) regression characteristic. The classical assumption test consists of: (1) Normality Test; (2) Autocorrelation Test; (3) Multicollinearity Test; and (4) Heteroscedasticity Test. The application used for data processing in this research is SPSS 24.0 application.

The regression equation is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where: Y = Firm Value;  $\alpha$  = Konstanta;  $\beta_1 \dots \beta_n$  = Coefficient regression direction; X1 = Profitability; X2 = Marketing Activities; X3 = E-Commerce Implementation; e = Residual Error.

## RESULTS OF STUDY

*Testing Results and Discussion.* Here are the results of multiple linear regression analysis using SPSS 24 to test the effect of independent variables ROA, BVME, and ECOM on the firm value.

Table 1 – Results of Multiple Linear Regression Analysis

		Coefficients <sup>a</sup>						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
Model		B	Std. Error	Beta				Tolerance
1	(Constant)	-1.248	.963		-1.295	.198		
	ROA	16.645	1.568	.712	10.618	.000	.972	1.029
	BVME	.239	.099	.174	2.420	.017	.849	1.178
	ECOM	-.346	.524	-.047	-.661	.510	.871	1.148

a. Dependent Variable: TOBINSQ

Source: Data Processed, 2017.

Based on the results contained in Table 6, it can be arranged regression equation as follows:

$$\text{TOBINSQ} = -1.248 + 16,645\text{ROA} + 0,239\text{BVME} - 0,346\text{ECOM} + e$$

*Hypothesis testing:*

Table 2 – Test Coefficient of Determination

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.756 <sup>a</sup>	.572	.559	2.46504	2.176

a. Predictors: (Constant), ECOM, ROA, BVME

b. Dependent Variable: TOBINSQ

Source: *Processed Data, 2017.*

Based on Table 7 is known coefficient of determination (R<sup>2</sup>) is equal to 57,2%. This shows that 57.2% change in the dependent variable (Firm value) can be explained by the independent variables Profitability, Marketing Activity, and E-Commerce Implementation, while the rest that is equal to 42.8% explained by other variables not found in this study.

This can happen because for financial performance, the authors enter in this study only from the level of profitability, where there are other financial ratios of solvency and liquidity.

Testing the hypothesis 1 (one) was performed using the t test. Tests conducted to see the effect of profitability on firm value. Research conducted on 102 data. The test results are shown in Table 3 below.

Table 3 – Effect of Profitability Against Firm values

Model	Variables	Coefficient	Significant	Conclusion
Model 1	ROA	16,645	0,000	Significant positive effect

Source: *Processed Data, 2017.*

Based on t test results can be concluded that the profitability of significant positive effect on firm value. This can be seen by the significant value of ROA count of 0.000, which means the level of significance arithmetic < From a level of 0.05,

Based on the calculated significance value to see the impact of profitability on the firm value, it can be concluded profitability significant positive effect on firm value. This shows that the hypothesis of one (1) which states Profitability has a positive effect on firm value is proven.

Hypothesis testing two (2) was performed using the t test. Testing was conducted to see the effect of marketing activities on the value of the company. Research conducted on 102 data. The test results can be seen in Table 4 below.

Table 4 – Effect of Marketing Activities Against Firm values

Model	Variables	Coefficient	Significant	Conclusion
Model 1	BVME	0,239	0,017	Significant positive effect

Source: *Processed Data, 2017.*

Based on t test results can be concluded that marketing activities have a significant positive effect on firm value. This can be seen based on the significance of BVME count of 0.017 which means the level of significance count < from the level of trust 0.05.

Based on the value of significance count to see the effect of marketing activity on firm value, it can be concluded marketing activities have a significant positive effect on of firm value. This shows that hypothesis 2 (two) which express marketing activity have positive effect to firm value proven.

Hypothesis testing three (3) is done by using t test. Tests conducted to see the effect of E-Commerce implementation of firm value. The study was conducted on 102 data. Test results can be seen in Table 5 below.

Table 10 – Effect of E-Commerce Implementation against firm values

Model	Variables	Coefficient	Significant	Conclusion
Model 1	ECOM	-0,346	0,510	Significant positive effect

Source: Processed Data, 2017.

Based on the result of t test can be concluded that Implementation of E-Commerce has negative effect not significant to firm value. It can be seen based on the value of calculation significance ECOM of 0.510 which means the level of significance count > from the level of trust 0.05.

Based on the significance of the calculation to see the effect of E-Commerce Implementation on Firm value, it can be concluded that the implementation of E-Commerce has no significant negative effect on Firm value. This shows that the 3 (three) hypothesis that E-Commerce Implementation has a positive effect on Firm value is not proven.

## DISCUSSION OF RESULTS

Hypothesis 1 (one) profitability has a positive effect on firm value. The results showed that profitability has a positive effect on firm value. This is indicated from the significance level of the count of 0.000 is smaller than the trust level of 0.05.

This indicates that any increase in profitability will cause an increase in firm value, and is dominant compared to other factors. Thus, H1 is accepted which means that profitability has a significant positive effect on Firm value.

Profitability shows the level of net profit that a company can achieve when operating its operations. Profits that are distributed to shareholders are profits after interest and taxes, so with high profitability can add value to the value of the company as reflected in the stock price. When firms have high profitability, the use of external funds can be reduced by more internal funds because they have high profitability, so shareholders earn profits in the form of dividends from the profit generated and reduce the company's obligation to pay interest on debt.

The higher the level of profitability then the higher the value of the company. The more companies are able to continue to generate profits from year to year, indicating that the company is currently in optimal operational conditions. This will be captured by investors as a positive signal for the company to produce a high rate of return as well. Thus the value of the company continues to increase along with the increasing amount of investment funds from investors.

Hypothesis 2 (two) marketing activities have a positive effect on firm value. The results showed that profitability has a positive effect on firm value. This is indicated from the significance level of the count value of 0.017 is smaller than the trust level of 0.05.

This indicates that any increase in Marketing Activity will cause an increase in Firm value. Thus H2 is accepted which means that Marketing Activity has a significant positive effect on Firm value.

With the conduct of marketing activities such as advertising and promotion, the company will be easily recognizable by investors, with the more familiar investors in the company, the investor will be easier to believe that the company is able to process the source of funds properly. Because investors see the incessant marketing activities that indicate that the current company is in optimal financial condition and will be more optimal with the conduct of these marketing activities. This will be a positive signal for investors.

Hypothesis 3 (three) implementation of E-Commerce have negative effect to firm value. The results showed that the implementation of E-Commerce negatively affect the value of the company. This is indicated from the significance of the count value of 0.510 greater than the trust level of 0.05.

This indicates that any increase in Marketing Activity will cause a decrease in Firm value. So H3 is not accepted which means that Implementation of E-Commerce has negative effect not significant to Firm value.

This study rejects the hypothesis 3 (H3) who stated that the implementation of E-Commerce affected the firm value. The results of this study contrast with a study conducted by filson (2002) which states that companies that have implemented E-Commerce have more values in the stock exchanges. Basically, the implementation of E-Commerce is an activity undertaken by the company to facilitate the marketing and sales to final consumers, so that the final consumer increasingly easy to identify and acquire items of companies. But investors in the premises do not see it as an implication on the value of companies in the stock market so that the implementation of E-Commerce is less describes the value of the company

## CONCLUSION

Based on the analysis of the results and discussion, the conclusion of this study is Profitability and Marketing Activities affect the value of the company. But e-commerce has not significantly terhadap value of the company.

This can be caused by the viewpoint of investors who think that the higher the company's ability to generate profits, the better the overall performance of the company and will have an impact on the increase in the value of the company.

Consumption sector companies focused on necessities of everyday people such as food, beverages, cigarettes, drugs, cosmetics, and household appliances. Due to the nature of its usage is intense pose stiff competition for companies in this industry sector. Companies must be able to create product differentiation compared to other similar products belonging to a competitor, that is to conduct marketing activities.

However, the implementation of E-Commerce in marketing and sales is less able to provide added value to the value of the company because the implementation of E-Commerce today can not convince investors in Indonesia that the existence of these activities can help companies to have better performance so as to increase the value of the company.

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## **THE EFFECT OF GOOD CORPORATE GOVERNANCE AND TRI HITA KARANA CULTURE ON THE QUALITY OF FINANCIAL REPORTING**

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### **ABSTRACT**

This study examines the effect of Good Corporate Governance (GCG) and Tri Hita Karana (THK) Culture on the Quality of Financial Reporting conducted on money changer in Badung Regency. The analysis technique used in this research is multiple linear regression analysis. This study only got questionnaires that returned as much as 82% of the questionnaires distributed in 88 companies. The questionnaire was filled by the respondents of the study consisting of owner, manager, accounting and teller. Based on data from the questionnaire, the researched conclusions are obtained that support the hypothesis, where  $H_1$  accepted which means GCG positively affect the quality of financial reporting. Likewise,  $H_2$  is accepted which means THK culture has a positive influence on the quality of financial reporting.

### **KEY WORDS**

Good corporate governance, tri hita karana culture, financial reporting, company.

Good Corporate Governance (GCG) becomes a very important thing for the company. Although the existence of GCG is quite long, it is still an interesting study to do (Putri, 2012). Todorovic (2013), GCG can help in the prevention of corporate scandals, fraud and crime. GCG also related with how the principal can believe that agents will benefit them, believing that agencies do not embezzle and invest their funds in projects that do not benefit the principal (Shleifer and Vishny, 1997). Chairman of the Board of Commissioners of the Financial Services Authority, Muliaman Hadad stated that GCG guarantees business development and is essential if business sustainability is maintained (Afrianto, 2017). Muliaman also said that Indonesia is currently included in the lowest rank on good governance in Southeast Asia.

In addition to good corporate governance, it is also necessary to apply local cultures such as local wisdom attached to individuals (Putri et al., 2017). The role of culture in the last decade has received much attention from economists because the economic interaction can not be separated from the culture owned by various countries in the world (Sudarma, 2013). The cultural contribution in understanding economic phenomena suggests that cultural hypotheses are important for explaining fundamental economic problems (Guiso et al., 2008, 2009). Another view suggests by Tabellini (2008) that culture is the main determinant of economic development and empirical studies of culture also have consequences in financial literature, capital market phenomena, and corporate capital structures (Chui et al., 2002) and industrial development in mixed information (Huang, 2008). In addition, Wirajaya et al. (2014), states that accountability practices are formed from philosophical, cultural and religious configurations. In this study, the configuration is shown in the THK culture. Where, the value in THK culture teaches humans to always maintain harmony between human relationships, human with the environment, and human with God.

This study uses an authorized money changer in Badung regency. This is because money changers are particularly vulnerable to money laundering, embezzlement, fraud, financial report manipulation and have been infiltrated by drug dealers and corrupt acts to disguise their crimes. This phenomenon is a global phenomenon ([apvaindonesia.com](http://apvaindonesia.com)). In addition, the more foreign currencies that enter Indonesia through money changer, the higher

the foreign exchange earnings (Zebua, 2016: 87). Thus, the exchange rate against foreign currencies will have an impact on the quality of financial reporting.

The quality of the financial reporting reflects the quality of information that will influence the decision-making, as it is based on information that has been prepared in a transparent, accountable and qualified manner (Payamta, 2006). Quality reports present all information about the company's business in a relevant and reliable way (Sari and Suaryana, 2014). Good quality financial reports if they meet relevant normative requirement, are reliable, comparable, and understandable. The financial reporting are one form of organizational accountability to stakeholders (Astika and Yasa, 2018, Karsana and Suaryana, 2017). Purba and Suaryana, (2018) also state that qualified financial reporting are those that indicate the actual state of the company.

## LITERATURE REVIEW

*Stewardship Theory.* This study is based on stewardship theory with the assumption that managers act responsibly according to the needs of interested parties (Donaldson and Davis, 1991). In carrying out its responsibilities, Steward uses all of his abilities and expertise for organizational goals (Anton, 2010). This theory assumes that management with high integrity, honesty and able to act with full responsibility to carry out the best actions aimed to meet the needs of stakeholders and shareholders. Stewardship Theory states that managers will be more concerned with credibility or public trust. Managers are described as good stewards (Huse, 2007), where managers are faithful to carrying out every task and responsibility. Managers are not motivated in material and money, but they are motivated by self-desire in self-actualization and gain satisfaction from the work done, and avoid conflict of interest.

In this research, stewardship theory becomes the basis to know that managers can create quality financial report. Where, the manager of a money changer company must have a commitment to carry out its duties and obligations to prevent business activities used for money laundering, terrorism financing or other crimes and to enhance professionalism in accordance with PBI 18/20/PBI/2016 concerning the activities of non-bank foreign exchange ([www.bi.go.id](http://www.bi.go.id)), there by improving the quality of the company's financial reporting.

*Good Corporate Governance.* Good corporate governance is often defined as good leadership. Sumodiningrat (1999: 251) states that good corporate governance is a trustworthy effort. According to Bank Indonesia Regulations No. 8/4/ PBI/2006, five GCG principles, among others: transparency is open information in executing decision making process; accountability is the clarity of functions and responsibilities for effective management; responsibility is the conformity of corporate management with applicable regulations; independency is the management of a company professionally without any influence or pressure from anywhere; fairness that is justice and equality in fulfilling the rights of stakeholders.

*Tri Hita Karana Culture.* Etymologically, Tri Hita Karana's Tri is three, Hita means prosperity, and Karana is the cause, consisting of *Parahyangan* (spiritual environment), *Pawongan* (social environment) and *Palemahan* (natural environment). The concept of Tri Hita Karana can be interpreted as three harmonious relationships between human and God, human with other human, and human being with environment to achieve safety and peace of the universe (Kaler, 1983; Surpha, 1991; Dalem, 2007; Palguna, 2007; Agung, 2009 and Pranata et al., 2017). THK is a concept or often referred to as a Hindu community philosophy in Bali. The universal concept of THK and the concept applied in a social system can be measured basically. THK is a philosophy of togetherness and harmonization that does not recognize race, ethnic, religion, ancestry and is contained in all religious teachings in the world (Arif, 1999 and Pusposutardjo, 1999 in Suardhika, 2011). This shows that THK culture in business is a testament to the values contained in the national culture has been used and implemented in organizational culture practices (Suardhika, 2011). The cultural values associated with THK disclosed by Adhiputra (2009) in Sujana et al. (2015) are:

- *Parahyangan* encompasses *Moksartam jagathitaya caiti dharma* which implies the image of the living human in the world aims to achieve the inner and outer welfare;

*Wyapi-wiyapaka* is as a principle of human always remember that God is always everywhere and always remember prayer or worship; *Rwa bhineda* (appreciating differences/two different ones) is fostering an attitude of mutual understanding between people.

- *Pawongan* includes *Tri kaya parisudha*, which teaches people to always think (*manacika*), say (*wacika*), and act or do (*kayika*) is good; *Purusartha* chess, which is the successful *dharma* (good deeds), *artha* (material / wealth), *kama* (pleasure), *moksa* (balance / harmony) in everyday human life; *Tat twam asi* (the concept of love, and realizing the life of all living things as a whole unity) is to teach people to always avoid violence and cruelty; *Karma phala* (causal law); and *Tri guna* (three characters / behavior): *satwam* (wise, honest, loyal), *rajas* (full of lust / greed), *tamas* (lazy).
- *Palemahan* encompassing the *paros paros salunglung sabayantaka saharpanaya*, which implies the value of attitudes, human learning to understand and practice tolerant life, as well as the cultural value of *anuduhkna ajnyana sandhi*, which implies that human beings will not harm and impersonate nature or the environment.

*Quality of Financial Reporting.* The quality of financial reporting is still varied, but in principle the quality of financial reporting relates to the overall performance of the company reflected in the company's earnings. This view holds that high quality earnings are reflected in sustainable profits for a long period (Yasmeen and Hermawati, 2015).

Based on Government Regulation No. 71 of 2010 states, to produce financial reports that benefit the users, the information contained in the report must be qualified and useful in decision making. The quality of these financial reporting is reflected in qualitative characteristics. The normative prerequisites required for government financial reporting to meet the desired qualities of relevance, reliability, comparability and comprehensibility.

*The Effect of Good Corporate Governance on Quality of Financial Reporting.* Theoretically, Sumodiningrat (1999: 251), states that good corporate governance is a trustworthy effort as a good leader. Empirically, Sahay and Kuldeep (2015) stated that good corporate governance is very relevant and important to be found in the holy book in India. Where, managers have the potential and significant impact on corporate governance that impact on the quality of financial statements (Cohen et. al., 2004). This is supported by research Mulyawan et al. (2017), whereby GCG positively affects the performance of LPD. Emile et al. (2014) found that Good Corporate Governance practice is considered very important for the company because it can reduce risk, attract investors and improve company performance. In addition, GCG is said to have an effect on the reliability of financial reporting (Novatiani and Fatimah, 2013).

H<sub>1</sub>: Good Corporate Governance is positive effect on Quality of Financial Reporting.

*The Effect of Tri Hita Karana Culture on Quality of Financial Reporting.* Theoretically, Tri Hita Karana explains that the tradition of Hindu society in Bali both individually and organization group in everyday life put forward the principle of togetherness, harmony, and balance reflected in three dimensions, namely *parahyangan*, *pawongan*. and *palemahan* (Windia and Dewi, 2007: 23 in Suardhika, 2011). Empirically, Kepramareni et al. (2014), states that responsibility of the financial reporting quality is implemented holistically. Kepramareni also concluded that the accountability of the report was conducted in two forms, ie, *sekala* and *niskala*. This proves that accountability is done not only in relation to humans and the environment, but also with God. Magesh and Prasad (2015) concluded that emotional and spiritual balance would build an individual relationship with the organization around it. This harmonious relationship will help improve the quality of financial reporting because of the high integrity of corporate leaders.

H<sub>2</sub>: Tri Hita Karana Culture is positive effect on Quality of Financial Reporting.

## METHODS OF RESEARCH

This study uses questionnaires as data sources because this study examines one's perception. Respondents in this study are manager, accounting, owner and teller. Questionnaires were distributed to the headquarters of the money changer company. This is

because research respondents can be covered at head office. This study uses only one teller in the head office, because it is considered able to represent respondents. These respondents were also considered capable of providing the appropriate answers to those required in the study. The questionnaire of this study used a likert scale of 1 to 5. Each question has five answer options, ranging from "strongly disagree" to "strongly agree," which is then converted to a number from one to "strongly disagree" to five for answers "strongly agree". Likert scale is used in order to facilitate the respondent to choose alternative answers.

he population in this study amounted to 88 companies. Meanwhile, the samples in this study were conducted by saturated sampling technique known as census, where all members of the population were sampled. Thus, the sample in this study is equal to the number of population that is as many as 88 companies.

Before performing the analysis, the classical assumption test is performed, such as normality test, heteroscedasticity and multicollinearity. In addition, tested the validity and reliability. To test the hypothesis, in this study used multiple regression analysis model with equation formula as follows:

$$\text{Quality of Financial Reporting} = \alpha + \beta_1 \text{ GCG} + \beta_2 \text{ THK} + \varepsilon \quad (1)$$

Where:

- $\alpha$  = constants;
- $\beta$  = regression coefficient;
- GCG = Good Corporate Governance;
- THK = Tri Hita Karana Culture;
- $\varepsilon$  = error.

*Operationalization of Variables:*

*Dependent variable.* Dependent variable of this research is Quality of Financial Reporting. The dependent variable was measured by the questionnaire adopted from the Puspitawati (2016) study. This dependent variable uses indicators based on qualitative characteristics in Government Regulation No. 71 of 2010, namely: relevant, reliable, understandable, and comparable.

*Independent variables.* Good Corporate Governance variables were measured using questionnaires adopted from Mulyawan et al. (2017). This variable uses indicators based on GCG principles, namely: transparency, accountability, responsibility, independency and fairness. While Tri Hita Karana Culture variables were measured using questionnaires adopted from Suardhika (2011). This variable uses indicators based on three dimensions of THK culture, namely: *Parahyangan*, *Pawongan* and *Palemahan*.

## RESULTS AND DISCUSSION

*Instrument Data.* This study uses the unit of analysis in the form of respondents from the sample companies because of the research respondents who gave the perception of the variables studied. Therefore, the analysis conducted using answers from respondents as many as 288 questionnaires. This research is feasible to proceed because based on the central limit of theorem, the minimum number of samples to find the normal curve at least reached the minimum of respondents as much as 30 (Sugiyono, 2013: 86).

Table 1 – Instrument Data

Explanation	Total
Distributed questionnaire	352
The questionnaire did not return	64
The questionnaire is returned and used	288
<b>Usability response rate</b> <b>288/352 x 100% = 82%</b>	

Source: data processed (2018)

Total of questionnaires distributed on the money changer are 352 questionnaires. This is because the sample of research are 88 companies, and for each company distributed 4 questionnaires, namely for owners, managers, accounting and teller. Based on the distributed questionnaires, only 72 money changer companies filled out the research questionnaires, so the questionnaire returned 288 questionnaires (usability response rate = 82%).

*Characteristics of Respondent.* Characteristics of respondents are the last level of education taken from each respondent. In the characteristics of education level, it can be said that the respondent has an adequate level of education. Table 2 shows respondent characteristics based on education level in money changer.

Table 2 – Characteristics of Respondent

Explanation	Total Respondent (People)	Percentage (%)
<b>Level of Education</b>		
SMA	71	24,65
Diploma 3	52	18,06
S1	142	49,31
S2	23	7,98
<b>Total</b>	<b>288</b>	<b>100</b>

Source: data processed (2018).

Table 3 – Validity Test

No	Variable	Indicator	Correlation coefficient	Significance Value	Explanation
1	Good Corporate Governance (GCG)	X <sub>1.1</sub>	0,499	0,005	Valid
		X <sub>1.2</sub>	0,631	0,000	Valid
		X <sub>1.3</sub>	0,417	0,022	Valid
		X <sub>1.4</sub>	0,387	0,034	Valid
		X <sub>1.5</sub>	0,465	0,010	Valid
		X <sub>1.6</sub>	0,538	0,002	Valid
		X <sub>1.7</sub>	0,449	0,013	Valid
		X <sub>1.8</sub>	0,364	0,048	Valid
		X <sub>1.9</sub>	0,467	0,009	Valid
		X <sub>1.10</sub>	0,367	0,046	Valid
		X <sub>1.11</sub>	0,488	0,006	Valid
		X <sub>1.12</sub>	0,546	0,002	Valid
		X <sub>1.13</sub>	0,547	0,002	Valid
		X <sub>1.14</sub>	0,579	0,001	Valid
		X <sub>1.15</sub>	0,435	0,016	Valid
		X <sub>1.16</sub>	0,522	0,003	Valid
		X <sub>1.17</sub>	0,365	0,047	Valid
		X <sub>1.18</sub>	0,547	0,002	Valid
		X <sub>1.19</sub>	0,600	0,000	Valid
		X <sub>1.20</sub>	0,562	0,001	Valid
2	Tri Hita Karana Culture (THK)	X <sub>1.1</sub>	0,530	0,003	Valid
		X <sub>1.2</sub>	0,660	0,000	Valid
		X <sub>1.3</sub>	0,568	0,001	Valid
		X <sub>1.4</sub>	0,633	0,000	Valid
		X <sub>1.5</sub>	0,626	0,000	Valid
		X <sub>1.6</sub>	0,603	0,000	Valid
		X <sub>1.7</sub>	0,750	0,000	Valid
		X <sub>1.8</sub>	0,727	0,000	Valid
		X <sub>1.9</sub>	0,474	0,008	Valid
		X <sub>1.10</sub>	0,607	0,000	Valid
		X <sub>1.11</sub>	0,714	0,000	Valid
		X <sub>1.12</sub>	0,784	0,000	Valid
		X <sub>1.13</sub>	0,668	0,000	Valid
3	Quality of Financial Reporting	X <sub>1.1</sub>	0,458	0,011	Valid
		X <sub>1.2</sub>	0,637	0,000	Valid
		X <sub>1.3</sub>	0,666	0,000	Valid
		X <sub>1.4</sub>	0,509	0,004	Valid
		X <sub>1.5</sub>	0,553	0,002	Valid
		X <sub>1.6</sub>	0,504	0,005	Valid
		X <sub>1.7</sub>	0,699	0,000	Valid
		X <sub>1.8</sub>	0,645	0,000	Valid
		X <sub>1.9</sub>	0,508	0,004	Valid
		X <sub>1.10</sub>	0,504	0,005	Valid
		X <sub>1.11</sub>	0,794	0,000	Valid
		X <sub>1.12</sub>	0,779	0,000	Valid

Source: data processed (2018)

Characteristics of respondents based on the level of education shows that the number of respondents as many as 288 people divided into several levels of education, which is 71 people (24.65%) last education high school, as many as 52 people (18.06%) last education Diploma 3, as many as 142 people (49.31%) have recent education S1, and 23 people (7.98%) have recent education S2.

*Validity Test.* Validity test in this research is done in three research variables, that is good corporate governance, tri hita karana culture and quality of financial reporting. Validity test is conducted to measure whether or not a questionnaire is valid.

Based on Table 3, each question of each variable qualifies the validity or can be said to be valid. This is because each question of the research variables has a significance value of less than 0.05.

*Reliability Test.* Reliability test is done in three research variables, namely good corporate governance, tri hita karana culture and quality of financial reporting. Testing reliability of the instrument shows the extent to which a measurement of the same symptoms. Reliable instruments are instruments used multiple times to measure the same object and produce the same data or answers. Instruments are said to be reliable if they have a Cronbach's alpha value greater than 0.60 (Ghozali, 2011: 47-48).

Table 4 – Reliability Test

Variable	Cronbach's alpha	Explanation
Good Corporate Governance (GCG)	0,823	Reliabel
Tri Hita Karana Culture (THK)	0,854	Reliabel
Quality of Financial Reporting	0,839	Reliabel

Source: data processed (2018).

Based on Table 4, all research instruments are said to be reliable. The overall value of Cronbach's alpha greater than 0.60 indicates that such measurements can provide consistent results when re-measurements of the same subject at different times.

*Normality Test.* Normality test aims to test whether the data is normally distributed or not. A good regression model is a regression model that is normally distributed or close to normal. Normality test used Kolmogorov-smirnov test. Data is normally distributed if it has a significance level above 0.05 (Asimp Sig (2-tailed) > 0.05) (Ghozali, 2011: 160).

Table 5 – Normality Test

	Unstandardized Residual
N	288
Kolmogorov-smirnov	1,137
Asimp. Sig (2-tailed)	0,151

Source: data processed (2018).

Based on Table 5, the value of Asimp Sig (2-tailed) of the normality test is 0.151 or greater than 0.05. This shows that the model in this study normal distribution, so that data can be used in research.

*Heteroscedasticity Test.* Heteroscedasticity test aims to determine whether the regression model does not occurred inequality of variant and residual one observation to another observation. If the variant of the residual one observation to another observation remains, it is called homocedasticity and if different is called heteroscedasticity.

Table 6 – Heteroscedasticity Test

Variable	t	Sig	Explanation
GCG	1,787	0,075	Non-Heteroscedasticity
THK	1,865	0,063	Non-Heteroscedasticity

Source: data processed (2018).



Heteroscedastisity test in this research used Glejser test. This method is done by correlating the residual value of regression result with each independent variable. The regression model does not contain any heteroscedasticity if the probability is above the 0.05 trust level (Ghozali, 2011: 139).

Based on the heteroscedasticity test in Table 6, the significance value of the dependent variable, Absolute Residual (ABRES), is indicated by the t-significance value which is all greater than alpha ( $\alpha = 0.05$ ). So it can be concluded that the regression model found no symptoms of heteroscedasticity.

**Multicollinearity Test.** Multicollinearity test aims to determine whether in the regression model there is a correlation between independent variables. A good regression model is a regression model that is independent of the correlation between independent variables. The multicollinearity test is measured by the Variance Inflation Factor (VIF) and tolerance values.

Table 7 –Multicollinearity Test

Variable	Tolerance	VIF
Good Corporate Governance (GCG)	0,835	1,197
Tri Hita Karana Culture (THK)	0,835	1,197

Source: data processed (2018)

Based on the results in Table 7, it can be seen that no independent variable has tolerance value less than 0.10 and VIF value more than 10. Analysis shows that there are no symptoms of multicollinearity to research variables, so feasible use in subsequent research.

**Descriptive statistics.** Descriptive statistics in this study were used to provide information on research characteristics, such as mean and standard deviation. Average measurement is the most common way to set the central value of a data distribution, whereas the standard deviation is the difference in the value of the data studied with the average value.

Table 8 – Descriptive statistics

Variable	N	Min.	Max.	Mean	Std. Deviation
GCG	288	34,10	92,37	70,6399	11,35619
THK	288	23,80	54,92	46,1161	7,23585
KLK	288	29,09	58,86	44,4328	6,96143

Source: data processed (2018)

Based on the test results in Table 8, it can be seen that the average value of GCG of 70.6399 is close to its maximum value. The GCG variable in this study has 20 questions. The results of this analysis show that respondents provide opinions with a score close to the maximum value indicating that the money changer in Badung regency already apply GCG well in every business process, especially to produce quality financial reporting.

The average THK score of 46.1161 shows the average answer of the respondents is almost close to its maximum value. THK variable consists of 13 questions. The result of this analysis shows that the money changer company in Badung Regency has implemented and implemented Tri Hita Karana Culture (*parahyangan*, *pawongan* and *palemahan*) in every business activity.

The average value of the quality of financial reporting of 44.4328 shows the average answer of the respondents almost close to its maximum value. This indicates that the average quality of the financial reporting of money changer companies in Badung Regency shows the financial reporting of good quality and qualified financial reporting are relevant, reliable, comparable and understandable.

**Regression Result.** Multiple linear regression analysis aims to determine the effect of GCG on the Quality of Financial Reporting and the effect of THK on the Quality of Financial

Reporting, the multiple linear regression analysis is used because the independent variables are used more than one. Below is the result of multiple linear regression analysis in Table 9.

Table 9 – Multiple Linear Regression Analysis

Variable Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig. Sig.
	B	Std. Error	Beta		
(Constant)	12,351	2,440	-	5,062	0,000
GCG	0,285	0,031	0,465	9,195	0,000
THK	0,259	0,049	0,269	5,315	0,000
<b>R Square</b>	<b>0,390</b>				
<b>Adjusted R Square</b>	<b>0,386</b>				
<b>Fhitung</b>	<b>91,271</b>				
<b>Sig F</b>	<b>0,000</b>				

Source: data processed (2018)

Goodness of fit model shown at F value equal to 91.271 with significance level 0.000 and smaller than  $\alpha = 0.05$ , hence this research model is feasible to be used to verify hypothesis which is formed or in other words this research model is fit model. Meanwhile, the value of Adjusted R Square is 0.386, which means that 38.6 percent of the dependent variable is the quality of financial statements can be explained by GCG and THK variables, while the remaining 61.4 percent is influenced by other variables not included in this research model.

Based on result of hypothesis test which shown at t-test value for GCG variable is equal to 9.195 with level of significance 0.000, that is less than 0.05 and has positive regression coefficient equal to 0.285. This means that GCG has a positive effect on the quality of financial reporting of money changer in Badung Regency, so H1 is accepted and H0 is rejected. This is in line with research conducted by Anggreni et al. (2018) that GCG has a positive effect on the quality of financial reporting. Similarly, Novatiani and Fatimah (2013) argue that GCG affects the reliability of financial reporting, where the reliability of financial reporting is one of the normative prerequisites of quality financial reporting.

Based on result of hypothesis test shown on t-test value for THK variable is 5.315 with significance level 0.000, less than 0.05 and has positive regression coefficient 0.259. This means that THK has a positive effect on the quality of financial reporting of money changer in Badung regency, so that H2 is accepted and H0 is rejected. This is in line with research conducted by Kepramareni et al. (2014), where the MGPSSR organization is used as its research location, that responsibility of the financial reporting quality is implemented holistically. Magesh and Prasad, (2015) also concluded that emotional and spiritual balance would build an individual relationship with the surrounding organization. A harmonious relationship will help improve the quality of financial reporting because of the high integrity of corporate leaders.

## CONCLUSION

GCG has a positive effect on the quality of money changer's financial report in Badung Regency. This result means the better the implementation of GCG, the higher the quality of financial reporting. In other words, that with the implementation of good governance or GCG, will improve the quality of financial reporting that impact on the credibility and public trust and trust of stakeholders for decision making.

THK culture has a positive effect on the quality of financial reporting money changer in Badung regency. This result means the better the application and understanding of THK culture, the higher the quality of financial reporting. In other words, that with the application and understanding of THK culture, the quality of financial reporting will increase because of the harmonious relationship between human and God, human relationships with humans,



and human with the environment. Thus, the local culture of Bali can be a guide to improve the quality of financial reporting.

This research has limitation, where the value of Adjusted R Square from this research is equal to 0.386 which means that 38.6% dependent variable that is financial report quality of money changer can be explained by GCG variable and THK culture, while the rest equal to 61.4 percent influenced by variable which is not included in the research model. Thus, this is an opportunity for future researchers to develop this research in the future. In addition, the unique culture of THK in Bali is still an interesting thing to be studied.

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## **GOVERNANCE AND ORGANIZATIONAL CULTURE: AN ETHNOGRAPHIC STUDY ON INDONESIAN POLITICAL PARTY**

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### **ABSTRACT**

The objectives of this research were to understand and describe the essence of Good Party Governance (PGP) in Prosperous Justice Party (PKS) based on its culture. That research goals were achieved using interpretive paradigms as Spradley's ethnography foothold and method with advanced gradual research flows. The reason to choose PKS as the research object was according to the result of ICW's study, PKS has the best governance among political parties of general election attendee in 2014. Research informants were representative from the *Majelis Syuro* (religious council), the Central Advisory Assembly, the Sharia Council Center, and the Council of Central Committee amounted to 8 people. The results revealed that the spirit of *Ihsan* as GPG essence in PKS, which is performing a duty as well, as beautiful, and as perfect as possible as a form of faith and love to Allah the God Almighty. PKS applied the *Ihsan* spirit to the party governance by establishing the foundation and elements of GPG: Party Paradigm, Basic Philosophy of Struggle, Policy Principles and Development Policy Platform, Management System of Dakwah Party, Strategic Planning (*Renstra*), and Annual Working Plan Budget. According to the research result, in the theoretical realm it functions as the development of good governance concept in political parties, in the practical realm it functions as a comparison of good governance practice in political parties and in the policy realm it functions as a matter of consideration by the government in reviewing and improving the rules related to Good Party Governance.

### **KEY WORDS**

Good governance, political parties, ethnography, *Ihsan*.

The era of reform gives hope in the discourse on the urgency of good governance in the conceptual review conducted by World Bank (1992), UNDP (1997), and Raba (2006). The form of good governance according to the National Institute of Public Administration (LAN) is a solid and responsible as well as efficient and effective country governance by maintaining the "synergistic" of constructive interaction between the country domains, the private sector and society (Widodo, 2001). The World Bank sets the limits of good governance as an efficient public service, a reliable judicial system, and a government that is publicly accountable. Gerald Meier defines good governance as "a principle to organize the government that enables efficient public services, a reliable court system, and its administration is publicly accountable, and for which market mechanisms are a major consideration in the decision-making process of resource allocation" (Abdullah, 2002).

In terms of realizing Good Governance, there are three main principles to follow. Firstly, accountability principle, this means an ability to make a policy, starting from decision-making process and policy socialization stage. Secondly, the principle of transparency is a principle that guarantees an access or freedom for everyone to obtain governance information, information on policies, its decision-making, and the results achieved. Thirdly, participation principle, that everyone is entitled to be involved in decision-making of every

governance activity. This participation is to strengthen democracy, to improve the quality and the effectiveness of public services.

One of the organizations being in the spotlight at society related to the good governance is a political party, because in the context of democracy and regional autonomy, the existence of political parties is important for good governance. Good Governance is able to achieve by realizing GPG in advance as it can be the basis for Good Governance and Good Corporate Governance. Good management of a party will be able to produce high-integrity political elite to formulate good political policies as a reference of good governance. Therefore, it needs a real and strong effort to build GPG in the political party environment as a foundation to establish and realize good governance. Political parties become a society's remote control for good governance and well management.

To Establish Good Party Governance means to create an organizational system of a party to be accountable, and to set the actors out of the party to play a role in creating a useful new system in general. Building a GPG is a great social project and to be realistic, that project should be done gradually. The main problem of the realization of GPG lies in the individual role, the awareness of the actor in creating a good and fair political climate. Therefore, it needs political leaders with a good track record, high integrity and strong leadership character.

Shakil's (2013) research on Bangladesh perspective of political parties and good governance states that, to establish good governance and democracy, there is no way except fixing the fault of political parties. Democracy and good governance is a synonym. In order to maintain democracy and good governance in a country, it needs to develop the application of good governance within the political party in advance. Otherwise, people cannot expect good governance if the party is in power. We must pay attention to make that type of good governance platform on political parties' side to ensure good governance as this is the easiest way to fulfill our desire to develop as a nation.

Islam (2016) studying the realities of good governance and political culture in a case study in Bangladesh reveals that the current political culture is winning elections in whatever way it takes to stay in power and attacking the opponent, so it is necessary to address and improve the cultural properties of the political party by preventing it through the good governance in the political party. Similarly, Chikerema's (2014) study on Zimbabwe's political culture and democratic governance, that scientists ignore the relationship of political culture and democratic governance. However, in Africa was found that the African political landscape with mutilation culture and good governance has also been mutilated. Political culture is essential and crucial for the ideal practice of democracy, democratic governance highly depends on the political culture in a Country, and Zimbabwe is responsible for political issues because of the kind of political culture it has. Musa (2016) explained that in relation to the democratic problem, political party and good governance state that democratic institution must be strengthened through a proper and independent funding to promote democracy and good governance.

Some of studies above show that the realization of good governance can be started by correcting political party governance and that governance are influenced by the existing political culture. However, this study examines the organizational culture in one political party in Indonesia which ultimately raises the interpretation of good governance and its implementation which is loaded with the underlying values of political organization. This study aims to describe the essence of Good Party Governance and how its implemented in a political party, analyzed and explored from view, ideology, culture and values owned and attached to political parties being the research object by ethnographic methods. The object of this research is the Prosperous Justice Party (PKS). A consideration to choose PKS is due to this political party is one of the parties being the general election attendee in 2014 and its governance and transparency are considered the best based on the 2015 study of Indonesia Corruption Watch (ICW). According to that background, this article will fatherly describe the methods applied to achieve the research objectives. The next section is the results and discussion as well as conclusions consisting of a summary of research, limitations, and implications of subsequent research.

## METHODS OF RESEARCH

To describe the meaning of Good Party Governance in PKS, this research applied an interpretive paradigm as a foothold. The interpretive paradigm used as a foothold in this study was to focus on the subjective nature of the actor and to understand theoretical framework of the investigated object. In order to understand a specific social environment like PKS, the researchers must explore the subjective experience of the actors.

According to Spradley (1997), ethnography was an activity to describe the culture of a particular society or community. The main purpose was to understand the way people live from society or that community's perspective. Qualitative research using an ethnographic approach aimed to have thick descriptions and to make an interpretation towards the subjective meaning of culture, traditions, and daily habits of a group of investigated subjects. Ethnographic research led to the meaning of action, which was directed to the meaning of action itself in an ethnic, tribal, group, community, or an institution that cannot be separated from historical tradition.

Collection procedure and ethnographic data analysis in search of the essence of Good Party Governance in PKS utilized 12 stages of Spradley's "Advanced Gradual Research Flows (1997)." Those twelve steps were: Assigning informants, Interviewing informants, Making ethnographic notes, Asking descriptive questions, Conducting analysis of ethnographic interview results, Making domain analysis, Asking structural questions, Making taxonomic analysis, Asking contrast questions, Making component analysis, Finding cultural themes, and Writing the result of ethnographic study.

This study utilized three sources of ethnographic data: 1) Informants perspective dug deeper from eight informants from MS, MPP, DPP and DSP elements, 2) Field notes related to the cultural atmosphere which was the result of observation and interaction of the researchers in the site with participant observation and 3) Artifacts obtained and collected by the researcher as supporting material in making analysis were: Articles of Association and Bylaws, Strategic Planning (*Renstra*), Annual Work Plan Budget (RKAT), *Fatwa and Bayan* of DSP, Financial Statements, BPK Audit Reports, Statement Letter of Councilor Membership Fee (IWAD), Core Membership Fee (IWAI), fifty-thousand-rupiahs movement, Financial Statements Application.

Ethnographic analysis conducted to find cultural themes was Firstly, domain analysis to identify a list of domains that will provide an insight into the cultural atmosphere, secondly, taxonomic analysis to reveal the internal structure of the chosen domain, and thirdly, component analysis to more systematically identify various essence components in the original terms of informants

Domain analysis result above yields three hypothesized domains. Those three domains were: 1) The way to give respect of the Dakwah Party covers to: The Cultural *Dakwah*, Structural *Dakwah*, and *Ihsan* spirit; 2) The elements of Good Party Governance include: Basic Philosophy, Policy Principles, Platforms, Management System of Dakwah Party (SMPD), Strategic Planning (*Renstra*), and Annual Work and Budget Plan (RKAT); and 3) The meaning of Clean, Caring, Professional in its slogan includes: Personally religious, socially religious, and working with *itqon* work ethic. Those domains provide insights into the cultural atmosphere of PKS to describe a holistic view of PKS.

This research would select one domain based on the research objectives studied, which was "Good Party Governance" domain. The next stage, the researchers would use the domain to perform taxonomic analysis and component analysis to find cultural themes in GPG PKS. Other domains would be supporters and complete the discussion of the main domain. The results of the taxonomy analysis provided more detailed information of the internal structure of the domain "Good Party Governance elements". The Basic Philosophy has an internal structure: Islam and civil society. Policy Principle has an internal structure: ten principles. Platform has an internal structure, they were; Vision, Mission, Program, and Attitude. Management System of Dakar Party (SMPD) has an internal structure: Performance and OKA Bureau. Strategic Planning (*Rostra*) has internal structure: Definitions, Methods, and Processes. Annual Work Plan Budget (RKAT) has an internal structure: Processes,

Programs and Budgets. This taxonomic analysis also found a new relationship among the various original terms informants that have been used in the analysis of the previous domain. Domain analysis and taxonomic analysis seek a resemblance between the original terms of the informant, which would be followed by a component analysis to focus on the differences or contrasts in order to find the component of essence/attribute.

Based on the results of the component analysis, it was known the differences of the existing contrast circuit. The difference was in terms of nature, time, and form. The difference of that set of contrast provides a component of essence/attribute in the contrast circuit. Basic Philosophy shapes paradigm and Policy Principle shapes a temporal policy, while the platform shaped guidance is more temporal, SMPD shapes simultaneous operational management, and Strategic Planning was a five-year strategic program period of and described in RKAT shaped working program implemented annually.

The cultural theme for the purpose of ethnographic research was the cognitive principle (something that people believe and accept as valid and true/a general assumption about their experience) that was implied or explicit (looks like a proverb, motto, saying or repeated expression), recurring in a number of domains and acting as a link between various subsystems of cultural significance, acting as a general semantic relation among various domains. According to the domain analysis, taxonomic analysis, and componential analysis above, it found cultural themes in Good Party Governance of PKS which was *Ihsan spirit*, Basic Philosophy of Struggle, Development Policy Platform, Management System of Dakwah Party (SMPD), Strategic Planning (Renstra), and Annual Budget Work Plan (RKAT).

## RESULTS AND DISCUSSIONS

This section will describe the research results and discussion consisting of two parts, namely: the essence of *good party governance for PKS and the foundation and elements in good party governance of PKS*.

*Ihsan Spirit in Managing Party to Achieve Good Party Governance*. PKS is not just a forum of political struggle as defined by Law Number 2 Year 2011 on the amendment to Law Number 2 Year 2008 regarding Political Parties. PKS calls itself as a Dakwah Party that strives for structural and cultural values of Islam. Dakwah is structurally conducted through political channels. It covers to legislation activity, presenting laws, government regulations or other public policies. The struggle of Islamic values is culturally conducted by cadres and strategic partners of PKS through various dakwah media and cultural institutions to strengthen the cultural base and intellectuality of the *ummah* to encourage the vertical mobility of people in various fields whether bureaucracy, economy, culture, intellectual, social and political.

Learning from the journey and experience of PKS during this time, PKS always try to improve itself which is confirmed by the realization of Good Party Governance in one missions formulated by PKS. One of the efforts is to invite PPATK and CSIS at the 2016 *moderns* (national working meeting) to discuss about political party funding. This was stated by former Vice Chairman of PKS, as follows:

*“Firstly, we have a Good Party Governance (GPG) program; it is our attempt to be a modern, accountable, transparent, and participative party. Therefore, we as the committee agreed to have to attend either KPK or PPATK. Hence, we proposed, Pak Sohibul Iman agreed to invite PPATK and Pak Muhammad Yusuf came as the representation, he explained about the practices of political parties funding from the results of PPATK monitoring on how it works. He gave a lot of input that the point is that the more transparent a party, the higher the public trust, if the public trust high so is the public funding (MAS)”*.

One of the efforts undertaken for good governance in PKS is to improve the accountability and transparency of the Party primarily related to financial management. According to Rosenbaum (2003), there is no more central issue regarding good governance than accountability concepts. That effort has made PKS to get appreciation or something like a transparency reward from Public Information Committee (PIC).

*“Because from 10 political parties being there in the House of Representatives (DPR), it was only four which submit and hand over the report. It’s also better than the previous year which was only three. It actually cannot be used as a standard so it return directly will get appreciation (DSU)”.*

In addition, PKS is also open to public related to Party’s Financial Report, by inviting people who want to access for research purposes and so on by coming to the office of DPP PKS and requesting public data to PR, as stated by PKS Public Relation Chair:

*“We are quite open to the public, for those who want to know the party’s financial statements, we invite to access it, but they have to come here. It might become our concern to launch it on the website to ease society. But for the interested parties or the public, who wants to know, we are actually open, they can come here and we will give it. Whatever the reason, as long as they want to know the information, we will serve according to the procedure of public information request”.*

Various efforts to improve financial governance is conducted in collaboration with PPATK and KPK, it also increases party’s accountability and transparency so that party information can be easily accessed by the community. Those improvements are continuously conducting by PKS in order to respect society and increase the legitimacy and public trust to PKS. Gray, et al (1996) have argued that accountability as a legitimate effort enhances organizational and democratic transparency. It even must be a leading party in terms of spreading and competing in goodness (*sabil bilkhairat*). For example, as stated by the accounting and finance staff of the PKS when asked how his opinion related to the ICW study which states that PKS’ Financial Statements is the best among nine political parties participating in the 2014 election and declared as the best party with governance and transparency. Here are the responses from PKS’ Accounting and Finance Bureau staff:

*“Surely...we have to be grateful for this achievement... this is something that reflects the professionalism... it means that community like ICW gives appreciation, of course that’s a value, let it be the person who gives, but for us it has been PKS mandatory to compile a good financial statements. Other than a professional characteristic, we are not only a political party, but we are also a Dakwah Party, which means, working with ahsanu amala value is a must. So we have 2 values, the first value is the context as the dakwah party, ahsanu amala, in the reflection of the political party it means to become a professional. That in the context of the treasurer with good financial statement management is indeed the characteristic of the professionals we want to develop. And of course in many ways the other parties also have another portion (MGU)”.*

The statements above illustrate how the race in goodness has become a culture within the Dakwah Party. Similarly, when working and managing the party is done with the motivation and spirit of *Ihsan*, which is doing a job as well as possible, as beautiful as possible, and as perfectly as possible as a form of faith and love to Allah SWT. To manage a party with *Ihsan* spirit, to respect society, according to the PKS there are two important directions for PKS: Firstly, making a meticulous planning since it will decide the success of a planning. Secondly, in order to respect society, PKS can partner and cooperate with various elements of society, community organizations, other political organizations, even with the government as a form of *fastabihul khairat*. As stated by the Chairman of PKS’ religious council as follows:

*“In order to make a planning we must pay attention to the accuracy in various aspects. Being meticulous in understanding the function of planning in an organization and movement. Being meticulous in paying attention to the factors that determine the success of a plan. Being meticulous to compile stages process of planning. Being meticulous in taking into account the elements of planning preparation. Being meticulous in the continuity of a planning review. That accuracy leads to success and failure. Let us arrange a work plan based on the spirit of fastabiqul khairaat”.*

Institute of Internal Auditors (2006), stated that governance in a public sector organization included policy and procedure used to direct operational activity in order to guarantee the achievement of a goal and that operational activity are carried out ethically and responsibly. In the public sector, governance includes tools to achieve the intended

purpose. According to the Australian National Audit Office (2003), governance in public sector organization aims to ensure that organization achieves overall results in such a way in order to increase trust in the organization, organizational decisions and organizational actions. Good governance focuses on two main requirements, namely performance and conformance. The purpose of GPG implementation in PKS is to further solidify the party's solidity, so that the party is able to perform its functions well, like functions of education, advocacy, and regeneration so good party credibility is established. Therefore, party legitimacy can be maintained, Suchman (1995) argued that maintaining legitimacy is much easier than obtaining or improving legitimacy.

*Platform and Elements in Good Party Governance.* Implementation of *Ihsan* spirit in realizing GPG was started with a solid foundation, namely: Paradigm of Dakwah Party, Basic Philosophy of PKS' Struggle whose nature is organizational values, PKS Policy Principles and Development Policy Platform which is PKS attitude toward development. Based on those basic values were then compiled the elements of governance, namely: Management System of Dakwah Party (SMPD), Strategic Planning (Renstra), and Annual Work Plan Budget (RKAT). Auditor General of British Columbia (2008) stated that governance refers to the structure and process where an organization is directed, controlled, and held accountable. Governance is a means to help the organization achieve its goals. Australian National Audit Office (2003) stated the purpose of governance is to ensure that the organization achieves overall results in such a way in order to increase trust in the organization.

The paradigm of a Dakwah Party is a theoretical framework and direction that combines the struggle of values (ideology) of Islam structurally and culturally for the realization of the objectives of the Dakwah Party. IFAC (2014) explained the basic principle of good governance, i.e. to behave with integrity, a strong commitment to ethical values and to respect for the rule of law. Islamic Dakwah according to the PKS is essentially a planned activity to transform individuals and society from the old tradition of life to a new one that reflects the spirit and teachings of Islam. The process of individual transformation is the formation of true Muslim person (*syakhsyiyah islamiyah*) done within the framework of social transformation. It boils down to the assurance of humanity in fulfilling the five primary needs of his life, i.e. the protection of his religion, soul, mind, wealth and his descendants in the United State of the Republic of Indonesia.

PKS Development Policy Platform conforms to the national development paradigm. This platform is a document that reflects the party's vision, mission, program and attitudes on various Indonesian issues. The platform becomes the main motivator and activator of the party's activities, and will make all Party's assets in all sectors of life, i.e. the third sector, public and private sector work in an integrated way, continuous, focused and directed so that limited party resources can be managed well to get results as expected and felt by sympathizers, constituents and society at large. The PKS considers that development must be based on three realistic thinking characteristics which are integral, universal, and total participation. That platform is to direct the organization's activities to be understood, as Suchman (1995) argued that an organization with cognitive legitimacy when its activities are understood, predicted, meaningful and interesting.

In operating the Basic Philosophy of Struggle and Development Policy Platform mentioned above, it should consider the following 10 (ten) policy principles: *Al-Syumuliyah* (complete and integral), *Al-Ishlah* (reformative), *Al-Syar'iyah* (constitutional), *Al-Wasathiyah* (moderate), *Al-Istiqomah* (commit and consistent), *Al-Numuw wa al-athawwur* (growing and developing), *Al-Tadarruj wa Al-Tawazun* (gradual, balanced, and proportional), *Al-awlawiyat wal Ashlah* (priority scale and benefit priority), *Al-Hulul* (solution), *Al- Mustaqbaliyah* (*future orientation*). Furthermore, the Basic Philosophy of Struggle and Development Policy Platform are embodied in the five-year Strategic Planning (Renstra) of the Party with the guidance of the Annual Work Plan Budget (RKAT) in realizing it. To ensure the performance of the party in accordance with the Renstra and the RKAT is required the Management System of the Dakwah Party (SMPD).



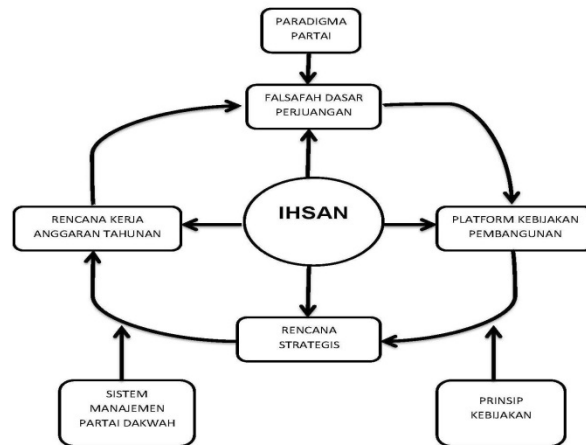


Figure 1 – The Essence of Good Party Governance in PKS

PKS' Strategic Planning is an instrument to direct its future journey, so that the steps taken are the best endeavors in accordance with ideological direction, organizational demands and availability of resources. Formally, Renstra is a managerial process to define the vision, mission, goals, objectives, strategy, policy direction, ultimately conical to the party's strategic program within a given period (5 years), which will determine the way in which resources are acquired, allocated, and managed power to achieve organizational goals. Renstra is compiled based on the understanding of the strategic environment both nationally, regionally and locally by taking into account potential, opportunities and constraints.

Briefly, PKS's renstra is a five-year national party program plan that is a consensus and a shared commitment of all party components in the context of achieving the vision and mission of the party. Process steps are based on the assumption of activities needed to ensure effectiveness (Scott, 2003). All components within the party body must make the Strategic Planning as a guide and the reference of its motion step, because the Strategic Plan binds all components of the party. The drafting of Renstra PKS during the 2015-2020 is done using benchmarking method from National Planning System and strategic management approach, which is adjusted to party condition. According to this method, the planning process undertaken covers a number of aspects. Firstly, the aspect of the flow or the drafting cycle. Secondly, the orientation aspect of the programming. Thirdly, the function aspect, and fourthly, the aspect of the service sector.

By combining those four aspects above, PKS expects the strategic program developed in this Renstra to encourage the party to manage various resources that are owned in a holistic, integrated and sustainable way to be happy and make positive changes in the future both inside the party and society, nation and country. As a result, the organization will get procedural moral legitimacy (Suchman, 1995). Here is the process of drafting Renstra spoken by the Secretary of Religious Council:

*"There are nine (9) Basic Policies, later on will be explained to be this strategic plan (while showing the document of PKS' Strategic Planning)... actually, after the strategic plan there again... called as Annual Working Plan (RKT)... but we have not passed the name of the annual working plan, so endorsed by the Religious Council. In accordance with the Articles of Association of Chapter 7 of paragraph 14, one of the duties of the Religious Council is to determine the annual work program as well as the draft budget of the Party's income and expenditure (UWA)".*

The PKS' Strategic Planning is implemented in an annual basis, beginning with the formulation of the Annual Working Plan (RKT). In relation to the implementation of the Strategic Planning through this RKT, there are several implementation rules that need to get the PKS attention so that the implementation of programs and activities run effectively and efficiently in generating output or outcome. Renstra's application into the annual programs and activities is guided by the rules: Synergistic, Integrative, Staged and Focused. PKS

governance with the spirit of *Ihsan* as described above, in line with Australian Government (2007), Governance in public sector organizations includes a set of responsibilities and policies and procedures by agencies to provide strategic direction, to ensure objectives are achieved, to manage risks and to use resources responsibly.

The process of preparing RKT or more detailed RKAT initiated and derived from the strategic programs that have been included in the Strategic Planning, and then explained into activities for which each activity is made budget, as delivered by the Vice Chairman of PKS who oversee the process of preparing that RKAT:

*"About how to prepare RKT, of course our CTR out of the program actually. There are 2 programs, i.e. strategic program and support programs. The support program is usually routine jobs. Strategic program..., this comes from the first mandate of the Religious council... nine other mandates are also from Religious Council. Downgraded to 14 policy directions, then to about 58 strategic programs. One strategic program can be 2, 3, even 4 activities, that is what makes the total activities so there are 614 activities. Well... out of these 614 activities, each budget is made up... the amount of activity and budget. Yes... because it is different... RKT's activity and budget is different from RKAT, RKT's activities is amounting to 614 (MAS)".*

Those activities are proposed by every Field/Agency in the DPP, any commissions in MPP and every Institutional management/*lajnah* in DSP. All activities proposed by the DPP, MPP and DSP, will be reviewed by the Team Three, namely: Secretary-General Team, Treasurer Team, and Team of Planning Board. The Secretary-General team is tasked to ensure that the proposed activities are derived from the Munas Mandate, the Treasurer team obliges to observe in terms of budget and funding, and the Team of the Planning Board has the duty to view the activities as a whole. The result of the study from this Team Three becomes the RKAT document, which was then ratified in the Religious Council Assembly.

Management System of Dakwah Party (SMPD) aims to improve the performance and image of the Party. Within the Party's Strategic Planning, there are four stages of SMPD: Firstly, consolidation phase. This stage conducts the compilation of SMPD conception and guidance of SMPD level 1 and level 2. Secondly, the strengthening stage with the standardization of SMPD organization management system by good governance. Thirdly, strengthening stage of organizational management system (SMPD) by good governance. Fourthly, evaluation phase which is a *maknawiyah* and *suluk* evaluation, and HR's togetherness spirit of party structural, Renstra, Party conception, organizational management system (SMPD), network and party media. Here is an overview of SMPD submitted by informants from the head of the Performance Organization and Administration (OKA) bureau:

*"During the management year of 2015-2020, there is a program that one of them is the implementation of Good Party Governance..., Mbak. Well then, one of those programs is management system of dakwak party... SMPD. We are here in the OKA bureau is as one of the responsible for the implementation of the program... strategic program for the implementation of GPG especially... its SMPD... you had already seen right that here we...hmmm... .make a kind of... to try to... we just conducted work meeting that discusses about arranging management system of party performance... SMKP... as... one of..."As the name implies... there are an organization control division, performance management division, and service and administration division. In management division, we will always monitor their progress by requesting their report. We just made a monthly report format from each field of agency (MAR)".*

The implementation of SMPD in improving the performance and image of the Party is by establishing the bureau of Organizational Performance and Administration (OKA) with the structure under the Secretary General, OKA Bureau has three divisions, i.e. Organizational Control Division, Performance Management Division, and Services and Administrative Division. That OKA bureau as one of the responsables for the implementation of all strategic programs that have been defined in the Strategic Planning. That OKA bureau also makes a guidance of Management System of Party Performance (SMKP), to monitor performance in the field of institution. How the achievement of targets progress in implementing strategic programs that have been defined in Renstra. From this monitor SMKP, we found there was a

tone of evaluation and recommendations related to the implementation of strategic programs by the field of the agency. This structure also serves to maintain the legitimacy of the organization, which is called structural of moral legitimacy (Suchman, 1995)

The evaluation was here also related to its finances. Whether those programs have allocated funds under the 4E principle: Efficient, Effective, Economical, and Ethical. If it is not as planned, it will be recommended for improvement. To be clear, the OKA Bureau functions to ensure that all strategic programs that have been defined in the Renstra can run and to find out how far these programs effectively improve the performance of the Party. If there is a less effective program, that program will not proceed and will be replaced by a more effective new program. This evaluation is also very important to provide inputs in the compilation of next year's working plan, or next year's RKAT.

The practice of PKS governance as described above, is in conformity with the principles of good governance at public sector organizations formulated by UNDP (1997) including the community participation, enforcement of law supremacy, transparency, paying attention to the interests of stakeholders, consensus-oriented, equity, effectiveness and efficiency, accountability and strategic vision. Governance of PKS is also aligned with the six principles of good governance for public organizations by Independent Commission for Good Governance in Public Services (2004) includes: The focus is on organizational goals and outcomes for the community and public users; Working effectively in accordance with clearly defined functions and roles; Implementation of good governance values into the organization; Information retrieval, transparent decision making and risk management; Capacity building and organizational capability to be effective; Engage stakeholders and accountable.

## CONCLUSION

PKS as the *Dakwah* Party should work and manage its party in accordance with the motivation and spirit of *Ihsan* which is doing a duty as well as possible, as beautiful as possible, and as perfect as possible as a form of faith and love to Allah SWT. Managing the party with the *Ihsan* spirit, according to PKS, there are two important directions for PKS to respect society: Firstly, making a careful planning; secondly, in order to respect society, it can partner and cooperate with various elements of society, community organization, other political organizations, even with the government as a form of *fastabihul khairat*. PKS is always improving itself which is reinforced by the announcement of Good Party Governance (GPG) in one of the formulated mission.

Implementation of *Ihsan* in realizing GPG PKS is started by a solid foundation, namely: Paradigm of *Dakwah* Party, Basic Philosophy of PKS whose nature is the values of organization, PKS Policy Principles and Development Policy Platform which is PKS' attitude toward development. Based on those basic values were then compiled the elements of governance, namely: Management System of *Dakwah* Party (SMPD), Strategic Planning (Renstra), and Annual Working Plan (RKAT).

Research limitations aiming to understand and describe the meaning of Good Party Governance using this ethnographic method are, during the process of data collection to explore the site of a relatively sensitive political party and to cover the *awrah* of organization, also the informants are very busy so have limited time and opportunity to provide information, explanations and discussions with researchers to the fullest. To overcome those limitations, the next researchers can conduct participating observations over a considerable period (more than the minimum recommended time of ethnographic method) by being a party member, so as to engage in party activities and establish more intensive communication with party elite and grassroots.

The implications of this study are in the theoretical realm as the development of the concept of good governance in political parties based on the spirit and values of the organization, in the practical realm as a comparison of good governance practice within political parties based on organizational values and in the policy realm as a matter of government consideration in reviewing and improving regulations related to Good Party Governance, by establishing a culture of good governance in political party organization. A

further research can study the correlation between organizational culture within political party, good party governance, and organization legitimacy.

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## **THE EFFECT OF ENVIRONMENTAL KNOWLEDGE, GREEN ADVERTISING AND ENVIRONMENTAL ATTITUDE TOWARD GREEN PURCHASE INTENTION**

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### **ABSTRACT**

This study aims to determine the effect of environmental knowledge and green advertising on environmental attitudes and green purchase intention, and the effect of environmental attitude toward green purchase intention of Starbucks consumer in Mataram City. The research method used is quantitative with causal associative approach. Data collection using questionnaires distributed to 170 Starbucks consumers in Lombok Epicentrum Mall with convenience sampling technique. Analysis method used Path analysis. The research findings show that environmental knowledge and green advertising have a positive and significant effect on environmental attitude and green purchase intention; and environmental attitude have a positive and significant effect on green purchase intention. Increased public awareness of environmental knowledge and positive attitudes increases the chance of Starbucks to create environmentally-based products.

### **KEY WORDS**

Environmental knowledge, green advertising, environmental attitude, purchase intention.

Current environmental issues make consumers more sensitive. In terms of needs, there is an attempt to stop and reverse the negative effects of human behavior on the environment (Leonidou et al., 2010). Consumers are increasingly aware of excessive behavior in used of resources can affect the environment (Henning & Karlsson, 2011), so consumer give more attention to environmental impacts by purchasing eco-friendly goods or services (Dagher et al., 2015). Consumers who prefer products eco-friendly and their daily consumption behavior consider the effects on the environment known as green consumer. These consumers avoid products that could endanger health, harm the environment, use materials derived from protected species, and cause hazardous waste (Ali & Ahmad, 2012). This makes companies adapted to environmental concerns gaining popularity over the last few decades (Ali & Ahmad, 2012). Companies are encouraged to increase community knowledge and awareness of the environment by developing programs that provide solutions to environmental problems (Rini et al., 2017), where some modern companies are protecting the environment as a key idea for implementing friendly marketing strategies environment (Wulandari et al., 2015).

Young consumers are potential customers who can initiate a change from ignorance to environmental issues to care and think about the impact on the environment. Lee (2009) in his study suggested that international green marketers consider teenagers as one of the potential market targets. Young consumers have purchasing power, are able to influence the buying decisions of the people around them, and are open to new things and innovative ideas. This study begins with previous research that has been done on factors that affect green purchase intention, one of which research conducted by Delafrooz et al. (2014) states that one of the factors affecting green purchase intention is green advertising. Study conducted by Safe et al., (2012) states that environmental knowledge and attitudes are environmental factors that affects the intention of purchasing green products.

The company has contributed to fulfilling the green needs of consumers with more environmental responsibility, seen through eco-friendly manufacturing processes and green promotions (D'Souza & Taghian, 2005). Green advertising used by marketers to implement promotional activities as an effort to attract the public attention to be more aware of the go green activities. Green advertising helps companies to disseminate information and knowledge to consumers who are not conscious of eco-friendly products and features (Ahuja, 2015). Ginting and Ekawati (2016) states that an environmentally conscious person tends to buy and use eco-friendly products. Its based on factors such as knowledge of the environment, attitudes that view the importance of the environment as well as advertisements about eco-friendly products. Instead, Leonidou et al. (2010) states that a person with an environmental attitude can act in an eco-friendly manner and does not have to engage in green purchasing behavior. With the phenomenon has described and there are inconsistent results of research related the influence of environmental knowledge, green advertising and environmental attitudes toward green purchase intention, it is necessary to conduct further research using Starbucks consumer in Mataram City.

## LITERATURE REVIEW

*Consumer Attitude.* Theory of reasoned action (TRA) proposed by Azjen and Fishbein (1980), states that if the person can decide at will to perform or not perform the behavior depend on the intention possessed by that person. Azjen and Fishbein (1980) suggested that intentions to perform or not to do certain behaviors is influenced by two basic determinants, the first relates to attitudes (attitude toward behavior) and the other related to social influences ie subjective norms. Theory of Planned Behavior (TPB) is a further development of the Theory of reasoned action (TRA) proposed by Azjen and Fishbein (1991) by adding constructs not yet in the TRA i.e perceived behavioral control. TPB is used to explain and predict both behavioral intentions and actual behavior, and is often used in various research on behavior. Usually TPB is used as an intervening variable to explain a person's intention which then explains the person's behavior.

The current study uses Theory of Reasoned Action as an theoretical basis for explaining the theoretical framework used in this study consisting of environmental knowledge, green advertising and environmental attitudes to explain behavioral intention purchase of green products.

*Environmental Knowledge.* Knowledge is information that is known or realized by someone who is stored in memory. Knowledge is a relevant and important construct that affects how consumers collect and organize information on how much information is used for decision making and how consumers evaluate products and services (Syahbandi, 2012). Knowledge of the environment is the level of public understanding as a potential consumer of green products on issues of long-term health and welfare importance, including issues relating to the negative impacts of harmful chemicals, pollutants, greenhouse gases, packaging product recycling, and other issues potentially affecting positive attitudes toward green products (Ali et al., 2011; Haryanto & Budiman, 2014). While Chen (2013) explains that environmental knowledge is understood as a series of ecological knowledge held by a person related to environmental topics, such as what can be done to help protect the environment by committing to their behavior to purchase green products (Lee, 2010 ).

According to research conducted by Gan et al., (cited by Chen, 2013), environmental knowledge develops in two forms, namely the consumer must be educated to be able to understand the impact of a product on the environment and consumer knowledge in the product itself is produced in an eco-friendly manner. According to Julina (2013), knowledge of environmental issues can affect one's attitude. Barber et al., (2010) revealed that one of the functions of environmental knowledge is to help maintain a strong environmental stance. Research conducted by Noor et al. (2012) found that environmental knowledge positively affects attitudes. While research conducted by Aman et al. (2012) reject the influence of environmental knowledge on attitudes. In a study by Levine and Strube (2012) found that environmental knowledge was not significantly related to attitudes.

Environmental knowledge not only affect one's attitude toward the environment, such as research conducted by Aman et al. (2012) found an influence between environmental knowledge on green purchase intentions or eco-friendly products. Similarly, the results of a study by Mei et al., (2012) which shows that environmental knowledge affects the intention to buy eco-friendly products to consumers. However, these results are in contrast to research conducted by Henning and Karlsson (2011) who rejected the hypothesis that there is a positive influence between environmental knowledge on the intention to buy eco-friendly products.

H<sub>1</sub>: Environmental knowledge has a positive and significant effect on environmental attitude.

H<sub>2</sub>: Environmental knowledge has a positive and significant effect on green purchase intention.

*Green Advertising.* According to Tjiptono (2005), advertising is one of the most widely used promotional forms of enterprise in the form of indirect communication based on information about the superiority of a product, arranged in such a way that gives rise to a sense of fun that will change a person's mind to make a purchase. Advertising is aimed at influencing affection and consumer cognition, evaluation, feelings, knowledge, meaning, beliefs, attitudes, and images related to products and brands (Peter & Olson, 2000). Marketing communication through advertising promotion activities is one strategy in introducing or explaining the marketed products. Environmental advertisement or can be referred to as green advertising provides information about eco-friendly products from a product or service in order to attract consumers to buy or use products that are friendly to the environment (Prastiyo, 2016). Consumers will be willing to pay more for green products, so to take advantage of these emerging opportunities, advertisers need to improve their understanding of how consumers respond to environmental advertising claims. Such an understanding will give advertisers valuable insights to improve the effectiveness of their communications in environmental advertisements (Chan, 2004).

Advertising is used by the company as an indirect communication that provides information about the benefits of a product so it can cause a person's desire to make a purchase. Research conducted by Delafrooz et al. (2014) found that green advertising is an action to influence consumer attitudes to buy environmentally friendly products and by encouraging them to buy products that do not harm the environment. Green advertising not only affects consumer attitudes toward the environment, research by Zhu (2013) finds that the credibility of claims in green advertisements has an important role in influencing consumer purchase intentions of green products. It is also supported by research conducted by Ahmad et al. (2010) which shows that environmental advertising has an impact on consumer purchase intention to green product. While Rahbar and Wahid (2011) found that green advertising helps consumers make purchasing decisions, but does not affect consumer behavior in purchasing green products.

H<sub>3</sub>: Green advertising has a positive and significant effect on environmental attitude.

H<sub>4</sub>: Green advertising has a positive and significant effect on green purchase intention.

*Environmental Attitude.* Attitudes usually have a major role in shaping behavior that is the result of previous experience (Engel et al., 1994). Attitude is an expression of feelings of likes or dislikes from someone who can be reflected on a particular object (Rini et al., 2017). According to Lee (2009), environmental attitude is a cognitive assessment of the value of environmental protection. Environmental attitude is a tendency that occurs to a person who can be formed or studied when responding consistently to environmental circumstances in the form of likes (positive) or dislike (negative) based on three things, i.e: perception and knowledge about the problems of the environment (a component of cognitive ), feelings or emotions that appear to the environment (an affective component), and a tendency to behave or act on the environment (a conative component) (Sumarsono & Giyatno, 2012). Research conducted by Paco and Raposo (2009) in Portugal revealed that consumers understand about the environment, support policies to improve the environment, although their concerns do not turn into an action.

*Green Purchase Intention.* Before a person takes action using a product or service, there is an inherent mental activity known as intention. According to Junaidi (cited by Laksmi & Wardana, 2015), purchase intentions are consumer attitudes towards products that are composed of consumer confidence in the brand and brand evaluation, so comes the intention to buy. Consumers should have a prior desire for a product before deciding to actually buy the product. Green purchase intention in research by Karatu & Mat (2014) is described as the possibility and willingness of individuals to give preference to brand products / services that have environmentally-friendly characteristics in their purchasing decisions. While Rashid (2009) defines green buying intentions as the probability and willingness of a person to give preference to green products over conventional products in consideration of their purchase. However, research conducted by Morel and Kwakye (2012) states that not fully attitudes affect the intention of buying environmentally friendly products. Someone with environmental attitudes can act in a way that is friendly to the environment, but does not have to engage in green purchasing behavior, which is the result of the development of green attitudes (Leonidou et al., 2010).

H<sub>5</sub>: Environmental attitude has a positive and significant effect on green purchase intention.

## METHODS OF RESEARCH

The method of this study used is quantitative that is causal associative, it aims to know the influence between variables: environmental knowledge, green advertising and environmental attitude toward green purchase intention. Data collecting through questionnaires distributed to 170 respondents consumer of Starbucks in Lombok Epicentrum Mall with convenience sampling technique. The questionnaires are distributed as many as 170 questionnaires and then all the questionnaires processed by using Path analysis to get the results of respondents answers. The variables found in this study are the environmental knowledge variables measured by using indicators developed by (Lee, 2010; Mei et al., 2012; Suryandari et al., 2016), the green advertising variable is measured using indicators developed by (Haytko & Matulich, 2008; Herman et al., 2017), environmental attitude variables were measured using indicators developed by (Lee, 2009; Suryandari et al., 2016) and green purchase variables intention using indicators developed by (Ginting & Ekawati, 2016; Mei et al., 2012). Weighting on each variable using a 7 level scale. Each number is from 1 (low) and 7 (highest). The hypothesis model in this study are:

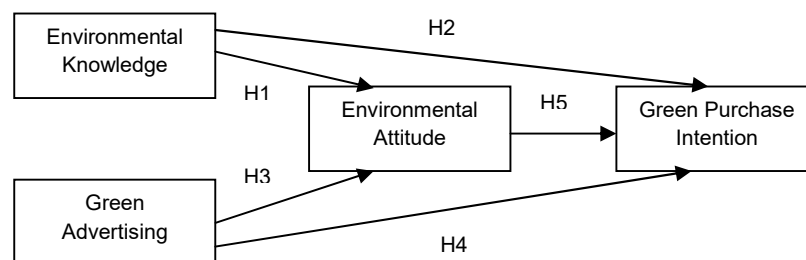


Figure 1 – Hypothesis Model

## RESULTS AND DISCUSSION

Amount respondents that have been collected in this study is 170 respondents. From the results of questionnaires spread each respondent has a different characteristic. Hence, groupings are characterized by gender, age, occupation, and income.

Based on table 1 shows the characteristics of respondents by gender more dominated by female with age range 20-29 years, have job as private employee and most have income equal to IDR 2,500,500 - IDR 5,000,000.



Before hypothesis testing, validity and reliability testing of the research instrument was performed. Validity test is used to measure validity or invalidity of a questionnaire (Ghozali, 2005) and reliability test used to measure reliabel or not the research instrument. The validity of this study was measured by Corrected Item-Total Correlation, an acceptable value being  $\geq 0.3$  (Pallant, 2005). The result of validity test of research instrument shows that r-count of all items of variable greater than 0.30 is valid so it is feasible to be used as data collecting tool. Reliability in this study measured by Cronbach Alpha coefficient, acceptable values were  $\geq 0.70$  (Hair, Black, Babin, & Anderson, 2010). The instrument reliability test results show that all items in the research variable are reliable because Cronbach's Alpha is above 0.70.

Table 1 – Characteristic of respondents

	Respondent	Amount	Percentage (%)
Gender	Male	61	36%
	Female	109	64%
	Total	170	100
Age (years)	< 20 years	4	2%
	20 - 29 years	127	75%
	30 - 39 years	26	15%
	40 - 49 years	9	5%
	$\geq 50$ years	4	2%
	Total	170	100
Occupation	Civil Servants (PNS)	27	16%
	Private employees	55	32%
	Entrepreneur	19	11%
	Students	43	25%
	others...	26	15%
	Total	170	100
Income	< IDR 1.000.000	52	31%
	IDR 1.000.000 – IDR 2.500.000	41	24%
	IDR 2.500.500 - IDR 5.000.000	60	35%
	> IDR 5.000.000	17	10%
	Total	170	100

Source: data questionnaire.

Normality test is used to test whether the regression model has a normal distribution or not (Ghozali, 2013). In this study, the normality test using Kolmogorov-Smirnov (1-sample K-S) with decision making when  $p\text{-value} > 0.05$ , then the data is normally distributed (Ghozali, 2013). Based on the normality test using Kolmogorov-Smirnov (1-sample K-S) obtained the following results:

Table 2 – One-Sample Kolmogorov-Smirnov Test

-	Environmental Knowledge	Green Advertising	Environmental Attitude	Green Purchase Intention
N	170	170	170	170
Kolmogorov-Smirnov Z	1.117	1.111	.899	1.324
Asymp. Sig. (2-tailed)	.165	.169	.394	.060

Source: path analysis.

From the results in the One-Sample Kolmogorov-Smirnov table, Asymp column. Sig. shows the significance value for environmental knowledge, green advertising, environmental attitude, and green purchase intention greater than 0.05 it can be concluded that all variables are normally distributed. Number on column Kolmogorov-Smirnov Z shows the smaller the value then more normal data distribution.

Data analysis technique used is path analysis. Path analysis technique is used to analyze the causal relationships between variables with the aim to knowing the direct and

indirect effect of simultaneously or independently of several exogenous variables to endogenous variables (Riduwan & Kuncoro, 2012).

Table 3 – Result of Path analysis

	Hypothesis		R Square	Standardized Coefficients Beta	t-statistic	Conclusion
H1	Environmental knowledge	→ Environmental attitude	.780	.883	24,411	Significant
H2	Environmental knowledge	→ Green purchase intention	.203	.451	6,541	Significant
H3	Green advertising	→ Environmental attitude	.342	.584	9,335	Significant
H4	Green advertising	→ Green purchase intention	.388	.623	10,317	Significant
H5	Environmental attitude	→ Green purchase intention	.169	.411	5,849	Significant

Source: result from Path analysis.

\*All significant at  $p > 0.000$ .

The results of this study showed that *environmental knowledge* has a positive and significant effect on *environmental attitude*, which means hypothesis 1 is accepted. Knowledge of the environment that consumers have rightly influences their attitudes toward the environment. The results of this study support the research conducted by Noor et al. (2012) who found that green product consumers have an environmental knowledge that positively affects attitudes. The consumer's knowledge of the environment helps the consumer's thinking process to become a belief in shaping and expressing their attitudes toward the environment. Knowledge as a very important base for the formation of a person's actions because someone will act in accordance with the knowledge it has.

The results showed that environmental knowledge significantly and positively affected on green purchase intention, which means hypothesis 2 is accepted. The results show that the consumer's environmental knowledge can increase their green purchase intentions. The current findings support the results study conducted by Aman et al. (2012) that there is an influence or relationship between environmental knowledge to green purchase intention. Information on environmental issues and the importance of environmental sustainability of consumers have an effect on consumer purchase behavior. Consumers have an interest in products that do not have a negative impact on the environment, so consumers have the intention to make purchases of products that are eco-friendly.

The results showed that green advertising has a positive and significant on environmental attitude, which means hypothesis 3 is accepted. The results show that green advertising has the potential to influence consumer awareness to choose and use green products. The results of this study are in line with Delafrooz et al. (2014) that green advertising have a significant effect on consumer purchase behavior. Through green advertising, Starbucks provides information to its consumers about its eco-friendly products and programs so that consumers can know that Starbucks is a company that supports eco-friendly.

The result showed that green advertising significant and positive effect toward green purchase intention at Starbuck, Lombok Epicentrum Mall. Hence hypothesis 4 is accepted. These results suggest that green advertising positively affects green purchase intentions. In line with the results of a study by Zhu (2013), that the credibility of claims in green advertising has an important role in influencing consumer purchase intentions of green products. The strong intention of consumers to use green products is a positive attitude toward green advertising. Starbucks engages in advertising by linking products offered to the environment, lifestyle, and company image that care about the environment. Starbucks uses advertisers to inform consumers, persuade, and remind customers that Starbucks invites them to engage in Starbucks environmental actions or environmental protection programs so that consumers

will have the intention of buying that will ultimately be motivated to make a purchase decision.

The results of this study indicated that environmental attitude significant and positive effect toward green purchase intention, then hypothesis 5 is accepted. The results of this study indicate that the more consumers have a pro-environment attitude then the greater the intention of consumers to buy eco-friendly products. This finding is in line with study conducted by Aman et al. (2012) and Lee (2009) that there is a positive relationship between attitudes toward the environment and green purchase intentions. Consumer attitudes towards the environment very positively. Consumers begin to feel the existence of a need for eco-friendly products so that consumers trying to find information about products that are eco-friendly. Once the information is gathered, it will face a variety of alternative products that claim eco-friendly choices so that individuals must identify and evaluate alternative choices to avoid the risk of errors in the purchase. After an evaluation of the product, appear green purchase intentions as a form of konative plan or the desire of consumers to obtain products that are eco-friendly. In accordance with Peter and Olson (2013) that attitude is a thorough evaluation of a person on a concept. From the results of these evaluations will appear intention to make a purchase product.

Table 4 – Indirect Effect

Variable effect	Causal effect	
	Direct	Indirect
$X_1 \rightarrow X_3$	0,883	-
$X_1 \rightarrow Y$	0,451	-
$X_1 \rightarrow Y \rightarrow X_3$	-	$0,883 \times 0,411 = 0,362$
$X_2 \rightarrow X_3$	0,584	-
$X_2 \rightarrow Y$	0,623	-
$X_2 \rightarrow Y \rightarrow X_3$	-	$0,584 \times 0,411 = 0,240$
$X_3 \rightarrow Y$	0,411	-

Source: indirect effect result.

The comparison of indirect effect of environmental knowledge to green purchase intention through environmental attitude is obtained result 0,362 (<0,833) bigger than result of direct influence of environmental knowledge to green purchase intention so it can be stated that environmental attitude function not fully in mediate. This means that environmental knowledge is able to significantly affect green purchase intention without going through an environmental attitude. The consumer's knowledge of the environment helps the consumer's thinking process to become a belief in shaping and expressing their attitudes toward the environment. The expressions of these respondents concerns arise because they feel they need to protect the environment from damage, as revealed by Chen and Chai (2010) have pointed out that environmental attitudes are rooted in ones self-concept and the extent to which an individual sees itself as part of the environment. Consumers' positive attitude toward the environment is then expressed in their consumption behavior. In consumption behavior, before they decide which products will be purchased consumers will have the intention first. As a form of their experiments on their environmental knowledge and high environmental attitudes, consumers will be more concerned with products that have eco-friendly claims compared to conventional products. Rashid (2009) defines green purchase intentions as the probability and willingness of a person to preference for green products over conventional products in consideration of their purchase. The findings of this study are also supported by Noor et al. (2012) who also get the result that a deep level of knowledge can affect a persons attitude, it will also have an impact on the purchasing intention.

The comparison of indirect effect of green advertising on green purchase intention through environmental attitude obtained result 0,240 (<0,584) bigger than result of direct influence of green advertising to green purchase intention so that can be stated that environmental attitude function not full mediate.

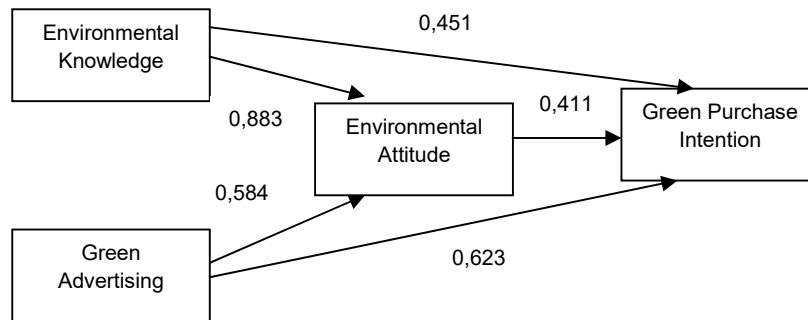


Figure 2 – Path analysis model

This means that green advertising can significantly affect green purchase intention without going through environmental attitude. Advertising that contain environmental claims convey their message more deeply by discussing the relationship between products and the environment (Leonidou, Leonidou, Palihawadana, & Hultman, 2011), so that will affect the environmental attitudes of consumers in terms of affective advertising makes consumers evaluate information and express it positively that eco-friendly is essential to survival; and in terms of konative that advertising have an effect on consumers, they will take action that can protect the environment from damage. The environmental attitudes of the consumer also have an impact on green purchase intention. Green advertising affects consumers in terms of affective, so consumers assume important preservation of the environment and will bring the intention to buy products that are eco-friendly.

## CONCLUSION

The theoretical implications of this study are that environmental knowledge and green advertising can positively and significantly affect environmental attitudes and green purchase intentions, as well as environmental attitudes can positively and significantly affect the intention of purchasing eco-friendly products from Starbucks. These findings also reinforce previous studies using Theory of Reasoned Action by Azjen and Fishbein (1980), where attitudes do have a degree of mediating effect on the relationship between environmental knowledge and green advertising on green buying intentions. In the current study, environmental attitudes are found to mediate the relationship between environmental knowledge and green advertising to green purchase intentions among Starbucks consumers of Mataram city.

Managerial implications in this study are useful for the company to deepen the importance of environmental knowledge owned by consumers and green advertisements in determining the attitude and intention to buy green products. Consumers have a positive knowledge and attitude towards the environment, shown by the knowledge of how to preserve the environment in daily activities which then leads to a positive attitude to the environment in doing things that can protect the environment. Mataram community knowledge about Starbucks that supports environmental friendliness and products and programs from Starbuck is still low. Starbucks has earth day programs and earth-saving events by providing discounts to tumbler users on specific dates of each month. In addition to these programs, companies should organize events that are directly related to the theme of the environment such as planting tree activities, holding seminars that educate the public and for consumers to be more aware of the existence of Starbucks products that support environmental friendliness. With the implementation of events related to the company's environment can also make consumer confidence increases.

The suggestion of this study is the high environmental knowledge and positive environmental attitude from consumers can be segmentation for Starbucks. Starbucks needs to give consumers more insight into the knowledge related to the dangers of using plastics and recycled products. This has been done by Starbucks through the green movement on the importance of environmental protection through small things like recycling and reducing

the use of plastics for life. Companies should be continued to intensively green advertising, not only through social media but also try to use mass media such as newspapers and the use of brochures and pamphlets. If only doing advertising through social media then only the younger generation who hit the target.

For academics: future studies can investigate companies and other products that have eco-friendly claims. Researchers can then consider other variables related to green purchase intentions such as price, trust for eco-friendly products, corporate social responsibility (CSR) to the environment, adding moderate variables such as gender, and can do research using Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) toward green purchase intentions.

The limitation of this study is the short period of observation and only limited to environmental knowledge, green advertising and environmental attitude toward green purchase intention in the future is expected to be able to study and expand the scope of its research by considering other factors that can affect green purchase intention. The scope of this study is very limited and is only done to visitors of Lombok Epicentrum Mall, so the results of this study can not generalized to other consumers in a wider area. The research is only done on Starbucks products, not on green products in general or comparing existing green products with others. This data of study is taken in a certain time (cross section), is expected in the future can use time series data to produce better research.

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## **DOES SPIRITUALITY AT WORK HAS AN IMPACT ON THE RELATIONSHIP BETWEEN PASSION AND INNOVATIVE BEHAVIOR OF EMPLOYEE?**

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### **ABSTRACT**

The aim of this study is to determine the influence of work passion and spirituality at work on the innovative behavior of the employee. This research uses a quantitative research method which involves ninety-four respondents spread evenly throughout SMEs and Islamic cooperatives in Malang, East Java, Indonesia. The quantitative method was conducted by giving questionnaires to respondents. There are three measuring instruments used in this study, namely, work passion that has a reliability value of 0.735, spirituality at work with a reliability value of 0.937, and employee's innovative behavior by 0.789. The first regression test showed a value of 0.290 or 29%. This means that there is a correlation between the variable of work passion on innovative behavior. On the other hand, the second regression test revealed that the previous result has increased to 0.293 or 29.3%. By looking at these results, it can be concluded that the presence of spirituality at work (moderating variables) is able to strengthen the relationship between work passion and innovative behavior of SMEs and Islamic cooperatives in Malang.

### **KEY WORDS**

Work, behavior, employee, SME, spirituality.

The aspects of human life have been influenced by the globalization of the world. In the field of economy, this creates a highly competitive business environment in Indonesia either in the field of trading, manufacturing, or services. Therefore, with this competitive business condition, companies are encouraged to conduct self-improvement in order to maintain the organization. This makes the company try to be smarter in order to improve its performance to remain relevant in the competition. As a result, the company becomes more incentive to find a way that is more innovative for a maximum company's performance.

The challenge to keep on competing is intensified with the entry of millennial generation in the industrial world today. BPS (2014) mentioned that there are 61.8 million people aged 16-30 years old who have work participation by 60.01% in Indonesia. This means that more than 40% of the total Indonesian workforce is dominated by millennials.

In 2010, the Pew Research Center said that the millennial generation has five distinctive characters such as independent, confident, expressive, passionate, and open to change. In the context of Indonesia, this generation also has high religious character. The results of the survey released by Nielsen Consumer Media View Q3 (2015) indicates that there are 84% of Indonesian millennial generation who agreed with the statement of "faith is an important thing to have". Moreover, it is mentioned that the top five most popular Android apps in the category of *Books and Reference* are sequentially occupied by MYQuran Al Quran Indonesia, Encyclopedia Hadith 9 Imam, Alquran Bahasa Indonesia, iQURAN, and MyQuran Indonesia.

The millennial employees are very concerned about the value that exists in their work and where they work. By that, if the values that exist in the company are not in accordance with their values, it will be very easy for them to resign from work. This is evidenced by a survey from Jobstreet.com (2015) revealing that 1 of 5 millennial employees chose to resign from work due to an unhappiness. On the other hand, it is also known that 1 of 3 employees resigned from work because they claim that the work is not in accordance with their interests.



A high turnover rate would be very detrimental to the company. Therefore, companies should keep those employees as much as possible especially those who have high performance.

Karakas (2010) in the perspective of human resource management explained that the absence of spirituality in the workplace will lead to job stress, low attendance, and burn out which Pines & Maslach (1993) defined as fatigue syndrome. This fatigue syndrome, both physically and mentally, develops negative self-concept, lack of concentration, as well as negative work behavior. The situation makes the atmosphere in the work to be cold and unpleasant. Moreover, the dedication and commitment of the employees will decrease so that the performance becomes not optimal. This makes employees distant and does not want to be involved with the environment. Conversely, the presence of spirituality in the workplace encourages them to be empowered and increases the commitment to the organization as well as work productivity. Karakas (2010) further described that spirituality in the workplace will be very profitable for the company because of the creation of employee engagement in the midst of a very fierce talent competition in the 21st century (Beechler & Woodward, 2009).

Within the philosophical perspective, it is possible to have a very materialistic tendency if the employees do not feel spirituality in the workplace. This will create a mindset that money is everything (material oriented) and even meaningless feelings in the work. In contrast, a spirituality that can be fulfilled by the company will increase employees' creativity and job satisfaction up to the point where they feel very meaningful. As a matter of fact, this is the main factor which drives employee performance.

In the perspective of personal relationship, the absence of spirituality in the workplace will produce an overly individualistic employee. There will be no social cohesion among employees and the connectivity among employees will also be low. The low social capital among employees will have an impact on the company because it caused a poor flow of information so that there is no sharing of information between them. This resulted in silos that will make the best practices within a division cannot be transferred properly to other divisions. If this continues to happen, the organization will experience a knowledge stagnation even though the knowledge is in the form of tacit knowledge. Otherwise, spirituality in the workplace will increase the cohesiveness among employees so that the social capital grows among them. The growth of social capital is not only important for employee job satisfaction but also for a company that fully understands the employee's role in improving the value of the company as Vinet Nayar (2010) has described in the book "Employee First, Customer Second".

Not only spirituality, in order to maximize the company's performance, an innovation from the employees is needed. Innovation becomes a key word in today's increasingly complex competition. Without innovation, a company will experience a stagnation and will eventually be kicked in the competition. Larsen and Lewis (2007) stated that one of the most important characters of an entrepreneur is the ability to innovate. A company will not last long without innovation. This is due to the changing of customer needs, desires, and demands. Customers will not always consume the same product. They will look for other products from other companies that can satisfy their needs. For that reason, it needs continuous innovation if the company wants to go further and survive.

West and Farr (1990) defined innovation as a deliberate introduction and application, processes, ideas, products, and new procedures for the organization. Innovation can be understood through individual, group, and organizational approaches. In this study, innovation is discussed in an individual approach. West (1997) believed that some of the features of innovative behavior are the tendency to create new ideas, the tolerance of ambiguity, the desire to be effective, the innovative orientation, and achievement.

Innovative behavior is often associated with creativity. Indeed, both of these traits are related but the constraints of innovative behavior and creativity have various differences (De Jong, 2007). Creativity can be said as the beginning of innovation process whenever a problem occurred and then an idea emerges in response to the need for innovation (West, 2002 in De Jong, 2007). Whereas, innovative behavior focused on a more complex process as it addresses up to the application of ideas (Janssen *et al.*, 2004 in Carmeli *et al.*, 2006).

Kleysen and Street (2001) wrote that innovative behavior is formed by five components, namely: (1) Opportunity Exploration, which means to learn or know more about the opportunities to innovate; (2) Generativity, which leads to the emergence of concepts for the purpose of development; (3) Formative Investigation, which means paying attention to perfecting ideas, solutions, opinion, and investigation; (4) Championing, which means the practices of business to realize ideas; (5) Application, which means trying to develop, test, and commercialize such innovative ideas.

The companies which are identified as Firms of Endearment (foes) truly understand that today's employees no longer work just to get a salary. They work to find the true meaning of life (meaningful work). As mentioned in Sisodia *et al.*, (2007) in the book;

*“In the Age of Transcendence, people are looking for more than a paycheck from their work; they want “psychic income” as well as monetary income. People want work that engages the whole person, work that fulfills social needs, work that is meaningful — psychologically rewarding. People want to view their work as a calling.”*

In connection with what Sisodia *et al.*, (2007) has mentioned that employees who produce optimal performance in the company's FoEs are that *“People want work that engages the whole person, work that fulfills social needs, work that is meaningful — psychologically rewarding”* or *“psychic income”*. This can be interpreted as spirituality in the work or with the concept of work passion by Zigarmi *et al.*, (2009) which have several operational definitions, namely: (1) individual's persistent; (2) emotionally positive; (3) meaning-based; (4) state of well-being stemming from reoccurring cognitive and affective appraisals of various job and organizational situations that results in consistent; and (5) constructive work intentions and behaviors. With that explanation, it can be said that work passion also has a role to improve performance.

Therefore, this research would like to examine deeply the effect of work passion on employee's innovative behavior mediated by spirituality at work. The research will be conducted to the employees of SMEs and Islamic cooperatives in Malang. In everyday life, they have direct contact with customers so as to affect the sales performance of the outlets.

## METHODS OF RESEARCH

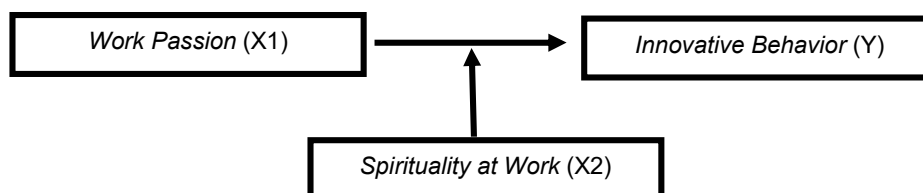
*Research Design.* This research was carried out by using the quantitative approach with the consideration that the aim of this study is to test the theory, build facts, and show the relationship between variables studied. Sarwono (2006) proposed that quantitative approach emphasizes the existence of variables as research objects which will be tested with hypotheses through statistical formulas and certain analytical techniques. The primary data source is obtained from questionnaires answered by the respondents while the secondary data is collected from literature books, research journals, and newspaper articles.

There are two hypotheses in this study, which are:

H<sub>1</sub>: The variable of work passion directly affects employee's innovative behavior;

H<sub>2</sub>: The variable of spirituality at work strengthens the positive relationship between work passion and innovative behavior.

*Research Model.* The mind framework in this study is illustrated in the chart below:



Note:

*Work Passion (X1) is an Independent Variable*

*Spirituality at Work (X2) is a Moderator Variable*

*Innovative Behavior (Y) is a Dependent Variable*

Figure 1 – Research Model

*Research Participants.* As explained before, the population and sample in this research are all employees of SMEs and Islamic cooperatives in Malang. The researchers used probability sampling technique that provides equal opportunities for each member of the population to be selected as a sample (Sugiyono, 2014). The type of probability sampling chosen is accidental sampling which is the determination technique of the sample is by coincidence. The coincidence in this context means that anyone who happens to meet the researchers can be used or is suitable as a sample (Sugiyono, 2014). Initially, the respondents are 63 people but the valid data that can be used in this study is only 45 people.

*Validity and Reliability Test of the Measuring Instrument.* The researchers performed the validity and reliability test of the first measuring instrument in advance. As a result, the validity value of the measuring instrument after being tested for the variable of work passion, spirituality at work, and employee's innovative behavior is proven to be valid. Three of these measuring instruments are declared valid because all items can be used due to the significance value that is less than 0.05. This means that all items are valid to use.

The result of reliability test on work passion is conducted by using Cronbach Alpha analysis which has a reliability coefficient by 0.735. Then, spirituality at work has a reliability value by 0.937 while the employee's innovative behavior has a reliability value by 0.789. The power parameter of the different item in the form of total correlation coefficient describes the appropriateness of the item's function with the measuring instrument's function in revealing individual differences (Azwar, 2005). The measuring tool used is reliable because it has a Cronbach Alpha value that is bigger than 0.60.

## RESULTS OF STUDY

*Participant Overview.* The valid data of the respondents which can be tabulated is 45 people consisting of 27 male employees and 18 female employees.

Table 1 – General Overview of Participants by Sex, Work Period, Age, and Spending per Month

Characteristics	Category	Amount	Total	Percentage	Total
Sex	Male	53	94	56%	100%
	Female	41		44%	
Work Period	< 2 years	45	94	49%	100%
	2-5 years	34		36%	
	5-8 years	8		9%	
	> 8 years	5		6%	
Age	18-25 y.old	62	94	66%	100%
	26-30 y.old	22		24%	
	31-35 y.old	5		5%	
	36-40 y.old	4		4%	
	> 40 y.old	1		1%	
Spending per Month	< IDR 3 million	80	94	90%	100%
	IDR 3 – 7 million	8		9%	
	IDR 7 – 11 million	1		1%	
	IDR 11-15 million	0		0%	
	> IDR 15 million	0		0%	

Based on Table 1, it can be seen that the number of male respondents is as much as 60% and the number of female respondents is as much as 40%. Respondents who are in the age range of 18-25 years old are 8.9% followed by 51.1% in the age range of 26-30 years old, 6.8% in the age range of 31-40 years old, and 2.2% in the age range over 40 years old. Besides that, there are 15% of the respondents who have a work period less than 2 years and 47% in between 2-5 years. Respondents with a working period of 5-8 years are 38% and there are no respondents whose working period is more than eight years. The last descriptive data is the monthly expenditure or spending of the respondents. It is known that there are 20% of them who spent less than IDR 3,000,000,- per month and 80% of them have a monthly expenditure between IDR 3,000,000,- up to IDR 7,000,000,-.

*Hypothesis Testing.* Based on the results of multiple regression tests, it is seen that the significance value is less than 0.05 which is 0.000. By that, the results of linear regression test accept  $H_a$  and reject  $H_o$ . It can be said that there is an influence of spirituality at work and work passion on employee performance. From the calculation of significance value, it can be known that the influence of work passion to employee's innovative behavior is mediated by spirituality at work. According to the result of a linear regression test, it is known that work passion has 29% effect on innovative behavior. Whereas, if work passion is moderated by spirituality at work, the influence of innovative behavior will be higher (29.3%). This means that spirituality at work has a positive effect on employee's innovative behavior.

## DISCUSSION OF RESULTS

The results of the research that are correlated to the first independent variable (work passion) and dependent variables performed by using simple linear regression test show that  $R = 0.538$ . This points out that there is a correlation between work passion and employee's innovation behavior. There is a close relationship since the R-value is close to 1. The value of R square ( $R^2$ ) = 0.290 indicates that the contribution of work passion on employee's innovative behaviors is 29% while the other 71% is influenced by other variables that are not included in this model. The relationship between work passion and employee's innovative behavior is caused by the passion of the employee accommodated by the organization that sheltered it. This is in line with what Permarupan *et al.*, (2013) has delivered that passion becomes very important in improving employee performance. Therefore, an organization can give a sense of work meaningfulness that is more than just generating profit.

Work autonomy, flexibility, growth opportunities in employment, collaboration, work recognition, and a sense of connection with colleagues and organizational mission are essential to improve employee performance. In addition, the organization must ensure that the processes and procedures that exist in the organization are fair and consistently applied to all employees.

The first regression test generated a test value by of 0.290 or 29% meaning that there is a correlation between work passion and innovative behavior. On the one hand, the result of the second regression test obtained a test result that rose by 0.293 or 29.3%. By looking at these results, it can be concluded that the existence of spirituality at work (moderating variable) is able to strengthen the relationship of work passion to employee's innovative behavior on SMEs and Islamic cooperatives in Malang.

According to the data analysis, the dimension of spirituality at work that has the most influence on employee's innovative behavior is the dimension of meaningful work. Gupta *et al.*, (2013) described meaningful work as the condition where employees receive the organization's goals, proud of their work, and contribute to the organization. Employee contributions here can be understood as an intrinsic motivation to work on a challenge. As Amabile (1988), Barron & Harrington (1981) argued, intrinsic motivation is a key driver of employee civility. The giving of unstructured tasks can also generate more creativity than the regular and narrow work tasks and scope. In general, employees will respond positively as they are challenged to produce interesting solutions as long as they have a sufficient scope. Sometimes, it is the management's perception that makes employees not able to innovate because they are judged to have less creative potential or ability to innovate even though they have not been given the opportunity to do it.

On the data analysis, it is found that the dimension of spirituality at work is the dimension of organizational values. This indicates that the employee feels that the company or organization has treated the employees fairly. This is similar to the statement of Milliman, Czaplewski, and Ferguson (2003) that the value of spirituality at work at the organizational level is the enforcement and maintenance of personal values and their conformity with organizational values (alignment of values). This can strengthen the relationship between work passion and employee's innovative behavior.

From the results of multiple regression tests, it can be seen that the significance value is less than 0.05 which is 0.000. Based on these results, the results of linear regression test

accept  $H_a$  and reject  $H_o$ . This can be said that there is an effect of work passion that is moderated by spirituality at work to the employee's innovative behavior. Moreover, the calculation of significance value shows that the effect of work passion will be greater on employee's innovative behavior if it is moderated by spirituality at work on SMEs employees and Islamic cooperatives in Malang.

Based on the analysis that has been discussed, the conclusion of this study is that work passion affects employee's innovative behavior. Besides that, the existence of spirituality at work (moderating variable) will be able to strengthen the relationship between work passion and employee's innovative behavior on SMEs and Islamic cooperatives in Malang.

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## **COMMUNITY-BASED POVERTY ALLEVIATION USING PARTICIPATORY RURAL APPRAISAL**

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### **ABSTRACT**

People living in mountainous and rural areas are more vulnerable to living in poverty due to many factors. This is shown by the high poverty rate in the BPS data and GAKIN (Poor Family) list. Most farmers and laborers are people living in rural areas. The financial condition of the farmers and laborers is considered worse than other communities (the more poor of the poor). Poverty alleviation and community empowerment programs set by the government for the past decades are proven to be not entirely successful and not as expected, followed by many failures in implementing the programs. It was because the empowerment model was Top Down, from the government to the people with pre-determined criteria which are standard and not based on situations, conditions, and occupations of the program target communities. This study aimed to get a community empowerment model which is right on target, based on criteria approach directly explored from the program target communities. The resulting Participatory Rural Appraisal method produces village social condition or village map which shows the potentials, problems, opportunities, and strengths of the community to be the basis for problem solving, program planning, achievement and joint monitoring consistent with their potential and ability.

### **KEY WORDS**

Participatory rural appraisal, the poor, village map, poverty.

People living in mountainous and rural areas are more vulnerable to living in poverty due to many factors. This is shown by the high poverty rate in the BPS data and GAKIN (Poor Family) list. Most farmers and laborers are people living in rural areas. The financial condition of the farmers and laborers is considered worse than other communities (the more poor of the poor).

Community empowerment is a process to develop and strengthen people's ability to enable them to always be able to be involved in the dynamic development process, so that they can solve their problems and make decision independently and adjust to changes in their environment. There have been many community empowerment programs by the government to erase discrepancy and poverty in rural areas which are also remote and mountainous areas. Some of the government programs for poverty alleviation are Presidential Instruction for Disadvantage Village Program (IDT), Family Welfare Program, Disadvantage Village Supporting Infrastructure Development Program (P3DT), Sub-district Development Program (PPK), and Social Safety Net Program (JPS), Village and urban PNPM.

Some of the government programs specifically directed to the target communities area Coastal Community Empowerment Program (PEMP) and Small-Scale Capture Fishery Business Development Program (PUPTSK). However, generally, the programs don't improve the welfare of rural people. One of the reasons for the lack of success of the government programs to alleviate poverty is because the policies are top down. The present study aimed to create awareness among people on the condition, ability, and involvement to actively

respond to changes, through the people's perspective, using participative activities. PRA is a way to formulate appropriate community empowerment policy which is in accordance with local issues, based on aspiration and geographical condition and people.

The initial hypothesis based on field observation was people had varying conditions and people in rural areas tended to be unable to cope with environmental changes due to the entry of industries into the areas. If this continues, there may be economic inequality and disparity, impacting people's social life. Moreover, there are still many poor people who are recorded as GAKIN (Poor Family), receive RASKIN (Rice for the Poor), and request SKTM (Certificate of Poverty), and or own JAMKESMAS (Public Health Insurance).

A study in Tunisia on 200 poor families show that social security program to solve poverty fails to fulfill needs, and people have poor impression on services which use social security, including health, education, and housing (Khemili & Belloumi, 2018). Poverty is a condition influenced by many factors; therefore it's not enough to merely give financial aids to solve it. Opening economic opportunities, developing strengths and empowering potentials are required.

Differences in income and public welfare which have been studied in China, especially in rural areas show that to equalize income, there should be appropriate policies and developments which are in accordance with the needs of regional and provincial areas (Li, Long, Tu, & Wang, 2015). It's important to eradicate poverty because it's a sign of poor basic consumption needs which can affect status, social relation, and spirituality because the poor tend to doubt God, cultivate jealousy, envy, blaming, lack of gratitude, gluttony, greed and other bad behaviors (Derdziuk, 2015).

Participative approach method is used to gain information on people's challenges and find solutions for difficulties (Getchell et al., 2002). A study in Africa shows that losing cattle, such as cow, can affect farmer's finance. Therefore participative approach is required so that farmer community is open to necropsy training program to reduce animal death (Makgatho, McCrindle, & Owen, 2005).

The current community empowerment methods aren't always successful and sometimes fail because they don't start with study on the appropriate method for empowering the community of certain region. A worse outcome is government's Poverty Alleviation Programs are viewed a financial aids which area ready to be consumed and must be received by people, so a lot of people register as poor people to get the aids.

The models in effect have the same patterns in cash and non-cash aids, while the people vary and have specific characteristics. The village community empowerment programs are technical with simple criteria, e.g. based on wealth. The condition of underdeveloped communities should be viewed holistically and systemically. Factors which also affect people's condition vary, and people know their community better than anyone else. In 1990, an idea emerged on welfare by emphasizing solving the problem of people's awareness on their condition and strength. For that end, a participative analysis is required, i.e. Participatory Rural Appraisal (PRA). PRA is an interactive process which involves people as the program targets, with self-knowledge as the foundation because they know their personal condition better than anyone. Therefore, poverty alleviation program should be arranged with the target communities. PRA is packaged as Focus Group Discussion (FGD) to get participative approach (Uddin & Anjuman, 2013).

Today, most development activities focus on sustainable development, which is development which is qualified today without disturbing future generation's utilization. Basically, sustainable development is related to environmental, social, and economic initiations. Therefore, people's participation has a key role in the effective strategy for sustainable development (Koralagama, Wijeratne, & De Silva, 2007).

This makes people less productive but more consumptive and weaker. The approach in the present study was Participatory Rural Appraisal which was formulating community empowerment model so that people could develop their own abilities to solve their problems and make decisions independently. The present study describes some topics on the process of community empowerment, i.e.: power, accessibility to resources, and accommodating environment. PRA technique is focused on spatial, temporal, socio-economic and spatio-

temporal aspects to identify and determine the main problem and obstacle of development (Castelli & Bresci, 2017). The principles used in PRA are learning directly from people, equalizing inequality, optimizing role, awareness and personal responsibility (Castelli & Bresci, 2017). PRA is useful in identifying condition, requirement, problem and opportunity of developing potentials and overall efficiency of rural area (Indrizal, 2014).

This method was expected to make people gain solution to anticipate changes in the society and environment and enable people to develop to fulfill their needs, so that the community develop independently, sustainable, and continuously.

## METHODS OF RESEARCH

The study was performed in Srimulyo Village, Piyungan Sub-district, Bantul Regency. Srimulyo Village was selected because the community is at the line of poverty but actually has undeveloped potentials. Moreover, Srimulyo area has been established by the government to be a prospective industrial area, so people must be ready for changes.

The research instruments included: Camera to document activities and stationeries to record activity data. Research material – The research materials included: Plano, paper to record activity result. The data used in this study was primary data and secondary data. Primary data was obtained directly from observation on objects in Srimulyo, whether the community or geographical condition. The secondary data was obtained from data provided by Srimulyo village government and BPS. The research object was the Group of the Poor in Srimulyo Village, Piyungan, Bantul, Yogyakarta, to obtain effective community empowerment model based on criteria directly obtained from the target community.

*Data Processing.* The sampling in the present study used purposive sampling technique. The community which became the sample of the present study was the women's group in Srimulyo Village. The community was divided into several groups and each group had discussion to collect data consistent with the technique in use and the result was presented to be approved together, so the conclusion was a joint decision. The research result data was analyzed qualitatively. To determine the problem and development, SWOT method was used qualitatively in Table 1.

Table 1 – SWOT for factor determination

Internal Factor	Strengths (S)	Weakness (W)
External Factor		
Opportunities (O)	SO Strategy: Strategy established based on utilization of all strengths to overtake and utilize opportunities as much as possible	WO Strategy: Strategy established based on utilization of existing opportunities by minimizing weaknesses
	Threats (T)	WT Strategy: Strategy established based on defensive and attempts to minimize existing weaknesses and avoid threats

## RESULTS AND DISCUSSION

*Making Village Data.* Data collection by Focus Group Discussion (FGD) produced a conclusion that generally in the village there are more women's groups than other groups. Women's participation in their groups tended to be high. However, in groups mixed with men, women's participation was lower due to the view that technical or environmental field belong to men, so women chose to be passive. Education/understanding on politics and citizenship were provided for women beside business counseling. The success rate showed in the participation of (counseled) women in meetings at higher levels, e.g. hamlet, village, and regency. Beside education for women, men also needed understanding on their roles and the importance of listening to women's voices. It's because women have to bear



psychological burden if they're in a group of men and women but their opinions aren't listened to in the forum.

*Tracing Village History.* Srimulyo Village is a combination of 4 (four) urban villages, i.e. Bintaran Urban Village, Payak Urban Village, Sandeyan Urban Village, and Jolotirto Urban Village. At first, Bintaran Urban Village was governed by Mr. Dullah, Payak Urban Village by Cokro Arjo, Sandeyan Urban Village by Dhemo/Khunting, and Jolotirto Urban Village by Wongso Sediro. They were combined after the independence, on 10 October 1946, based on the Law of RI no 13 of 1946 on removal of *perdikan* villages which were villages which were Dutch called "Virjedesa".

*Virjedesa* then decided to unite into Srimulyo Village. The urban villages became "Kring", i.e. Kring Bintaran, Kring Payak, Kring Sandeyan, and Kring Jolosutro. Later, in 1964, the urban villages and hamlets in them joined together to be Srimulyo Village. The division of *Kring* wasn't regulated by government administration but was very useful in supporting the operational activities of Srimulyo village government, especially since the emotional bonds of the community was still strong, supported by close geographical location, similar regional potential, and close social cultural activities in one *kring*. The first urban village head of Srimulyo was Cokro Subroto. The area of Srimulyo Village consisted of 22 hamlets and 119 RT.

*Chart of Occupation.* Srimulyo Village is located in Piyungan Sub-district, Bantul Regency, Special Region of Yogyakarta Province. Srimulyo Village has a very strategic location between two other villages in Piyungan Sub-district and is the gate to Gunungkidul Regency which has tourism potential. Beside the location, Srimulyo Village has potentials to be an independent village which sets an example for other villages in Yogyakarta or Indonesia. The potentials are supported by rich biological resources across Srimulyo Village. Natural resources potentials in Srimulyo Village can be processed and managed further to produce food and tourist attractions, all of which play very important roles to developing Srimulyo Village in particular and Bantul Regency in general.

Table 2 – Occupation of Srimulyo Village Residents

Time	Employee	Farmer	Plantation			Farms		
			Yam	Nut	Guava	Chicken	Goat	Cow
2000-2005	*	***	***	**	*	***	***	**
2006 –2011	**	**	***	**	*	***	***	**
2112 - 2017	***	**	***	**	*	***	***	**

Note: - = None; \* = Few; \*\* = Medium; \*\*\* = Many.

Significant changes happened after the earthquake which hit Bantul Regency in 2006 which destroyed houses and changed the function of agricultural lands. Most people chose to be employees for their livelihood.

*Seasonal Calendar.* Lands in Srimulyo Village designated to be agricultural lands, plantations, and moors have great potentials. The great land potentials of Srimulyo Village should be followed by management and optimization to gain optimum profit. The hamlet with the largest crop production land is Kaligatuk Hamlet which has 222.9 Ha of land. Meanwhile, the smallest agricultural production land belongs to Payak Wetan Hamlet which has 5.9 Ha of land. The lands are designated for agriculture and plantation in every hamlet. In Srimulyo, there are many cow and goat breeder groups.

Table 3 – Seasonal calendar of community's income

Commodity	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rice	x	x	x							x	x	X
Yam	x	x	x	x	x	x	x	x	x	x	x	x
Nut				x	x	x	x	x	x			
Guava	x	x	x	x						x	x	x

Note: x = existing.

The data shows the harvest time of the villagers' agricultural/plantation products, indicating the time required by laborers to harvest them. Agricultural and plantation products are affected by water or rainfall.

*Village Sketch.* The village sketch shows that plantations/agricultural lands surround the village. Srimulyo Village is composed of highland and mountainous areas, but also has big rivers to ensure the availability of water for agriculture in lowland.

*Institutional Review.* In Srimulyo Village, there are several institutions which affect the village community, e.g. PKK (Family Welfare Movement), Karangtaruna (youth organization), LPPMD (Institute for Democratic Research and Community Service), BMD (Regional Property), BUMDES (Village-owned Enterprise), LINMAS (Community Protectors), Village TPK (Activity Management Team) and Posyandu (Integrated Service Post), as well as relations among the institutions.

*Identification of Potential and Problem.* Identification is a process of collecting information or data on anything required by researcher. The purpose of identification was providing information on the actual condition of the village in terms of various observation aspects, whether strengths or weaknesses. Problem identification was performed by participation in each community. Identification was performed in group meeting using Participatory Rural Appraisal (PRA) technique. Any potential and problem is revealed in each group and approved by all groups.

The potentials of the community in Srimulyo Village are:

- The number of people of productive age is quite high, 60% of total village population;
- It has large lands for agriculture/plantation, etc;
- There are public facilities, e.g. schools, mosque, village office, village meeting hall and community activity supports, such as paved road, electricity, and irrigation;
- There are community institutions and groups, e.g. PKK, Karang Taruna, LPMD (Institute for Rural Community Empowerment), Puskesmas (Public Health Center);
- There are institutions which aren't optimally utilized, e.g. PPL (Election Monitoring) and Farmer Group;
- There is Farmer Group;
- There is policy on industrialization in the village;
- The plantation products, e.g. yams, corns, and nuts, are adequate.

The problems faced by Srimulyo Village community are as follows:

- Limited educated and skilled human resources to manage local potentials;
- Poor incentive for processing innovation;
- Suboptimal guidance by related department;
- Suboptimal institutional activities and coordination with other related institutions;
- Limited IT mastery and network;
- Difficulty publicizing and promoting the region;
- Limited agricultural product processing technology;
- No business permits ownership.

Table 4 – SWOT analysis

	Strength (S)	Weakness (W)
Opportunity (O)	Using large land to produce business production materials Utilizing natural potentials to open tourism site Using institutions to access bigger network	Minimizing lack of human resources by requesting training and guidance Reducing problem with agricultural product processing technology by using the networks of departments and universities
Threat (T)	Using free IT access from the sub-district for publicizing and promoting the village's potentials Using the beauty of the area for tourism site and to draw customers and investors to the village	

Based on the resulting data, the potentials and problems above were separated into SWOT categories. Internal potentials are strengths, while external potentials are

opportunities for the village communities. The problems are also separated into internal problems which are weaknesses and external problems which are threats.

Based on the result of the SWOT analysis, the following steps were formulated:

- The community has large land which can be optimized to make unique and special local products, e.g. Srimulyo Village unique souvenirs.
- The community can work with companies as material supplier
- Local product marketing can use information center and free internet access provided by the sub-district, as well as making website or online network.
- Processing technology for local products can be procured by working with related department and forming network with universities which are the centers of technology and science.
- Limited production capability due to lack of human resources should be minimized by requesting training and guiding
- Local products innovation and development are necessary to make local icons
- Legal support and production should be provided by registering brand or business license to the Ministry of Law and Human Rights.

### **CONCLUSION**

Based on the result of Assessment of Community Potentials by Participative Approach in Srimulyo Village, Piyungan Sub-district, Bantul Regency, the following can be concluded:

- The potentials which can be developed are large land, agricultural and plantation products, natural potentials, industry, and related parties.
- The problems are lack of educated human resources, limited technology, promotion media, innovation, and legal protection
- Solutions for the problems are cultivating land to reinforce business production, utilizing natural potentials for tourism and bringing customers and investors, utilizing the sub-district's IT service for promotion media, working with related part for training and guiding, and working with universities to procure agricultural and plantation product processing technologies and business management.

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**THE INFLUENCE OF PARTICIPATIVE BUDGETING ON BUDGETARY SLACK  
(WITH LOCAL CULTURE AND CORPORATE GOVERNANCE AS THE MODERATORS:  
AN EMPIRICAL STUDY ON RURAL BANKS (BPRS) IN BALI**

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**ABSTRACT**

This research is aimed at revealing the moderation of good corporate governance and Tri Hita Karana as a local culture on the relation of participative budgeting towards budgetary slack. The research population is the rural banks in Bali province. The data are analyzed by using Moderated Regression Analysis. The results provide empirical evidence suggesting that corporate governance can moderate the relationship of participative budgeting towards budgetary slack, whereas the Tri Hita Karana culture shows no evidence of influence that can moderate the relationship of participative budgeting and budgetary slack.

**KEY WORDS**

Corporate governance, Tri Hita Karana, local culture, budgeting, budgetary slack.

Budget is an important tool that can be used by the management to control the company operations and to ensure the chosen strategies can be used to achieve the company's goal (Triana *et al.* 2012). Budget can also assist managers to be more responsible because budget is the means to communicate the plans, to allocate resources, to set the goals, and to function as the guidance in an organization (Garrison & Noreen in Bradshaw *et al.* 2007). Budget is an element of a management controlling system which functions as the planning and controlling tool which enables managers to implement the organization activities more effectively and efficiently (Schiff & Lewin 1970).

Participative budgeting is a process of composing a budget which involves individuals who have influences on the budget target. This process involves many parties from the top-level management to the lower-level management. The participative budgeting may result in certain individual behavior, e.g. improvement in performance because of the rewards given by the company when the budget target has been achieved. The participation of managers and their subordinates in setting up the budget is significantly needed. Each member of an organization who involves in budget determination process might tend to create a biased or lower budget, depending on their behavior, because by making a low budget their performance might look better. This kind of behavior in determining budget can create budgetary slack; moreover, some experts, among others, Lyne 1995; Walker & Choudhury 1987, state that it is 'common' for budgetary slack to exist in a budget which is composed participatively.

Budgetary slack is a variance between the planned budget and its realization. During the process of setting up a budget, lower-level managers often lower their abilities or performance by displaying the allocation for resource needs at a much higher number than the actual ones by overestimating the expenses or underestimating the incomes (Kren, 2003). Due to this budgetary slack, the accuracy of the information shown in the budget is doubtful.

Several researches testing the relationship between the subordinates' participation and the budgetary slack had already been done with inconsistent results. The research by Lowe & Shaw 1968; Young 1985; Lukka 1988; Falikhatun 2007; Kartika 2010; Widyaningsih 2011;

and Pello 2014; show that participative budgeting has a positive influence towards the budgetary slack. The same research suggests that the individuals involved in the budgeting process might tend to bring their own interests into the budget. When this happens, these people create budgetary slack indirectly. On the other hand, some research by Camman 1976; Merchant 1985; Chow *et al* 1988; Dunk 1993; Supanto 2010; and Apriyandi 2011; show that the participation in determining a budget can reduce the budgetary slack (i.e. has a negative influence).

The existing contrast found in that research above can be settled by applying the contingency approach which allows other variables to act as the moderating or intervening factors and influence the relationships between the participative budgeting and the budgetary slack. *Good corporate governance* (GCG) applied in a company contains 5 essential principles which must be applied in running a company, namely transparency, accountability, responsibility, independency, and fairness. The application of GCG in participative budgeting might reduce its influence on the budgetary slack. Similarly, the influence of participative budgeting on budgetary slack can also be reduced by applying the *Tri Hita Karana* culture (THK), as a local wisdom which believes in the harmony of nature, human, and God.

This current research is conducted in rural banks (*Bank Perkreditan Rakyat*; hereafter, BPRs) located in Bali province. BPR is different from other types of banks because BPR is oriented to rural society in Indonesia including Bali. The development of BPRs has a quite significant impact in Indonesian economic improvement as perceived by Indonesian government. This is mainly due to the orientation of BPR towards improving the Micro, Small and Medium Enterprises (hereafter, UMKM) by channeling credit or loans. Each bank, including BPR, needs to manage their business effectively and efficiently to win the competition in the competitive business environment. Therefore, budget planning is crucial for BPR to support their operations. This research focuses on three questions: whether or not participative budgeting influence budgetary slack of BPRs in Bali province?; whether or not the application of *Corporate Governance* can create influences on the relationship of participative budgeting towards budgetary slack of BPRs in Bali?; and, whether or not *Tri Hita Karana* culture can create influences on the relationship of participative budgeting towards budgetary slack of BPRs in Bali?

The objective of this current research is to recognize the influence of participative budgeting on the budgetary slack of BPRs in Bali by focusing on the influences of *Corporate Governance* and *Tri Hita Karana* culture on their relationship.

This current research is significant because the Micro, Small and Medium Enterprises (UMKM), especially in Bali, rely heavily on BPRs to carry out their business. BPRs help UMKM by providing the capital. BPR performance is considered good when one of the indicators in the budget planning is the lack of significant budgetary slack.

The implication of this research can be used as one of the considerations in banking world, namely suggesting BPRs to create an effective and efficient budget by applying GCG and THK culture appropriately.

## LITERARY REVIEW

*Agency Theory and Contingency Approach.* Within the budgetary slack practices, the agency theory is the conflict of interests between principals and agents which happens when each party tries to achieve their intended goals. In the process of formulating the budget for a company, participative managers tend to provide information which is different from the actual resources that they should have had in order to attain rewards. Contingency theory is based on the assumption that organization management can observe and resolve certain situations which are currently faced by the company, and each situation must be analyzed separately.

Previous research shows inconsistent results with regards to the relationship between participative budgeting and budgetary slack. Some researchers, such as Merchant 1985; Dunk 1993; Supanto 2010; and Apriyandi 2011; argue that participative budgeting can reduce the tendency to create budgetary slack. This happens because the subordinates can

provide their own private information with regard to the future prospect; consequently, the planned budget becomes more accurate.

On the other hand, other research done by Young 1985; Falikhatun 2007; Kartika 2010; Widyaningsih 2011; and Pello 2014; gain empirical evidence showing that participative budgeting can, in fact, cause the participating managers to create budgetary slack during the budget planning. Due to the inconsistency, it is deemed necessary to use other approaches to look at the relationship between those two variables.

Several researchers from the management accounting field conduct research by applying the contingency approach in order to see the relations between contextual variables and the design of a management accounting system; furthermore, it can be used to evaluate the effectiveness of the relationship between two variables (for example, the relationship between participative budgeting and budgetary slack) by using certain moderating variables. This current research uses the *Corporate Governance* and the *Tri Hita Karana* culture as the moderating variables for the relationship between participative budgeting and budgetary slack.

*The influence of Participative Budgeting on Budgetary Slack.* Hansen & Mowen 2012, states that budget is the main component of planning, i.e. the financial planning for the future, because budget contains the objectives and the activities which enable the company to achieve the objectives. In budgeting, there are two main elements, namely how the budget is formulated and how the budget is implemented as the company's plan.

Participative budgeting needs contribution from each member of an organization because it is believed that the subordinates might have more understanding of the situation in their respective departments. Participation in determining a budget is an effective way in creating the standards and alignment of objectives from each responsibility-center with the overall objectives of the company (Siegel & Marconi 1989).

The fact that participation is an effective way to align the objective of the responsibility-centers with the overall objective of the organization makes participative budgeting have an important function in motivating the subordinates by giving them targets to achieve the goals. By undertaking the participation process, the management can provide information based on the resources they have on hand; consequently, the owners of the company can make the right decisions in order to achieve the company's goals (Ikhsan and Ishak 2005). Nevertheless, participation in budget determination has a flaw, namely it can create budgetary slack.

Budgetary slack is the act of the subordinates who understate their capabilities or productive capabilities in the budget proposal (Young 1985). Thus, budgetary slack is the variance resulting from the difference between the budget estimation and its realization. The subordinates create the budgetary slack by overstating the planned costs and understating the expected revenues. This is caused by the subordinates who tend to compose a budget which is easy to realize, i.e. by loosening the budget.

The participation of the subordinates in composing a budget gives them the freedom to determine the targets they want to achieve for their own interests and not for the interests of the organization or institutions. This is confirmed by a research done by Djasuli 2011, in which it is stated that participative budgeting has a positive influence towards budgetary slack.

According to Lau & Eggleton 2003, subordinates have a higher motivation to create budgetary slack in the proses of participative budgeting because they have more information than their superiors, and the subordinates are also responsible for achieving the targeted budget. Thus, the subordinates might tend to overstate their needs and to understate their productivity in the budget that they compose in order to achieve the budget (Widanaputra & Mimba 2014). This statement is in line with a research by Ramdeen 2006, which states that the higher the level of participative budgeting is, the higher the number of the resulting budgetary slack will be.

H<sub>1</sub>: Participative budgeting influences budgetary slack.

*The Influence of Corporate Governance towards the Relationship of Participative Budgeting and Budgetary Slack.* In brief, good corporate governance is a concept of

governing a healthy company which is expected as the means to ensure the stockholders and creditors can regain their investments (Khairandy & Malik, 2007: 60). GCG consists of five principles (usually abbreviated to TARIF), i.e. transparency, accountability, responsibility, independency, and fairness. Thus, the objectives of GCG is to maximize the values of the company and the stockholders by developing the transparency, accountability, and responsibility; in addition, another GCG's objective is also to establish the governance system which encourages and promotes creativity and progressive entrepreneurship.

GCG can be considered as a compulsory concept to be applied in every organization because GCG can contribute to public welfare, and it is also supported by the philosophical assumption behind the birth of GCG. CG is a mechanism which manage the governance of a company to be better. GCG's function is to help protecting the rights of the stakeholders. The application of GCG and its five principles can minimize the self-interested behavior of the people who compose the budget.

H<sub>2</sub>: *Corporate Governance* influences the relationship of participative budgeting and budgetary slack.

*The Influence of Tri Hita Karana Culture towards the Relationship of Participative Budgeting and Budgetary Slack.* *Tri Hita Karana* is considered as a culture which is believed and has become the fundamental part in the life of Balinese people. Hofstede, a writer in cultural organization, admits the importance of culture to management. *Tri Hita Karana* is a local wisdom of Balinese people containing the virtues which can become their guidance to live in every aspect of life.

The virtues found in THK culture contains the suggestion that THK is relevant to be used as the guidance for personal life and businesses because THK culture reflects a harmony of three aspects: the harmony between human and their creator, the harmony between human and nature, and the harmony amongst human themselves. These three aspects can influence the behavior of an agent or the management. The THK culture can strengthen the influence of participative budgeting which has the nature of reducing the budgetary slack; conversely, the THK culture can weaken the influence of participative budgeting which has the nature of increasing the budgetary slack.

H<sub>3</sub>: The *Tri Hita Karana* culture can influence the relationship of participative budgeting and budgetary slack.

## METHODS OF RESEARCH

This current research studies the rural banks (BPRs) located in Bali province. The objects of research are participative budgeting, good corporate governance, *Tri Hita Karana* culture, and budgetary slack found in those BPRs.

The data are analyzed by using the *Moderated Regression Analysis* (MRA). MRA test is a multiple linear regression application in which its regression equation contains the interaction of multiplication of two or more independent variables.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 (X_1 \cdot X_2) + \beta_5 (X_1 \cdot X_3) + e \quad (1)$$

Where:

Y = budgetary slack;

$\alpha$  = constant;

X<sub>1</sub> = participative budgeting;

X<sub>2</sub> = GCG;

X<sub>3</sub> = THK culture;

$\beta_1 \beta_2 \beta_3$  = regression coefficients;

e = standard error.

The hypotheses of this present research can be tested by measuring the coefficient of determination value, F-test, and t-test (Ghozali, 2013:97-99).

- The coefficient of determination is one of the main tools to measure the alignment of the regression line with the data distribution. The coefficient of determination on linear



regression is often interpreted as the ability value of all the independent variables to interpret the variance of the dependent variables. The coefficient of determination used in this research is the value of  $R^2$  for hypothesis 1 and the value of the Adjusted  $R^2$  for hypothesis 2.

- F-test model. The F-test is used to test whether or not all independent variables which are put in the model have the joint influences on the dependent variables. The criteria for decision-making are set by comparing the score of F value with that of F table.  $H_0$  is rejected if F value > F table ( $\alpha = 0,05$ ), and  $H_0$  is accepted if F value  $\leq$  F table ( $\alpha = 0,05$ ).
- t-test. t-test is conducted to test individually the degree of influence which a particular independent has on the interpretation of dependent variables. The criteria for decision-making are set by comparing the statistic score of t value with that of t table.  $H_0$  is rejected if t value > t table ( $\alpha = 0,05$ ), and  $H_0$  is accepted if t value  $\leq$  t table ( $\alpha = 0,05$ ).

The variables analyzed in this research are participative budgeting, budgetary slack, and two moderating variables: GCG and THK culture.

The operational definition in this research is as follows:

- Participative budgeting is defined as the participation of the managers of responsibility-centers in the matters related to the budgeting process (Govindarajan, 1986). To measure the participation of a manager or subordinate in the budgeting process, an instrument developed by Kartika (2010) is used. It consists of 6 items of questions with a five-point Likert scale for each item.
- Budgetary slack is a variance resulting from the difference between the reported budget and its actual estimation (Anthony & Govindarajan, 1998). It is aimed at making the targets easier to achieve by the subordinates. The items used in the measurement of the budgetary slack refer to the list of questions used by Kartika (2010). There 6 question items with a five-point Likert scale.
- *Corporate Governance* (CG) is a principle underlying a good governance of a company by considering the interests of the stakeholders which consist of village leaders, the government, the management, and public. The measurement of CG variable uses the group of values or index attained from the application of CG principles obtained from the questionnaire distribution containing CG indicators and using Likert scale.
- Local culture is the manifestation of Balinese people cultural value by adopting the *Tri Hita Karana* concept and its indicators, namely the relations between human and human, human and nature, and human and God. The measurement uses Likert scale, and the data are taken from questionnaires.

This current research makes use of qualitative and quantitative data. The qualitative data are the names of BPRs which are registered in Bali province, whereas the quantitative data are the scores of the answers given by the respondent on the five-point Likert scale ranging from strongly disagree to strongly agree. The primary data are obtained from the survey method by using questionnaires distributed to the respondents.

The population of this research is a number of directors and staff who participated in the budgeting in 137 BPRs in Bali (Source: <http://www.bi.go.id>). This current research also uses the purposive sampling methods with two criteria: 1) the BPR asset is worth Rp. 60.000.000.000,- minimum; 2) the respondents have been in their positions/section for two years minimum. The two-year period is chosen with an assumption that the respondents should have had the experiences of composing a budget and might have had the necessary professional certification. Prior the analysis, the data collection instruments have been tested by using the validity and reliability tests, and continued with the classical assumption test.

## RESULTS AND DISCUSSION

This research is conducted to reveal the influence of GCG and the THK culture on the relations between participative budgeting and budgetary slack. The number of samples is 35

BPRs in Bali. Three questionnaires are given for each BPR. They are to be completed by the managing director, and two heads of departments who are professionally certified. These people are chosen because they are responsible for the budgeting process. Initially, the respondents are 105 people who composed the budget and who have been professionally certified. From 105 respondents, 19 are declared unusable with 3 of them did not return the questionnaires and the other 16 did not meet the criterion of professional certification. Consequently, there are 86 respondents used in this research. The data are collected from the questionnaires which are distributed directly to the 35 BPRs. The detailed description about the distributed questionnaires, the returned questionnaires, and the questionnaires given to each BPR is made afterward.

The instruments used in this research are tested by using the validity test and reliability test with a sample of 30 respondents. The validity test uses the correlation coefficient between the scores in which the related indicators should be valid when the correlation indicates positive relationship and valued at  $> 0,3$ .

The result of the validity test shows the correlation coefficient ( $r$ ) on the entire variables is bigger than  $0,3$  with a significance smaller than  $0,05$ . The result of the reliability test shows that all variables have their *Cronbach's Alpha* scores which are bigger than  $0,7$ . Based on the result of data processing, it can be interpreted that the instruments used in this research have fulfilled the requirements to be used.

The results of the *Moderated Regression Analysis* test (MRA) are as follows:

Table 1 – The Results of *Moderated Regression Analysis*

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig
	B	Std. Error	Beta		
(Constant)	58,218	20,158		2,888	0,005
Participative budgeting (X1)	-2,2932	1,128	-2,527	-2,599	0,011
CG (X2)	-0,663	0,215	-1,814	-3,077	0,003
THK (X3)	0,228	0,321	0,412	0,710	0,480
X1*X2	0,039	0,011	3,851	3,474	0,001
X1*X3	-0,00000	0,0173	0,000	0,000	1,000
F	17.468				
Sig. F	0,000				
R Square	0,522				
Adjusted R Square	0,492				

Based on Table 7 above, the regression equation is as follows:

$$Y = 58,218 - 2,2932X_1 - 0,663X_2 + 0,228X_3 + 0,039(X_1 * X_2) - 0,000(X_1 * X_3)$$

Where:

Y = Budgetary slack;

A = Constant;

$\beta_{1-5}$  = Regression coefficient;

X1 = Participative budgeting;

X2 = Good corporate governance;

X3 = *Tri Hita Karana* culture;

X1 \* X2 = Interaction between participative budgeting and good corporate governance;

X1 \* X3 = Interaction between participative budgeting and *Tri Hita Karana* culture.

The results of the analyses on the *Moderated Regression Analysis* (MRA) test by observing the goodness of fit and by looking at the model appropriateness test (the F-test), coefficient of determination (Adjusted  $R^2$ ), and hypothesis test (t-test) are as follows:

- The result of the model appropriateness test (the F-test). The F-test is used to test whether or not the independent variables used in this research have an influence on the dependent variables simultaneously. Based on the F-test result, it is recognized that the regression model has  $F_{\text{valued}}$  at 17,468 with a significance of  $0,000 < \alpha < 0,05$ .

Thus, the tested model in this research has met the goodness of fit test, and the hypothesis testing can be continued.

- Coefficient of determination (*Adjusted R<sup>2</sup>*). The coefficient of determination describes how far the independent variables in the model are able to explain the variability in the dependent variables (Ghozali, 2016). The indicator of the coefficient of determination in the *Adjusted R<sup>2</sup>*. The value of the *Adjusted R<sup>2</sup>* is 0,492 which means 49 percent of the variation changes of the dependent variables found in the budgetary slack can be explained by the participative budgeting variables which are moderated by CG and THK culture. Meanwhile, the other 51 percent is influenced by other variables which are not included in the research model.
- Hypothesis testing (T-test). For the first hypothesis, the coefficient value of the participative budgeting is -2,2932 with a significance level at  $0,000 < 0,05$  which means that if the participative budgeting increases by one percent, then the budgetary slack can decrease by 2,29 percent with an assumption that the other variables remain constant. Thus, it can be stated that the participative variables in budgeting process has a negative and significant influence on the budgetary slack variable.

The second hypothesis ( $H_2$ ) states that CG moderates the influence of participative budgeting towards budgetary slack. The MRA analysis shows the interaction coefficient between the participative budgeting and CG is at 0,039 with a significance level at  $0,001 < 0,05$  which means that CG intensify the influence of the participative budgeting which lower the budgetary slack significantly. As a result, the second hypothesis can be accepted.

The third hypothesis ( $H_3$ ) states that the THK culture can moderate the influence of participative budgeting towards the budgetary slack. The MRA analysis shows the interaction coefficient between participative budgeting and THK culture is at -0,000004 with a significance level at  $1,000 > 0,05$ . This means the THK culture shows no influence on the relationship of participative budgeting which can reduce the budgetary slack. Thus, the third hypothesis is rejected.

## RESULTS AND DISCUSSION

The agency theory concept explains that the executives (agents) will apply the principle of prudence in determining the budget targets for income and cost efficiently and effectively. Based on the results of analyses above, the t-test shows a negative and significance direction. Accordingly, the first hypothesis stating that participative budgeting influences the budgetary slack can be accepted.

From the results, it can also be inferred that the higher the level of participation from the subordinated in the budgeting process of BPRs in Bali, then the lower the level of budgetary slack will be. The participation of subordinates in budgeting process gives them opportunities to create the budget targets. The results of this research is in line with those of Camman (1976), Merchant (1985), Chow *et al* (1988), Dunk (1993), Supanto (2010), and Apriyandi (2011) which show that participation in budgeting process can reduce budgetary slack.s

GCG is a mechanism which manage the company's governance to be better. GCG can assume the role of a protector of the rights of the stakeholders. By applying the GCG and its principles, namely transparency, accountability, responsibility, independency, and fairness, then the self-centered behaviors of the people who prepare the budget can be minimized.

The results of the interaction test between the participative budgeting and GCG also indicates positive and significance results. Thus, it can be stated that CG can influence the relationship of participative budgeting towards budgetary slack. The results also show that the application of GCG can intensify the behavior of the participative budgeting which can reduce the budgetary slack of the BPRs in Bali. In other words, the higher the application of CG is, the higher the level of tendency will be for the participating managers to reduce the budgetary slack.

In this research, the THK culture is not proven to show influences on the relationship between participative budgeting and budgetary slack. This is because the THK culture is only applied at the surface level. The THK culture has not been able to be measured physically yet because it is merely a perception.

## CONCLUSION

Based on the data analysis and discussion above, some conclusions can be drawn as follows:

- The participative budgeting has a negative influence towards the budgetary slack. This means that the higher the participation during the budgeting process in BPRs in Bali, the lower the budgetary slack will be.
- Good Corporate Governance (GCG) can influence the relationship between participative budgeting and budgetary slack. A better application of GCG by BPR management in Bali can reduce the budgetary slack which can be incurred during the participative budgeting process.
- The THK culture does not influence the participative budgeting process and budgetary slack.

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## **THE IMPLEMENTATION OF VILLAGE FINANCE MANAGEMENT AT PORONG SUB-DISTRICT IN SIDOARJO REGENCY TO ACHIEVE «GOOD GOVERNANCE»**

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### **ABSTRACT**

Finance management system of Porong sub-district in Sidoarjo regency is recently accordance with the procedure of good governance principle. The plan, implementation, administration, report, and responsibility of the management are already well organized. Unfortunately, there are several aspects that violate the regulation of constitution. The lack of transparency and accountability of village governance become major problem while maintaining the system, they just used the system to complete the procedure instead of following good governance principle. Thus good governance principle is still not yet achieved at Porong sub-District.

### **KEY WORDS**

Finance management, good governance, regulation of constitution, village governance.

In order to imply a good village, which is accordance with government implementation principle and village regulation principle, stated in constitution regulation number 6 of 2014 about village, there are some aspects concerned for this vision. They are law certainty, order of government implementation, order of public interest, transparency, professionalism, accountability, diversity, and participation. While concerning with village development, togetherness, humanity, and helping each other are priorities to imply social justice. All of those aspects need a well-organized finance management, government publish Government Rule (The phrase will be referenced as GR in this study) number 43 of 2014 about the regulation execution of ordinance number 6 of 2014 about Village which has been amend into GR number 47 of 2015 and the regulation of ministry of home affairs number 113 of 2014 about village finance management, it stated that village finance management is series of act which cover planning, implementation, administration, report, and responsibility. Sidoarjo government respond this statement by publishing regent regulation number 27 of 2015 act 2 about Village Finance Management Guidance stated that village finance must be managed with principles of transparency, accountable, participative, in order, and estimate discipline. As all of the aspects are implemented, the good governance of village finance system will be achieved. Because, the meaning of good governance is not only on the service of the government but also on the support o its people. Thus, god governance must be orientation and obeyed by every apparatus of the village government.

In the other hand, the reality reveals different expectation; there are several villages that do not yet possess formal finance management system for instance an event does not have any report of its administration record, expenditure blurred record, and no transparency of village finance use. Porong sub-district within Sidoarjo Regency is one of sub-district with most finance error report. Porong sub-district consist of 13 villages which are Kedungsolo, Pesawahan, Lajuk, Kebonagung, Pamotan, Kedungboto, Candipari, Kebakalan, Plumbon, Glagaharum, Kesambi, Renokenongo and Wunut.

There are several villages which unable to complete their finance system. Thus, this study would aim to observe all finance management record of the villages towards good governances principle. From the background above, the research question of this study is "how is the system of finance management at Porong sub-District of Sidoarjo Regency towards Good Governance principle?".

## METHODS OF RESEARCH

Socio legal is the suitable type for this study. It sees law as social phenomenon, thus, the law that will be studied on this paper will be used as basis point of view to observe subject of the study. Socio-legal is also known as society legal phenomenon or social fact which occurred among societies which social fact is a certain habit as role model for its people (Nasution, 2008:124).

The composition of source of data of this study is as follow:

- Literature study (secondary data) which known as legal materials in normative study;
- Field observation (primary data) which comes from respondents;
- Legal materials (tertiary data) which in form of scientific paper of the academies.

### *Data collection:*

- Literature data. This secondary data is in the form legal materials obtained by using stock taking (inventory) method. By using card system, the data will be specified into Ikhtisar card, Cite card, and Analysis card.
- Field observation data. The instrument to collect field observation data is by using pair of managed questionnaire. It consists of questions written and distributed to the respondents to obtain the responds or information of the question.

As the information is already gathered, the next step is to process the data. In order to process the data, the first step is editing the data and coding it. Then, the data is analysed within its content (content analysis). Thus, there will be stimulation for special analysis towards the content of the data, the context of the data is also important for the result accuracy as this study is one of case study paper.

## DISCUSSION OF RESULTS

Finance management system of Porong sub-district consists of several procedures, as follow:

*Planning.* Village Development Planning Program covers Village RPJM and RKP which constructed in schedule and written based on Village law. Short Term Village Development Planning (RPJM) is conducted for 6 of period while Village Apparatus Work Planning period is only for 1 of. While conducting RPJM, Village Apparatus is mandatory to hold Village Development Conference participatively. As self governing community, village development planning is very important to keep up the track record of the village, it will be easier for the apparatus to maintain and improve the village quality. The planning program will consolidate the right and duty of the village itself, it will help the village to optimise their resources. From the result of study, the 13 villages of Porong sub-districts as objects of the study (Kedungsolo, Pesawahan, Lajuk, Kebonagung, Pamotan, Kedungboto, Candipari, Kebakalan, Plumbon, Glagaharum, Kesambi, Renokenongo and Wunut.), there are two villages which could not complete their finance management activity. They are Glagaharum and Renokenongo village, which, in some cases, they do not participate in BPD for finance management report. In one hand, not all villages have conducted their RPJM, RKP, and APB report. From 13 villages, 7 villages has completed their RPJM report while other 6 villages did not complete the report. Meanwhile, all village did not conduct their RKP report. This infraction does not match with Law number 6 of 2014 article 79 act 2, it stated that Village Work Planning is another definition of short term work planning for at least one of period.

RKP village report covers information of program priority, activity, basic need of village development from APB fund, Village Foundation Charity, and/or fund finance of Regent/City. There are two that did not submit their APBDes finance report, they are Renokenongo, which is unable to report because of mass nature disaster known as 'Lumpur Porong Lapindo', and Glagaharum village, which could not report their finance management with no clear reason. Glagaharum village failed to report their finance management of APBD in 2017 and 2016 for about Rp. 232.000.000,-. This case is absolutely against the order of ministry of home affair number 113 of 2014 about finance management article 20, it states that APB plan which is



offered by head of village to BPD will be reviewed until month of October and it will be evaluated by head of sub-District. In this case, BPD has duty to control towards the implementation of village order and its finance record (APBDes).

One of concept of good governance is participation. It is an activity that include civil society in some important decision. That is why, before the apparatus conduct the finance need for development of village, they must held conference with civil society to gather the aspiration directly from society. The conference must be done in order, the smallest civil society (known in Indonesia as RT/RW or neighbourhood) must held little conference and report the result to the head of the village. The order of ministry of home affairs number 113 of 2014 stated that finance planning program is started from APB according to the recent RKP village. The person who in charge to conduct its finance planning report is the village secretary. By the time it has written, the secretary will report the result to head of village. Then, the head of village will bring the report to the conference with BPD and decide whether the plan already meet the requirement or not. As approved by BPD, the finance planning will be sent to Regent, the process will take three to five days and it takes 20 days for Regent to evaluate the proposal. After that, the confirmation from Regent will decide whether the proposal is accepted or rejected.

*Village Finance Implementation.* According to APB result on previous step, it will be proceeded into implementation phase which cover Finance Consideration Arrangement, Letter of Payment Demand, Commodity/Service Arrangement and Field Implementation.

Finance Consideration Arrangement consists of the details of fundamental needs, component details, and the expenditure for each event. All of them will be conducted in the report (RAB) and delivered to village secretary for verification. After verification phase, the secretary will transfer the documents into head of village for final approve and legalised. According to an interview with informant, all villages in Porong sub-district already submit their RAB documents and already followed the procedure within its line.

According to the order of ministry of home affairs number 113 of 2014, there are some general regulations must be obeyed by everyone which is stated on the implementation of village finance part as follows:

- Every expenditure and income traffic must use only one village treasury bank account in the name of right of village finance implementation (article 24 act 1 Permendagri (Ministry of home Affairs regulation) 113 of 2014)
- Every traffic of expenditure and income must be attached with legal bill of transaction proof (article 24 act 1 Permendagri (Ministry of home Affairs regulation) 113 of 2014)
- Any expenditure which become a burden for APB before the implementation of its arrangement will be considered as rule of village (article 26 act 1 Permendagri (Ministry of home Affairs regulation) 113 of 2014). An exception will be applied for certain need of Apparatus which is mandatory and office operational need which is already approved by head of village before.

According to points above, one village must possess one bank account on behalf of village governance. Any transaction and cash withdraw must be signed by head of village and its treasurer. Fortunately, for village in remote which does not posses banking service yet, the transaction will be handled by Regent or major of its area. It will help any third parties, normatively, to complete any transactions with the village.

The implementation of village finance expense consists of two major phases which are income expense and expenditure expense.

Income expense covers the previous SiLPA, secondary finance withdrawal and the result of village resource exploitation which is split. The residue of all consideration is known as Income Expense which later will be used to expense any on going event, it would help the village to save some deficit. The implementation of using SiLPA method must be included in APB documents. The secondary fund will be transferred into central village bank account which must be done within legal procedure

The examples of expenditure expense are the arrangement of secondary fund and the attachment of village capital. The arrangement of secondary fund is legalised after the verification within village order has been signed. The bank account of secondary fund is

exclusive, the consideration of its time limit must not exceed last of current head village period. This system also applied on village capital arrangement, it must possess verification pass from BPD.

From thirteen villages, none of them use letter of payment demand when withdrawing the money. There is no verification from the secretary nor any signed confirmation from the head. Instead, all villages in Porong sub-district only use check signed by secretary and the head. In some cases, the amount of money does not match with the actual need.

This phenomenon does not in line with regulation from the government, Regent of Sidoarjo number 27 of 2015 about the instruction of finance management system article 34 act 1 and 2, article 35 and 36 which, in general, states that any proposal to conduct an event must be fully attached with RAB documents which is verified by secretary and approved by the head of village. As stated in RAB, the organizer of the event must sent the letter of payment demand to head of village which consist of (1) letter of payment demand, (2) declaration of expense responsibility, (3) attachment of transaction bill.

*Finance Administration.* Administration village finance is the act of note taking which is exclusively done by the village treasurer. To take a note on every transaction of the village is mandatory duty of treasurer. Moreover, the treasurer must considerate systematically towards the chronology of every transaction traffic in the bank account.

In the observation field, there is no some serious problem in this system. Unfortunately, in some villages, village treasurer violates the code of finance system by faking the note that should be clearly stated in their village foundation book note (BKU). One of the village that violates the report is Lajuk. The village violates in a road barrier build project, paved road project, and water plumbing. There is a burden to RAB in the amount of Rp. 113.638.800,- with the details as follow:

a. Road Barrier Construction in Pandokan area, according to the analysis of public service of 2016, the cost to install the river rocks is Rp.800.000,-/m<sup>3</sup>, the actual need of the project must be 132,72 m<sup>3</sup>xRp.800.000,- = Rp.189.148.900,- - Rp.106.176.000,- = Rp.82.972.900,-

b. Road barrier at 04-05 neighbourhood/02 hamlet carry the burden for the estimation for about Rp.86.339.000,- -Rp,61.760.000,- = Rp,24.579.000,-.

c. Road Paving at 03 neighbourhood/03 hamlet is 15m x 3 m = 45 m<sup>2</sup>. The transaction bill was .9.461.900,- (45 m x Rp.210.264,44) while the actual cost should be Rp.3.375.000,- (45 m<sup>2</sup> x Rp,75.000,-). Thus, the burden is Rp.6.086.900,-.

The conditions above do not in line with the regulation of Sidoarjo Regent number 54 of 2014 about the instruction of commodity/service implementation article 3 act (a) which states *“the implementation of commodity and service at village must use minimum expenditure for any transaction towards the quality and the deadline of the project or it must uses approved fund to achieve the project goal within maximum quality”*

Another finding from police inspection, according to ofly inspection of RAB of Lajuk village of 2016, there is SILPA of the previous of (2015), the amount reaches Rp.15.358.540,-. The head of village and the secretary confirmed that the money was used to build security outpost. Head of village and its treasurer confessed that they do not report the project into APB documents, the expenditure also could not be found on BKU.

The condition above violates the rule of Sidoarjo Regent Number 27 of 2015 about village finance management system chapter II:

- Article 2 act 1 states “finance management is conducted within transparency, accountable, participative, and concluded in order of consideraton”
- Article 37 act 3 which states that treasurer is the one who in charge to take a note of the expenditure and income of the village

There are some other findings that shows some unclear expenditure without letter of received payment and invoice attachment.

- BKU number 3, 9<sup>th</sup> May 2016, electricity of the village is being upgraded which cost it about Rp.1.800.000,- achieved from CV. MAN 3 JAYA company without clear sign of the third party.

- BKU number 6, 28<sup>th</sup> June of 2016, there is an event called PIN that has been done on March 201, it costs the village Rp.1.400.000,-, there is no attendance list of the audience who may or may not come to the event. The condition against Regent Rules number 27 of 2015 which states “every expenditure which becomes burden of village APB must be attached with legal documents”.

*Report.* Article 35 Permendagri 113 of 2014 shows that the village treasurer is obliged to account for money through an accountability report. The accountability report is periodic semi-annual and annually and submitted to the Regent or Mayor and some are submitted to the Village Deliberation Agency. The first semester report is a report on the realization of APB submitted no later than the end of July of the current of. The final semester report is submitted no later than the end of January of the following of. From the research, it is known that the thirteen villages studied have reported the management of village finance either to BPD or to the Regent through the head of sub-district.

*Responsibility.* The responsibility to report the APB documents is on the charge of head of village. The document must be reported to Regent or mayor every end of the consideration semester. The documents consists of income, expenditure and expense report. The report of responsibility implementation of finance expenditure village is the report which is stated periodically sent to Village Deliberation Council towards the report of APB which is already approved in the beginning of first semester. The report must be conducted within principle of transparency and based on the order of society. Head of the village must inform its people the result of the report in written form and placed it in some media which is easily accessed by the public. Some helpful media to share the information in village area could be an announcement board, radio community, or another media. The information must not exceed later than a month since the information was received by apparatus. From the field observation, it can be concluded that all of villages has informed their people about the expenditure report of their village. Unfortunately, not all villages report their event details after a month as the event ended.

About the responsibility to manage the finance system, the responsibility is the product of authority, duty, and right of the apparatus. These three points are the major point that need a full responsibility for every reports that they have made. The word ‘responsibility’, literary, means mandatory condition for being responsible of anything happened during their authority (people could sue, blame, and demand). According to Istanto, responsibility means that we need to be able to serve an answer which is the result for everything happened and it is a mandatory to regain for every mistakes occurred during the event (Istanto,1994:77). Every phase of finance expenditure, planning, implementation, responsibility, and the evaluation must be followed with responsibility of every actors included in the event, thus it will create good governance among villagers. Responsibility comes because of authority. The definition of authority based on general meaning and language is (a) the right and power to act or to do something, (b) authority makes decision to rule and accept to be responsible to other people (Anton M.Moeliono, 1995:533).

According to Soekanto, he stated that authority is a power possessed by individual or community which have support from other community or it has people trust. Meanwhile, according to H. D. Stout, he states :“Bevoegheid ... wat kan worden omscreven als het geheel van regels dat betrekking heft op de verkrijging en ultoevening van bestuursrechtelijke bevoegdheden door publiekrechtelijke rechtssubjekten in het bestuursrechtelijke rechtsverkeer (The authority ... can be explained as a whole the rules relating to the acquisition and use of governmental authority by the subject of public law in public legal relations) (Fachruddin Irfan, 2004:39).

According to Philipus M.Hadjon, as civil concept of law, authority must possesses at least three components, they are influence, fundamental law, and law conformity. Influence component is an understanding that authority is used to control subject of law behavior. This component is meant for apparatus, they must not use their authority out of public interest which is clearly stated in the constitution (Abdul Latif, 2014 :7)

In reality, the authority given to state administration apparatus is violated. It does not in line with the vision of country, it is known as “Discretion”

The concept of *bestuur* (*besturen*) the authority of government is not merely a power to control but it is also as discretionary *power* or *feis ermessen*. There is another type of authority proposed by Indroharto, it is facultative authority, this authority possessed by apparatus which is not mandatory to use it or the apparatus could choose many other options instead of executing their facultative authority, but there is condition that the facultative authority is the only option. (Indroharto, 2000:99-101).

Parameters of authority violation on the type of authority are bound by the draft rules, or use the parameters of the legality principle, whereas in the discretionary authority the parameters of abuse of authority use the general principles of good governance, since the principle of "wetmatigheid" is inadequate.

Authority Misuse And Procedure Faulty based on the experiments through 13 villages in Porong sub-district, there are some violation found on finance management system, as follow:

*Planning Phase.* The result of experiments show that from 13 villages, there are 7 villages that had conduct their RPJM report while the other 6 could not afford to show the documents. In the other hand, for RKP documents, all villages could not present the report. Based on specialization principle adopted by positive law, it is Law number 7 of 2003 about state financial, the phenomenon could be identified as violation of law and authority misuse as it already fulfill the minimum requirement to be identified as authority misuse. Based on specialty principle, it is stated that the authority of government to act for a goal, every authority of government is controlled by law within a clear vision. The vision can be reached if a good planning is well prepared. In the other hand, 6 villages from 13 villages does not prepare their planning system, this is a simple example of procedure faulty done by administration staff. In connection with legality principle, the phenomenon is also considered as procedure faulty and authority misuse, RPJM documents is the document of vision and mission of the village conducted by the head of village, meanwhile, RKP is the details of the visions and mission which could last for a year. If the village does not reproduce and evaluate the RKP and RPJM documents, it means a violation to Law of ministry of home affairs number 114 article 5 act 1-3 about the instruction of village development, it states:

1) In order to create village development planning, which is already stated in article 4, the village governance must do as follows:

- a) Arrange RPJM documents
- b) Arrange RKP documents

2) RPJM document, whereas stated in act 1 alphabet a, it is agreed that the document must be completed no later than 3 months since the first day of head of village coronation.

3) RKP documents must start its arrangement on July in the following year.

*Implementation Phase.* The results found in observation field shows that there are some villages which is unable to show their RAB report, there are no valid evidence, and the cost of building project which exceed the actual need, the construction which is not stated in the village consideration, BPD support, finance administration fee, and woman *modin*, the trip of village secretary did not sent to the one who must receive it, there is no bill legal bill in some transactions, the notes which is invalid. Illegal taxes which is not yet transferred to state finance and money withdrawal which is not valid on its procedure, the valid procedure must follow and offer RAB and SPP proposals. Instead, they are able to cashing the check which is only signed by he village treasurer and the head of village, even the amount of money exceed the need.

From the benchmarks presented by Mariette Kobussen that is from the principle of specialty. It shows that in the implementation of village finances there has been irregularities of authority because it is not in accordance with the objectives of village financial management, and on the principle of specialization of the relationship of legality principles of financial management officials do not implement the law related to village financial management as follow:

a) the rule of Regent number 4 of 204 about the instruction of commodity and service arrangement in village article 3 alphabet (a) which stated that: the commodity and service supplying must apply the principle of Efficient which means that it must use the minimum

cost and effort, or it could use the agreed fund to achieve the maximum quality of the commodity or the service.

b) the rule of Regent number 27 of 207 about the instruction of village finance management system chapter II, it is on article 2 act 1 which stated: the finance management sytem of village must be proceeded based on the principle of transparency, accountable, participative, orderly and discipline. Meanwhile, the article 32 act states: "every expenditure of the state expense which become burden of village APB must be attached with valid and legal evidence", article 37 act 3 which stated that the treasurer of village must take a note on every traffic of transaction of the village. Moreover, the article 38 states: "Treasurer as a mandatory to collect the taxes of Pph and other taxes must deliver all of the taxes to the state bank account within a recent regulation"

from the principle of misuse authority and procedure violation, money withdrawal without full report of RAB and SPP is clearly considered as procedure violation as the condition is not in line with regulation of Regent number 27 of 2015 article 1 and 2, article 35, and article 36 which conclude : "Implementation of activities in proposing funding for carrying out activities shall be accompanied by a document of the Budget Plan verified by the Village Secretary and authorized by the Village Head, based on the Letter of Payment Request (SPP) to the Village Head. Submission of SPP consists of (1) Payment Request Letter (SPP), (2) Statement of expenditure responsibilities and (3) Attachment of transaction evidence"

*Administration Phase.* The result of experiment found that the secretary as the apparatus of administration office has well done the job description maximally, there are some events did not recorded on BKU documents, there are some taxes which is not transferred to the office of ministry of finance, and invalid evidence of expenditure. This shows that in administration phase, there are still authority misuses, the secretary confessed that there are some events which is not recorded to BKU documents. Thus, the actors are realized that they have misuse their authority.

*Reporting Phase.* The study reveals that there is no any violation found during the reporting progress. Because, the reporting phase becomes major requirement for a village to propose budget for an event, they conduct the documents in time.

According to rule of ministry of home affairs number 113 of 2014 about finance management article 37 stated that the head of village must report the realization of village APB to Regent or Mayor in the form of first semester and the end of the year. The report must be conducted periodically every semester, the first semester should finish on late July and the end-year report should take on January of the next year.

*Responsibility Phase.* The responsible report of APB implementation will be delivered by head of village, Regent, or the Mayor every end of consideration year. The report consists of several documents. They are income report, expense, and expenditure report. The study shows that there is no violation or misuse authority in this phase. From thirteen villages as the subject of study, there are some violations in finance managing phase which make states lost some amount of money and somebody rights are not delivered caused by this violation. The next question is who should be responsible for this case.

The study reveals that the thirteen villages violate and misuse the budget of the state, this against the actual goal of finance management system of state, the actors will be punished based on the recent constitution as finance violation is one of corruption act in this country. The budget of village which come from APBN and APBD is the budget of state, the violation of them will be considered as corruption and criminal act. In the rule of criminal law, we follow the principle of "personal responsibility" which means criminal act is individual responsibility.

The government published law number 30 of 2014 about the state administration, this law guarantee the fundamental rights and protect the society and also guarantee the implementation of state event.

According to the theory of rule of law proposed by Immanuel Kant and Hans Kelsen, they mentioned State in principle is not based on mere power (machtsstaat) but must be based on law (rechtsstaat) (Marbun, 1997: 8.). Thus, Law number 30 of 2014 is expected not

only as a legal protection for governance. But also as an instrument to improve the quality of government services to the community so that the realization of good governance for all agencies or Government Officials in the Central and Regional.

Law number 30 of 2014 about state administration article 20 states:

1) Supervising towards the authority misuse by intern governance supervisor which is stated already in article 17 and 18.

2) Result of the supervising by intern governance supervisor which is stated in act as follows: there is no violation; administration invalid or administration invalid which result in state financial lost.

3) If the supervisor find invalid administration report as stated in act 2 alphabet a, there must be revising on the invalid administration based on the recent constitution

4) If the supervisor find invalid administration report which result in state financial lost as stated in act 2 alphabet b, the refunding of the amount of financial lost is mandatory no later than 10 days of normal working day as the announcement from supervisor is published.

5) The refunding process as stated in article 4 is the responsibility of government council, if the violation in article 2 alphabet c is not the result of authority misuse.

6) the refunding responsibility as stated in article 4 become responsibility of state apparatus if the invalid administration as stated in article act 2 alphabet c is the result of authority misuse.

The articles above explained that the implementation of state finance recognized by the state apparatus gain law protection from the constitution as society by the time law number 30 of 2014 is published about state administration, supervising act is the duty of intern governance apparatus as initiation to prevent authority misuse by the apparatus. The result of the supervising act will be evaluated if there is any invalid report of administration documents which result in financial lost to the state. Thus, the revising and fixing the error is mandatory for government council or it is the responsibility of the corruptors to return the amount of money they had violated in this case is the head of village. This is the preventive law protection to prevent lawsuit. But, if there is no any responds from the head of village, the repressive law will be applied on him/her, it is a protection for the actors to finish the lawsuit, it is one of criminal law. The authority misuse done by the state apparatus must face the judgment and finish the lawsuit.

## **CONCLUSION AND SUGGESTIONS**

From several experiments based on literature or observation field above, there are some conclusions as follow:

The finance management system in Porong Sub-district Sidoarjo regency, based on good governance principle, generally, is already followed the procedure in planning, implementation, administration, reporting, and responsibility of the finance. Unfortunately, the act is not completely follow the instruction of the constitution, the lack of transparency and accountability are no more than just a procedure to cashing their budget. Thus, good governance is not yet maximum on this area. In managing the finance, the apparatus is guaranteed by law protection by law number 30 of 2014 about state administration. The supervising is the duty of intern governance supervisor as the prevention for other apparatus to use their authority based on law If the supervisor find invalid administration report which result in state financial lost, the refunding of the amount of financial lost is mandatory no later than 10 days of normal working day as the announcement from supervisor is published. the revising and fixing the error is mandatory for government council or it is the responsibility of the corruptors to return the amount of money they had violated in this case is the head of village as the one who responsible finance management.

According to the conclusion above, there are some recommendations as follow: there must be workshop or training about good finance management system in village level for the apparatus of the villages. There must be a socialization on the responsibility of managing valid report by doing direct practical work. The idea will be much better with the support of

LSM and local governance. The last, evaluation by the society is very important to improve the transparency of the village finance management status.

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## AN EMPIRICAL STUDY ON ACCEPTANCE OF TECHNOLOGY BASED INFORMATION SYSTEMS BY PROPERTY MANAGEMENT EMPLOYEE

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### ABSTRACT

The purpose of this study is to know the effect of acceptance in the use of Micros Fidelio information system on Property Management employee using external factor, namely institution factor and individual factor using Technology Acceptance Model framework. The research model was made to verify fourteen hypotheses in modeling technology acceptance. The population in the study was permanent employees of property management companies consisting of hotel, villa and restaurant divisions. Since the population consists of divisions within a business unit, proportional sampling was used as the sampling technique. 115 respondents were used as samples within the period of December 2017 until January 2018, because the testing of Micros Fidelio information system began to be applied. Models and hypotheses will be tested and processed using PLS 3.0 software.

### KEY WORDS

Management commitment, self efficacy, personal innovativeness, perceived usefulness, behavioral intention.

Property management is a company engaged in the field of tourism that provides accommodation services, food and beverages, entertainment for tourists. Therefore, the services provided are the main thing of concern, because it will impact on business continuity and customer satisfaction (Normasari *et al*, 2013). Support it to the information technology system used must be proper so that goal can be realized. The alteration of information technology system used from Raptor to Micros Fidelio was expected to increase the company's profit financially and non-financially. Raptor is a hotel and restaurant program in the form of software and specially designed by using touch screen to administer company transactions such as sales transaction, purchase, inventory, and cost of goods sold. In the processing of complex financial reports Raptor requires integration with other back office software, resulting in problems in terms of time, cost benefit for the company.

Table 1 – Differences between Raptor and Micros Fidelio

No	Item	Raptor	Micros Fidelio
1	Server	The database not consolidated in one system	The database consolidated in one system
2	User	Noncustom mode means that previous inputs can not be changed or deleted because their historical data will change	Custom mode means the previous input can be changed and does not change the transaction history
3	Terminal Access	Emulator (telnet)	Browser (internet)
4	Network	Frame relay means that data can only be accessed at certain places connected to the server	Backup line (icloud) means that data can be accessed any time with internet network provided.
5	Security	Server Raptor means file and data storage only on the server	Server and Network (Active directory) means the storage of data and files on the server and connected network.



While Micros Fidelio is a software that is integrated directly throughout the company and can process complex corporate transactions and is expected to be able to produce more accurate information, and timely for management in making decisions for both outside parties and the company internally.

The company expected the employees to accept and use the Micros Fidelio system, so that in December 2017 the system has been piloted to the managers. They are the ones who will provide instructions and solutions to employees if there are difficulties and errors in the application system. While in January 2018 it began to be tested to the employees of the company. This was done to provide an initial picture of the system. System changes take time in the transition process, which will lead to employee conflict in the adaptation process. Compeau and Higgins (1995) states that the critical stage in the application of an information technology system is the condition of the presence of the system accepted or rejected by potential users. User acceptance or rejection of IT is a fundamental factor for the success of IT investments in an organization. A person's understanding to rejecting or accepting IT is related to the user's psychological factors.

According to Lewis *et al* (2003) from the angle of psychological process, the beliefs of a person towards information technology that includes beliefs related to usefulness and ease of use are influenced by three dominant sources, namely: institutional factors, social factor, and individual factors. The dominant influence in the research will be the external variable for the model that explains the main construct of TAM (technology acceptance model). The variable of institutional influence has a very important role in the organization from top management to lower level management. The key role of management is in organizational decision making, including the selection of information technology systems that will be used by the organization. No less important than the influence of institutions, the role of individuals who wrestle with the information technology system itself becomes a significant factor.

Davis *et al* (1989) used TRA (the theory of reason action) as one of the intention models that has been successful in predicting and explaining one's behavior including IT users. Then introducing the theory adopted from TRA known as the Technology Acceptance Model (TAM), which is specifically used to predict and explain the behavior of computer users. They stated that all other variables that affect the acceptance of information technology are mediated by individual beliefs about the use of concerned information technology. In general, perceived usefulness is a belief related to the results associated with the use of technology and perceived ease of use is a belief that the use of such technology will not be troublesome, said to be the main construct of technology acceptance. When individuals have the perception that using technology can improve their performance in work, then they will see it as a positive thing and do it voluntarily. And so individuals who perceive that the technology is easy to use and will not be troublesome, then they will see it as something positive and will be applied to other jobs. TAM states that behavioral intention to use is determined by two basic beliefs: perceived usefulness defined to what extent do someone is convinced that using technology will improve the performance of its work and perceived ease of use defined to what extent do someone believes that the use of technology will be free from effort. TAM also states that the impact of external variables on intention to use is mediated by perceived usefulness and perceived ease of use.

In addition to using TAM variables, this study used an external variable for the model that explains the main construct (antecedent) of TAM variables such as institutional factors and individual factors in explaining the acceptance process of Micros Fidelio. Institutional factors are used in decision making by management concerning elections and overall system implementation. Institutional factors in the study consist of top management and local management commitment, where the institutional factors directly influence social factors in this study namely seniority, supervisor, professional colleagues and departmental associates will be included in local management commitment variables (Darono, 2016). Self efficacy and personal innovativeness were used in this study as Individual factors. Self efficacy is based on social cognitive theory that states by seeing others do something, one will have a perception of his or her ability to do the same thing (Lewis *et al*, 2003).

## THEORETICAL FRAMEWORK

*Technology Acceptance Model (TAM)*. TAM was first developed by Davis (1989) it was a model used to explain and predict the adoption and use of information systems. TAM is the development of Theory of Reasoned Action (TRA) by adding two main constructs into the model, namely perceived usefulness and perceived ease of use, in addition to other constructs, such as attitudes toward behavior, intent to use and usage. Constructs used in TAM:

- Perceived usefulness: as to what extent do someone believes that using a technology will improve the performance of its work.
- Perceived ease of use: as to what extent do someone believes that the use of technology will be free from effort.
- Attitude toward behavior: the positive or negative feelings of a person when it comes to performing the prescribed behavior.
- Behavior Intention: a person's desire to perform a behavior.
- Actual Use: action taken by a person.

In the development of studies using TAM by Lee *et al* (2003) classified into 4 stages: model recognition, model validation, model extension, and model elaboration. Model extension is the development of the TAM model by adding external variable that become the cause (antecedent) of the TAM main construct. The external variables in the TAM are the factors outside the five TAM constructs. These variables are the cause of perceived usefulness and perceived ease of use constructs that will reinforce the influence of TAM constructs on the usage of information technology by users. The following are component correlation in the modified TAM model with additional external variables:

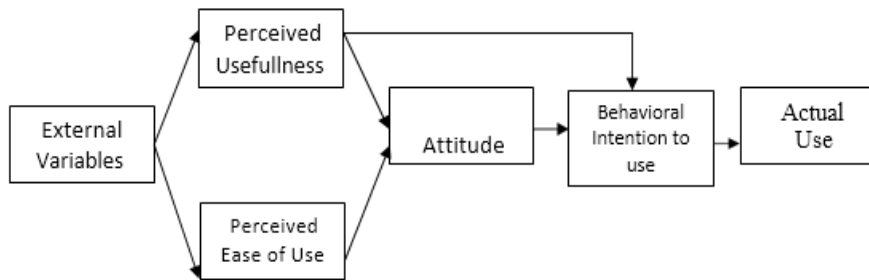


Figure 1 – Correlation between TAM Variables

### *External Variables of the Study:*

*Institutional Factors.* Commitment and management support as a necessary factor in a successful implementation of a system. Top management support can play a useful role in resolving disputes and providing a clear signal for any hesitation (Zhang *et al*, 2003). Institutional factors consist of two variables, namely: Top Management Commitment and Local Management Commitment.

*Individual Factors.* Individual factors are factors associated with the attitude of people towards their work, age and gender. Individual Factors consists of two variables: Self Efficacy means one's judgment of one's own ability to organize and decide the necessary actions in a situation to achieve certain performance (Bandura, 1994), and Personal Innovativeness means to what extent do a person willing to try new information technology (Agarwal and Prasad, 1998).

## RESEARCH FRAMEWORK

The technology acceptance model is the core theory used in this study. In addition, four external variables used to determine the effect of employee acceptance of Micros Fidelio can be seen in the determinants research framework as follows:

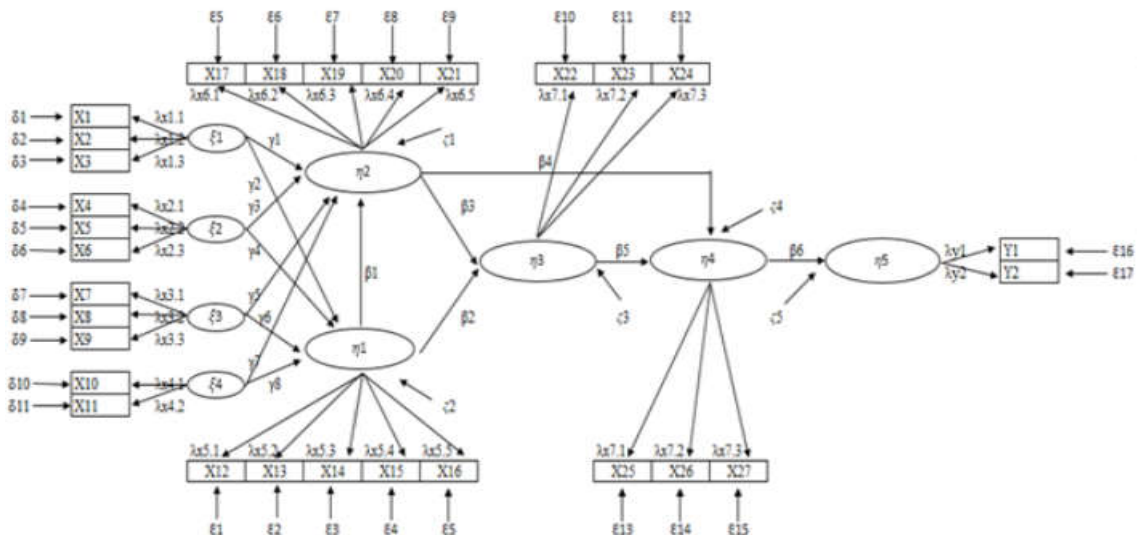


Figure 2 – Path Diagram for Research Framework

### RESEARCH HYPOTHESES

To effectively explain and predict the behavior of information technology users Davis (1989) use rational behavior theory and behavioral theory planned by (Ajzen and Fishbein, 1980) as the basis, combined with the Technology Acceptance Model (TAM) applied to information systems. The research hypotheses are as follows:

- H1a: Top Management commitment positively affect perceived ease of use in the use of Micros Fidelio system;
- H1b: Top management commitment positively affect perceived usefulness of Micros Fidelio system;
- H2a: Local management commitment positively affect perceived ease of use in the use of Micros Fidelio system;
- H2b: Local management commitment positively affect perceived usefulness of Micros Fidelio system;
- H3a: Self-Efficacy positively affect perceived ease of use in the use of Micros Fidelio system;
- H3b: Self-Efficacy positively affect perceived usefulness in the use of Micros Fidelio system;
- H4a: Personal Innovativeness positively affect relationship to perceived ease of use in the use of Micros Fidelio;
- H4b: Personal Innovativeness positively affect perceived ease of use of Micros Fidelio system;
- H5: Perceived ease of use positively affect perceived usefulness in the use of the Micros Fidelio system;
- H6: Perceived ease of use positively affect attitude toward using in the use Micros Fidelio system;
- H7: Perceived usefulness positively affect attitude toward using in the use of Micros Fidelio system;
- H8: Perceived usefulness positively affect Behavioral Intention to use on the Micros Fidelio system;
- H9: Attitude toward using positively affect behavior intention to use on the Micros Fidelio system;
- H10: Behavior intention to use positively affect actual use on the Micros Fidelio system.

The type of the research was explanatory with survey method approach. This research was conducted at Property Management in Badung-Bali, within period of 2017-2018, because in December 2017-January 2018 Micros Fidelio system application was tested gradually to the managers and employees. The study population were the entire management and employees of Property Management. While the determination of the sample using proportional sampling which is a sampling method that takes into account the elements or categories in the study population. This technique was used because the population spreads in each division or department that includes: management, back office, villa division, hotel division, and restaurant division.

The research questionnaire was divided into two parts namely part I in the form of open questions about the correspondent profile and part II in the form of closed questions covering all research variables. The question items consist of 30 questions relating to the four external variables and the five TAM variables. Before the questionnaires were distributed to the professional respondents, the questionnaires were tested to 30 accounting master students to obtain valid and reliable data. Respondent data that have been collected then processed and tested by using software PLS 3.0.

This research was recursive which means one way causal model and no reverse direction (feed back loop) and no causal effect (reciprocal). So the problem of un-identified, under-identified or over-identified will not happen. According to Hussein (2015) in the analysis using the PLS, it performed with five stages of testing, they are:

- Outer model analysis. The model defines how each indicator relates to its latent variable. Three tests was performed, they are: Convergent validity, Discriminat validity, and Composite reliability;
- Inner model analysis. Ensure that structural models are built strong and accurate. The three tests conducted were : Evaluation of R<sup>2</sup> value means that the variability of endogenous variables can be explained by the exogenous variables, Estimate for Path Coefficients means to indicate the significance of the relation between constructs / variables, Q2 structure (predictive relevance) means to measure how well the observation value generated by the model and its parameter estimation;
- Hypothesis Testing. Hypothesis testing can be seen from the value of t-statistics and probability value. To test the hypothesis using a statistical value then for alpha 5% t-statistics used is 1.96. So the acceptance / rejection criteria of the hypothesis is Ha accepted and H0 is rejected when t-statistic > 1.96;
- Constructing Path Diagram by bootstrapping;
- Path diagram conversion into equation system.

The path diagrams translated into equations for structural models and measurement models are as follows:

$$\begin{aligned}\eta_1 &= \gamma_2 \xi_1 + \gamma_4 X \xi_2 + \gamma_6 \xi_3 + \gamma_8 \xi_4 + \zeta_1 \\ \eta_2 &= \gamma_1 \xi_1 + \gamma_3 X \xi_2 + \gamma_5 \xi_3 + \gamma_7 \xi_4 + \zeta_2 \\ \eta_3 &= \beta_2 \eta_1 + \beta_3 \eta_2 + \zeta_3 \\ \eta_4 &= \beta_4 \eta_2 + \beta_5 \eta_3 + \zeta_4 \\ \eta_5 &= \beta_6 \eta_4 + \zeta_5\end{aligned}$$

## RESULTS OF STUDY

Regarding the demographic characteristic, there were 70 men and 45 women, 71 people with age of 20-29 years (62%), 35 people with age of 30-39 (30%), 9 people with age of 40-49 years (8%), this shows that employees are still productive at work. Employee educational level, highschool 24 people, 54 people with Associate's degree, 34 people with Bachelor's degree, and 2 people with Master's degree. Respondents who work in the front office are as many as 90 people and back office 18 people selected as samples in the study while the total management as many as 7 people, so the use of systems in the company's operational is necessary.

Sample of 127 respondents was set from 204 population using Isaac and Michael tables. From the determined sample, the questionnaire was distributed to the managers and property management employees through 3 business units and head office. The distribution of questionnaires was done directly to the respondents to anticipate the low returns of respondents. The questionnaire distribution was conducted in January 2018 until February 2018, because the introduction of Micros Fidelio system to the managers and employees beginning in December 2017. 117 copies or 92% of questionnaires returned. The questionnaire that can be processed were 115 copies or 91%, of which 2 copies were unable to be processed because there were multiple answers to the question items and respondents refused to fill out the new questionnaire. The non-response bias level in the research tested by independent sample t-test showed that through Levene's test, nine research variables had significance value  $> 0.05$ , so it can be concluded that there are similarities between the respondents who returned the questionnaire on time with the respondent who was late.

Convergent Validity is a correlation between the item / indicator score with the construct score. According to Chin (1998) ) individual indicators at the stage of research measurement scale development said to be high if the value of cross loading ranges from 0.50 to 0.60. In this study the value of cross loading used was 0.60. Nine constructs has convergent validity  $> 0.60$ .

Table 2 – Cross Loading for Convergent Validity

No	Indicator	Cross Loading	Remark
1	X1.1	0,893	Convergent validity fulfilled
2	X1.2	0,898	Convergent validity fulfilled
3	X1.3	0,720	Convergent validity fulfilled
4	X2.1	0,806	Convergent validity fulfilled
5	X2.2	0,885	Convergent validity fulfilled
6	X2.3	0,719	Convergent validity fulfilled
7	X3.1	0,850	Convergent validity fulfilled
8	X3.2	0,884	Convergent validity fulfilled
9	X3.3	0,788	Convergent validity fulfilled
10	X4.1	0,686	Convergent validity fulfilled
11	X4.2	0,891	Convergent validity fulfilled
12	X4.3	0,709	Convergent validity fulfilled
13	X5.1	0,759	Convergent validity fulfilled
14	X5.2	0,798	Convergent validity fulfilled
15	X5.3	0,672	Convergent validity fulfilled
16	X5.4	0,694	Convergent validity fulfilled
17	X5.5	0,721	Convergent validity fulfilled
18	X6.1	0,787	Convergent validity fulfilled
19	X6.2	0,828	Convergent validity fulfilled
20	X6.3	0,700	Convergent validity fulfilled
21	X6.4	0,767	Convergent validity fulfilled
22	X6.5	0,798	Convergent validity fulfilled
23	X7.1	0,869	Convergent validity fulfilled
24	X7.2	0,879	Convergent validity fulfilled
25	X7.3	0,684	Convergent validity fulfilled
26	X8.1	0,818	Convergent validity fulfilled
27	X8.2	0,834	Convergent validity fulfilled
28	X8.3	0,813	Convergent validity fulfilled
29	Y1	0,911	Convergent validity fulfilled
30	Y2	0,927	Convergent validity fulfilled

Assessed by cross loading the measurements with constructs. The square root value of the square root of average variance extracted (AVE) must be higher than the correlation value between the latent variables. The nine constructs have a high discriminat validity because the root square of the average variance extracted  $> AVE$ .

Table 3 – Square Root of Average Variance Extracted (AVE)

	<b>AVE</b>	<b>The Root Square AVE</b>
<b>Top MC</b>	0.708	0.841
<b>Local MC</b>	0.65	0.806
<b>SE</b>	0.708	0.842
<b>PI</b>	0.684	0.827
<b>PEOU</b>	0.534	0.73
<b>PU</b>	0.604	0.777
<b>ATU</b>	0.665	0.816
<b>BI</b>	0.676	0.822
<b>Actual Use</b>	0.845	0.919

A construct said to be reliable if it has a composite reliability value higher than 0.60 (Ghozali, 2014). In this study nine constructs has composite reliability > 0.60, so that the nine constructs can be said reliable.

Table 4 – Composite Reliability Value

	<b>AVE</b>	<b>Composite Reliability</b>
<b>Actual Use</b>	0.845	0.916
<b>BI</b>	0.676	0.862
<b>ATU</b>	0.665	0.855
<b>PU</b>	0.604	0.884
<b>PEOU</b>	0.534	0.851
<b>PI</b>	0.684	0.865
<b>SE</b>	0.708	0.879
<b>Local MC</b>	0.65	0.847
<b>Top MC</b>	0.708	0.878

Inner model were used to evaluate the connection between latent constructs in accordance with the hypothesis in the study, which is the connection between acceptance of Micros Fidelio system as measured by four exogenous constructs with perceived ease of use and perceived usefulness construct on attitudes, interest constructs (Behavioral Intention), and interest construct connection (Behavioral Intention) to the actual usage construct.

The estimated values for coefficient path in the structural model must be significant. Significant obtained through bootstrapping procedure which also yields T value (T-value), where  $t_{count} > t_{table}$  1.96. The result shows that there are three variables: Personal innovativeness has no significant effect on perceived easy of use and perceived usefulness, and self efficacy variable has no significant effect on perceived easy of use.

Table 5 – Path Coefficients

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>Standard Error (STERR)</b>	<b>T Statistics</b>
<b>BI -&gt; Actual Use</b>	0.631	0.638	0.067	0.067	9.437
<b>ATU -&gt; BI</b>	0.299	0.298	0.125	0.125	2.387
<b>PU -&gt; BI</b>	0.416	0.415	0.13	0.13	3.197
<b>PU -&gt; ATU</b>	0.42	0.424	0.1	0.1	4.186
<b>PEOU -&gt; ATU</b>	0.342	0.34	0.108	0.108	3.167
<b>PEOU -&gt; PU</b>	0.212	0.214	0.089	0.089	2.376
<b>PI -&gt; PU</b>	0.063	0.062	0.074	0.074	0.85
<b>PI -&gt; PEOU</b>	0.184	0.186	0.104	0.104	1.77
<b>SE -&gt; PU</b>	0.346	0.346	0.073	0.073	4.748
<b>SE -&gt; PEOU</b>	0.108	0.108	0.096	0.096	1.125
<b>Local MC -&gt; PU</b>	0.159	0.16	0.075	0.075	2.115
<b>Local MC -&gt; PEOU</b>	0.269	0.278	0.109	0.109	2.464
<b>Top MC -&gt; PU</b>	0.243	0.236	0.102	0.102	2.386
<b>Top MC -&gt; PEOU</b>	0.269	0.262	0.117	0.117	2.297

$R^2$  value means the amount of variability of endogenous variables capable of being explained by exogenous variables. Chin and Lin (2015) describe the  $R^2$  criteria consists of three classifications of  $R^2$  values: 0.67 means substantial, 0.33 means moderate and 0.19 means weak.

Tabel 6 – Predictive Relevance Criteria

Variabel	R Square	Remark
Actual Use	0.399	Moderat
BI	0.421	Moderat
ATU	0.476	Moderat
PU	0.662	Substantial
PEOU	0.458	Moderat

The Q-square value  $> 0$  indicates the model has predictive relevance, but otherwise if the Q-square value  $\leq 0$  it indicates the model lack predictive relevance. The results show that the model and its parameters have good predictive relevance because the TAM construct has a value  $> 0$ , so the observation value of the construct is good.

The result of hypothesis testing shows that from fourteen hypothesis proposed there were eleven accepted hypothesis and three of them rejected, the hypothesis were: H5 which means Self Efficacy has no effect on Perceived Easy of Use in the use of Micros Fidelio information system. H7 which means Personal Innovativeness has no effect on Perceived Easy of Use in the use of Micros Fidelio information system. H8 which means Personal Innovativeness has no effect on Perceived Usefulness in the use of Micros Fidelio information system.

Table 7 – Hypothesis Testing Results

Hypothesis	Variable	Estimates	T Statistic	Relation	Remark
1	Top MC → PEOU	0.243	2.297	Direct	H1 Supported
2	Top MC → PU	0.269	2.386	Direct	H2 Supported
3	Local MC → PEOU	0.159	2.464	Direct	H3 Supported
4	Local MC → PU	0.269	2.115	Direct	H4 Supported
5	SE → PEOU	0.346	1.125	Direct	H5 Not Supported
6	SE → PU	0.108	4.748	Direct	H6 Supported
7	PI → PEOU	0.063	1.77	Direct	H7 Not Supported
8	PI → PU	0.184	0.85	Direct	H8 Not Supported
9	PEOU → PU	0.212	2.376	Direct	H9 Supported
10	PEOU → ATU	0.342	3.167	Direct	H10 Supported
11	PU → ATU	0.420	4.186	Direct	H11 Supported
12	PU → BI	0.416	3.197	Direct	H12 Supported
13	ATU → BI	0.299	2.387	Direct	H13 Supported
14	BI → Actual Use	0.631	9.437	Direct	H14 Supported

## DISCUSSION OF RESULTS

According to Davis (1989) Technology Acceptance Model (TAM) construct has a positive influence on the acceptance of information technology systems. The result of hypothesis test table shows the external variable construct of the model namely Institutional Factor which consist of: Top management commitment, Local management commitment positively affect perceived easy of use and perceived usefulness in the use of Micros Fedelio information system, it means either top or lower management gave a huge contribution in the system alteration of a company. The results of this study were in accordance with several previous studies, such as: (Aristo, 2017), (Utama, 2012), and (Lewis et al, 2003).

Individual Factor consisting of Self-Efficacy and Personal Innovativeness, where only Self-Efficacy has a positive effect on perceived usefulness in the use of information systems Micros Fidelio, it means the ability of the employees to see the usefulness of the system to assist them in their work activities. Previous studies that support these results include:

(Suardikha *et al*, 2012), (Lewis *et al*, 2003), (Kartika, 2009) dan (Abdullah *et al*, 2013). While Self-Efficacy has no effect on perceived use of use in the use of Micros Fidelio information system, it means a person's judgment of his or her ability does not affect the ease of use of the Micros Fidelio system. Previous studies support these results include: (Santoso and Setiawan, 2017), dan (Medyawati *et al*, 2011).

Personal Innovativeness has no influence on perceived ease of use and perceived usefulness in the use of Micros Fidelio system, it means employee characteristics regarding the Micros Fidelio system was a system that is easy to use and useful for their work does not affect their point of view. Several previous studies support this finding, such as: (Hartini, 2011), (Aisyah *et al*, 2013), dan (Karjaluoeto *et al*, 2014).

Technology Acceptance Model (TAM) construct namely, Perceived Ease of Use (PEOU) positively affect Perceived of Usefulness (PU) and Attitude Toward Using (ATU), Perceived of Usefulness (PU) positively affect Attitude Toward Using (ATU) and Behavioral Intention BI), and Behavioral Intention (BI) affect Actual use (AU). This means that the ease of use of the Micros Fidelio system and the usefulness of the system itself affects the attitude of managers and employees interest of using the Micros Fidelio system, as well as their decision to apply the system in their work. Several studies support this results include: (Kartika, 2009), (Muntianah *et al*, 2012), (Marini, 2012), (Armanely & Syafrudin, 2012), (Sulistyarini, 2012), (Aisyah *et al*, 2013), (Kartika, 2013), (Abdullah *et al*, 2013), (Hanggono *et al*, 2015), and (Sari, 2016).

Path diagram was formed from the output of Smart PLS in accordance with the framework of the research determinant:

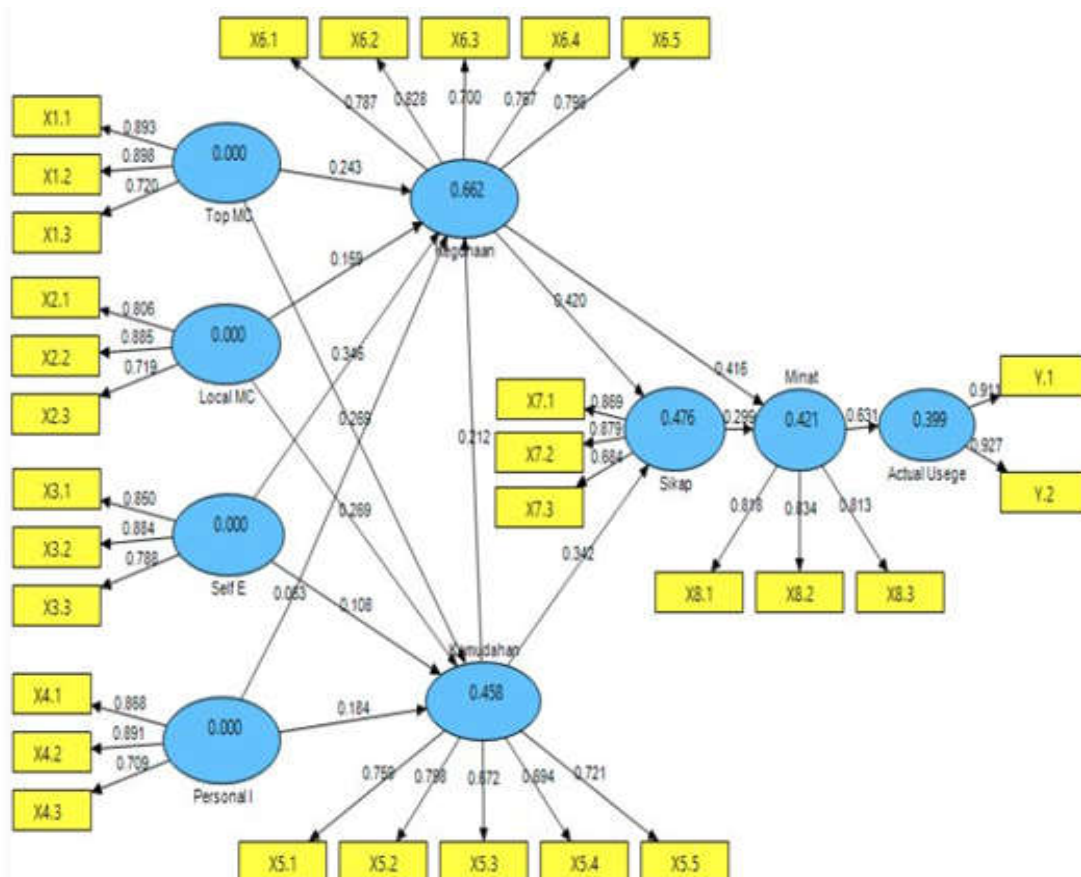


Image 3 – Path diagram of structural equations with Smart PLS

**Conversion of Path Diagram into Equation System.** The value of the loadings factor and standard error for each indicator will be used to construct the equation of the measurement model (outer models), so that the equation presented as follows:



Table 8 – Measurement Model Equation

No	Measurement Model	Real Measurement Model
1	$x_{1.1} = \lambda x_{1.1} \xi + \delta_1$	$x_{1.1} = 0.893 \xi + 0.032$
2	$x_{1.2} = \lambda x_{1.2} \xi + \delta_2$	$x_{1.2} = 0.896 \xi + 0.029$
3	$x_{1.3} = \lambda x_{1.3} \xi + \delta_3$	$x_{1.3} = 0.720 \xi + 0.038$
4	$x_{2.1} = \lambda x_{2.1} \xi + \delta_4$	$x_{2.1} = 0.806 \xi + 0.039$
5	$x_{2.2} = \lambda x_{2.2} \xi + \delta_5$	$x_{2.2} = 0.885 \xi + 0.030$
6	$x_{2.3} = \lambda x_{2.3} \xi + \delta_6$	$x_{2.3} = 0.719 \xi + 0.052$
7	$x_{3.1} = \lambda x_{3.1} \xi + \delta_7$	$x_{3.1} = 0.850 \xi + 0.041$
8	$x_{3.2} = \lambda x_{3.2} \xi + \delta_8$	$x_{3.2} = 0.884 \xi + 0.028$
9	$x_{3.3} = \lambda x_{3.3} \xi + \delta_9$	$x_{3.3} = 0.788 \xi + 0.043$
10	$x_{4.1} = \lambda x_{4.1} \xi + \delta_{10}$	$x_{4.1} = 0.868 \xi + 0.049$
11	$x_{4.2} = \lambda x_{4.2} \xi + \delta_{11}$	$x_{4.2} = 0.891 \xi + 0.042$
12	$x_{4.3} = \lambda x_{4.3} \xi + \delta_{12}$	$x_{4.3} = 0.709 \xi + 0.062$
13	$x_{5.1} = x_{5.1} \eta_1 + \varepsilon_1$	$x_{5.1} = 0.759 \eta_1 + 0.028$
14	$x_{5.2} = x_{5.2} \eta_1 + \varepsilon_2$	$x_{5.2} = 0.798 \eta_1 + 0.030$
15	$x_{5.3} = x_{5.3} \eta_1 + \varepsilon_3$	$x_{5.3} = 0.672 \eta_1 + 0.033$
16	$x_{5.4} = x_{5.4} \eta_1 + \varepsilon_4$	$x_{5.4} = 0.694 \eta_1 + 0.037$
17	$x_{5.5} = x_{5.5} \eta_1 + \varepsilon_5$	$x_{5.5} = 0.721 \eta_1 + 0.025$
18	$x_{6.1} = x_{6.1} \eta_2 + \varepsilon_6$	$x_{6.1} = 0.787 \eta_2 + 0.019$
19	$x_{6.2} = x_{6.2} \eta_2 + \varepsilon_7$	$x_{6.2} = 0.828 \eta_2 + 0.018$
20	$\square_{6.3} = \square_{6.3} \square_2 + \square_8$	$\square_{6.3} = 0.700 \square_2 + 0.021$
21	$\square_{6.4} = \square_{6.4} \square_2 + \square_9$	$\square_{6.4} = 0.767 \square_2 + 0.021$
22	$\square_{6.5} = \square_{6.5} \square_2 + \square_{10}$	$\square_{6.5} = 0.798 \square_2 + 0.021$
23	$\square_{7.1} = \square_{7.1} \square_3 + \square_{11}$	$\square_{7.1} = 0.869 \square_3 + 0.030$
24	$\square_{7.2} = \square_{7.2} \square_3 + \square_{12}$	$\square_{7.2} = 0.879 \square_3 + 0.031$
25	$\square_{7.3} = \square_{7.3} \square_3 + \square_{13}$	$\square_{7.3} = 0.684 \square_3 + 0.045$
26	$\square_{8.1} = \square_{8.1} \square_4 + \square_{14}$	$\square_{8.1} = 0.818 \square_4 + 0.033$
27	$\square_{8.2} = \square_{8.2} \square_4 + \square_{15}$	$\square_{8.2} = 0.834 \square_4 + 0.037$
28	$\square_{8.3} = \square_{8.2} \square_4 + \square_{16}$	$\square_{8.3} = 0.813 \square_4 + 0.034$
29	$\square_1 = \square_1 \square_5 + \square_{17}$	$\square_1 = 0.911 \square_5 + 0.030$
30	$\square_2 = \square_2 \square_5 + \square_{18}$	$\square_2 = 0.270 \square_5 + 0.031$

## CONCLUSION

The purpose of the study was to analyze and find empirical prove about the acceptance of Micros Fidelio information system by the employee of Property Management using TAM (Technology Acceptance Model). Based on the results and discussion in the study, it can be concluded that:

Top management commitment has positively affect perceived easy of use in the use of Micros Fidelio information systems. This indicates that management decisions regarding alteration of the information systems affect the perceived ease of use of Micros Fidelio.

Top management commitment positively affects perceived usefulness in the use of Micros Fidelio information systems. This indicates that management decisions regarding alteration of the information systems affect the perceived usefulness of Micros Fidelio.

Local management commitment positively affect perceived easy of use in the use of Micros Fidelio information systems. This indicates that the support of middle and lower level management regarding alteration of the information systems affect the perceived ease of use of Micros Fidelio.

Local management commitment positively affects perceived usefulness in the use of Micros Fidelio information systems. This indicates that the support of middle and lower level management regarding alteration of the information systems affect the perceived usefulness of Micros Fidelio.

Self-Efficacy has no effect on perceived easy of use in the use of Micros Fidelio information systems. Indicates that the level of individual ability of the employees regarding alteration of the information system has no effect on the perceived ease of use of Micros Fidelio.

Self-Efficacy positively affects perceived usefulness in the use of Micros Fidelio information systems. Indicates that the level of individual ability of the employees regarding

alteration of the information system affect the perceived usefulness of Micros Fidelio in carry out their works.

Personal Innovativeness has no effect on perceived ease of use in the use of Micros Fidelio information systems. Indicates that employee characteristics regarding alteration of the information systems has no effect on perceived ease of use of Micros Fidelio.

Personal Innovativeness has no effect on perceived usefulness of Micros Fidelio information systems. Indicates that employee characteristics regarding alteration of the information systems has no effect on perceived usefulness of Micros Fidelio.

Perceived ease of use positively affects perceived usefulness in the use of Micros Fidelio. Indicates connection between perceived ease of use and the usefulness level of concerned information system.

Perceived ease of use positively affect attitude toward using in the use of Micros Fidelio. Indicates connection between perceived ease of use of information system and the employee attitude toward using Micros Fidelio.

Perceived usefulness positively affect attitude toward using in the use of Micros Fidelio information system, indicates perceived usefulness affect the employee acceptance toward Micros Fidelio.

Perceived usefulness positively affect behavioral intention to use in the use of Micros Fidelio information system, indicates connection between perceived usefulness and employee intention to use or not to use Micros Fidelio.

Attitude toward using positively affect behavioral intention to use Micros Fidelio information system, indicates connection between employee attitude toward using and their behavioral intention to use Micros Fidelio.

Behavioral intention to use positively affect actual use in the acceptance of Micros Fidelio Information System, indicates connection between employee desire to use new system and the actual use of Micros Fidelio which is information systems that facilitate employee work.

The result of the study shows there were eleven accepted hypothesis of fourteen hypotheses proposed. Three of two hypotheses of exogenous single variable namely self efficacy and personal innovativeness indicate the absence of acceptance toward Micros Fidelio system. This proves that the transition process from Raptor to Micros system cannot be explained entirely by the Technology Acceptance Model, there are things beyond the model that affect it. Therefore, the implication that can be drawn was that the application of a new system can be done without considering the level of ability of employees and the level of willingness of employees in the acceptance of a system toward the perceived ease of use and the usefulness of the system. This is related to the willingness of employees to be willing or not in using the system. It is important for the company to take notice in applying a new system because it relates to the cost and benefits (cost benefit) of a new system. But that does not mean system changes can not be done but the system can be designed in a user friendly so it will be easier to be applied by the employees, because the difficulty of a system can be overcome by continue training and socialization about the new system.

## **LIMITATIONS AND FURTHER RESEARCH**

This study has several limitations, as follows:

- This study was conducted on organizations that have mandatory system so that employee acceptance of the application of a new system must be considered, because it will be the key to successful implementation of new systems in the future.
- The scale of this study was organizational not industrial so extra caution was needed when generalize the results of the study. This study was conducted on property management that has several business units such as hotels, villas and restaurants so that the results of the study will be broader than just one business unit only.

Suggestions that can be given in this research:

- Can use TAM other external variables such as institutional factors, social factors and individual factors simultaneously.

- Can be done on several organizations that have different industrial scale so that the results of the study can be generalized.
- Can use different analytical tools such as AMOS, LISREL with larger sample.

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## **ANALYSIS OF SUITABILITY AND CARRYING CAPACITY OF TOURISM IN TIDUNG ISLAND, KEPULAUAN SERIBU, INDONESIA**

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### **ABSTRACT**

Tidung Island has the potential for the development of marine tourism area. Since 2009, the number of tourists visiting the area has been increasing every year. Without proper management, however, this condition might harm the surrounding ecosystem. This study aims to determine the suitability and carrying capacity of coastal tourism area in Tidung Island, Kepulauan Seribu. This study used the analyses of coastal tourism suitability index and carrying capacity of coastal area. The results showed the suitability index of the research locations was 94.05% with the carrying capacity of 180 tourists per day for the first location; the second location was 89.28% with the carrying capacity of 300 tourists per day; and for the third location was 94.05% with the carrying capacity of 60 tourists per day. The three research sites are categorized into very suitable in terms of the suitability as tourism spots.

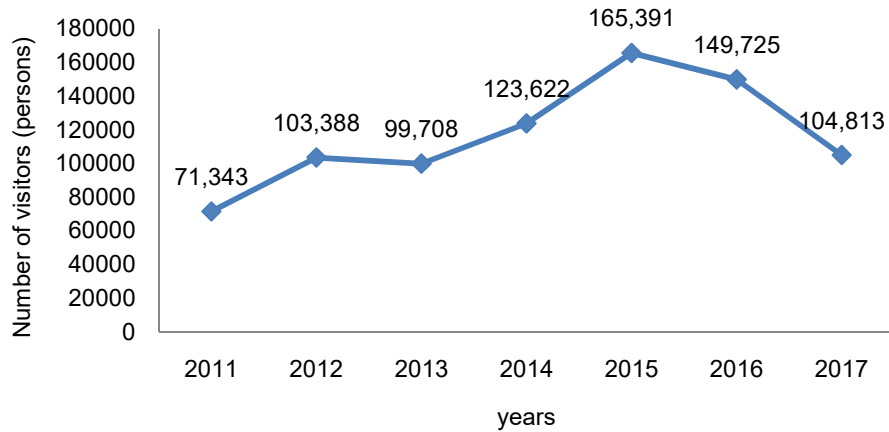
### **KEY WORDS**

Coastal tourism, site suitability, carrying capacity, ecology, Tidung Island.

Tidung Island is one member of the cluster of islands in the district of South Kepulauan Seribu, Jakarta, Indonesia. The Regional Regulation of Jakarta (2012) article 171 has established greater Tidung Island as a residential area, not as a tourism area. However, some regulations permit tourism activities on the residential islands as well. One of them is stated in article 172 that writes "to support the realization of residential area as fisherman's tourism area as a tourism destination object may build homestays and/or lodgings, as well as people's business centers including service centers of tourism".

The tourism activities in Tidung Island particularly are managed by community-based tourism concept (Statistic Bureau, Kepulauan Seribu, 2016). Tidung Island involves the community to develop the tourism sector while the position of the government is as the supervisor (Khrisnamurti et al., 2016). The area has underwater and coastal beauties and panorama as the main reason for tourists to have tourism activities such as: playing sand, swimming, fishing, snorkeling, diving, water sports (banana boat, jet skiing, and canoeing), photography, and beach walking, camping and other activities. The tourism activities encourage business opportunities for the community in order to improve the economy (Statistic Bureau, Kepulauan Seribu, 2016).

The tourism activities in Tidung Island have started since 2009, and the number of tourists or visitors has shown positive trend every year. Graphic on tourist visits from 2011 to 2017 is as follows:



Source: Annual report of Village Government of Tidung Island in 2017

Figure 1 – Graphic of tourist visits in Tidung Island in 2011-2017

The increasing number of tourist's visits every year, on the other hand, has caused some declines on the environmental quality, and it is predicted to have negative impacts on the tourism sustainability in Tidung Island area (Khrisnamurti et al., 2016). In addition to impact on the aquatic environment, the comfort level of the tourists also decreased so that became the reason for the decreasing number of tourists in 2016-2017 as shown in Figure 1. Based on interviews with local tourism management in Tidung Island, the number of tourists visiting the location often exceeds the availability of facilities that tourists need, such as lodging and ATM.

Supriharyono (2016) stated that the increasing number of tourist visits in the Kepulauan Seribu, including the Tidung Island and surrounding areas with those all activities, may cause some pressures on the environmental destruction, and the damage to coral reefs in particular might be even greater. The carrying capacity of the area is needed to accommodate the tourists and keep the tourism activities from inflicting damage; the tourism site can be preserved as well as sustainable (Yulianda, 2007).

The purpose of this study is to determine the suitability of coastal tourism and the carrying capacity of tourism areas in Tidung Island. This research is expected to overcome the emerging issues in Tidung Island.

## METHODS OF RESEARCH

This research was conducted in three coastal tourism locations, namely Jembatan Cinta beach, Cemara Kasih beach, and Surga beach. Site location was chosen purposively by considering the number of tourist visits in crowded, medium, and quiet tourism locations. Data collection was conducted in February 2018.



Sumber: Google Earth, 2017

Figure 2 – Research location in Tidung Island

Observation was conducted to obtain the data related to tourism suitability parameters, and it was conducted through direct on-site observation as well as recording systematically to any events that appeared on the research sites (Prastowo, 2010). In addition, interviews were also conducted to investigate the perspectives of the relevant stakeholders in particular field (Alshenqeeti, 2014), namely tourism managements, communities and tourists/visitors in order to determine the carrying capacity of the area.

The determination of the tourism suitability index of coastal tourism category refers to Yulianda (2007) as follows:

Table 1 – Matrix of site suitability for tourism activities

ref.	Parameters	Ranges	Categories and scores								
			S1	Score	S2	Score	S3	Score	TS	Score	N <sub>max</sub>
1.	Water depth (m)	5	0-3	3	>3-6	2	>6-10	1	>10	0	15
2.	Beach types	5	White sand	3	White sand with some reefs	2	Black sand, some rocky reefs	1	Mud, rocks	0	15
3.	Width of beach (m)	5	>15	3	10-15	2	3-<10	1	<3	0	15
4.	Waters basic material	3	Sand	3	Sandy reefs	2	Muddy sand	1	Mud	0	9
5.	Waves (m/s)	3	0-0.17	3	0.17-0.34	2	0.34-0.51	1	>0.51	0	9
6.	Beach slope (°)	3	<10	3	10-25	2	>25-45	1	>45	0	9
7.	Water brightness (%)	1	80-100	3	50-<80	2	20-<50	1	<20	0	3
8.	Coastal areal coverage and shades	1	Coconut trees, open space	3	Bushes (low-tall), savanna	2	Tall bushes	1	Mangrove forest, residential area	0	3
9.	Dangerous biota	1	None	3	swine	2	swine, stingrays	1	Swine, stingrays, stonefish, sharks	0	3
10.	Freshwater availability (km)	1	<0.5	3	>0.5-1	2	>1-2	1	>2	0	3

Source: Yulianda (2007)

Information: Ni max= 84

Tourism suitability index (TSI) of coastal tourism is formulated as follows (Yulianda, 2007):

$$TSI = \frac{\sum Ni}{\sum N_{max}} \times 100\% \quad (1)$$

Where: TSI = tourism suitability index (%); Ni = score for each affecting factor; N<sub>max</sub> = maximum score for tourism activities.

The results of the calculations are classified into four classes of suitability, as follows:

Table 2 – Classifications of categories for tourism suitability of coastal tourism

Categories	Score
Very appropriate (S1)	83 – 100 %
Appropriate (S2)	50 - <83 %
Conditional appropriate (S3)	17 - <50 %
Not appropriate	< 17%

Source: Yulianda (2007).

If the location of coastal tourism is in the appropriate category (very appropriate, appropriate, and conditional), the calculation of carrying capacity of the area (CCA) should be measured. The calculation is intended to reduce the impact of over-capacity in tourist sites. The carrying capacity of the area is determined by the formula proposed Yulianda (2007) as follows:

$$CCA = K \times \frac{Lp}{Lt} \times \frac{Wt}{Wp} \quad (2)$$

Where: CCA= carrying capacity of the area; K = maximum visitors per unit of area; Lp = area or length of area that can be utilized; Lt = unit area for a particular category; Wt = Time provided by the region for tourism activities in one day; Wp = time spent by visitors for certain activities.

The visitor's ecological potential (K) is determined based on the condition of the resource and types of activities to be developed. The length and width of territory that visitors can use is considered with the natural ability to tolerate the visitor's disruptive preservation. Tourism provisions based on the ecological potential, area and time of visitors at the tourism attractions are presented in the following table.

Table 3 – Coastal tourist requirements based on ecological potential, width and prediction of time

Types of activities	$\Sigma$ visitors (K)	Area unit (Lt)	Time (Wt)	Visitor's time (Wp)	Description
Snorkeling	1	500 m <sup>2</sup>	6	3	Every 1 visitor in 100 x 5 m
Coastal beaches	1	50 m	6	3	1 visitor in every 50 m coastal line
Water sports activities	1	50 m	4	2	1 visitor in every 50 m coastal line
Swimming	1	50 m	4	2	1 visitor in every 50 m coastal line
Sunbathing	1	50 m	4	2	1 visitor in every 50 m coastal line
Fishing	1	10 m	6	3	1 visitor in every 50 m coastal line
Camping area	5	100 m <sup>2</sup>	24	24	5 visitors in every 100 m <sup>2</sup>

Source: modified from Yulianda (2007).

The duration that the region provides for tourism activities at each location is different. The time the visitors spend on the tourism activities was obtained through interviews.

## RESULTS AND DISCUSSION

*General condition of research location.* Tidung Island village is one of three villages in the District of South Kepulauan Seribu. Geographically, the northern boundary lies at 5°46'15" SL, southern boundary of 106°34'22" EL, eastern boundary of 5°59'30" EL, and western boundary of 106°26'00" EL. The total area of Tidung Island is 106.19 Ha with the height of 1 meter from the sea level (Tidung Island Village, 2018).

According to the information obtained from the village government of Tidung Island (2017), the population of Tidung Island is about 5,000 people, and the majority is fishermen and seaweed farmers. Based on interviews with the local community, there was a failure of seaweed crops due to the disease that attacked almost all the area in Kepulauan Seribu. For this matter, people began to open business opportunities in the field of tourism to boost their economy. There are some alternative businesses for the community such as opening rental services for snorkeling equipment, banana boat, bicycle, tour guide, catering business, food stalls, homestays, and boat rental. People claim that their economy has increased since the opening of this tourism area. This is in line that the potential for economic development of the tourism sector is determined by the nature of the environment and the structured management (Bunghez, 2016).

Tidung Island has tourism potential and attraction which can be developed. The waters of Tidung Island, for instance, are categorized into shallow waters with the water depth of <3m from the coastline up to a distance of  $\pm$  200m towards the sea. The current velocity of the waters is relatively weak because of the naturally occurring wave holder from the pile of broken corals. Generally this beach has white and smooth sand. There is also a museum of shark skeletons built by the Sub-Agency of Marine and Fisheries Affairs of Provincial Government of Jakarta on the Tidung Kecil Island; these potentials are very suitable as tourism attractions in this area.

The government and the community give positive attitudes towards the development of tourism on Tidung Island as it is indicated from the role of government that provides better facilities, accessibility, as well as services for the convenience of the tourists. One of the government's supports is the assignment of some janitors on Tidung Island, doing counseling to the public for the improvement of human resources in the field of tourism, constructing and repairing the roads for better access, and so forth. Tidung village (2018)



has stated that the implementation of coaching and mentorship to smaller economic entrepreneurs is continuously improved, either through training in improving product quality as well as providing capital loan for the sustainability of their businesses. Sub-Agency of Tourism and Culture of Provincial Government of Jakarta also has plans for the construction of more adequate facilities in the tourist area near Jembatan Cinta. In terms of social acceptance, the community is very pleased to welcome the tourism activities in Tidung Island as it can be seen from the enthusiasm of the community in providing services for the tourists, including lodgings, restaurants, and other tourists' needs.

From the social point of view, both community and government are very supportive of tourism activities. However, in terms of ecology, the increasing number of tourists has the potential to increase the pressure of environmental damage of the water, especially coral reefs. Research location found some coral fractures which have been allegedly trampled by tourists. There are also some food wrappers made of plastics in the waters. According to one of the tour managements, the trash (in the water) mainly comes from tourists who feed the fish in the area of snorkeling spots, indicating that the awareness of the tourists in preserving the aquatic ecosystems is still lacking. Based on research conducted by Supriharyono (2016), coral reefs in Tidung Island are generally damaged due to sediment from tourism activities, especially in the area of reef flats or shallow areas ( $\pm 1\text{m}$ ), while in deep waters or reef edge / reef slope areas (5-6 m), the condition of the coral reefs tend to be quite preserved.

Tourism activities greatly affect the condition of the waters. If they are not managed properly, the activities threaten the ecosystem causing the sustainability may not run well. All relevant parties, communities, governments and tourists need to jointly protect the environment in the area of tourism spots. Based on interviews with the staffs of the village government, to anticipate the peak season, the government is planning to set the limit number of visits, but this has not yet been implemented. The Regional Government also has training programs for tour guides, snorkeling, diving, and food-processing training for the typical culinary of Tidung Island.

*Tourism Suitability Index for coastal tourism of Tidung Island.* The tourism suitability is a criterion of resources and environment to meet the needs of tourism development. The measurement of tourism suitability index in the study sites is presented in Table 4.

Table 4 – Score of tourism suitability index for coastal tourism of Tidung Island

Ref.	Parameters	Ranges		Jembatan Cinta Bridge		Cemara Kasih Beach		Surga Beach, Tidung Kecil		Score		$N_{max}$
		a	b	c	$a \times c$	B	c	$a \times c$	b	c	$a \times c$	
1.	Water depth (m)	5	0.3-1.5	3	15	0.3-1	3	15	0.28-0.45	3	15	15
2.	Beach types	5	White sand	3	15	White sand	3	15	White sand	3	15	15
3.	Width of beach (m)	5	16	3	15	11.35	2	10	48	3	15	15
4.	Waters basic material	3	Sandy reefs	2	6	Sandy reefs	2	6	Sandy reefs	2	6	9
5.	Waves (m/s)	3	0.065	3	9	0.042	3	9	0.062	3	9	9
6.	Beach slope ( $^{\circ}$ )	3	1.146	3	9	2.576	3	9	0.258	3	9	9
7.	Water brightness (%)	1	100	3	3	100	3	3	100	3	3	3
8.	Coastal areal coverage and shades	1	Open space, coconut trees, pines	3	3	Openspace, coconut trees	3	3	Tall bushes	1	1	3
9.	Dangerous biota	1	Bulu babi, ikan lepu (stonefish)	1	1	Stone fish	2	2	None	3	3	3
10.	Freshwater availability (km)	1	<0.5	3	3	0.3	3	3	<0.5	3	3	3
Total ( $\Sigma$ )				:	79		75			79	84	
Tourism Suitability Index (%)				:	94.05		89.28			94.05		
Categories				:	S1		S1			S1		

Source: processed primary data (2018); Description:  $N_{max}$  for coastal tourism 84.

Water depth ranges from 0.3-1.5 m measured from the coastline to 200 m towards the sea. Tourists usually do coastal tourism activities no more than 200 m distance and not more than 1.5 m depth as the criteria is considered safe for the tourists visiting the coastal tourism of Tidung Island. Yulisa et al., (2016) stated that the depth of the waters is an important aspect in determining coastal tourism areas especially swimming activities because it is very influential on safety, and physically, shallow waters are more suitable for coastal tourism activities than deeper waters.

The type of the coastal tourism in the research location is beach with white sand. Beaches with white sand are generally more attractive to tourists than black sand, muddy, or rocky ones. The preference is indicated by the level of tourism suitability in doing tourism activities, especially coastal tourism. In addition, the color and type of sand also gives its own aesthetic value for tourists. Yulianda (2007) in the tourism suitability matrix also states that the type of beach with white sand is more suitable for tourism than other beach types.

The width of the beaches on Tidung Island varies. The beach for the research location has 11.35 to 48 m width. The wider a beach, the better to be a tourism attraction. The width of the beach can be used for the tourists' mobility, such as walking leisurely, sunbathing, documenting, cycling, playing sand and so on (Tambunan et al., 2013).

Basic materials or substrates in the waters on Tidung Island in general are the sand with a few shards of corals carried by the waves. Despite the fact that there are fragments of coral, but these waters are still suitable for the tourism category.

Current conditions in the waters of Tidung Island are quite weak up to a distance of 200 m from the mainland. Current velocities during the survey in February ranged from 0.042-0.065 m/sec. Yogaswara et al. (2016) state that currents in the waters of Tidung Island are tidal currents that are affected by wind speed.

The beach slope of the research sites ranges from  $0.258^\circ$  to  $2.576^\circ$ . This angle is categorized as a flat beach category. The beach slope  $<10^\circ$  is categorized into the flat beach category,  $10^\circ$ - $25^\circ$  is moderate category, while  $>25^\circ$  is steep category (Yulianda, 2007).

The results showed the water brightness reaches 100% because the waters of the Tidung Island is categorized into shallow waters, so the penetration of light can penetrate through the bottom of the waters. According to Wijaya et al., (2018), high brightness may be affected by shallow depths that have been penetrated by the sunlight into the water column. Hasriyanti (2013) similarly states that water transparency can be influenced by depth factor, while Yulisa et al. (2016) stated that the material or substrate of water base is the determinant of the waters' brightness. The brightness values are also influenced by various factors such as microorganisms, suspended solids, weather, measurement time and level of accuracy (Mutmainah et al., 2016).

The coverage of the research sites are open land with several types of trees such as coconut, fir, *pandanus odorifer*, *ketapan*, *waru* trees (*Hibiscus tiliaceus*), and others. In contrast to the third location, the coverage of the location is bushes because the third location is still in the stage of revamping to be developed into ecosystem-based tourism attractions.

The observation on dangerous biota was conducted to anticipate the occurrence of dangers that may threaten the visitors. The dangerous biota are commonly found in the waters of Tidung Island are swine and stonefish. Swine is usually clustered and visible, so tourists can avoid the dangers from this species, while the stonefish resembles stone occasionally trampled by tourists because it is very difficult to distinguish. It is already anticipated by the provision of health posts around the sites as well as several mobile health centers around. Prevention is also done from the warning and guidance of the tour guides.

The availability of freshwater on Tidung Island is still sufficient with the distance from tourist sites is also relatively close, i.e. no more than 500 m. The availability of fresh water is very important in life, including in tourism activities (Yulisa, 2016).

The three research sites on Tidung Island have varying values and are categorized as very suitable (S1). Water resources in Tidung Island has potential to be developed into tourism destinations, especially coastal tourism. The utilization of tourism potentials should be well managed to maintain ecosystem balance and tourism sustainability. Dahuri et al.,

(2004) state that one of the conditions of sustainable development of an ecologically sound region should be placed in a biophysically appropriate location.

*Carrying Capacity of Coastal Tourism Area in Tidung Island.* The research locations show that the tourism suitability index is in a very suitable category. For further management, it is necessary to analyze the carrying capacity of the area. According to Putra et al., (2015), the analysis of tourism carrying capacity is to compare the area used by travelers with defined average individual standards with the efficiency of visitation time. Hamzah (2012) states that the carrying capacity of the area is the maximum number of visitors who can physically be accommodated by the area at a certain time without causing disruption to nature as well as to the humans.

The calculation of carrying capacity of the coastal tourism area is presented in the following table.

Table 5 – Carrying capacity of coastal tourism area in Tidung Island

Ref.	Locations	K*	Lp	Lt*	Wt	Wp*	CCA
1.	Jembatan Cinta beach	1	3,000 m	50 m	9 hours	3 hours	180 person/day
2.	Cemara Kasih beach	1	5,000 m	50 m	9 hours	3 hours	300 person/day
3.	Pantai Surga beach	1	1,500 m	50 m	6 hours	3 hours	60 person/day

Source: \*Yulianda (2007).

The tourist's ecology potential is 1 person for every 50 meter long beach, assuming the time the visitor takes is 3 hours in average. The time provided by the tourist area in one day depends on the area management and can be different in each location.

Jembatan Cinta is a link between Tidung Besar Island and Tidung Kecil Island. Jembatan Cinta beach (location I) has an area of 3,000 m<sup>2</sup> utilization with the carrying capacity of 180 people/day. Based on the comparison of statistical data in Tidung Island village, location I has already experienced over carrying capacity especially at the peak season such as holiday season. Peak tourist arrivals usually occur on weekends and holidays, while on typical days (weekdays), the number of tourist visits is quite normal.

The accumulation of tourists at the location I is due to the Jembatan Cinta beach is the flagship icon of tourism on Tidung Island, and it has strategic location. For location II, it is supposed to be able to accommodate more tourists than location I. As its location and accessibility in this location is not enough, however, hence number of visitors is not as many location I. Location II experiences over carrying capacity during holiday of festival and New Year's Eve. The improvement of infrastructure especially roads to Cemara Kasih location is necessary. Location III is still empty from visitors, and it is still under development stage. This location can be used as a tourist location with limited utilization and still maintaining the preservation of the ecosystem.

Based on observation, the majority of tourists who visit Tidung Island come from Greater Jakarta area and West Java. The rationale for the visitors is due to close distance from their home to the location, and it can be reached from Kali Adem and Marina Ancol ports for 2-3 hour trip. The demography of the tourists is in general young visitors ranging 19-26 years old; mostly they are employers in private sectors and students. In general, tourists come in groups with friends, family, and entourage (managed by travel agent) to reduce costs. During one visit period, the majority of tourists spend 2 days, usually on weekend or holiday. The management should characterize the tourists in order to create sustainable tourism (Zelenka et al., 2014).

The accumulation of tourists during peak season or holidays may affect the availability of their needs during the travels. Logistics needs such as food, water, electricity are still met, but the needs for lodgings or homestays are hard to accommodate. The report by Pulau Tidung (2018) village states that there are 156 homestays on Tidung Island, 97 lodgings, and 45 units of rented houses. For tourism facilities, there are 16 units of banana boats, 2.084 bikes units, and 1,831 units of snorkeling equipment. The available facilities are only to meet the needs of tourists on a typical day, but not during on holidays or peak season, especially

New Year's Eve. In addition, tourists often complain about the availability of ATM in the location, which is only 1 unit. The provision of facilities affects the tourists' comfort level.

The carrying capacity is different in each tourism location. Even over a period of time and conditions, the carrying capacity of the area may be different even in the same location. Hamzah (2012) states that the carrying capacity of a region is not static (a fixed value), but varies according to the biogeophysical (ecological) conditions of the area as well as the human needs for natural resources and environmental services. Human activities and natural forces such as natural disasters may also degrade the carrying capacity of an area.

## CONCLUSION

The locations utilized for beach tourism attraction in Tidung Island have already met the criteria of the tourism suitability of the area. The value of tourism suitability index of location I and III is 94.05%, while location II is 89.28%. The three research sites show very high suitability index scores and are categorized as very appropriate (S1) sites. The carrying capacity of the area for these three locations is different, e.g. 180 people/day at Jembatan Cinta beach, 300 people/day at Cemara Kasih beach, and 60 people/day at Surga beach. The results show that there is over carrying capacity during peak season, while the number of tourist visits is quite normal on normal days (working days).

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## **PROBLEMS AND SOLUTIONS OF CREATIVE INDUSTRY IN INDONESIA: A CRITICAL AND REFLECTIVE REVIEW**

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### **ABSTRACT**

Creative industry in some countries becomes the new economic locomotive. In Indonesia, creative industry is still being developed, and various problems still occur. This paper presents a thorough literature review to describe various problems faced by creative industry players. Solutions were designed based on the described problems. A favorable ecosystem for creative industries created by designing creative city/district is proposed as the solution toward the problems. This idea regards the fact that favorable ecosystem gives positive contribution to the creative industry which eventually improve the economy. This solution offers some benefits seen from the macro indicators including improvement in the export value, employment, forward and backward linkage from subsectors that become the focus of a city/district development.

### **KEY WORDS**

Creative industry, business ecosystem, city plan, economy.

The era of 4.0 industries is dominated by the utilization of digital technology that makes life easier like today. This era had been previously predicted by some experts. Tofler (1970) made a prediction that the development of human civilization will go through three phases. The first phase is the era of agriculture that is characterized by strong feudal system, masculinity, and closeness to the nature. The next phase is the industrial era which is characterized by the rising demand on standardization, democratization, and urbanization. The last phase is the information era where internet, innovation and science dominate the human life.

In line with Tofler's view, creative industry is born as a new stream of economy in some counties including Indonesia. The phenomena of creative industries in America, South Korea, and India are the proof that creative industries give significant contribution to the economic development of those countries. Tofler's prediction (1970) is supported by some hypotheses made by some other researchers including Drucker, 1993; Naisbitt, 1996; Laguna & Johan, 2005; Osterwalder & Pigneur, 2010; Davenport et al., 2006; Prasad & Prasad, 2013.

Particularly in Indonesia, as a new economic locomotive in the national economy, creative industry along with its sixteen sub sectors are currently in the emerging industry phase. According to the result of the survey administered by the Central of Statistics Bureau (Badan Pusat Statistik/BPS) in cooperation with the Central of Creative Industries (Badan Ekonomi Kreatif) in 2017, in aggregate, the contribution of creative industry in Indonesia during the last 3 years has gotten stronger. In 2016, creative industry sectors contributed as much as 7.38% in the national economy.

The culinary, fashion, and handicraft sectors dominate the sixteen subsectors of creative industries. Specifically, the contribution of each subsector toward the gross national product respectively include the sector of culinary (41.69%), fashion (18.15%), handicraft (15.70%), Television and Radio (7.78), publishing (96.29%), architecture (2.3%), application and game developer (1.77%), advertising (0.80%), music (0.47%), photography (0.45%), art performance (0.45%), product design (0.24), fine art (0.22%), interior design (0.16%), film (0.16%), and visual communication design (0.06%). BPS & Bekraf RI (2017).

*The Problems of Creative Industries in Indonesia.* Various problems occur in the field of creative industry. Sugiono et al., (2017) have identified problems that need immediate solution including: first, the uneven distribution of resources among the sixteen sub sectors of creative industry. This can be seen from the export activities in creative industry which is dominated by only 3 (three) subsectors which are fashion industry (56%), handicraft industry (37%), culinary industry (6%), while the other thirteen subsectors only make 0.5% up to 1% contribution.

Second, seen from geographical aspect, resources for creative industry have not yet been evenly distributed throughout Indonesia. Industries in Java island still dominates the export activities in this industry. The data show the contribution of each province in Java which is dominated by West Java 33.56%, East Java 20.85%, Banten 15.66%, Central Java 14.02%, Special Region of Jakarta 10.50%. Areas outside Java only make small contribution such as Riau Islands 1.86%, Bali 1.32%, North Sumatera 0.28%, and Riau 0.45%. This data indicate that the ecosystem of creative economy in most areas (especially the ones outside Java) have not yet been developed well.

Third, it takes more massive and creative efforts in creating new market, and penetrating the already existing market especially international market/export. Recently, the export of creative industry products is limited to only some countries with an average percentage of less than 5%. The destination countries of export activities include United States (31.72%), Japan (6.74%), Taiwan (4.99%), Switzerland (4.96%), Germany (4.56%), Singapore (3.82%), China (3.49%), Hongkong (3.02%), Belgium (2.93%) and the UK (2.86%).

Fourth, workers in the creative industry still need supports and contribution from highly-educated workers. Currently, workers in this sector are dominated by high school graduates (57.20%), secondary school and below (36.10), while only 6.70% of them are college graduates. This result is equal to the professional status of the workers. Most of workers in this sector are blue collar workers (sales marketing staffs, service staffs, production staffs, and other staffs) and only few of them are white collar workers (professional staffs, technicians, or experts).

Fifth, only few creative industry units (16.58%) have received legal status while the rest 83.32% have not yet received legal status; sixth, the lack of access to capital resources also appears to be an issue as most of creative industry players (92.37%) used their own capital resources; Seventh, creative industry players still market their products and service directly to the consumers in domestic market 97.36%, in a city/district 68.84%, outside a city/district 8.41%; Eighth inadequate research and development in this sector is also an issue where most of creative industry player never conducted any research and development; Ninth, many players in this sector have not yet registered or joined the association of creative industry players. Only most players from the TV, Radio and Architecture sectors have been registered in the association.

*Building Favorable Business Ecosystem.* Solving the problems that occur in the field of creative industry demand strong role and collaboration among some stakeholders. A pentahelix collaboration among business players, government, communities, academicians, and mass media is considered necessary in supporting the creation of conducive ecosystem for creative industry development. A well-established ecosystem build through a dynamic collaboration among those five actors is expected to give positive contribution to the development of business in general, and support the development of creative industry in facing dynamic business condition (Veal & Mouzas, 2010; Adner, 2006; Ceccagnoli, et al., 2012; Ben Letaifa, et al., 2013; Gobble, 2014).

One of mondial strategies used in the development of creative economy Indonesia is a program namely "creative city". Studies conducted in various countries have proposed the implementation of creative city program in developing a conducive ecology for creative economy, as the program has been proven to have positive and significant influence on the development of the creative economy (Landry & Comedia, 2000; Florida, 2002; Howkins, 2009).

A framework proposed by Nee (2003) through the new institutionalism economics and sociology (NTES) can be used as the reference in developing a favorable ecosystem for creative industry. Nee (2003) integrates the role of state regulation (macro), organizations/industries (meso) and business players/individuals (micro). A set of rules that represent normative, regulative, and cultural-cognitive aspects applies in each level. This model offers a realistic requirement that is suitable to be implemented in Indonesia which has diverse social and cultural conditions and different amount of resources. This diversity is a potential aspect that supports the creative industry to develop various products.

Within the macro level, the government holds a dominant role, especially related to the institutional aspect. Government's role can be enhanced by strengthening the concepts/strategies through; legal policies (acts, regulations, presidential decrees, ministerial regulations, etc); institutions (organizations, structure, system, human resources); operational area; organizational (business profit) and outcome (social and economic contribution).

In the meso level, the presence of associations from each sub-sector is important to build a healthy industrial ecosystem (Tulloch, 2005). The presence of related associations is expected to accommodate various needs related to information sharing and information actualization in each subsector of creative industry. Business associations provide a place for stakeholders to maintain good relationship.

In the micro level, as players in a business activities that use knowledge and creativity as the main capital, creative industry players cannot be separated apart from the environmental dynamicity that eventually forms a business ecosystem. Hence, the business activities of creative industry cannot be merely seen from the economical point of view (market and resource-based view). In fact, creative industry is able to add the values of social, cultural, and environmental aspects which finally improve the competitiveness of a nation.

The development of favorable ecosystem for the creative industry through the creation of creative city is an interesting topic as taps on several points. First, the availability of massive resources and cultural diversity; Second, the availability of various financing scheme offered by the fintech/teknologi industry; Third, market expansion through infrastructure development due to trade liberalization and advancement of technology; Fourth, adaptive institutional support; Fifth, favorable business climate; Sixth, the composition of human resources that is oriented to demographic surplus (63% of 237 population are in the productive age between 15 – 55 years old, and 27% of them are young generation aged between 16 – 30 years old) which reflects the number of creative people that is estimated approximately 11.4 million creative people (BPS RI, 2010).

Seen from the business sustainability, creative economy appears to be the only one industry that is able to collaborate various potentials as previously explained. Creative industry improves the values of various resources through creativity and innovation. In addition, creative economy also contributes to the social and cultural aspects of a nation as it strengthens the national identity. This industry also offers better quality of life and enhances the prosperity of the society, besides it also improves the social tolerance.

The development of creative city is the concrete reconstruction of creative business ecosystem. From the reconstruction, a benchmark that shows that effective and efficient way in developing the creative economy through collaboration among various parties can be obtained to support the realization of conducive business ecosystem. Moreover, the reconstruction also motivates other cities to develop and make their business ecosystem more conducive to support the development of creative economy through breakthrough offered by the stake holders who are involved in the process. Kemenparekraf (2014) has mapped the creative industry ecosystem consisting of a chain of creative values, environment, development, market and archiving which are inter-correlated. However, seen from the framework of the holism view, the reconstruction of creative industry is also influenced by other factors other than the four factors mentioned above. Some other factors are believed to influence the sustainability of certain enterprises within the creative industry ecosystem.



*Simultaneous Agenda in Each Level.* Within a more operational level, those variables can be developed into a framework that improves the quality and quantity of the creative city development. In the macro level, some urgent agendas demand immediate realization. First, the government regulations (both central and regional government) that improve the competitiveness in the macro level. Second, the implementation of collaborative governance as the realization of pentahelix collaboration. Third, high-quality education to educate creative individuals that festive various social events such as cultural festival, food festival, bazaar, concerts and other events. Fourth, supports to live up a city by organizing both national and international class thematic events in order to strengthen the quality of local identities through traditional food and handicrafts.

Fifth, more incubation programs in the forms of various exhibition events that engage people to actively involved in the events in various levels. It is also necessary to conduct training on event organizing to enhance the efficiency and effectiveness in organizing various events (more effective and efficient use of time, budget, quality and promotion) which is expected to improve the quality of various cultural institutions. Sixth, better distribution of high-speed internet. Seventh, conducting financial gathering. Eighth, development of physical infrastructure (public space, park, pedestrian spots and social interaction space) and other infrastructure development. Ninth, improvement in the collaboration and the network of creative cities to obtain different benchmarks from other creative cities.

In the meso level, the focus relies more on the collective action, monitoring and enforcement done to improve the competitiveness of creative industry players. This can be done by supporting various cultural collaboration among different cultures to create strong forward and backward linkage that improves the quality and quantity of cultural projects across communities/culture/sub-sectors.

The development of creative city in the micro level can be done through two ways (i) improvement of individual creativity through various programs/events that facilitates individuals as creative economy players to experience renewal ability; (ii) improvement of managerial creativity (from self employee to start-up entrepreneurs) within both market-based and resource-based views (Barney, 1991) that enables the players in this industry to design certain formulation, implementation and evaluation strategies with stronger emphasis on the function and role of decoupling and compliance/consensus. Adequate realization of those two aspects strengthens the embeddedness/bound between the two levels (Florida, 2002 ; Landry & Comedia, 2000 ; Howkins, 2002, 2009 ; Fitriani, 2015).

Conclusion. As a new locomotive in national economy, creative industry in Indonesia is still facing various issues, preventing this industry to give maximum contribution to the economy. This paper proposes a strategy to build business ecosystem using the pentahelix collaboration. Concrete realization of the collaboration can be done by implementing a program namely creative city development. Every city/district is expected to formulate and pick up some sectors out of the sixteen sub-sectors of creative industry that match their local potentials to be further enhanced.

The selection of sub-sectors should consider some points including (i) adequate collaboration among pentahelix actors; (ii) the selected sectors should have stronger leverage than other sectors which can be identified by investigating the role of other subsectors / forward and backward linkage of the selected sub-sectors; (iii) the employment capacity; (iv) the contribution of each subsector to the national economy that can be measured from the export activities.

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**THE INFLUENCE OF FEAR APPEALS ON CUSTOMER'S MOTIVATION  
TO BUY CIGARETTES: SURVEY CONDUCTED TO JUVENILES  
AGED 13-19 YEARS OLD IN MALANG CITY**

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**ABSTRACT**

This research aimed at partially and simultaneously describing the influence of fear, threat, and efficacy on customer's motivation to buy cigarettes. This research applied survey methodology with quantitative approach. The population of this research was a young smoker aged 13 until 19 years old in Malang City. The sample of this research amounted to 116 respondents and the technique applied was purposive sampling. The instrument chosen to carry out this research was a questionnaire in form of a question with Likert scale. Data analysis adopted to conduct this research was descriptive analysis, multiple regression, simultaneous test (F) and partial test (t). The research result revealed that: partially, fear (X1) variable had a positive but not significant influence on consumer's motivation to buy cigarettes (Y); threat (X2) variable had a negative and no significant influence on consumer's motivation to buy cigarettes (Y); variable of efficacy (X3) had a negative and no significant influence on consumer's motivation to buy cigarettes (Y). Simultaneously, fear (X1), threat (X2) and efficacy (X3) variable had no simultaneous influence on consumer's motivation to buy (Y). According to that result, fear is the one and only variable having positive value although very low.

**KEY WORDS**

Fear appeals, fear, threat, efficacy, motivation to buy cigarettes.

Indonesia is the fourth biggest cigarette consumer country after China, Russia, and the United States (Global Market Information database: 2014). That data seems like in accordance with the reality in Indonesia. We can see that reality in Indonesia in which the student of elementary school until an elderly is common to consume cigarettes. The data collected in 2013 quoted by Global Youth Tobacco Survey (2014: 5) presented the age group of total young smokers based on their age. The data shows that 9.5% of the children aged 10-14 years old are a smoker and 50.3% aged 15 - 19 age years old are too. The data indicate that the juvenile is fragile to consume cigarette at that young age. Baer & Corado (in Atkinson, 1999) quoted by Nurrahmah (2014: 78) have described that juvenile considered smoking is a symbol of virility and glamour, that was way they were frequently interested in following smoking behavior.

One of the ways that can be made to solve that social problem like smoking behavior is through a social marketing campaign. The social marketing campaign is one of the areas of expertise from marketing focused to influence consumer behavior to the better way (Kotler & less, 2008: 7). There are many things which can be influenced by social marketing, i.e. remaking health, environment, bad community behavior, etc. One of the applications of social marketing is using persuasive communication. Setiadi (2003: 172) defined persuasive as utilizing information about the circumstance of psychology, sociology and the culture of the communicant, to influence and achieve the realization of what expected by the message.

One of the techniques carried out in persuasive communication is through fear appeals. Fear appeals are one of the methods to deliver the message to the consumer by targeting their fear emotional so they will cancel their intention to buy something. Fear appeals try to change individual or society's behavior by utilizing target's emotional feeling using those fear appeals. Witte (1992, as quoted by Bates, 2014: 19-22) proposed 3

elements that stimulate someone's fear, i.e. fear, threat, and efficacy. Those three elements influence the appearance of someone's feelings about something.

The form of application of fear appeals has been conducted in various campaigns in the world. One of the examples is what in Indonesia's cigarette packs. The Regulation of the Ministry of Health of The Republic of Indonesia Number 28 Year 2013 regulating the inclusion of health warnings and health information on cigarette packs. That regulation is the follow-up of the Government Regulation Number 109 Year 2012, aiming for material security containing addictive substances in the form of cigarette product for community health. Indonesia government obliges cigarette producer to list a scary image on cigarette packs, like Figure 1.



Figure 1 – Surya Pro Pack with Scaring Image (Source: kompasiana.com)

Those cigarette packs are categorized fear appeals, applying stimulation of fear to curb cigarette consumption in Indonesia. Government role to determine the policy of cigarette packs with those scary images are one of the forms of the application of social marketing upstream (Cheng et al., 2011: 16).

## LITERATURE REVIEW

*Fear Appeals.* Definition of fear appeals according to Mowen and Minor (2002: 415, as quoted in Sanjaya and Kusasih, 2012: 62) is a message to identify that consumer is like in an unfavorable situation if they fail to use the offered product". While Sanjaya and Kusasih (2012: 62) have defined fear appeals as a call by utilizing someone's fear or inconvenience for negative consequence if not using the offered product. Fear appeals advertisement basically aims to motivate target to manage collected information. Within the fear appeals, there is a consequence implied on the emotional side, i.e. (Shimp, 2003: 474) negative consequence if does not use the product being advertised and negative consequence from bad behavior (i.e. drink-driving).

Witte (1992, as quoted by Bates, 2014: 19) proposed that there are three elements that stimulate someone's fear appeals, i.e. fear, threat, and efficacy.

*Motivation to Buy Cigarette.* Merle J. Moskowitz as quoted by Engel et al., (1994, in Setiadi, 2003: 25 -26) defined motivation in general as an initiation and behavior control as well; in addition, motivation learning can be defined as learning from someone's behavior. Suryani (2008: 27) proposed that motivation process happens because of needs, not-fulfilled willingness or expectation and causes a tension.

The aims of consumer motivation as explained by Setiadi (2003: 31) are increasing satisfaction, maintaining loyalty, efficiency, effectiveness and creating a harmonic relationship between producer and consumer.

According to that motivation, Suryani (2008: 28) designed that there is an element involved in this motivation process, including needs, behavior, and purpose.

### *Hypotheses:*

H<sub>1</sub>: Fear variable has a partial and significant influence on the motivation to buy cigarette among the young people.

H<sub>2</sub>: Threat variable has a partial and significant influence on the motivation to buy cigarette among the young people

H<sub>3</sub>: Efficacy variable has a partial and significant influence on the motivation to buy cigarette among the young people.

H<sub>4</sub>: Fear, Threat and Efficacy variable have a joint and significant influence on the motivation to buy cigarette among the young people.

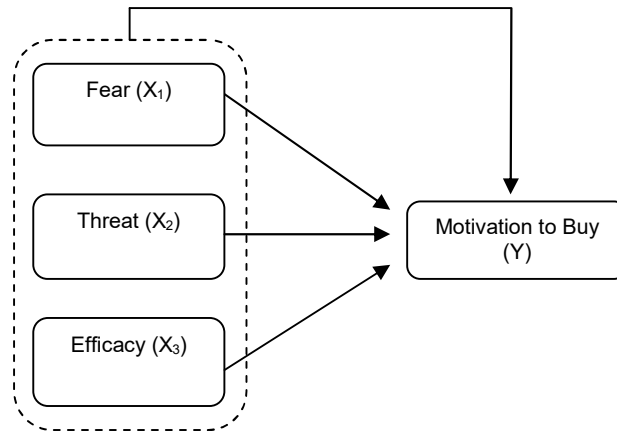


Figure 2 – Hypotheses Model

## METHODS OF RESEARCH

The method practiced to carry out this research was a survey method with quantitative approach. The population of this research was a young smoker aged 13 until 19 years old in Malang city. The sample of this research was mostly a young smoker in Malang City amounted to 116 respondents and analyzed using multiple regression and SPSS 2.3 for Windows.

Purposive sampling was a sampling technique applied in this research and spreading questionnaire to collect the data (offline questionnaire) to the young smoker aged 13 until 19 years old in Malang city. The instrument chosen to conduct this research was questionnaire which has been compiled in accordance with variables indicator that has been determined before. Data analysis used in this research was descriptive analysis, multiple regression, simultaneous test (F) and partial test (t).

## RESULTS AND DISCUSSION

The highest number of the smokers were those aged 17 amounted to 24 people (20.7%). In addition, the vast majority of respondents were man amounted to 110 people (94.8 %) and women of 6 people (5.2%). That result supports the statement of Baer & Corado (in Atkinson, 1999) as quoted by Nurrahmah (2014: 78) proposing that smoking is the symbol of virility and glamour for young people.

The data collected from this research shows an alarming circumstance. Almost all the respondents' first smoking experience was in Junior High School (SMP) amounted to 63 people (54.3 %). That data was also in accordance with Global Youth Tobacco Survey (2014: 5) presenting age group from total young smokers based on their age. The data shows that 9.5% of the children aged 10-14 years old are a smoker and 50.3% aged 15 - 19 age years old are too. From that data can be known that the lack of monitoring and learning role from family or related party about the bad impact of cigarette consumed.

Coefficient of determination obtained in this research was indicated by Adjusted R square of -0.009 or -0.9%. This reveals that Fear (X<sub>1</sub>), threat (X<sub>2</sub>) and Efficacy (X<sub>3</sub>) variable have an influence of -0.9% on the Motivation to Buy. That data shows that Fear (X<sub>1</sub>), Threat (X<sub>2</sub>) and Efficacy (X<sub>3</sub>) variable have no contribution to the Motivation to Buy (Y).

Coefficient of correlation value collected in this research was by 0.131. Coefficient of correlation value by 0.131 was in the category of 0.00 - 0.199. That circumstances show that

independent and dependent variable has a very low relationship. It concludes that the relationship between independent variable and dependent variable is positive even though the relationship is very low, so when Fear ( $X_1$ ), Threat ( $X_2$ ) and Efficacy ( $X_3$ ) variable are increased, Motivation to Buy ( $Y$ ) will increase too but not significant or too big.

The result of F significance value amounted to 0.585. Since F significance value was  $(0.585) > (0.05)$  so this case shows that  $H_0$  and  $H_a$  were rejected so can be concluded that Fear ( $X_1$ ), Threat ( $X_2$ ) and Efficacy ( $X_3$ ) variable have no simultaneous and significant influence on the variable of Motivation to Buy ( $Y$ ).

T-test result between Fear ( $X_1$ ) and Motivation to buy ( $Y$ ) variable result in t significant value by 0.325. Since t significance is  $(0.325) \geq \alpha (0.05)$  so this circumstance shows that  $H_0$  is accepted and  $H_a$  is rejected. It concludes that partially; Fear ( $X_1$ ) variable has no significant influence on the Motivation to Buy ( $Y$ ). The result of t-test between Threat ( $X_2$ ) and Motivation to Buy ( $Y$ ) variable result in t significance value amounted to 0.714. Since t significance value is  $(0.714) \geq \alpha (0.05)$  so this case shows that  $H_0$  is accepted and  $H_a$  is rejected. The conclusion is Threat ( $x_2$ ) variable partially has no significant influence on the Motivation to Buy ( $Y$ ) variable. T-test result between Efficacy ( $X_3$ ) and Motivation to Buy ( $Y$ ) variable result in t significance value of 0.323. Since t significance is  $(0.323) \geq \alpha (0.05)$  so this case demonstrates that  $H_0$  is accepted and  $H_a$  is not. It concludes that partially Fear ( $X_1$ ) variable has no significant influence on Motivation to Buy ( $Y$ ) variable.

### CONCLUSION AND SUGGESTIONS

There is a positive but not significant influence of fear on consumer's motivation to buy. Later on, threat and efficacy have a negative influence on the motivation to buy. The last conclusion is there is no simultaneous influence on fear, threat, and efficacy on young smoker's motivation to buy.

Cigarette producer should re-design the message on cigarette packs so it has more impact on the smoker especially the young ones. Later on, the government is expected able to revise or strengthen the law on smoking prohibition for young people under 18 years old, or penalty given to those buying cigarette. The last suggestion for a further researcher is expected able to develop this research by studying other factors that can influence consumer's motivation to buy. Future researcher also can apply another method to study consumer's motivation to buy and also expected able to cover a larger area with much more sample of respondents to have more valid generalization towards respondents.

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## **BUSINESS STRATEGY ANALYSIS: AFTER SCHOOL PROGRAM AND DAYCARE OF «BUNNIES»**

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### **ABSTRACT**

Daycare and after-school program is highly needed by parents because it is an alternative for parents who do not have the time to educate, nurture children and the needs of parents who want to socialize outside their working hours. The business of daycare and after-school programs that have been running have not fully utilized the technological system in accordance with the ages. Many of them still use conventional methods. Therefore, daycare and after school programs must have innovative new breakthrough in providing facilities for consumers. The business strategies discussed by the researcher include: business environment analysis, business strategy, canvas business model, human resource strategy, operational strategy, site selection and layout strategy, marketing strategy.

### **KEY WORDS**

Business strategy, after school program, daycare, educational system.

Along with the development and progress of the era where housewife plays an important role in supporting family economy, therefore many parents, especially housewives do not have time to guide, nurture, and educate their children at home. Because of this business, the parents need a daycare and a place to learn for their child. In addition, many parents concern about how to explore the changing intellectual development of children who do not fit their way of educating children in their time.

Many daycare centers that run today do not provide satisfaction to parents in supporting the growth and the development of intellectual and childhood personalities. The needs of daycare and after-school programs are still needed in South Tangerang area. The needs of the after school and daycare programs are very much sought after by busy parents working, so they can be calm in doing their work and not worry about supervision and guidance as well as the intellectual and childcare management during their busy work, (Geoffroy et al., 2006).

Daycare and after-school programs are needed by parents because it is an alternative for parents who do not have the time to educate, nurture children and the needs of parents who want to socialize outside their working hours. From some of the problems found in this field, the business opportunity to open a daycare business and after school program still provides promising opportunities and potentials (Mahoney et al., 2005).

The business of daycare and after-school programs that have been running have not fully utilized the technological system in accordance with the ages. Many of them still use conventional methods. For that reason, daycare and after school programs must have innovative new breakthroughs in providing facilities for consumers. These new breakthroughs are downloadable applications in gadgets or other technological devices like *ipad*, computers, and so forth.

The need for the internet today is an inevitable need such as online streaming, where parents who entrust their children can access to monitor child development and their

children's activities during their busy work which can be anytime and anywhere to access children's activities those who are entrusted, educated and cared for in day care and after-school programs. The advantages of daycare and after-school programs are helping to dig up the child's talent in accordance with the hope and the growth of the child with activities that trigger the child's interest.

## RESULTS AND DISCUSSION

*Business Environment Analysis.* Analysis of industry competition for these daycare and after-care programs uses a *porter five'* forces which results in the high threat of new arrivals, low competitor threats in the same field, low substitution threats, low consumer bargaining power, and low supplier bargaining power (Grundy, 2006). Seeing from this porter analysis, the business opportunity of daycare and after school program is still promising besides the opportunity and threat analysis where the daycare business and after school program that will be in Summarecon Gading-Serpong area which is the area of offices, apartment and residence does not have place of childcare and after-school programs which are qualified and complete.

Table 1 – Business Opportunities and Threats

OPPORTUNITY
There is no International standard
It has small amount in the area and far apart
Franchise opportunities in the future and formal school from playgroup until high school
The number of female workers is quite a lot
Parents who are busy working and no time to nurture and educate can see the child's growth and development
THREAT
The number of educators and caregivers are less skilled and professional than suppliers
The economic crisis of a country
Issue in other places that are less good such as child abuse, children kidnapping, and others
Easy government permission to open the daycare business and after school programs
Prices compete in the same field

Table 2 – Business Strengths and Weaknesses

STRENGTH
Location of daycare and after school programs
Facilities according to health standards
Affordable prices
24-hour security system
Professional and competent caregivers & educators
Online streaming & CCTV
Emergency door
Interior room according to the child's growth
Cooperation of mother & child hospital
The calculation of child services by hour and flexible
After School Program
The curriculum of brain challenging method
WEAKNESSES
Uninspired nannies and educators in the world of children
Experience in new business for investors
Lack of loyalty of students and caregivers
Lack of promo and product marketing
Organizational structure
Capacity of the child received

The daycare centers in the community are far enough away from each other and many international schools do not have after-school programs that satisfy parents for their children. There are several daycare and after-school programs in this area of South Tangerang city; it is a necessary strategy in facing price competition while improving quality both in terms of educator, caregiver, and program offered as well as good management in managing business daycare and after school program. If this price competition can be controlled by maintaining quality, providing good service, strategy in marketing service products and



having different methods of educating and nurturing existing children so far, competitive prices are no longer a threat in business.

**Business strategy.** Childcare and after school programs of *Bunnies* provide childcare, education and care services starting from the age of 0 months to 12 years old located at Summarecon Serpong location in Gading Serpong South Tangerang, Banten. This business is to keep children whose parents are busy working and have little opportunity and time to care for, nurture, and educate their children but they can still monitor their child's growth.

To determine the feasibility of whether this business can provide opportunities and potential good and profitable, then it is evaluated by using matrices based on *opportunity, threat, weakness and strength*, (Porter, 2008).

EFE Matrix; daycare and after school programs of *Bunnies* business are in good shape, taking advantage of the opportunities that exist outside and avoiding the threat of competition faced by *Bunnies* company. IFE Matrix; the average position indicates that this business needs improvement in operational business, strategy, and other procedures. CPM matrix; after-school and daycare program of *Bunnies* business has 24-hour security, spacious and free parking, online streaming and CCTV, extensive and complete playground, 1: 5 child rearing ratio, interest and talent curriculum, operation hours, supervised by experts, pleasant surroundings, emergency doors, anti-bacterial ventilation systems, fungi and allergies, and the presence of after-school programs are factors of critical after-school and day care of *Bunnies* business success.

Table 3 – Analysis of Canvas Business Model

Key Partners	Key Activities	Value Propositions	Customer Relationship	Customer Segments
Strategy of cooperation with provider of baby sitter, hospital and pediatrician	Providing professional caregiver, and child educator according to the needs of international standard consumers	Online streaming and Bunnies apps Brain Challenging Method Educators and caregivers are competent Ratio 1: 5 caregivers and 1:10 educators	The relationship between daycare and after school programs with customers in the long term until the child takes the necessary advanced education	Parents of upper and upper classes who have children between 0-12 years old are busy working
	<b>Key Resources</b>		<b>Channels</b>	
	Physical assets: business facilities, operational vehicles, etc. Human: caregiver & educator, customer service, cleaning service Financial: funds from investors Intellectual: brand, customer database & partnerships		Advertised through electronic media such as internet, seminars, info session & social media. Doing an event around the daycare business & after school programs Installing banners and billboard	
<b>Cost Structure</b>		<b>Revenue Streams</b>		
Cost of caregiver & educator Cost of business location Cost of interior and exterior business design Operational costs such as electricity, water etc. Other staff costs (security, administration, etc.) Cost of Advertise and event Cost of Childcare (milk, pampers, etc.)		Money received from children is deposited in daycare and after school programs from parents of children.		

SWOT Matrix; based on the matrix and SWOT analysis, it is found that there are two strategies performed by *Bunnies* according to SO and ST strategies in running the business that is customer intimacy (SO strategy) by approaching prospects and customers in selling products or services offered and knowing the knowledge of the customer to the product or service offered in accordance with the existing market which in this case break through the existing market (market penetration). The second strategy of daycare and after school

programs of *Bunnies* is to perform excellent operations (ST strategies) that provide internal security and convenience such as online streaming and CCTV cameras as the example in excellent operational.

Great Strategy Matrix; daycare and after school programs of *Bunnies* located in quadrant 1 of its market strategy is market penetration which means the company is able to take advantage of external opportunities so that it can compete using aggressive business strategy. The strategy undertaken by *Bunnies* company is to conduct a product/service approach that is on offer with knowledge of prospective customers of products/services offered.

QSPM matrix; there are two alternative strategies that are *excellent operational* and *customer intimacy* to be considered by daycare business and after school programs of *Bunnies*. Daycare business and after school programs of *Bunnies* need a *customer intimacy* strategy that matches the analysis of SO strategy opportunities.

*Human Resource Strategy*. *Bunnies* company conduct their business in an organized, effective and efficient way in order to achieve organizational goals in providing care services and education of children optimally in order to create customer satisfaction and loyalty. Therefore, the concept of *Bunnies* company must have competent, professional and sensible human resources by following the rules set by the outlines of the education and culture department, the health and child social protection department. *Bunnies* will implement its HR activities using *SMART* (*Specific, Measurable, Attainable, Result-oriented, and Time-bound*) to achieve effective organizational goals which are stated specifically, measurable, achievable, result-oriented and within a certain time limit (DuFour, 2004).

Table 4 – Smart Short Term Human Resources

No.	S	M	A	R	T
1	Recruiting professional and skilled caregivers and educators	100%	Evaluating the service of education personnel and nanny every 3 months	Cooperating with female labor supplier	First year
2	Providing rewards and employee punishment and reducing turnover	5%	<i>Gathering</i> events together once a year	Increasing employee engagement in all plans and strategies	First year

Table 5 – Smart Medium Term Human Resources

No.	S	M	A	R.	T
1	Providing ongoing training and education to become a model for other daycare centers in delivering quality and sustainable services	100%	Continuing education and training twice a year	Conducting training and education to caregivers and child educators	Sixth Year
2	Decreasing the <i>turn over</i> of employees	3%	Events abroad once a year for outstanding employees	Increasing employee engagement in all plans and strategies	Sixth Year

Table 6 – Smart Long Term Human Resources

No.	S	M	A	R	T
1	Reducing employee <i>turnover</i>	1%	Cooperating, coordinating and developing cooperation with other responsible branches.	Increasing employee engagement in all plans and strategies	Tenth Year

Targets of *Bunnies* human resources management consist of:

- Company Target is to provide a competent, certified, and sustainable workforce and provide continuous training and education in order to provide opportunities to improve self-actualization and protection to every employee in order to provide childcare and education services productively, effectively, and optimally.
- Functional Target is to provide and give services in accordance with the goals and targets to be achieved both in technical and non-technical aspect so that business activities can run functionally such as applications and online streaming.
- Social Target is to maintain business operations in accordance with ethical and social ways in the various needs and demands of the community by continuously minimizing

the negative impacts arising from the demands faced in the business of daycare and after school program. Social target that will be achieved by daycare and after school programs of *Bunnies* is in the form of the fulfillment of lawsuits, profit companies and management relationships with trade union organizations, corporate relationships with surrounding communities, and CSR (discounts to communities around *Bunnies*).

- Employee Personal Target namely *Bunnies* will oversee and pay attention on the achievement of their respective goals that do not neglect their priorities on company goals.

PT. *Bunnies* Cinta Kasih uses lean management system and PDCA service in running its business operations aiming at reducing and avoiding excessive or unnecessary things like information about daycare and after school programs of *Bunnies* which can be done through online, parents who wish to enroll their children can do online registration through *Bunnies* websites or apps via smartphone and so on. In this case, *Bunnies* will use the PDCA service (Plan, Do, Check and Adjust) Plan service means parents who want to enroll their children in *Bunnies* company either after-school or daycare programs will be assisted in their planning to take what programs are needed for their child (Smith and Brown, 2012). Do service means that *Bunnies* will perform child care services and after school programs as optimal as possible so that parents who have registered their children get satisfaction. Check service means every child placed in daycare and after school programs of *Bunnies* will always be monitored for every development and activity and parents can also directly check their child's activities through coming to daycare and after school programs with the permission of the person responsible for managing the operations of *Bunnies* company or the parents can check their child's activities through streaming online by downloading daycare apps and after school programs of *Bunnies*. Adjust service means that if children who are enrolled by their parents as in after school programs do not like the program they choose because they change interest in other programs, then the children can move to the program they like even though the children are already present in the program that are not so interested.

*Bunnies* business runs by using situational leadership style. Leaders determine the obligations and responsibilities of individuals and groups, (Rustandi, 2007). Such behavior includes telling people what to do, how to do it, when to do it, where to do it, and who should do it, (Brahmasari dan Siregar, 2009). Leaders need to provide tasks, obligations, and responsibilities to his followers or his subordinates or to the extent to which the leader determines two-way or multidirectional communication, which includes listening, facilitating and supporting behavior, (Hersey et al., 2007).

In the early stages of this business, the role of active leaders influences employee behavior, but does not limit the employee's role in accomplishing tasks and responsibilities and helping to provide input to the solution of problems encountered (Schermerhorn et al., 2000). In changing the employee's behavior, the company will provide training and coaching that suit the needs of each of its employees. The role of *Bunnies* leadership style is that employees can comfortably work well and optimally resulting in productivity, effectiveness and efficiency of the performance of each employee. With the convenience of work and satisfaction of the performance of each employee, it will reduce employee turnover and resistance which all creates company loyalty and sense of belonging feeling.

**Operational Strategy.** The operational strategy of childcare and education is an integral part of supporting daycare services and after-school programs. Operations include the type, completeness, and quality of facilities used in carrying out the daycare and after school educational and childcare programs. Operational management is the activity of childcare and daycare management units on daycare and after school programs related to the planning, implementation, and supervision of the organization of the daycare and the after-school program. Operational financing of these activities includes the types and sources of financing required to organize and to develop childcare and education in daycare and after school program.

In order for the service of daycare and after school program to be well implemented, it is necessary that operational strategy for customers to feel comfortable and secure in the daycare activities as well as on the management of care and education to meet the needs of

children .In addition, the financing that is managed by this business company must be done transparently so that it looks better in the process of cost for investment, operational and responsibility to other costs. With the presence of these components, daycare and after school services can be well implemented; an operational strategy is needed to ensure the continuity of business activities in accordance with the company's targets and objectives.

*Location selection and layout strategy.* *Bunnies* using LFR (*Location Factor Rating*) in establishing an office located in South Tangerang area by using the location of the place efficiently and effectively, (Pan and David, K2000). The workshop layout used by *Bunnies* is Functional Layout, ie layout where similar resources or processes are collected in one location or located in adjacent locations. The layout of each facility at the workshop uses *Activity Relationship Chart (ARC)* to indicate whether or not the relevance between each facility is planned and the reasons for its relevance are several factors to consider including: (i) efficiency of the room; (ii) activity efficiency includes space and time between personnel and machines; (iii) security. To establish the goals and objectives of the operation strategy, PT. *Bunnies Cinta Kasih* employs several strategies to ensure consistency between the quality of caregivers and educators generated with market requirements in order to establish the appropriate parameters to be the goals and objectives of the company.

The company must be able to meet all customer needs both in terms of quality and in terms of caregivers and educators who are in daycare and after-school programs in *Bunnies*. It is not impossible in the future that there will be a demand for a new product type, therefore *Bunnies* should be able to look at all the dynamics of other daycare growth, especially daycare by continuing to process improvement and development both in terms of curriculum and existing programs. Hence, it can determine the priority in the purpose of operation needs to be grouping factors that affect the competitive advantage. Daycare and After School Program of *Bunnies* have a goal in managing human resources within the company either directly or indirectly involving in the operation of the company. The goals and objectives of the company are divided into three which are short, medium and long term. Operational objectives in the decisions that are generated to meet these objectives include decision support facilities that are decisions related to human resources, planning, control and improvement of the operating system. Besides, the main decision means that it is related to the decision of the model formed for input operation, processes and product output ie supply network design, process technology design and final product innovation in the operational process. Similarly, the process of mapping and identification is used in the planning stage of the process flow of implementation on *Bunnies* daycare and after school program. It aims to know the various activities that occur during the process of running care and daycare programs in daycare and after school programs.

In running *Bunnies* company, in addition to producing quality children as well as the lovely conduct like home, *Bunnies* will also develop different daycare and after school programs from elsewhere. The development of daycare education programs and after-school programs is done to be more acceptable to the market in terms of job development process and the use of appropriate childcare and nursery services in terms of quality and technology. The rules of *Bunnies* daycare and after school programs that apply are guidelines for workers from high to bottom levels as daily operational operators in the running of the company. Curriculum in PT. *Bunnies Cinta Kasih* is using *Brain Challenging* to develop an integrated curriculum that includes language, cognitive, music, and physical activity, creative, social-emotional, and moral education using computerization. In its education program, *Bunnies* pays attention on four things related to child development, namely motor, social, analytical, and linguistic. In *Bunnies*, children will not only be taught academic material in the form of mathematical calculations, but will also a number of educational games will be played.

*Marketing Strategy.* After School and Daycare program of *Bunnies* use process segmentation of upper and upper middle class with age group 25-45 years old who already work and have their own income, which we can see in table below spread in South Tangerang City. On business targeting, after school and daycare program target parents aged 25-45 years who can be handled in a year with 656,498 people. In promoting *Bunnies*

company, it uses Integrated Marketing Communication methods consisting of word of mouth, direct marketing, event, advertising, and public relations (Armstrong et al., 2015). Promotion with word of mouth is done by using online method through internet media and social media like delivery via *Whatsapp messenger*, *Blackberry messenger*, *Facebook*, *Twitter*, *Line*, and *Instagram*. In direct marketing method, after school and daycare program of *Bunnies* is to cooperate with the school community and residential housing in Gading Serpong to build a stand in the school and housing complex partners who aim to provide information about the activities of after school and daycare program of *Bunnies* to prospective customers.

After school and daycare program of *Bunnies* also utilize the *Tools event*, for the sixth month after the opening with holding seminars or counseling with several topics such as education and child health. In terms of advertising, after school and daycare program of *Bunnies* utilize online advertising. Online advertising method of after school and daycare program of *Bunnies* will be available on website [www.bunnies.com](http://www.bunnies.com) and applications known by the community such as *Instagram*, *Facebook*, *Line*, and *Google My Business*. On these *website* and apps, it contains company profile, ways to register or enroll, news info about education and child health, contact and career.

Public relation is the last tool that is used in promotional activities of after school and daycare program of *Bunnies*. In this activity, this public relation will conduct an opening or open house event that invites some mass media either newspaper media or television media such as online press from government of South Tangerang website and the *bloggers* who already have good reputation with the number of followers above ten thousands.

After school and daycare program of *Bunnies* that will be established uses a system based on *Customer Relationship Management* with its application include front office and back office. Starting from the front office that deals directly with the customer up to the back office, it uses a system connected in online streaming. *Customer Relationship Management* used in after school and daycare program of *Bunnies* is an online system where when parents of prospective learners need parenting and education for their children, they can order easily among them with a procedure that must be completed first such as student data, history of disease, and an overview of the condition of the learner. Parents of the learner can order through conventional or online booking served by the front office or administrative part of the after school and daycare program of *Bunnies* until learners get these services well and optimally.

## CONCLUSION

After school and daycare program of *Bunnies*, which is a child education institution, is trying to perfect the same educational institution by improving the service and human resources professional in its field. With the presence of *Bunnies*, it is expected to be a solution for parents who have difficulty caring for their children when working so they can work quietly and can dig intellectual, talent, and intelligence of children in an optimal and directed way. After school and daycare program of *Bunnies*, as a business plan discussed in this paper, is a business opportunity that has a profitable business prospects. Given the demand for daycare services and after-school programs that have not been well served, *Bunnies* is present in the midst of the needs of parents of children who need daycare services and after-school programs. It is also supported by caregivers and educators who have good quality and expert in their field.

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## THE EFFECT OF TRAINING AND MOTIVATION ON EMPLOYEE PERFORMANCE OF PT ASURANSI XYZ

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### ABSTRACT

The result of employee performance in PT Asuransi XYZ in 2014 is 63.38% of PT Asuransi XYZ's employee acquire an excellent performance, therefore the performance drastically decreased in every year until 2016. Otherwise, the amount of employee that acquire deficient performance increase to 77.6% in 2014 to 2016. The growth of the employee performance is allegedly influenced by the motivation and training that provided by PT Asuransi XYZ to the employee. This causes the researcher intend to examine the influence of training and motivation toward the employee performance. This study uses quantitative approach with questionnaires that distributed to 116 employees with quota sampling method. The number of samples are from heads of division, heads of department, heads of section, and executors with the total 11 person, 20 person, 38 person and 47 person. The sample data is processed using LISREL application to analyze Structural Equation Modeling. The results of this study indicated that variables of training had a significant positive effect on employee performance, motivation had a positive and significant positive effect on employee performance, and training had a positive and significant effect on motivation. Training and motivation together had a positive significant effect on employee performance.

### KEY WORDS

Employee performance, motivation, structural equation modeling, training.

According to Otoritas Jasa Keuangan (OJK) in 2015, there are various types of insurance companies in Indonesia, for instance general insurance, life insurance, reinsurance, compulsory insurance and social insurance. General insurance companies have the largest companies in Indonesia in total 80 companies. PT Asuransi XYZ is one of the general insurance companies in Indonesia (OJK 2015).

PT Asuransi XYZ had branches in every large city in Indonesia. PT Asuransi XYZ is insurance company that offering insurance protection for all risk and loss, particularly for buildings and assets. The development of PT Asuransi XYZ can be shown from the increasing amount of clients and the revenue increasing in every year.

According to the financial report of PT Asuransi XYZ, the company's revenue increased from 2012 – 2016 with an average increase of 19.33% per year, despite of the increasing amount of revenue in every year, PT Asuransi XYZ's revenue is still below the target set by the company. The average of revenue achievement is only 57.5% from the target of company. The revenue achievement is inseparable from the employee performance in PT Asuransi XYZ. According to the internal evaluation result, the employee performance in PT Asuransi XYZ decreased in 2014 – 2016 (PT Asuransi XYZ 2017).

The result of employee performance in PT Asuransi XYZ in 2014 is 63.38% of PT Asuransi XYZ's employee acquire an excellent performance, therefore the performance drastically decreased in every year until 2016. Otherwise, the amount of employee that acquire deficient performance increase to 77.6% in 2014 to 2016 (PT Asuransi XYZ 2017).

The employee performance in PT Asuransi XYZ is influenced by the provision of training and motivation. The provision of training and motivation from the company must fit the employee needs in order to achieve the increasing of performance. The improvement of performance management is not only effect on the increasing result of the company, but further than that it is also be able as employee value add (Fahmi 2016).

Motivation from the company is needed to increase the performance of employee. The skill capability of company is required to conceive and create the condition where all of the employees motivated. Motivation is an encouragement that influenced an employee's willingness to achieve certain goals (Mangkuprawira 2014). There is no success doing anything like managing employees, without any motivation, either from the manager or the employee (Mangkuprawira and Hubeis 2007). The employee's motivation can be effected on the employee performance. Apart from motivation, the training for employee can be increased the employee performance in the company (Mangkuprawira 2004).

Employee training is a process of teaching certain knowledge and skills and attitudes so that the employees are more skilled and able to carry out their responsibilities better, in accordance with company standards. The training refers to the total structure of the program inside and outside the work of employee that is the company exploited in developing the knowledge, primarily for work performance and career promotion (Mangkuprawira 2004).

The growth of the employee performance is allegedly influenced by the motivation and training that provided by PT Asuransi XYZ to the employee. This causes the researcher intend to examine the influence of training and motivation toward the employee performance in PT Asuransi XYZ. Based on the background that stated above, despite of the increasing amount of revenue each year on PT Asuransi XYZ, but the revenue increase is still below the company target. This is allegedly caused by the decline in performance of PT Asuransi XYZ employee. Therefore, this research aims to examine the factors that influenced the PT Asuransi XYZ's employee performance. There are many factors that impact the employee performance; however in this study the variables used are training and motivation. The main issues of research can be formulated as follows:

- How does training affect to the PT Asuransi XYZ's employee performance?
- How does motivation affect to the PT Asuransi XYZ's employee performance?
- How does training affect to the PT Asuransi XYZ's employee motivation?
- How does training and motivation affect to the PT Asuransi XYZ's employee performance?

## LITERATURE REVIEW

*Training.* Employee training is a process of teaching certain knowledge and skills and attitudes so that the employee are more skilled and able to carry out their responsibilities better and in accordance to the standard. Commonly the training refers to the development of work skills that able to apply instantly. In this case the financial benefits for the company commonly occur quickly. Meanwhile education provides particular subject of knowledge, but it is more general and more structured for a longer period of time (Mangkuprawira 2004).

Employee training expected to improve the employee's work motivation and ultimately increased the company productivity. Assuming that Human Resources that have followed the training in accordance with their daily tasks will be able work more focused, more capable in performing their duties, and wasting no time in completing the work that assigned (efficient). Through training, deficiencies and weakness of Human Resources enhanced, with the result of work productivity improved compare to before training (Arep dan Tanjung 2003).

*Motivation.* According to Mangkuprawira and Hubeis (2007), motivation is similar to the heart of employee management. Motivation is an encouragement that influenced the employee's willingness to achieve certain goals. There is no success in completing a task for instance managing employees, without any motivation, either from the managers or employees. The manager requires skills to comprehend and develop conditions where all the team members are motivated. This is a big challenge because each employee has different characteristic and respond to different conditions. Meanwhile the condition itself, including the type of problem, is often changing all the time. Those are prerequisites for achieving effective employee motivation that supported by a convenient management and leadership environment. Conversely, employees that are lack of motivation are characterized by frequent stress, physical illness, working inactively, low quality of work, lack of personal communication, and irresponsible with the assigned task.



*Employee Performance.* According to Simamora (2003), performance is an organization success measurement in achieving mission. Afterwards, employee performance is a consciousness of a person or group to conduct an activity and refine it in accordance with their responsibilities with expected results. If it is associated with performance as a noun which one of the its definitions is the result of a work, the definition of performance is the work result that can be achieved by a person in the company in accordance with each authority and responsibility in an effort to achieve company objectives legally, that is not harm the law and non contradiction with the morals or ethics (Rivai 2005).

Performance appraisal is about the employee's performance and accountability. In a world of global competition, companies demand high performance. Along with that, the employees need feedback on their performance as a guide to their behaviour in the future. Performance appraisal principlly cover both the qualitative and quantitative aspects of job performance. Performance appraisal is one of human resource functions, occasionally named as performance review, employee performance evaluation appraisal, employee evaluation, or determination of personnel's rank (Simamora 1999).

## METHODS OF RESEARCH

The research data collection conducted at the head office of PT Asuransi Bangun PT Asuransi XYZ located in Jakarta. The selection of research objects were determined by the criteria that have been set. The research data was collected on December 2017 – Januari 2018. The selection of sampling in this research was conducted by non-probability sampling with quota sampling technique. The determination of sample amoun taken in this research were following the Slovin formula and resulted 116 samples. The number of samples are from heads of division, heads of department, heads of section, and executors with the total 11 person, 20 person, and 47 person. The sample data is processed using LISREL application to analyze Structural Equation Modeling.

*Research Variable.* This research were contain two independent variables, training (X1) and motivation (X2) and one dependent variable, performance (Y). Research variables can be seen on Table 1.

Table 1 – Research Variables

Variable	Indicators of Variables	Symbols
<b>Independent:</b>		
1. Training (X1)	1. Reaction	X1.1
	2. Knowledge	X1.2
	3. Behaviour	X1.3
	4. Result	X1.4
2. Motivation (X2)	Hygienic:	
	1. Company Policy	X2.1
	2. Supervision	X2.2
	3. Interpersonal Relationship	X2.3
	4. Working Condition	X2.4
	5. Salary and Allowance	X2.5
	6. Job Security	X2.6
	Motivator:	
	7. Achievement	X2.7
	8. Recognition	X2.8
	9. The Work Itself	X2.9
10. Responsibility	X2.10	
11. Progress	X2.11	
<b>Dependent:</b>		
Performance (Y1)	1. Number of Jobs	Y1.1
	2. Quality of Work	Y1.2
	3. Timing	Y1.3
	4. Attendance	Y1.4
	5. The Ability of Cooperation	Y1.5

Data of this research were primary data and secondary data. Primary data was taken from the first source, namely from the results of face-to-face interviews with the respondents. Meanwhile, the secondary data of this study came from literature materials and other print media including relevant literature to the research.

### RESULTS AND DISCUSSION

*Research Variable Description.* The statistic description of the questionnaire results are displayed through the description of the data from the respondent's answers to all questions with the aim to facilitate in knowing the general responses of respondents to the questionnaire that has been spread. The answers of questionnaires contain density and assessments that can be determined on the class interval.

The perception of PT Asuransi XYZ's employee in training variable was excellent with the average scale 3.311. The employee training is a teaching process of certain knowledge, skills and attitudes in order the employees are able to be more skilled and able to carry out their responsibilities better and in accordance with the standard (Mangkuprawira 2004). The perception of PT Asuransi XYZ's employees toward hygienic factor in motivation variable were excellent with the average of index scale 3.054. Hygienic factors were consider as extrinsic condition that will cause employee dissatisfaction if the factors are not existed (Mangkuprawira dan Hubeis 2007). The perception of PT Asuransi XYZ's employees toward motivator factors in motivation variable were good with the average of index scale 3.080. Psychological motivator factors are related to the reward of the employee's work-related personalities (Mangkuprawira, Hubeis 2007). The perception of PT Asuransi XYZ's employee toward the employees performance variable were good with the average of index scale 3.195. This indicate that respondent's assessments to each performance indicators were in accordance with each employee needs. Employee performance is consciousness of a person or group to conduct an activity and refine it in accordance with their responsibilities with expected results (Simamora 2003).

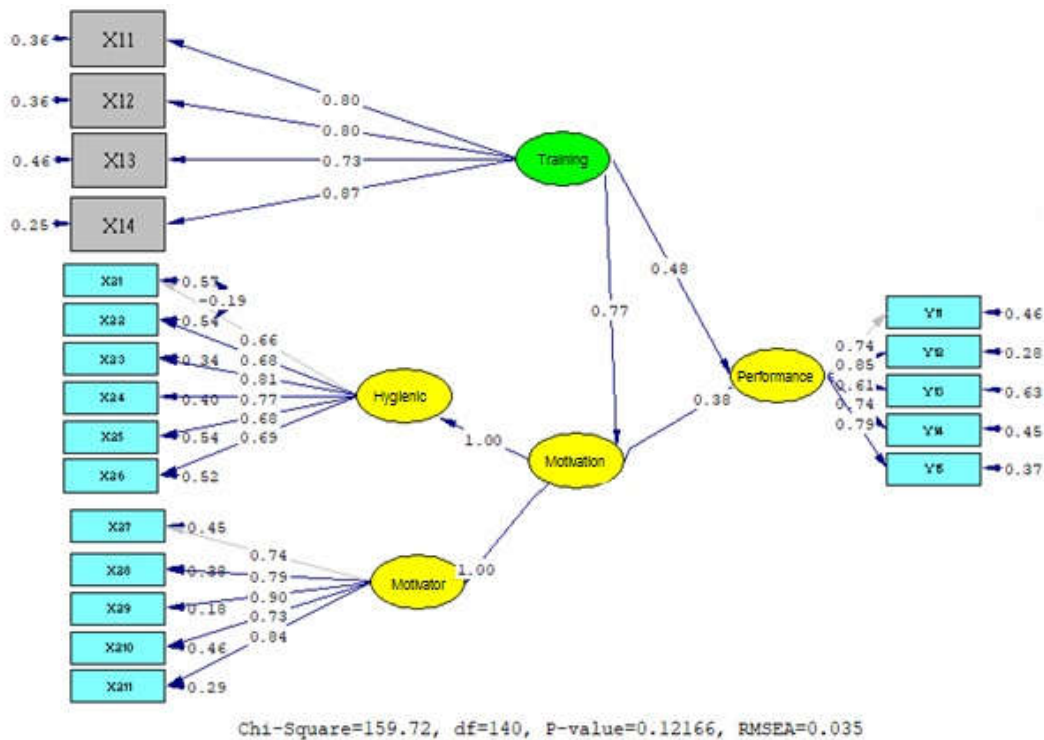


Figure 1 – Path diagram standardized loading factors

*The Analysis of Structural Equation Modeling.* The use of path diagram is to facilitate communication in the delivery of basic SEM concept idea effectively. Path diagram can describe or define the SEM model certainly and more obvious, particularly compared to the SEM mathematical model. A model of path diagram is able to simplify the model's conversion into commands or syntax of SEM software (Wijanto, 2015). Path diagram standardized loading factors can be seen in Figure 1.

In the Figure 1, the result of data shown the scale of P-value 0.12166 and RMSEA value 0.035, so the SEM model that has made is good and modification is unnecessary. The criterion of measurement model suitability is measured based on the validity of variable indicator to its latent variable. An indicator variable is valid when it has value of Standardized Loading Factor (SLF) more than the loading factor (LF) limitation that can be tolerated as  $\geq 0.30$ . Based on the path diagram SLF result it can be seen that that all variables are qualify for validity requirements by the SLF value that more than 0.30.

Each variable has indicator with different weight value, the higher the weight value, the greater the influence of indicator to the variable. In the Figure 1 it can be seen that the indicator to the training variable that has the greatest effect is result (0.87), then followed by the reaction indicator (0.80), learning (0.80), and behaviour (0.73). On the motivation variable with hygienic factor that has the greatest effect is the interpersonal of indicator relationship (0.81), then followed by the indicator of working conditions (0.77), job security (0.69), supervision (0.68), salary and allowance (0.68), and company policy (0.66). Meanwhile on the motivator factor, indicator with the greatest effect is the work itself (0.90), and then followed by the progress (0.84), recognition (0.79), achievement (0.74), and responsibility (0.73). On the variable of the employee performance, the indicator with greatest effect is the indicator of work quality (0.85), and then followed by the ability of cooperation (0.79), number of jobs (0.74), attendance (0.74), and timing (0.61). Then, to examine and know if all coefficients path are significant or not, the t-test statistic is used. The result of t-test of structural model can be seen in Figure 2.

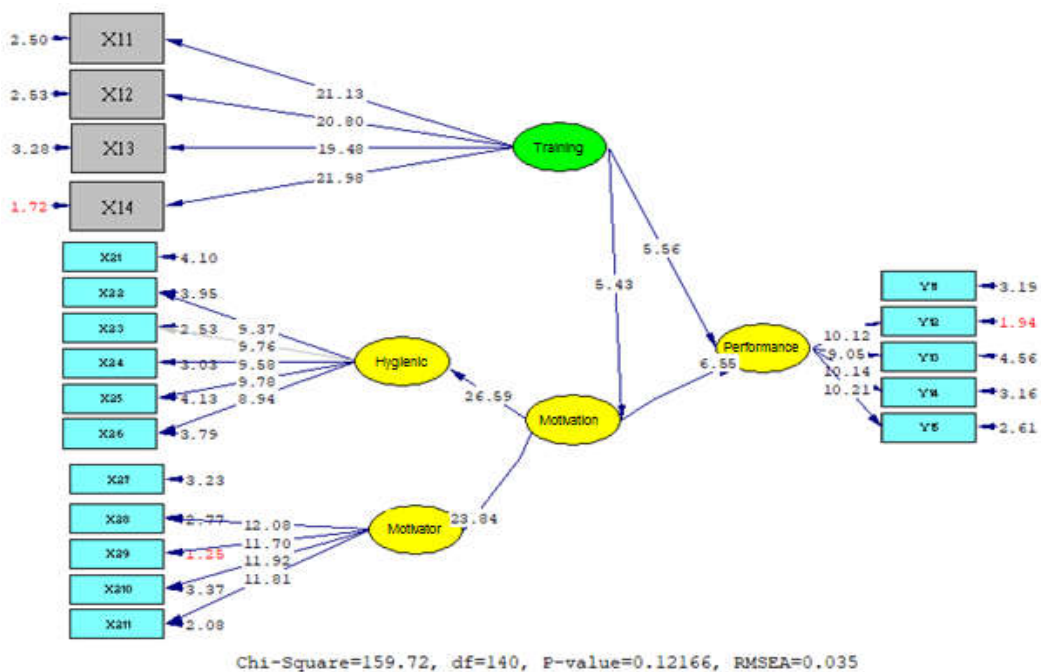


Figure 2 – Path diagram T-test

In Figure 2 displayed that there is no red line coefficient and the values obtained are entirely greater than t-table. An indicator variable is valid when it has t-value above 1.96 (Wijanto 2008). On the t-value diagram result can be seen that all variables are qualify for validity requirements with the value of t-value above 1.96 (significant). Based on the t-value

result hygienic factor (26.59) is greater than motivator factor value (23.84), so in conclusion that hygienic factor in PT Asuransi XYZ has greater effect to the motivational variable compared to the motivator factor.

*Hypothesis Testing Result.* This research was use t-test statistic result for the hypothesis testing. If the value of t-value is in the range of values -1,96 and 1,94 then Hypothesis 1 (H1) is rejected and Hypothesis 0 (H0) is accepted. If t-value is greater than t-label (1.96) then H1 is accepted and H0 is rejected. The result of hypothesis testing can be examine in Table 2.

Table 2 – Conclusions of Hypothesis Testing

Hypothesis	LF	t-value  > 1.96	Conclusion
<b>Direct Influence</b>			
Training → Employee's Performance	0.48	5.56	Significant
Motivation → Employee's Performance	0.38	6.55	Significant
Training → Motivation	0.77	5.43	Significant
<b>Indirect Influence</b>			
Training → Employee's Performance	0.76	10.37	Significant

Based on Table 2, the result of t-test between variable training and employee's performance that obtained by t-value 5.56. If the value of t-value greater than t-table then H1 is accepted ( $5.56 > 1.96$ ) then the training has a real positive impact to the employee's performance. The hypothesis result shown that the training has a positive direct effect and significant to the employee's performance with the LF value 0.48, meaning the better training provided by the company the more PT Asuransi XYZ's employees' performance improved. The training programme is a stimulation that employees need to improve the employee's skill and performance in order to achieve organization productivity improvement. Therefore, the training should be designed on the basis of company's needs and objectives. An effective training is a thoughtful intervention that designed to achieve employee's performance improvement (Elnaga, Imran 2013). Based on Table 2, the result of t-test between motivational variable and employee's performance is obtained by t-value 6.55. If the t-value result is greater than t-table so H1 is accepted ( $6.55 > 1.96$ ) then motivation has a real positive effect to the employee performance. The result of hypothesis result showed that motivation has a directly positive and significant effect on employee performance with the LF value 0.38, meaning that the better motivation provided by the company the higher PT Asuransi XYZ's employee performance improvement achieved. The research results are in line with Ackah's research (2014) showed that employees that more motivated in the work have a good performance and tend to committed with the organization, however it is also able to affect the performance negatively if the employees aren't motivated.

In Table 2, the t-test result between variable and motivation training is 5.43 obtained by t-value. If the t-value is greater than t-table, H1 is accepted ( $5.43 > 1.96$ ) then the training has a real and positive effect to motivation. The result of hypothesis research showed that the training has a direct positive and significant impact to motivation with the amount of LF value 0.77, meaning that the better training that provided by the company the higher PT Asuransi XYZ's employee performance improvement achieved.

Based on Table 2, the t-test result showed that the training has an indirect and significant impact due to the hit value of  $10.37 > 1.96$ . The training has indirect effect to the employee through motivation. Motivation has greater effect compare to the performance training that can be seen from the t-value where the motivation is greater than training. Thus, the training will improve employee performance depending on the motivation earned by the employee in PT Asuransi XYZ.

## CONCLUSION

Based on the research result of the effect of training and motivation on employee performance in PT Asuransi XYZ, so it can be concluded as follows:

The research result showed that the training has a direct positive and significant effect on employee performance with the amount of LF value of 0.48, meaning that the better training provided by the company the higher PT Asuransi XYZ's employee performance improvement will be achieved. The indicator of variable training that has the biggest effect is result, and then followed by the reaction indicator, learning, and behaviour.

The research result showed that motivation has a direct positive and significant effect on the employee performance with the amount of LF value of 0.38, meaning that the better motivation provided by the company the higher PT Asuransi XYZ's employee performance improvement achieved. Hygienic factor in PT Asuransi XYZ has a greater effect on motivation variable compare to the motivator factor. On motivational variable with the greatest effect in hygienic factor is the indicator of interpersonal relationship, then followed by the indicator of working conditions, job security, supervision, salary and allowance, and the company policy. Meanwhile in the motivator factor, the indicator with biggest effect is the work itself, and then followed by improvement, recognition, achievement, and responsibility.

The research result showed that the training has a direct positive and significant effect on motivation with the LF value of 0.77, meaning that the better training provided by the company the higher PT Asuransi XYZ's employee performance improvement achieved. The greatest effect on the employee performance variable is the indicator of the quality of work, and then followed by numbers of work, attendance, and timing.

The training has a indirect effect on employee performance through motivation. Motivation has a greater effect than performance training that stated by the t-value of motivation is greater than training. Thus, the training will improve the employee performance depending on the motivation earned by the employee in PT Asuransi XYZ.

## RECOMMENDATIONS

For the further research, the researcher can examine the employees of the PT Asuransi XYZ's branch offices in order the company will be able to perceive the result of training and motivation effect of all employees in PT Asuransi XYZ on employee performance. Then, the further research can examine other variables than can improve employee performance.

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## **THE INFLUENCE OF CORPORATE SOCIAL RESPONSIBILITY AND CORPORATE GOVERNANCE TO FIRM VALUE BY TAX AVOIDANCE AS INTERVENING VARIABLE**

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### **ABSTRACT**

This study examines the assessment of Indonesian companies on Corporate Social Responsibility and Corporate Governance on all samples of State-ownership Enterprise listed on the Indonesia Stock Exchange. Analyze further whether these firms have changed tax avoidance activities since 2011-2015 when the Indonesian government enacted stricter auditing of tax regulation along with policy of company being responsibility to stakeholder in around companies. Our findings show that both corporate social responsibility and corporate governance are negatively significant associated with tax avoidance. These results indicate that policy of corporate responsibility can be influence policy of financial reporting through tax behavior. As we know many company will be considering lower tax costs to increase shareholder value through dividing profit after tax. Alongside company, government is also response through combining policy of tax and corporate responsibility in from a tax benefits, then companies and governments build and cooperate in creating a prosper public. Considering good corporate governance practice in every decision making will be facilitate company in planning tax policy by using tax benefits without harm government. We also report that corporate social responsibility can be increasing significantly firm value, because legitimate theories explain that by participating from the company to stakeholders, this will be increasing shareholder value. Another results is how corporate governance negatively affects significantly with firm value. This is signs that corporate governance in state-owned enterprise cannot be work well, because there is a lot of political interest regarding for taking policy in manage state-owned enterprise. Furthermore, our results suggest that firm arrange tax policy will get tax benefits through higher profit after tax, and then investor will be encouraged where the value of company will be increasing in the market.

### **KEY WORDS**

Corporate social responsibility, corporate governance, firm value, tax avoidance, state-ownership enterprise.

In an uncertainty market, the higher competition of each company in gaining market will change the company to be more responsive to opportunities by utilizing the environment around the company. Therefore, companies are required to adopt a Corporate Responsibility model that is not only related to economic aspects, but also needs to pay attention to environmental, social and legal aspects as a way to maintain the company's sustainability. However, in current business practices, the Corporate Responsibility model is adopted by companies such as "double-edged sword". On the one hand, it impacts company value because it can be used as a signal for investors to invest, but on the other hand, unwittingly, will increase tax saving activities, either intentionally (Tax avoidance) or unintentional (Tax Evasion).

The implementation of Corporate Responsibility which is increasing the value of the company also needs to be considered related to the company's tax policy, as this is comparable to the company's reputation risk. A plan that needs to be incorporated with a comprehensive corporate finance policy is required, so that it does not have a serious impact on the reduction of the tax burden to be paid to the government. Thus, companies need to consider tax planning that meets expectations by avoiding corporate sanctions and fines in tax planning without removing Corporate Responsibility policies to stakeholders and shareholders. Different targets between companies and governments are a problem at this

time. The question is what will be facilitated by the government to keep the company accountable through its role that will affect good business practices, because good business practices depend on how the company becomes responsive in the market environment through stakeholder and stakeholder engagement. The same question is also given to the company that how the company enhances its corporate value through Corporate Responsibility together with considering the tax aspects that will affect dividends. The author argues that the achievement of absolute responsibility is a must, because the company that is still the organization that has the main goal is to increase the value of the company through social branding and also avoid the high tax costs and also to increase capital gains in the form of dividends.

Provisions concerning the obligation of private taxpayers have been regulated in Law No. 36/2008 article 2, paragraph (1) letter b (Income Tax Law). The Company as a taxpayer is obligated to pay tax in accordance with the provisions of Indonesian taxation regulations, which is calculated from the amount of net profit before tax multiplied by the prevailing tax rate. However, payment of taxes in accordance with the provisions will be contrary to the main purpose of the company, which is maximizing profits so the company tries to minimize the cost of taxes. The way that companies can do is through tax planning or aggressive taxes. Mangoting (1999) states that the tax is considered a cost to the company, so the need for efforts or strategies to minimize the costs incurred to pay taxes (tax planning). Tax planning is intended to minimize tax costs and maximize profits. Tax planning can be done by legal means in tax avoidance efforts called tax avoidance, whereas if done illegally called tax evasion (Mangoting, 1999; Mangunsong, 2002; Harari et al., 2013). Indirectly, the company's activities in maintaining Corporate Responsibility activities result in tax avoidance actions that can give disadvantages for the government to achieve tax revenue target.

The relationship between good corporate governance and corporate social responsibility towards tax avoidance through tax planning can also be analyzed from the stakeholder theory literature. Companies can identify important actors available in the environment, such as institutions, or other stakeholders such as employees, customers and investors. This approach is to identify and manage impacts on corporate stakeholders and reduce costs to avoid adverse regulations, tax binding, or laws that negatively impact others. Through the concept of corporate social responsibility and corporate governance is expected to be a strategic business decision that so far does not provide a great distance between the interests of the company and its stakeholders, especially related obligations as a taxpayer. According to Chen et al., (2014), tax avoidance is an important corporate strategy. Traditionally, it is believed that tax avoidance represents the transfer of wealth from government to company and increases the firm value. Nevertheless, tax avoidance is not cheap for firms, since tax avoidance risks are direct costs, including implementation costs, reputation loss and potential penalties, etc. Thus, corporate tax avoidance has two competitive effects on the firm's value of negative and positive impacts. Although it is a transfer of wealth from the government to shareholders, other negative impacts not only come from the external as described above, but the internal situation can occur through agency conflicts between managers and outside stakeholders increase the likelihood of managerial diversion is minus corporate value.

The tax avoidance aspect as a result of corporate responsibility will be a potential additional variable of information that can be used by a company to make decisions in managing the company over the long term. The government as stakeholders should begin to realize that it is clear that the tax does not only serve as state revenue, but in other cases the tax function as regulator needs to be clarified and refined, so the government's dependence on taxes will be reduced but through the company, the government will encourage business activities to participate in national development.

Optimizing the control function can be done by providing tax incentives for companies to optimize the implementation of CSR and GCG. As a company, it will be a motivation to collaborate with the government as a common stakeholder to build the nation through GCG and CSR so that the benefits to the company are attractive to the stakeholders without reducing the liabilities to shareholders. Based description above, the author is interested to



take the research as follows "The Effect of Corporate Social Responsibility and Corporate Governance on Corporate Value with Tax Avoidance as Variable Intervention" which is expected to describe the patterns and business practices that occur in Indonesia, especially in State-Owned Enterprise are listed on the Indonesia Stock Exchange.

## LITERATURE REVIEW

*Corporate Social Responsibility (CSR) Theory.* The complexity of social problems has more complicated in the past decade and decentralization has made the concept of Corporate Social Responsibility (CSR) is expected to provide a new alternatives in poor society empowerment. The limited role of the state in solving social problems such as a more decentralized form of recognition of the role of the private sector has provided a great opportunity for the sector to contribute its resources to solve social problems. Thus, decentralization is a momentum relevant to the realization of CSR programs as a form of private sector involvement in poor society empowerment in order to solve their social problems they faced.

The company's commitment to maintain of CSR and information disclosure in financial reporting will bring big benefit or relevance with economic value of the company. The greater attention and CSR performance disclosure will be greater in providing economic benefits or the relevance of the company's economic value. Conversely, if the company's attention is less to the behavior and reporting of CSR performance, it will be give the small benefits gained. CSR emissions are treated as intangible assets that play a strategic role as a value creator for corporate shareholders.

Previous research in discussing the relationship between CSR and firm value suggests that not all CSRs will maximize the firm value in order to measure the market. Fiori et al., (2015) found that good CSR can reduce the share price of listed companies because this practice considers it an avoidable cost that reduces corporate profits. Other studies derived from Stuebs and Sun (2015) have been discussed differently from previous studies, they show that a significant positive relationship between corporate social responsibility and corporate reputation and will have better corporate performance. So, it can be concluded in form of hypothesis as following this:

H<sub>1</sub>: Corporate Social Responsibility affect on tax avoidance.

*Good Corporate Governance.* The formulation of corporate governance definitions used by the Corporate Governance Forum in Indonesia (FCGI) also cites the definitions used by the Cadbury Committee. The FCGI defines corporate governance as a set of rules that define the relationships between shareholders, managers, creditors, government officials and other internal and external stakeholders in relation to their rights and responsibilities, or systems in which the company is directed and controlled. In addition, FCGI also stipulates that corporate governance goals are to create value added for stakeholders.

Companies must grow from the beginning to pay attention to every aspect of stakeholders. The concept of good corporate governance (GCG), which includes Transparency, Accountability, Responsibility, Independence and Fairness (TARIF) is a key element in the preparation of corporate fundamentals. Each element in the TARIF should be formulated and implemented in the company's activities as well as the company's management commitments. The investment company in terms of corporate governance will increase the value of companies that provide benefits to shareholders directly. Investors will continue to hunt and buy at a premium price on companies that have good corporate governance practices. The strength in GCG implementation becomes a competitive advantage for the company.

Interestingly, that there are various outcomes related to the influence of GCG on corporate value, the first research derived from Bansal and Sharma (2016) suggests that board size plays an important role in improving company performance. Another variable is the higher board of independence directors will result in lower return on equity (ROE), and also the audit committee has a significant relationship with the ROE so that GCG cannot be regarded as conclusive evidence that significantly affects the company's performance. This is

the same study from Rossi and Nerino (2015) explaining that Corporate Governance positively impacts the company's performance through operating performance (ROE), but for Tobin's Q, it can degrade the company's performance. Another study talks about the relationship between state ownership and company performance from Yu (2013) has concluded that state ownership has a relationship with company performance through ROE, ROA, and also Tobin's Q. So, it can be concluded in form of hypothesis as following this:

H<sub>2</sub>: Corporate Governance affect on tax avoidance.

*Tax Avoidance.* Tax avoidance can be considered as tax evasion by following existing laws (Annisa and Kurniasih, 2012). Tax avoidance is undertaken in an unreported or reported manner but not in accordance with the actual situation on taxable income. In avoiding taxes, the taxpayer does not clearly violate the law or interpret the law but is inconsistent with the intent and purpose of the legislator. Tax avoidance activities undertaken by company management are conducted solely to minimize corporate tax liability. Tax avoidance is considered legal and makes the company have a tendency to do various ways to reduce the amount of revenue reported in the financial statements, so that any major taxes will also decrease. However, tax avoidance activities by companies can plague the company itself if they are not careful in their tax planning.

According to Balter and Mortenson (cited from Zain, 2008) explains the notion of tax avoidance as activities related to the determination of the show performed by the taxpayer (successful or not) to reduce / remove all the company's tax debt by paying attention to presence / absence tax consequences arising out. Meanwhile, Suandy (2008) states that tax evasion is engineered "tax affairs" which are still within the framework of taxation regulations. Tax avoidance is undertaken by corporate management to minimize corporate tax liability (Khurana and Moser, 2009). Paying taxes is also an important way for companies to engage positively with society. Tax avoidance is not in accordance with good corporate citizenship or CSR. Taxpayers must contribute to supporting the government in proportion to their abilities. However, it appears that businesses are not applying the CSR approach to taxation, but mention activities related to aggressive tax planning or tax avoidance.

Previous research has shown different results to measure the effect of CSR on tax avoidance or vice versa. The first study by Lanis & Richardson (2013), they found that there is a statistically significant and statistically significant relationship between CSR and tax aggressiveness, so socially responsible companies tend to be less aggressive in terms of taxes. This research is also supported by Laguir et al., (2015) explaining that in fact, the aggressiveness of taxation depends on the nature of CSR being activated, more specifically, the higher the social dimension of CSR will be the lower tax aggressiveness level. Another study from Lanis & Richardson (2013) found a different result from previous studies, which found that a statistically significant and statistically significant relationship between tax aggressiveness and CSR disclosure through the theoretical side of legitimacy. What does it mean? There are many studies that do not provide answers about the phenomenon of CSR relations and tax aggressiveness itself.

Corporate governance will always play an important role in "tax elasticity". For example, the report (PWC) on good governance does not mention activities related to compliance with tax obligations. The agency principle knows whether there is a harmony of interests between shareholders and management that takes them to the same side to look at tax issues. If the board of directors also obtains a share of the company's ownership or has a salary or other allowance related to the company's tax performance (tax savings), such as directors' compensation relating to the average effective tax rate or profitability of the company after tax, so they have an alignment of interest regarding tax planning. As a result, shareholders and the board of directors will provide structure compensation packages for directors to act in the interests of shareholders. However, it is also advisable that since aggressive taxes affect relative to corporate value, councils tend not to offer strong incentives to push directors into aggressive taxes. As we know that shareholders may or may not like directors to be aggressive, they like it only if the expected profit from avoidance is greater than reporting honestly. Shareholders will take risks, if management actions cannot receive tax deduction benefits and therefore they can prevent directors as management

representatives acting aggressively because they do not think they can get benefit if there is no good governance.

Previous research from Koanantachai (2013) suggests that corporate governance is positively associated with tax avoidance, which means that firms with good governance pay less taxes than corporations with poor governance. Another study comes from Zhou (2011) requesting a company with a higher percentage of controlling shareholding and higher equity ownership tends to be more aggressive, but tax aggressiveness is reduced if the controlling shareholder is the government. And recent research by Mulyadi and Anwar (2015) found a mixed correlation with tax management. They point out that the board of directors compensation and the board of directors consistently shows a negative correlation with tax management as well as the number of boards that found a positive correlation with tax management.

*Firm Value.* Firm value is a description of the company's financial condition is analyzed by financial analysis tool, so it can be known about whether the company's poor financial condition that reflects the performance in a certain period. It is important that resources are used optimally in the face of environmental change. Assessment of financial performance is one way that can be done by management in order to fulfill its obligations to the funders and also to achieve the goals set by the company. If the performance is good then the business value will be high. With high business value will make investors look investing so will raise the stock price. This research has given several factors that will be used to measure company value, these factors are PER and Tobin's Q. In PER valuation theory is one approach that can be used by investors in assessing investors in stocks. Assessing an investment is a business that an investor can do to find a stock at a very low price compared to an intrinsic value. Assessment is required by the investor to make the right investment decision so as to produce the expected return of the selected stock. Many researchers argue that if an investor buys a stock at a price below from its instrumental value, the stock price will be close to its instrumental value. Otherwise, if the investor buys a stock at a price above the intrinsic value of the same price will fall close to its intrinsic value. Furthermore, fundamental investors believe that intrinsic value can be estimated by depicting fundamental variables of stock or company. Investors are looking for shares that are now undervalued or underestimated by the market and are not recognized by most investment communities.

Tobin's Q is a measure to determine the market value of a company. Q ratio is an indicator variable that is used to measure the performance of the company from an investment perspective. This ratio shows current market financial estimates of the value of additional investment returns. If the Q ratio is above 1 (one), then investment in the asset will produce profit that gives higher value than the cost, so that will stimulate new investment. But if Mutual Fund is below 1 (one), investment is not integrated in asset (Herawaty, 2008). A larger Q ratio indicates that the company has good development prospects that will reflect the value of the company. This point of view can be shown as how many investors will sacrifice to own the company. It is generally expected that shareholders prefer tax aggressiveness because the profits will be derived from tax aggressiveness (Chen et al., 2014). Paying less taxes implies that the company saves money to be transferred from the government to its shareholders. In addition, many corporate costs for highly manipulated transactions may flow into their pockets and not shareholders. Thus, the reduction of indirect tax costs will have an impact on higher after-tax profits, which can be used as dividend payout to shareholders, as well as retained earnings used to increase the company's investment either through finance or the real sector.

In contrast, this theory is not supported by previous research from Wahab and Holland (2014) which explains a significant negative model between corporate value and tax planning. They asserted that higher tax planning would make the company's value lower in order to risk investigating the tax officer afterwards. Shareholders will consider to determine the share of purchases from companies following tax planning. The wider range of rules in the field of taxation will make shareholders careful. However, another study from Lestari and Wardhani (2015) found that there is a positive relationship between tax planning and firm value. With reduced tax costs, cash flow will be much better to signal to investors to invest in

the company. This is also supported by investor's knowledge of tax compliance is very low so that by focusing on corporate tax compliance tax which is an intangible asset becomes a criterion for investors in addition to the income and balance of a healthy company. Thus, it can be concluded in forming the following hypothesis:

H<sub>3</sub>: Corporate Social Responsibility affect on firm value.

H<sub>4</sub>: Corporate Governance affect on firm value.

H<sub>5</sub>: Tax avoidance affect on firm value.

Based on the above concept, it can be derived as hypothesis model and measurement indicator as follows:

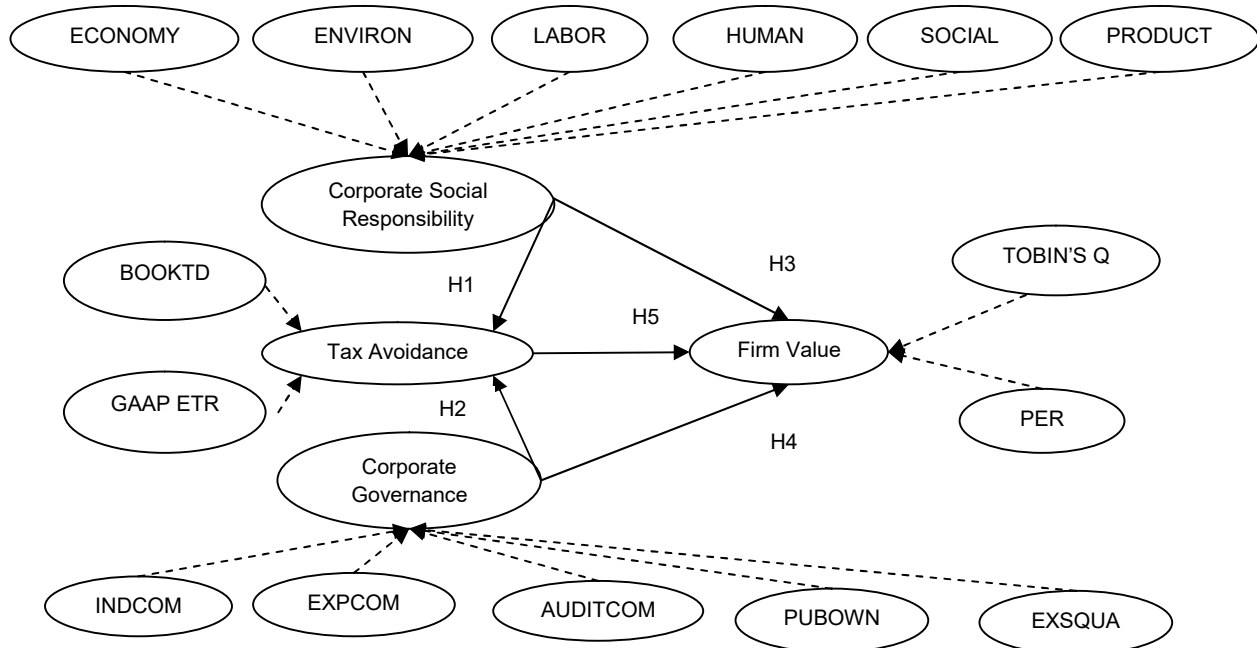


Figure 1 – Hypothesis Model

Notes:

- ECONOMY: Number of Total Disclosure CSRI in Annual Report (Economic) / Total Disclosure Economic;(Lanis & Richardson, 2011).
- ENVIRON: Number of Total Disclosure CSRI in Annual Report (Environment) / Total Disclosure Environment;
- LABOR: Number of Total Disclosure CSRI in Annual Report (Labor)/ Total Disclosure Labor;
- HUMAN: Number of Total Disclosure CSRI in Annual Report (Human Right)/ Total Disclosure Human Right;
- SOCIAL: Number of Total Disclosure CSRI in Annual Report (Society)/ Total Disclosure Society;
- PRODUCT: Number of Total Disclosure CSRI in Annual Report (Product Responsibility) / Total Disclosure Product Responsibility;
- INDCOM: Number of Independent Commissioners;
- EXPCOM: Number of Commissioners Members who have background of Accounting or Finance (Armstrong et al., 2015).
- AUDITCOM: Number of Audit Committee, measure dummy in <math>3=0, \geq 3=1</math> (Annisa & Kurniasih, 2012).
- PUBOWN: Number of public ownership in <math>40\%=0, \geq 40\%=1</math>
- EXSQUA: Measure dummy in, Available Transfer Pricing Document = 1, except = 0 (Ahmed dan Maounira, 2015)
- GAAP ETR:  $25\% - (\text{Tax Expense}/\text{Pretax Income})$  (Lestari & Wardhani, 2015; Chen et al., 2014)
- BOOK TD:  $(\text{Net Income} - (\text{Cash Tax Paid}/25\%)) / \text{Net Incom.}$
- PER: Stock Price / Earning Per Share (Amelia, 2010).
- TOBIN'S Q:  $((\text{Price Stock} \times \text{Outstanding Stock}) + \text{Total Liabilities}) / \text{Book Value of Total Assets}$  (Koanantachai, 2013; Chen et al., 2014; Lestari & Wardhani, 2015).

**METHODS OF RESEARCH**

This research method is an explanatory research. Research on explanation or confirmatory research is a study that highlights the relationship between research variables and hypothesis test that has been formulated previously, therefore named also by testing the hypothesis or testing research (Sugiyono, 2011). The sampling technique used in this study

is *non-random sampling*. This sampling method is recognized in which the random element of the population does not have the same opportunity to be selected as the sample. Hypothesis test using Partial Least Square (PLS). Partial Least Square (PLS) according to Wold in Ghozali (2008) is a powerful analytical method because it is not based on many assumptions. This research uses PLS as data analysis technique with SmartPLS software.

Based on the above considerations, the list of state-owned companies that listed companies in the Indonesian Exchange period 2011-2015 included in the sample criteria for this study are 20 companies. Furthermore, in relation to purposive sampling, the researcher must establish the requirement that it meets the criteria as follows:

- The company whose the main company always listed its shares on the Indonesia Stock Exchange in the period 2011-2015;
- The company whose the main company always raises the financial audit report period 2011-2015;
- The last is the company which has profit on 2011 until 2015.

Table 1 – List of State-owned Company

No.	Name of Company	Sample Criteria			Sample
		I	II	III	
1	PT. Aneka Tambang Tbk	V	V	-	-
2	PT. Bukit Asam Tbk	V	V	V	V
3	PT. Adhi Karya Tbk	V	V	V	V
4	PT. Bank Negara Indonesia Tbk	V	V	V	V
5	PT. Bank Rakyat Indonesia Tbk	V	V	V	V
6	PT. Bank Mandiri Tbk	V	V	V	V
7	PT. Bank Tabungan Negara Tbk	V	V	V	V
8	PT. Garuda Indonesia Tbk	V	V	-	-
9	PT. Indofarma Tbk	V	V	-	-
10	PT. Jasa Marga Tbk	V	V	V	V
11	PT. Kimia Farma Tbk	V	V	V	V
12	PT. Krakatau Steel Tbk	V	V	-	-
13	PT. Perusahaan Gas Negara Tbk	V	V	V	V
14	PT. Pembangunan Perumahan Tbk	V	V	V	V
15	PT. Semen Indonesia Tbk	V	V	V	V
16	PT. Semen Baturaja Tbk	-	-	V	-
17	PT. Telekomunikasi Indonesia Tbk	V	V	V	V
18	PT. Timah Tbk	V	V	V	V
19	PT. Waskita Karya Tbk	-	-	V	-
20	PT. Wijaya Karya Tbk	V	V	V	V
The number of sample that is fulfill criteria					14
The number of sample that was analyst					20

Source: Indonesian Stock Exchange 2011-2015.

## RESULTS AND DISCUSSION

Data analysis techniques used in this study using partial least square (PLS) with smartPLS software. PLS is one of Structural Equation Modeling (SEM) that is able to analyze latent variable, indicator variable and measurement directly. The hypothesis test in the PLS analysis uses the t-test and is briefly described in the table following this:

Table 2- Hypothesis Testing Result

H	Relationship between Variables	Path	t-statistic	Description
1	(X <sub>1</sub> ) CSR → (Z) Tax Avoidance	-0.189	30.703	Significant
2	(X <sub>2</sub> ) GCG → (Z) Tax Avoidance	-0.637	148.331	Significant
3	(X <sub>1</sub> ) CSR → (Y) Firm Value	0.414	88.598	Significant
4	(X <sub>2</sub> ) GCG → (Y) Firm Value	-0.128	13.810	Significant
5	(Z) Tax Avoidance → (Y) Firm Value	0.026	3.713	Significant

Source: Data that have been processed by SmartPLS.

Based on table the results of hypothesis testing in this study are as follows:

*H<sub>1</sub>: there is a significant effect between Corporate Social Responsibility toward Tax Avoidance.* Consistent with this study that a negative relationship between CSR disclosure and tax avoidance in this study have been received in the same manner as described previously (Xu and Zeng, 2015). They found that high levels of CSR disclosure were associated with low corporate tax aggressiveness. And this study is consistent with research conducted by Hoi, Wu and Zhang (2013) who investigated the relationship between CSR and tax evasion. Corporate socially irresponsible corporations are more likely to engage in aggressive tax evasion. This implies that the company's contribution to environmental responsibility may receive favorable tax treatment and thereby reduce its tax liabilities, for example R & D expenditure can be tax deductible. In Indonesian tax laws, it can be seen that the government provides a special incentive whereby if the company does this activity directly into tax deductions. This finding is inconsistent with previous observations above that some socially responsible companies are also involved in tax-aggressive activities. Indeed, by engaging in CSR activities related to business conduct, companies develop a culture that promises ethical behavior to external audiences, and this increases profitability through tax planning activities (Laguir et al., 2015). Furthermore, according to Lanis & Richardson (2013) explains that aggressive corporate taxes have clear CSR disclosures to alleviate potential public concerns arising from the negative impact of their tax aggressiveness on society, and show that they meet people's expectations in other ways. For this research, it is known that the tax decision is an indication of corporate characteristics or management behavior.

*H<sub>2</sub>: there is a significant effect between Good Corporate Governance toward Tax Avoidance.* These findings are consistent with the results of previous studies, Koanantachai (2013) found that corporate governance is statistically significant and statistically significant to the tax rate. Companies with good governance tend to be less tax-paying than companies with poor governance. The functions of the board of commissioners and auditors incorporated in the corporate governance index are statistically significant against tax avoidance. Possible explanation is that the commissioner of expertise leads the company and is able to make decisions regarding tax management. Meanwhile, Zhou (2011) requested that tax aggressiveness can be reduced if the controlling shareholder is the government. It is mean that government intervention through shareholder ownership will reduce tax avoidance. Contrary to previous research, according to Armstrong et al., (2015) found that management expects a personal gift of grate from increased tax avoidance. He found evidence that equity incentives risk positively related to tax evasion and this association is larger on the right side of tax avoidance distribution. The role of an independent board of commissioners, commissioners' expertise, the quality of the external auditor will save the company to measure the transparency information associated with the financial information company in particular. Huseynov and Klamm (2014) explains that tax avoidance activities aim to reduce financial flexibility and increase the uncertainty of future profitability of the company, and this leads to an increase in information asymmetry among shareholders. Furthermore, examines how transparency of financial reporting and company quality varies with corporate governance. The results show that good governance characteristics can lead to improved reporting and financial transparency. One can conclude that if a company has the ability to improve governance or take the highest government, it affects the highest transparency and can directly reduce tax evasion. Thus, the study has shown the reality of management policies in the company.

*H<sub>3</sub>: there is a significant effect between Corporate Social Responsibility toward Firm Value.* Consistent with Stuebs & Sun (2015) said that who consider that CSR has a positive impact on reputation and reputation that is considered to have a positive impact on performance is often used as a motive to justify and encourage CSR investment activities. Then it will be concluded that the company can do well (increase the value of the company) by doing good CSR practices. From stakeholders, it can be seen that stakeholders can be even more correct that companies capable of managing other stakeholders, they can certainly manage the company for the future, especially for state-owners enterprise. However, this study distinguishes the results of Fiori et al., (2015) has found that a good

CSR will reduce the stock price of listed companies. They assume that the effects of CSR costs are perceived as attributes of negative value, because this practice is like a cost that can be avoided in reducing corporate profits. It is mean that the marginal effect of CSR spending is the decrease in shareholder income as well as the value of the company directly. Furthermore, from these results can be evidence of the influence of signal theory that is a longer relationship between CSR and corporate value. CSR can serve as a signal for developing countries who want to assess foreign direct investment proposal by foreign companies not known.

*H<sub>4</sub>: there is a significant effect between Good Corporate Governance toward Firm Value.* This study is consistent with previous research that revealed good corporate governance (GCG) will result in lower corporate values through negative relationships. Research conducted by Basal and Sharma (2016); Rashid et al., (2010); Basyith et al., (2015) have found independent commissioners, as well as audit committees having negative relations with company value. The reason is that independent parties are inversely proportional to company value because the benefits of monitoring large parties are comparable to issues related to asymmetric information enhancement and will likely have higher coordination costs, which reduces effective monitoring. Furthermore, in Indonesia, most state enterprise management companies are solely appointed in accordance with kinship and also personal interests that are still questionable for their independency. Sometimes, it also does not consider the expertise, therefore it can be assumed that the independent party cannot perform the function and role appropriately because it is only a symbolic position, the different goals between management and independent parties will be the agency costs to consider from shareholders.

Contrary to this research, Yu (2013) requested that companies dominated by various state players would be easier to gain respect from the market and tend to outperform, because in a market that always operates openly and fairly, and this gives politicians the ability to deliver the best with privileged access to resources. It could be a problem if politicians use dominance in controlling the market for personal gain and the role of management can be superior through the support of politicians to operate the company in unfair market practices. Furthermore, the independent role of independent councils, audit committees, and external audits can be important in terms of management control to uphold financial discipline, promote well-regulated security markets, and build professional capacity and transparency for activities business. As already revealed by Rossi and Nerino (2015) that corporate governance through independent parties has a positive impact on corporate performance. Indeed good governance leads, at least potentially to efficient and non-speculative management behaviors that can lead to the market value of the company is lower in a short time, but at the same time operating performance is better.

*H<sub>5</sub>: there is a significant effect between Tax Avoidance toward Firm Value.* Consistently this research with Wang (2010) has found that there is a positive relationship between tax avoidance and firm value, but must be supported by the transparency of the company to manage business activities. Company transparency refers to 2 (two) criteria that is external information and internal information. These results indicate that the role of tax avoidance oversight to increase shareholder wealth is primarily driven by external and internal components of transparency. That is, companies intensively followed by information mediators such as financial analysis, institutional intermediaries have more credibility in providing information available to outside investors and thereby ensuring managers to conduct tax avoidance activities primarily to increase shareholder value. On the other hand, internal transparency in which managers have relatively greater control in providing limited information for outside shareholders to reduce their concerns about hidden agent costs associated with tax evasion activities. It's mean that actually there is a positive relationship between tax avoidance and corporate value.

However, this is not supported by previous research published by Chen et al., (2014), it has found that the increase in tax avoidance tends to reduce the level of corporate value. Honestly, Investors are not putting a premium on tax avoidance because this type of activity can disguise the behavior of managers and this is an illegal activity that is subject to legal

sanctions. By taking the basic theory, signaling theory can be explained that investors should know about the planning and quality of the company's managerial organization related to tax policy in the company. Furthermore, investors should know about the risk mitigation that occurs, if the tax policy fails. Assidi et al., (2016) has concluded that there is a negative relationship between the optimization of corporate tax and corporate value, it indicates that tax rate minimization has a direct impact on the form of profitability.

## **CONCLUSION**

The negative significant relationship between Corporate Social Responsibility (CSR) and tax avoidance in the state owner enterprise in Indonesia. Practically, this means that increasing of indicator of GRI such as economy, environment, labor, human right, and also social, which in this research are considered as indicators of CSR, will not be followed by the increasing tax avoidance. It can be caused that government have prepared provision in related on CSR expense that commit as tax deduction. So that, management of company can be choosing in kind of CSR expense as business strategy. The company have to able to manage cash which when is used for shareholder and when is used to promote product through CSR activity. Together with government, through maximizing facilitate of tax deduction, company it is not only keeping cash back for shareholder but company get good image from other stakeholder.

The results, corporate governance on tax avoidance, indicate significant influence with negative relation. It means that any increasing in corporate governance will affect the firm's tax aggressiveness of state owner enterprise listed in IDX. As we know, that the notion of state owner enterprise that is belong to government, it can be as duties in order to maximum service for society. State owner enterprise is not only running business practice, but it is also about complying and joining in developing country through tax. From this research, by practice of good corporate governance, it will directly affect to reduce tax aggressiveness. This is closely with agency theory whereby need to improve separation both of duty and responsibility between 4 (four) parties kind of government as majority ownership, minority shareholders, board (independent and non-independent), and also management. All parties have to posses same objective each other and working together through principle of good corporate governance.

Significantly corporate social responsibility influence on firm value in the state owner enterprise in Indonesia. Practically, this means that increasing of indicator of GRI such as economy, environment, labor, human right, and also social, which in this research are considered as indicators of CSR, will be followed by the increasing Firm Value. It is similar influential to the Firm Value variable proxied by Price Earnings Ratio. This is fulfill that the signaling theory is explaining about duty and requirement of management to shareholder that does only taking profit to shareholder wealth, while considering CSR expense that is affecting cash flow, moreover reducing transfers to shareholder, caused by increasing expense of company operation. it is directly influence for business in keeping sustainability on market.

The better of corporate governance (expertise commissioner, index auditor) is apparently making any firm value of state owner enterprise listed on the IDX not working well. In this research, it is precisely shown by the test which demonstrates negative relationship between the corporate governance on firm value that was measured by PER and TobinsQ. The corporate governance is not always influence firm value better, but it is oppositely depending on various and criteria about company itself.

Tax avoidance shows a positive significant influence on firm value of a state owner enterprise listed at the IDX. This finding support by signaling theory. It suppose that practice tax avoidance in the stock market is interest of investor. Investor will see company in complying with tax aggressiveness is running business well caused higher profit after tax as result of tax avoidance activities. Indeed, based on this research will be proven that the existing of external side will be suitable partner with management to more increasing firm value. As we know, the role of financial analyst and intermediaries institutional as external



side have to suggest management to maximize grey area from tax role and making report of company future in supporting management performance. Temporarily, the role independence board and auditor in the state owner enterprise will be supporting by corporate transparency such as press coverage and dissemination of information.

The limitations of this study are:

- There are many criteria from state-owned companies that have been listed on the Indonesia Stock Exchange. As we know, in this study used tax rate requirements to measure effective tax rates or book tax differences of 25%. Thus, it may affect the role of tax rates that the company must impose on itself. Of course, it could be a more valid result, if researcher can analyze and focus the state rating company that only imposed a tax rate of 25%.
- Some data are not supported by Indonesia Stock Exchange. Some data has not been published quarterly so the researcher must calculate it manually. It has the potential risk of human error and also takes a long time to solve it.
- The use of indicators in this research model is still limited. In fact, many indicators that can be used as research material testing related to capital structure and financial performance.

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## **EVIDENCE FROM INDONESIA: IS IT TRUE THAT MUDHARABAH FINANCING AND MICRO BUSINESS FINANCING ARE AT HIGH RISK FOR SHARIA BANKING BUSINESS?**

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### **ABSTRACT**

*Mudharabah* financing is basically a financing instrument proper partnership scheme in an effort to improve the class of micro business toward the small and medium business class. The results of NPF analysis and CAR ratios of sharia public banking from 2014 to 2017 show that the portion of *mudharabah* financing is still smaller than debt-based financing. Consumer financing *murabahah* NPF gives the largest contribution to the increase of total financing NPF. In contrast, *mudharabah* financing NPF has a small contribution to the increase in total financing NPF. In the meantime, based on the use of funds and business groups, working capital financing NPF for MSMEs decreased. In contrast, working capital financing NPF for Non MSME has increased. The amount of NPF of investment financing for non-MSMEs is relatively the same as financing NPF of MSME investment. However, the average non-SME consumption financing NPF is greater than the NPF of working capital and investment financing NPF. So far, differences in business group criteria and the minimum financing ceiling set by sharia banks are an obstacle for micro entrepreneurs to access financing. CAR value of sharia banks until the end of 2017 is still within safe limits, as it is still quite far above 12%. Considering the financial performance as well as considering the resilience of micro businesses that have been tested during the 1997 and 2008 crises. They have important role as the main buffer of the real economy of Indonesia. All of these reasonable that their existence is taken into account and considered by policy makers and sharia public banks in the form of easy access to finance.

### **KEY WORDS**

Sharia public banking, *mudharabah* financing, micro business, bank.

Hitherto, sharia public banking still sets the prudent principle in disbursing the fund (financing). Ironically, *mudharabah* financing is considered the most highest-risk financing. Therefore, sharia public banking is not ready to receive financing for this kind of product (Hariyanti, 2016). Associated with *mudharabah* financing agreement, micro business so far is considered a high risk business group in return of funds or capital. Sharia banking generally considers micro business as a business group that has a high risk potential of failure of business so that impact on continuity of return of capital. The stability and sustainability of business or business run by micro entrepreneurs is a consideration for sharia public banking in disbursing financing. Microenterprises are declared weak in accounting records. Their transparency in reporting the return on business results is still questionable by Islamic banking. In essence, micro business is considered not bankable, weak administration, and profitable small. This negative stigma is still attached to the micro business. Fate is better experienced by small and medium business. The track record of small and medium business is considered better, a major consideration of the national banking of Indonesia (Hadi, 2017). The main weakness of micro business is in capital or financial aspects. They are difficult to expand their business due to limited access to finance. When viewed from its

characteristics, in principle *mudharabah* financing is more precisely directed to the development and empowerment of micro business.

The 1997 crisis should be a precious erudition for the Indonesian government as the ability of micro businesses to maintain its business continuity. During the 1997 crisis, 96% of MSMEs able to survive the storm of the monetary crisis. Most of them are micro businesses. The resilience of micro business was also tested again during the financial crisis of 2008-2009 (LPPI and Bank Indonesia, 2015). Micro businesses can survive because they use local raw materials while their products are exported. Indirectly this micro business also plays a role in maintaining the rupiah exchange rate. In another sense, they also play a role in saving the country's foreign exchange. In addition, the resulting product is generally a basic need of society. So automatically, they also participate in maintaining the stability of inflation staple needs in the community. Thus, micro business is a real key player in driving the real sector economy at the moment, although many medium and large businesses are collapsing. However, up to now sharia public banking in particular, still provides a small portion of *mudharabah* financing to micro business groups. Until now, small, medium and large business are still more prioritized by sharia banking. Because small, medium and large businesses can provide administrative completeness and guarantee that become prerequisite in financing. Based on the explanation from the Ministry of Cooperatives and SMEs that the number of micro businesses currently reaches 59,267,759 units (Warta Ekonomi, co.id, 2017). Their number is about 99 percent of existing MSMEs. The number of MSMEs currently is 60,008,544 units (Warta Ekonomi, co.id, 2017). Until the end of 2016, micro business has a major contribution to the increase of GDP Indonesia, which is about 38.90% (bisnis.com, 2018). Not only that, micro business also contributes to poverty alleviation programs and reduction of unemployment (LPPI and Bank Indonesia, 2015).

In *mudharabah* financing, sharia public banking as *shahibul maal*. Sharia public banking is actually the right cooperation partner for micro business in developing its business. More precisely, micro business as part of MSME expects this *mudharabah* financing. This financing is considered to help develop their business potential. The Indonesian government actually hopes that, in the presence of sharia public banking, the purpose of economic equality through weak economic empowerment forms can be accelerated. This is expected to narrow the gap between big entrepreneurs and small entrepreneurs. Not only that, empowerment is also expected to create new jobs while reducing poverty. However, since these financing are considered to have the highest risk, so far *mudharabah* financing is not a priority financing product for sharia banking.

## RESULTS AND DISCUSSION

*Mudharabah* financing is basically one of Islamic banking financing instruments that can bridge the government's interest in empowering millions of micro businesses in Indonesia. Currently, financing that emphasizes the element of trust is smaller the portion of financing. The report of Islamic Development Bank (IsDB)<sup>1</sup> in March 2014 shows that at the international level in 2011 the proportion of *mudharabah* (profit share) financing is around 100 million US dollars (this is only 3.09% of total financing). By the end of 2012, the proportion of *mudharabah* financing has decreased, which amounted to 50 million US Dollars (1.35% of total financing). Thus the average percentage of *mudharabah* financing in two years is only about 2.2% of total financing. Research (Chong and Liu, 2009; Nagaoka, 2010; Abdullah, 2012; Zulkhibri, 2015) in Malaysia also shows that profit-and-loss-sharing (PLS) *mudharabah* financing practices are only about 0.5% of non-financing PLS Others. It can be interpreted that Islamic banking in Malaysia in practice leads to less risky non-PLS financing. Research (Khan, 2010; Hanif, 2011; Jamal and Sheikh, 2013) shows that the percentage of *mudharabah* financing in Islamic banks in Pakistan is between 2% - 5% only. In addition, Samad's study (2012) shows that out of a total of twenty-eight leading Islamic banks in the world, only eight banks are implementing *mudharabah* financing (based on PLS): BK Islam Abu Dhabi, Bahrain Bank ABC, Al-Baraka Bahrain Islamic Bank, Bank Islam Bahrain, Bank Muamalat Indonesia, Jordan Islamic Bank, BHD Islami Bank Malaysia, Maybank Malaysia, Al

Barak Bank of Tunisia. The portion of *mudharabah* financing from eight banks is only about 3% - 15.11%.

So far in Indonesia itself, debt-based Islamic finance products are still dominant compared to other shariah financing products (OJK, 2017). Until the end of 2017, the highest rating of sharia financing products in Indonesia is *murabahah* financing with a financing amount of Rp 112.163 billion. *Musyarakah* financing with financing of Rp 56,128 billion. Furthermore, *mudharabah* financing is only worth about Rp2, 275 billion. Then, debt financing or *qardh* around Rp4, 409 billion. Followed by *ijarah* financing with a financing value of Rp 2,138 billion. Finally, *istishna* 'finance with the value of financing of Rp 24 billion (OJK, 2017).

Table 1 – Type of Financing Based on the Akad

Year	Financing Akad Murabahah	Financing Akad Musyarakah	Financing Akad Mudharabah	Financing Akad Qardh	Financing Akad Ijarah	Financing Akad Istishna'
2014	91.867 billion	40.278 billion	8.424 billion	5.256 billion	1.916 billion	153 billion
2015	93.642 billion	47.357 billion	7.979 billion	3.308 billion	1.561 billion	120 billion
2016	110.063 billion	54.052 billion	7.577 billion	3.883 billion	1.882 billion	25 billion
2017	112.163 billion	56.128 billion	7.275 billion	4.409 billion	2.138 billion	24 billion

Source: OJK 2017, processed.

Based on statistical data on funding or financing activities, so far sharia public banking is still always trying to maintain debt-based financing which of course the risk is less. This is seen in the dominance of debt-based financing, namely *murabahah* and *qardh* financing.

Meanwhile, judging from the type of use of funds and categories of business that get funding, it can be seen as follows. Financing working capital in the sector of MSME<sup>2</sup> in 2014 disbursed funds of about Rp 33,904 billion. By the end of 2015, this has decreased substantially to Rp 26,650 billion. In the meantime, in 2016, working capital finance for MSME sector slightly increased by Rp 28,458 billion. At the end of 2017, this declined slightly to Rp 28,364 billion. On the other hand, working capital financing for non-MSMEs, in 2014 amounted to Rp 28,730 billion. This rose drastically in 2015 to Rp 36,990 billion. In 2016, this increased again to Rp 39,962 billion. This trend continues until 2017, amounting to Rp 40,506 billion.

Table 2 – Type of Financing Based on Business Use and Business Group In Billion (Rp)

Business Use & Business Group	2014	2015	2016	2017
Working Capital:	62.634	63.640	68.420	68.870
• MSME	33.904	26.650	28.458	28.364
NPF	2.446	1.808	1.751	1.692
• Non-MSMEs	28.730	36.990	39.962	40.506
NPF	1.735	2.076	2.239	2.459
Investment:	32.591	40.239	45.768	46.472
• UMKM	16.849	14.228	15.589	15.783
NPF	946	977	1541	1.156
• Non-MSMEs	15.741	26.011	30.178	30.689
NPF	584	1.060	995	1.841
Consumption (Non-MSMEs)	52.720	50.089	63.294	66.900
NPF	1.609	1.534	1.309	1.425
Total Financing	147.944	153.968	177.482	182.242
Total NPF	7.320	7.456	7.834	8.574

Source: OJK 2017, processed.

In the meantime, investment financing for MSME tends to fluctuate. In 2014, investment financing for MSME sector reached Rp16, 849 billion. However, in 2015, this dropped to Rp 14,228 billion. In the year 2016 slightly increased, amounting to Rp 15.589 billion. The end of 2017 has increased slightly to Rp 15,783 billion. In contrast, investment financing for non-MSMEs, from year to year experienced a significant upward trend. Starting in 2014, amounting to Rp 15,741 billion. This jumped dramatically in 2015 to Rp 26,011

billion. This increased significantly again to Rp 30,178 billion in 2016. The end of 2017 increased again to Rp 30,689 billion. In addition, the financing for non-UMKM consumptive purposes, in 2014 amounting to Rp 52.720 billion. This slightly decreased to Rp 50,089 billion in 2015. In 2016, it experienced a significant increase of Rp 63,294 billion. This significant upward trend continues until the end of 2017, amounting to Rp 66,900 billion.

Meanwhile, in terms of financing target, financing for MSME has decreased continuously from 2014 until the end of 2017. On the other hand, financing for non-MSMEs (Large Enterprises) actually experienced a continuous upward trend until the end of 2017. This indicates that non-MSME or big business is considered more bankable and profitable than MSMEs. Indications of sharia banking finance led to more consumptive consumer financing are also shown by steady increases from year to year.

Based on table 2, NPF in working capital financing for MSMEs from 2014 to 2017 experienced a downward trend (LPI 2014, 2015). Conversely, from 2014 to 2017, working capital financing NPF for non-MSMEs has increased significantly. In the meantime, NPF financing for investment in MSME tends to increase from 2014 to 2017. This is triggered by the declining purchasing power of the people due to national economic conditions that are affected by the global economic slowdown and unstable geopolitical situation. Thus, the high NPF is not due to the moral hazard factor of SME actors, but because of global economic conditions affecting the real sector in Indonesia (LPI 2014, 2017). Furthermore, during 2014 to 2017, NPF investment financing for non-MSMEs tends to fluctuate and ultimately increase significantly. On the other hand, for the same few years, consumption financing NPF for non-MSMEs also fluctuated.

In the meantime, fund-raising products have achieved significant growth. In 2014, wadiah savings accounts in the form of demand deposits and savings are approximately 22,705 billion. This has increased again in 2015 by approximately 24.915 billion. The year 2016 has increased significantly by Rp 29,470 billion. By the end of 2017, the wadiah savings fund will rise again by Rp 31.740 billion. In the meantime, for third party deposits that are not in the form of profit sharing in 2014, the collected funds amounted to Rp 146.901 billion. This continues to increase in 2015, which is about Rp 148.896 billion. In 2016, third party deposits increased significantly by Rp 176,937 billion. This continues until 2017, which is around Rp 191.416 billion. Furthermore, for the third- party profit sharing, while newly held from 2014 to 2015, each of Rp 1,117 billion and Rp 1,083 billion (OJK, 2017).

*Mudharabah Financing NPF.* NPF is a standard warning or cue to measure risk due to the financing activities provided by sharia commercial banks. NPF is higher than the risk of stalled financing is also higher. The lower the NPF value, the less the risk of loss. This NPF is related to 'productive asset quality' owned by sharia public banking (PJOK Number 31 / PJOK 05/2014 on Sharia Financing). The NPF is primarily concerned with the ability of sharia bank customers to settle their obligations (collectible). It mentioned that the collectible is 'Current' if the payment of profit sharing by the customer is on time or there is a delay of up to 30 days. 'Specific Attention' Collectability if there is any delay in sharing customer profits between 30 days to 90 days. In case of delays in customer revenue sharing in the range of 90 days to 120 days, it included in the 'Substandard' collectible category. The 'Doubtful' Collectability if the delay is between 120 days and 180 days. It is said the collectively of 'Lost' if the late payment for the results has exceeded 180 days.

Non-performing finance (NPF) is one of the important indicators to measure the soundness of sharia banking. In other words, this indicator is a reflection of how many problems of financing activities faced by sharia banking. The higher the value the more unhealthy condition of sharia public banking. This NPF is calculated by comparing troubled financing with total financing. Components included in non-performing financing are financing substandard, doubtful, and loss.

$$NPF = \left( \frac{\text{Troubled Financing}}{\text{Total Financing}} \right) \times 100\%$$

While on another occasion, Deden Firman, Director of Islamic Banking OJK stated that sharia banking is still healthy, despite, its 7% NPF. Therefore, OJK has different assessment criteria between sharia banking NPF and conventional banking. Conventional banking is not healthy, if the NPF value is above 5% (Suryowati, 2017). In general, in the table can be seen that the average value of Islamic banking NPF for four years well below the NPF value set by OJK. NPF is 4.95% in 2014. By 2015 the value of NPF is 4.84%. Furthermore, in 2016 the value of NPF is 4.42%. By 2017, the value of NPF is 4.71%.

Table 3 – Troubled Financing (NPF) Based on *Aqad*

Year	<i>Mudharabah</i> Financing NPF	Ratio to NPF Total (%)	<i>Murabahah</i> Financing NPF	Ratio to NPF Total (%)	NPF Total	NPF Total (%)
2014	383 billion	5	4.040 billion	55	7.230 billion	4,95
2015	179 billion	2,4	4.397 billion	59	7.456 billion	4,84
2016	197 billion	2,5	5.173 billion	66	7.834 billion	4,42
2017	161 billion	1,9	5.595 billion	65,2	8.584 billion	4,71

Source: OJK 2017, processed.

Meanwhile, from NPF based on the *aqad*, the NPF of *mudharabah* financing in 2014 is Rp 383 billion. In 2015, the NPF of *mudharabah* financing decreased significantly to Rp 179 billion. Meanwhile, in 2016 it increased slightly to Rp 197 billion. By the end of 2017, the NPF of *mudharabah* financing has decreased to Rp 161 billion. This shows that the financing of bad debts on *mudharabah* financing is relatively well managed. This means that profit-sharing financing has a positive performance in the control of non-performing financing. In contrast, the development of NPF for debt-based financing, in this case *murabahah* financing has increased and the value is very large. In early 2014, the value of NPF for *murabahah* financing was Rp 4,040 billion. This has increased the surge to Rp 4,397 billion in 2015. This condition continues until 2016 to Rp 5,173 billion. Furthermore, by the end of 2017, the NPF has increased significantly to Rp 5,595 billion.

In the meantime, the proportion of *mudharabah* financing NPF to total NPF in 2014 is 5%. In contrast, the proportion of *murabahah* financing NPF to total NPF in 2014 was 55%. By 2015, the proportion of *mudharabah* financing NPF to total NPF is 2.4%. In contrast, in the same year the proportion of NPF financing *murabahah* NPF to total NPF was 59%. Furthermore, by 2016 the proportion of NPF *mudharabah* financing to total NPF by 2016 is 2.5%. In contrast, the proportion of *murabahah* financing to total NPF is 66%. By the end of 2017 the proportion of *mudharabah* financing to total NPF is 1.9%. In contrast, the proportion of *murabahah* NPF financing to total NPF was 65.2%. Based on the above data it can be seen that the percentage of NPF of *mudharabah* financing from year to year has decreased significantly. In contrast, the percentage of *Murabahah* NPF financing has increased dramatically from year to year.

Further, proportion of *mudharabah* financing NPF for total NPF is small. Meanwhile, the proportion of *murabahah* financing NPF to total NPF is high. Thus, the cause of NPF is high in sharia banking is not caused by *mudharabah* financing, but because of high NPF or financing problem that occurs in *murabahah* financing. In the sense that the largest contribution to the financing of bad loans in the sharia public banking in Indonesia to date, in fact many occur on debt-based financing or in this *murabahah* is a very consumptive financing. Based on the sample quality asset report from two leading Islamic banks in Indonesia, namely Bank Muamalat and Bank Syariah Mandiri. Bad financing occurs mostly in debt-based and *ljarah* based. Each worth Rp 1.182033 billion of total non-performing financing of Rp 3,085.379 billion in Bank Muamalat and Rp 826.905 billion from total non performing financing of Rp 906.78 billion that occurred in Bank Syariah Mandiri (Consolidated Financial Statements 2016 Bank Muamalat and Bank Syariah Mandiri Report of Quarter IV 2017). This shows a systematic misperception that the main cause of bad financing is dominantly derived from *mudharabah* financing.

Worse yet, it has formed a negative stigma. That the cause of high *mudharabah* financing NPF is a factor *mudharib* dishonesty in running a cooperation contract with

shahibul maal as described in the agency theory ((Dewi, 2007; Ontar, 2008; Soaduan, 2009; Susana and Prasetyanti, 2011, Karim, 2014). However, by looking at statistical data and two bank samples, all these negative perceptions are not proven. Thus, the greatest risk of NPF occurrence is actually caused by debt-based murabahah financing, not mudharabah financing. Director of Islamic Banking of OJK, Deden Firman, said that the high condition of murabahah financing NPF was caused by the stalled really economic condition. That is the slowing of mining and commodity sectors. This ultimately affected the mining-related service sectors financed by murabahah financing (Suryowati, 2017). Regarding the assumption that mudharib (micro business actors as one of the main parts) are not honest when running a cooperation contract with shahibul maal (sharia bank). In contrast, the figure of National Historian and Humanist, KH Drs Ng Agus Sunyoto, proclaimed loudly that the MSME actors were honest. It is precisely that behave dishonestly it is a big business actors (private interview, November 30, 2017). The 1997 crisis experience proves that one of the causes of the monetary crisis is the mismanagement of the banking world itself. The banking used foreign loans and community funds channeled to its own business group and to the investment sector that does not generate foreign exchange (Tarmidi, 1999). So here is not due to morale hazard factor of MSME actors (mudharib).

*Differences Criteria for Micro Business Groups and the Minimum Limits of Credit for Micro Business.* The 'trust' of investors and depositors or savers for sharia public banking is key to the continuity of permanent capital injection and temporary capital. Such 'trust' will be lost if the sharia banks are unable or fail to invest their funds in a profitable business sector. In addition, it is equally important that sharia public banking in determining the criteria of amount of the minimum limits of credit or financing ceiling of business group. There is different from the criteria of business group proposed by cooperative and SME ministries, as stated in Law No. 2 on MSMEs. Under the law, the so-called micro business is the sole proprietorship of individuals or individual entities with gross assets of Rp 50 million. This is beyond the value of land and building assets.

Most micro businesses require credit ranging from 5 million to 50 million ([www.bi.go.id](http://www.bi.go.id)). With the credit limit or financing of at least Rp 100 million, this will make it difficult for millions of micro businesses that will apply for credit that is far from the minimum credit value. This will automatically be followed by a guarantee that should be provided by a micro entrepreneur of at least 80% of the loan or financing value of Rp 100 million. So, the guarantee that must be provided by micro entrepreneurs is Rp 80 million. This if referring to the provisions set forth in the terms of lending ([www.bankmuamalat.co.id](http://www.bankmuamalat.co.id)). Not to mention other requirements such as NPWP, TDP and so forth. All of this will further complicate the micro business in proposing *mudharabah* financing to sharia banking.

Sharia banking, whose business mostly focuses on fund-raising and limited funds with minimal risk, indirectly sharia banks declare themselves as 'commercial banks' rather than 'investments'. This position will certainly equate the character of Islamic banking itself is the same as conventional banking. Where the conventional banking is more dominant or focus on a profitable commercial sector. This condition is certainly not profitable for micro businesses in the early phases of business and development phase. In contrast, to small businesses whose condition is relatively more established and complete than micro business, when viewed from the financial aspects and completeness of administration and bookkeeping.

Small businesses are slightly able to adjust themselves to the provisions established by sharia banking. Not so with many micro businesses spread across the archipelago. For sharia public banking, micro business is considered a business group that has a high potential risk of business failure (Kementerian PPN/BAPPENAS, 2016). In addition, micro businesses tend to fail to refund financing funds used. The stability and continuity of business or business run by micro entrepreneurs is also a consideration for sharia public banking in disbursing financing.

*Capital Adequacy Ratio of Sharia Banking.* CAR can be considered as a measure of the ability of sharia banking to offset unanticipated losses. Some even say that CAR is a measure to know the size of the wealth of sharia banks.



$$\text{CAR} = \left( \frac{\text{Capital}}{\text{ATMR}} \right) \times 100\%$$

The CAR value is derived from the comparison between the value of capital and risk-weighted assets (RWA). In the meantime, capital consists of core capital and complementary capital. ATMR for sharia banks consists of assets financed using their own capital and assets financed by profit-sharing accounts. Up to now CAR is a key measure of public trust. A high CAR will lead to a high-level of public confidence. Conversely, low CAR will cause the level of public confidence in sharia banking is also low. Finally, this condition will affect the level of profitability of sharia banks.

Table 4 – Capital Adequacy Ratio (CAR) of Sharia Banking

Information	2014	2015	2016	2017
Capital	19.585	23.409	27.153	25.947
ATMR	124.405	155.894	163.306	154.409
CAR	15,74	15,02	16,63	15,41

Source: OJK 2017, processed.

Meanwhile, until the end of 2017, it is known that the CAR position or capital adequacy ratio of sharia banks is above the minimum limit of 12% sets by Bank Indonesia. Capital adequacy ratio in 2014 is 15.74%. Furthermore, by 2015 the capital adequacy ratio is 15.02%. Then, in 2016 the capital adequacy ratio is 16.63%. The last capital adequacy ratio in 2017 was 15.41. The capital adequacy ratio for four periods that reaches a positive value above the minimum average. It should be rational reason for sharia banks to be more intense and courageous in financing the micro business sector. Keep in mind that the micro business sector requires working capital is not as big as small, medium, and large businesses. In addition, the tenor of financing for micro business is generally not more than one year. The research results of Dini Vientiany (2011) show that the one-year financing period has no contribution to NPL (NPF) financing.

## CONCLUSION AND SUGGESTIONS

Mudharabah financing has a positive NPF ratio. For four consecutive years, the trend of NPF decreased, which is below 3% average. This proves the advantages of a profit-sharing system, where this financing when directed to business groups and the right business sector, will be able to reduce the level of problem financing. In contrast, debt-based financing such as murabahah financing have a negative NPF trend, which for four consecutive years experienced an upward trend in the NPF ratio above 60% on average. Murabahah financing has the largest contribution to the increase in non-performing financing (the highest NPF value).

Based on the NPF value of the use of funds and business groups, NPF working capital financing for MSME experienced a positive trend of decline for four consecutive years. In contrast, NPF working capital financing for non-MSMEs (or large companies) experienced negative trends for four consecutive years. This shows that large companies contribute greatly to the increase in NPF working capital financing in sharia banking. Meanwhile, the NPF of investment financing for MSME experienced a fluctuating trend. This is partly due to export-oriented small and medium business. As it is known that for four years world economic conditions are slowing down. So indirectly UMKM export products slightly affected. On the other hand, NPF financing of investment for large businesses (MSMEs) experienced a significant upward trend. Unlike working capital financing and investment financing, consumer financing NPF values are the highest average and over four years fluctuate.

Heretofore, the performance of fund-raising activities (withdrawal from the public) of sharia banking is still more dominant than the performance of financing activities. It is clear that fund-raising activities are the primary choice for sharia banking, as fund-raising activities are less risky than funding activities. Nevertheless, the President Jokowi has reminded and instructed the national banking and sharia public banking as one part, to be more willing to

take risks by increasing its funding activities. If not, then the market potential of this large Indonesian population will be entered by the banking from outside.

In addition, there must be a match between the criteria of micro business version of the government with the criteria of micro business version of sharia banking. If there is a conformity the criteria between the two parties. It is expected that the minimum financing ceiling for micro business determined by sharia banking will adjust to the government's provisions. This is one way to facilitate micro business in accessing financing offered by sharia banking.

The average value of Islamic banking CAR for four years were 15.7%. This shows that the CAR value of sharia banking is quite far above the minimum limit of CAR set by Otoritas Jasa Keuangan.

Taking into account NPF ratio trends of both types of financing, the government as the policymaker and sharia public banking as the policy implementer should prioritizing mudharabah financing. Mudharabah financing NPF risk is smaller than debt-based financing (in this case murabahah financing). Murabahah financing is more consumptive and unproductive. This financing is vulnerable to currency fluctuations and commodity-related prices. Conversely, mudharabah financing tends to be productive. The financing this partnership pattern is more directed to the real business development of community. This partnership financing is less affected by currency volatility and the global economy.

Considering its services and roles as a buffer of the national economy and its proven reliability during the 1997 and 2008 monetary crisis, micro-business should be the primary target for sharia banking in their financing policies. This group will not be as big as a small business or a medium business, without strong attention from sharia banking. Furthermore, taking into account the average trend of NPF (well below seven percent) and good CAR (well above 12 percent) in sharia banking and the appeal of President Jokowi. It is appropriate that sharia banks as one of the intermediary institutions finance. It more attentions to this micro business to be given easy access financing in the form of partnership pattern characteristic of empowerment.

The most important thing to be concerned about is the weakening economic conditions of export destination countries and global geo-political conditions is one example of external factors. This will definitely have implications on the risks of all business-related businesses. Meanwhile, external factors are conditions that cannot be controlled by the government and the exporter (force majeure condition). Thus, the emergence of business risk is not due to the negligence factor of micro business actors as one of them. All parties certainly do not know and are not aware of the risks of this business. Potential business risks caused by forcing majeure factors certainly not expected by anyone, whether it is sharia banking and micro business actors. However, it must be realized that this risk must always exist, only that it can happen in the unexpected future. So it is necessary to understand deeply that business losses due to deliberate omission by micro business actors (risk character) and business risk beyond the ability of micro business actors or due to force majeure (business risk), are two different things in terms of factors causing it.

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<sup>1</sup> IsDB is the Islamic Development Bank which aims to develop humanity thoroughly in developing countries. IsDB focuses on reducing poverty, improving health, promoting education, improving governance and community welfare. The main shareholders of IsDB are Saudi Arabia (24% of the votes), followed by Libya, Iran, Nigeria, United Arab Emirates, Qatar, Egypt, Turkey and Kuwait (IsDB, 2014).

<sup>2</sup> This sector consists of micro, small and medium business. Thus, micro business is part of MSMEs. However, the characteristics of micro business differ from small and medium business. In addition, the number of micro business in Indonesia is more dominant than small and medium business.

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## **THE INFLUENCE OF BRANDING STRATEGY AND MARKET SHARE ON FORMING BRAND EQUITY OF MIE SEDAAP**

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### **ABSTRACT**

PT. Wings Foods is one of leading companies in Indonesia. In 2003, PT. Wings Foods released its flagship product in the field of food and beverage namely Mie Sedaap. The presence of Mie Sedaap was considered successful in instant noodle market and successfully managed to get its market segmentation. It also attained positive response of instant noodle consumers that a few years after its presence, Mie Sedaap was able to reach the second position of share market behind its biggest competitor, Indomie. Understanding the branding strategy is the right way to form the brand strength in the market and to lead the market share. This study discussed the influence of branding strategy and market share on forming brand equity and was conducted in Depok. The purposive sampling technique was used as the method of gathering non probability samples.

### **KEY WORDS**

Branding strategy, market share, brand equity, instant noodles.

Rapid business competition and technological developments no longer focus on quality, price and promotion competition, but brand competition. A company that has a strong brand is considered to have excellent advantages and be able to stimulate consumers and create new markets in order to achieve competitive advantage that will more easily launch a variety of marketing strategies to excel in the competition. A company that is aware of a brand realizes that the brand becomes an identity and becomes an added value in selling its products. Brand is defined as the term, sign, symbol, or design and its combination intended to identify the goods or services. The brand is considered to provide a stimulus to the minds of consumers, so it makes sense to understand that brands not only make our marketing target choose us in this competent market but also make our marketing prospects see us as the only one that can provide solutions to their needs or problems. Branding strategy becomes one of ways to increase market share. Brand strategy is a brand management that aims to manage all elements of the brand in relation to consumer attitudes and behaviors; it can also be interpreted as a communication system that organizes all point contacts with a product or service or organization itself to stakeholders and directly support business strategy completely. The presence of Mie Sedaap in 2003 was strongly supported by Wings Corporation to expand its product in the field of food and beverages. Mie Sedaap that is supported by Wings Food has a target to meet customer satisfaction and to make Mie Sedaap products successful in international market in the future. Mie sedaap is considered to be successful in Indonesian market and to successfully enter the market of instant noodles.

Many consumers currently switch to and set their mind on Mie Sedaap products. Here is the data of TOP of Mind by last usage (2014).

Table 1 – TOP of Mind by Last Usage of Some Brands of Instant Noodle

TOP Of Mind by Last Usage	Brands			
	Indomie	Mie Sedaap	Supermie	Sarimi
Indomie	<b>92.50%</b>	12.80%	42.10%	29.80%
Mie Sedaap	2.60%	<b>76.30%</b>	5.80%	3.60%
Supermi	1.10%	1.60%	<b>50.10%</b>	0.00%
Sarimi	0.20%	2.10%	0.00%	<b>64.80%</b>
Lain-lain	3.60%	7.20%	2.00%	1.80%

Sources: <http://www.topbrand-award.com>

The above data can be explained that respondents who lastly consumed Indomie when mentioning instant noodle brands, 2.60% of respondents firstly mentioned Mie Sedaap brand, respondents who lastly consumed Mie Sedaap when mentioning instant noodle brands, 76.30% of them mentioned Mie Sedaap brand firstly, respondents who lastly consumed Supermie, 50,10% of them mentioned Mie Sedaap brand firstly. Then respondents who lastly consumed Sarimi, 64.80% of them mentioned Mie Sedaap brand firstly. Data of Top of mind can suggest the strength of Mie Sedaap brand in the consumers' mind.

The launch of Mie Sedaap products was said to be successful, proven by several awards it received just like the Roy Morgan Customer Satisfaction Award 2015 as Instant Noodle of The Year. This certainly made a positive impact on the development of Mie Sedaap, that during the last five years Mie Sedaap was able to keep its rank in the second after the market leader of instant noodles in Indonesia. According to TOP brand awards data, it explained that Mie Sedaap brand had been strengthening. The following is Table 2 TOP Brand awards from 2013 to 2017.

Tabel 2 – TOP Brand Awards

Years	Brands			
	Indomie	Mie Sedaap	Sarimi	Supermi
2017	80.00%	<b>10.80%</b>	3.40%	3.20%
2016	78.70%	<b>12.50%</b>	3.60%	3.00%
2015	75.90%	15.90%	2.70%	2.20%
2014	75.90%	14.40%	2.80%	2.20%
2013	80.60%	13.50%	2.10%	0.60%

Sources: <http://www.topbrand-award.com>

The TOP brand awards were conducted through three main stages: the last instant noodle brand that was consumed, the instant noodle brand that is often consumed and the last instant noodle brand that firstly appears in the consumer's mind. The result showed there was an increase in brand strength of Mie Sedaap from year to year.

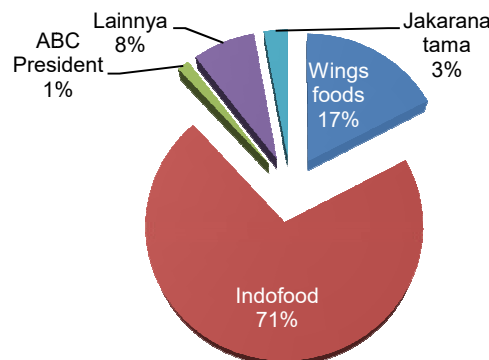


Figure 1 – Market Share of Instan Noodle in Indonesia in 2006

According to data released by SWA magazine (2004), the largest competitor of market share was indomie in 2002 of 90%. However, since the presence of Mie Sedaap in the instant noodle market, the market share of Indomie has been declining and until the end of 2016 the market share of Indomie decreased to 70%. Here is a figure of instant market share of instant noodles in Indonesia in the third quarter of 2016.

Based on the data above, the market share position of Mie Sedaap in 2006 only ranked in the second after the biggest market share, which is Indomie. Also, seen from the TOP brand data until 2016 Mie Sedaap was only able to stay in its position and did not experience a continuous brand increase and in 2017 Mie Sedaap decreased by two percent compared to the previous year. This should be considered by P.T Wings Food with its flagship product of Mie Sedaap to run an active and efficient strategy to make rapid development.

## LITERATURE REVIEW

Brand is an identity of a product. Almost all products use brand to differentiate their products with competitors' products, even the brand becomes a unique symbol strategy to attract consumers. The term brand itself came from an ancient language that means *to burn*, the ancient Nurse using a burned stamp to mark his livestock (Keller 1998). Brand itself is a distinguishing name and symbol (such as a logo, stamp or packaging) that aims to characterize the goods or services of a particular sales group (Aaker 1997).

**Branding strategy.** Branding strategy is an activity that manages all elements that aims to form a brand (Schultz and Barnes 1999). Successful brand management is to build an echoed voice in marketing practices, a business with a strong market orientation that has segmented the target market and sustained customer behavior based on that segment is the best position to build a meaningful brand identity for its target customers. The first step in the development of brand identity is specifying the target market. Without this specification, the brand identification process quickly weakens into an internal process that only spins around in product features rather than benefits that customers can obtain (Sumawan 2009).

According to Gelder (2005) a brand strategy included brand positioning, brand identity, brand personality and brand communication (Schultz and Barnes 1999).

**Market share.** Market share is an indicator of what a company does to its competitors with the support of changes in sales (Sumarwan et al., 2010). Meanwhile, according to Assauri (2001) Market share is the amount or the total market area that can be controlled by a company that is usually expressed as a percentage. There are several ways to increase market share, including: developing marketing policies, product development, product line development, and business expansion (acquisition or merger). Market share is part of the market that can be achieved by a company that can be used as one indicator of performance of a company's marketing. According to Sumarwan et al. (2011) components of the marketing mix that can be responded positively by consumers include:

<i>Product awareness</i>	Measures the level and changes of customers' knowledge, perceptions, beliefs, interests and customers' behavior towards purchases.
<i>Product attractive/</i>	Attitudes related to customer responses to brands.
<i>Price acceptable</i>	The acceptable price of the consumer is the price that corresponds to the purchasing power of the consumer and corresponds to the product benefits offered.
<i>Product available</i>	Components of marketing strategies that are run with the aim of ensuring the ease of consumers to get products in various market locations.
<i>Service experience</i>	Service experience, both at the time of purchase and after purchase (after sales service).

**Brand equity.** According to Aaker (1991) as it corresponds to the definition of brand equity which is a set of assets and liabilities, it is grouped into five categories. Here is a figure 2 Concept of Brand Equity (Aaker 1991).

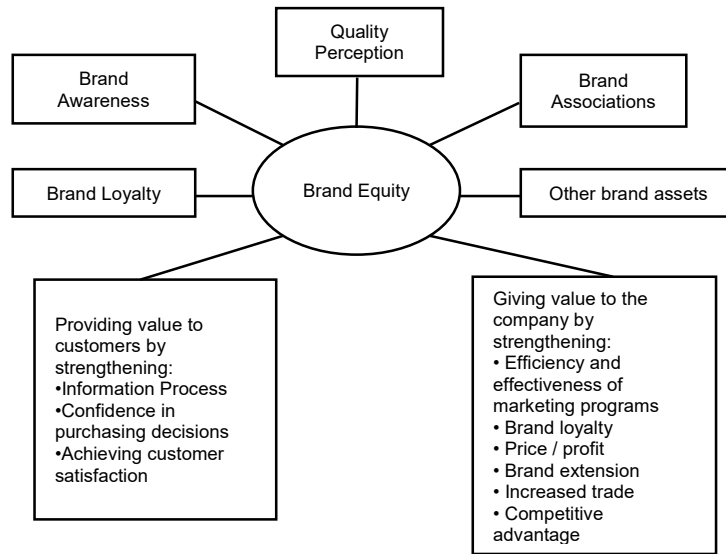


Figure 2 – Concept of Brand Equity (Aaker 1991)

According to Aaker (1991) there are five categories of brand equity: brand awareness, brand association, perceived quality, brand loyalty and other proprietary brand assets. The first to fourth category is the main element of brand equity, while the fifth category that is other proprietary brand asset will be directly affected by the quality of the four main elements. The concept of brand equity shows that brand equity can create value for both the customer and the company.

### METHODS OF RESEARCH

The study was conducted in July to November 2017 in Depok. The quantitative approach was used in the study supported by qualitative approach. The primary and secondary data were used in the study. Primary data were data taken from the first source, from face-to-face interviews with the respondents. While the secondary data were from literature materials, and other printed media as well as literatures relevant to the study. Population in this study was the community who consume instant noodles. Criteria of respondents as the samples in this study are people who consume instant noodles at least 3 times a week. The number of samples taken from society (consumer) used rule of thumb from Structural Equation Modeling (SEM). According to Hair et al. (2006) the number of samples required for each estimated parameter variable of exogenous and endogenous construct is five to ten observations. This study used 145 people as the samples.

### CONCEPTUAL FRAMEWORK

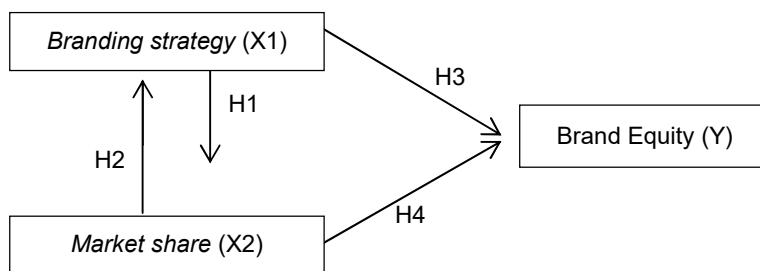


Figure 3 – Conceptual Framework

The formulation of this framework of the study was based on literature study to explain the relationship between independent variables and the dependent variables shown in Figure 4. The flow of framework was analyzed to see the influence of branding strategy and market share on forming brand equity. The variables used were branding strategy, market share and brand equity.

Based on the conceptual framework above, the proposed research hypotheses are:

H1: Branding strategy has a positive and significant influence on Market Share;

H2: Market Share has a positive and significant influence on Branding Strategy;

H3: Branding strategy has a positive and significant influence on Brand Equity;

H4: Market Share has a positive and significant influence on Brand Equity.

## RESULTS AND DISCUSSION

The number of respondents in this study is 145 respondents. The data was tabulated with a descriptive approach based on characteristics of sex, occupation, income, and age. Characteristics of respondents show the diversity of respondent data representing this study. In this study, it was found that 62.8 percent were female and 37.2 percent were male. This indicates that women have an influence in deciding the purchase. The result of this study is in accordance with a study conducted by Cosmin (2012) that showed that women tend to be a pioneer in decision making. Generally, women, who more often do activities to shop for household purposes as well as the shopping doer regardless of whether these women will consume these products, have a role to bring product information. Based on the type of work of 165 respondents, it was found that the largest profession of respondents is housewife, 56.6 percent of the total respondents. According to Engel et al. (1994) the type of consumers' job greatly influences their lifestyle. The lifestyle of a housewife, which is the dominant respondent, has a role in determining the choice for consumption pattern of their family member.

The highest average monthly income of respondents was in the range of Rp. 3,000,000 - Rp.7,000,000 as many as 49 respondents, then as many as 41 respondents had the amount of income with an average of < Rp.3,000,000. Respondents with an average expenditure smaller > Rp. 2,000,000 tend to have the smallest frequency (below 10). According to Sumarwan (2011) the amount of income will show the amount of purchasing power of a consumer. The purchasing power will show the number of products or services normally purchased by a consumer and consumed by a consumer and all members of the family.

The most dominant age of respondents was 26-35 years old, 44.8 percent of the total percentage of respondents.

*Fit Stage of Overall Model.* This fit stage is concerned with the initial model of structural equation before estimating. The model is designed based on previous theories, literatures and researches. Table 3 shows the overall model results.

Table 3 – Overall Model Results

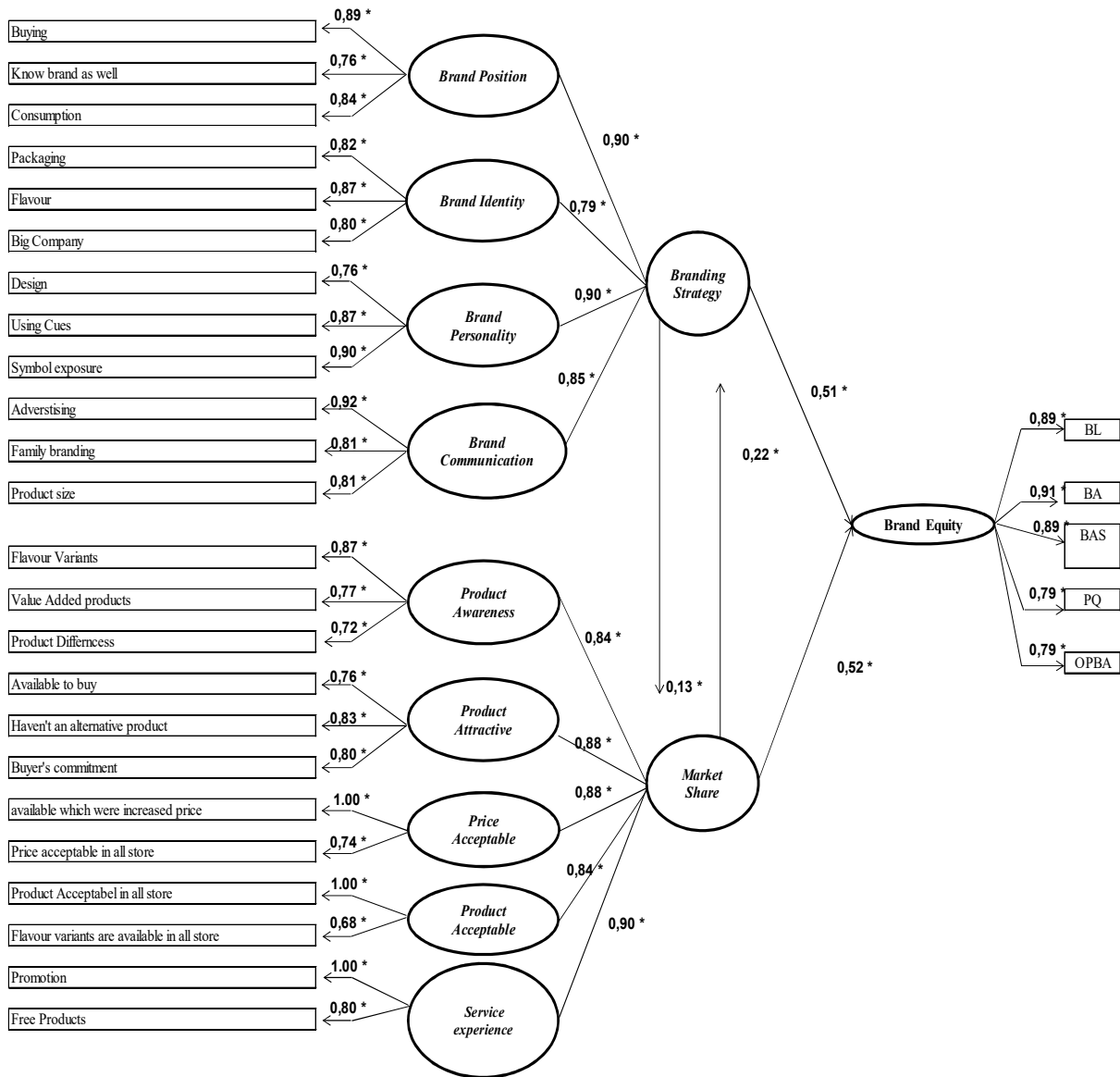
Goodness-of-Fit	Models		
	Cut-off Value	Hasil	Kecocokan
RMR (Root Mean Square Residual)	$\leq 0,05$ atau $\leq 0,1$	0.041	Good Fit
RMSEA (Root Mean square Error of Approximation)	$\leq 0,08$	0.073	Good Fit
GFI (Goodness of Fit)	$\geq 0,90$	1.00	Good Fit
AGFI (Adjusted Goodness of Fit Index)	$\geq 0,90$	1.00	Good Fit
CFI (Comparative Fit Index)	$\geq 0,90$	1.00	Good Fit
NFI (Normed Fit Index)	$\geq 0,90$	1.00	Good Fit
Relative Fit Index (RFI)	$\geq 0,90$	1.00	Good Fit

It can be seen (Table 3) that the criteria of RMSEA produced a value of 0.073 that can be interpreted that the model is fit. The use of other goodness of fit criteria on the results of data processing ie GFI, CFI, NFI, AGFI, and RFI produced value > 0.90 which means the model is good fit. Likewise with the measurements criteria of other goodness of fit. RMR



produced a value of 0.041, which means it is good model (good fit). These overall model results were used in the next stage that was the compatibility of the measurement model. Here is figure 4 the Overall Models of the Result of Structural Equation Modeling.

*Relationship between Branding strategy and Indicators.* Based on SEM calculations, there are several indicators that reflect dimension in expressing branding strategy; each indicator has different contribution value in reflecting branding strategy variable. Criteria that are significant are those with loading factor value > 0.5 and t-count > 1.96 (Hair et al 2006).



\* t- count significance

Figure 4 – Overall models of the Result of Structural Equation Modeling

There are three indicators in branding strategy that reflect the dimension in branding strategy. The largest to the smallest contribution indicators on the dimension of brand positioning are purchase (loading value 0.89), consumption (loading value 0.84), and being familiar (loading value 0.76). The purchase has the greatest contribution so it can be interpreted that a brand is able to form the minds of consumers to purchase the products. The purchase can also be interpreted that the message that the company has delivered to the product through the placement of the product position can be well received by consumers, that is by buying the product (Mie Sedaap). Three indicators of brand identity are

packaging (loading value 0.82), flavour (loading value 0.87), and large company (loading value 0.80). The flavour indicator has the highest loading factor value explaining that when a consumer likes the characteristic flavour of a product (Mie Sedaap), it can positively impact on current and long-term purchasing decisions, while in this study packaging indicators and large company have less loading values.

The latent variable of brand personality is constructed from three indicators that describe the product of the brand (Mie Sedaap) that are design, using cues, symbol exposure. The contribution levels from the highest to the smallest are symbol exposure (loading value 0.90), using cues (loading value 0.87), and design (loading value 0.76). Symbol exposure is the use of symbols that aims to facilitate consumers to recognize a brand through a visual display of the symbol rather than a word or phrase used, while using cues is the use of cues, guides or directions aimed at directing consumers to the product. It is known that the largest indicator contribution of brand communication is advertisement (loading value 0.92), then family branding and size which have same loading value factor (loading value 0.81). Advertisement as the largest loading value factor can explain that advertising is one of the most influenceive ways to inform brands (Mie Sedaap).

*Relationship between Market Share and Indicators.* There are four dimensions that make up market share that are product awareness, product attractive, price acceptable, product acceptable and service experience that each dimension has an instrument with different loading factor value; the criteria that is significant are those with loading factor value  $> 0.5$  and t-count  $> 1.96$  (Hair et al. 2006). In the dimension of product awareness, there are three indicators, namely flavour variant, added value of the product and product difference. These three indicators have different loading value factors on the dimension of product awareness. The highest to the smallest contribution are the flavour variant (loading value 0.87), the added value of the product (loading value 0.77) and the product difference (loading value 0.72). The flavour variants have the greatest contribution to brand positioning variables; having different flavour variants and being innovative give a good impact in positioning its products. In product attractive variable, there are three indicators that have different loading factor value. The three indicators are purchasing ability, no other product alternatives and customer commitments. The highest to the smallest contribution value of this indicator are the no other product alternatives (loading value 0.83), the customer commitment (loading value 0.80) and the purchasing ability (loading value 0.76). Consumer interest in a product can be represented on the indicator no other product alternative. When consumers are interested and active in a product, they must have a loyalty to the product.

The price acceptable variable consists of two indicators that are to still purchase even if the price is raised (value loading 1.00) and to purchase with the determining price (loading value 0.74). Purchasing with determining price has great contribution value to price acceptable variable. It means that the consumers who receive the price will still purchase the product at any price. Furthermore there are two indicators on product acceptable that are product availability (value loading 1.00) and the availability of flavour variants (loading value 0.68). The product availability has the greatest contribution tno product acceptable that means product availability can be a consumers' reason to purchase Mie Sedaap products. The product availability is the main thing for consumers to support the ease in the purchasing process. There are two indicators on the service experience variable or it can be interpreted as interesting experience obtained by the consumers which is promotion indicators (loading value 1.00) then free product (value loading 0.80). This explains that when purchasing a product, the promotion of the product is such an excitement and provides a memorable experience for consumers to consider making a purchase again later.

*Relationship between Brand equity and Indicators.* In the brand equity variable, there are five indicators, namely brand loyalty, brand awareness, brand association, perceived quality and other proprietary brand assets. Each indicator has different contribution value; it can be seen from the loading factor value.

The five indicators have different contributions, the level of contribution can be seen from the loading factor value and t-count. The higher value possessed by an indicator the greater contribution to the variable influenced. The greatest to the smallest contribution are

peak of mind (loading value 0.93), sibling brand (loading value 0.89), loyal consumers (loading value 0.87), loyalty (loading value 0.79) and quality (loading value 0.75). The greatest indicator is peak of mind that explains that if the brand of Mie Sedaap is already attached to the peak of consumer's mind, wherever the consumer is, the Mie Sedaap brand will be always remembered by the consumer's mind and form the power of Mie Sedaap brand. Subsequently, when consumers has positioned the Mie Sedaap brand at the peak of his mind, in some way it will affect the decision process in the purchase.

### HYPOTHESIS OF STUDY

The test results of the structural model of the study can be seen in figure 5. Based on the results obtained, it suggests that the relationship between variables is significant or influential on brand equity by considering the value of t-count and path coefficients.

Figure 5 shows the overall t-count value, the following is table 4 that show the hypothesis result of branding strategy, market share and brand equity.

*The test of branding strategy variable to Brand equity.* Based on test results, that can be seen in Table 12, the t-test value of branding strategy was 9.48 with a coefficient of 0.51. This result stated H0 was rejected (t-count > t-table) so that branding strategy affects brand equity. According to sumarwan (2009) a successful brand management is to build an echoed voice in marketing practices, without which the process of identifying the brand will weakens into an internal process that only spins around in product features rather than benefits that customers can obtain. This result is in line with a study by Radityani (2006); the relationship between brand strategy done by Goota Japanes Charcoal Grill and Cafe and brand equity received by consumer, that there is positive causal relationship between brand strategy (brand positioning, brand identity, brand personality, brand communication) and brand equity. There are two indicators that have a major contribution in the formation of branding strategy variable on Mie Sedaap products that are symbol exposure (loading value 0.90) and advertisement (loading value 0.92).

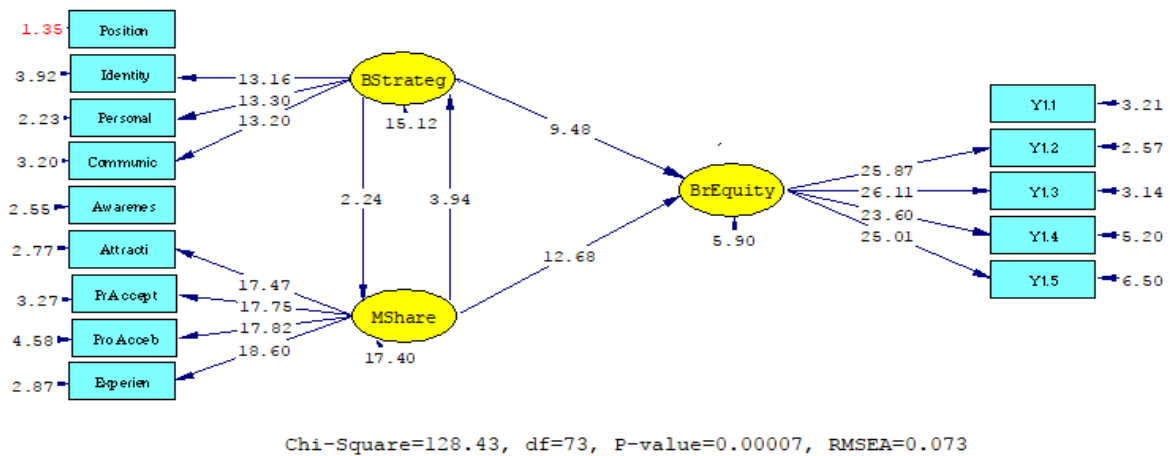


Figure 5 – Overall t-count values

Table 4 – Hypothesis results of branding strategy, market share and brand equity

Correlations	Coefficient	t-count values	Conclusion
<i>Branding strategy</i> → <i>Brand equity</i>	0.51	9.48	Significant
<i>Market share</i> → <i>Brand equity</i>	0.52	12.68	Significant
<i>Market share</i> → <i>Brand Strategy</i>	0.22	3.94	Significant
<i>Branding strategy</i> → <i>Market share</i>	0.13	2.24	Significant

*Test of Market Share on Brand Equity.* There is a significant influence of market share on brand equity (t-count 12.68) and (coefficient value 0.52) Market share shows the market brand strength in terms of actual purchasing behavior of consumers. There are three

indicators that can reflect in building a market share of Mie Sedaap which are to still purchase even if the price is raised (loading value 1.00), product availability (loading value 1.00), and promotion (loading value 1.00).

According to Sudomo (2013), brand equity affects the purchase decision. Similarly, Victor's study (1985) argued that "residual brand equity measured by lagged market share". The study explained the brand strength factors was taken into account by the market share.

*Test of Market share of Branding strategy.* The test result of market share to branding strategy shows that there is a significant relationship between branding strategy and market share (t-count 3.94) and (coefficient value 0.22). The test of market share to branding strategy. The results of previous study by Pleshko and Heiens (2012) showed that there is a significant relationship between the performance of a company's market share and the strategy applied by the company. The results also showed that one of the strategy contingencies has a significant relationship to market share.

*Test of Branding strategy to Market share.* The value of t-count of branding strategy to market share is 2.24 with coefficient 0.13 shows the influence of branding strategy to market share. This result is in line with Pleshko and Heiens' study (2012). The results suggest that at least six of seven combinations of strategic contingencies have a significant relationship to the market share. This study also reveals that the market share performance of a firm is related to the number of strategies applied by the firm between market position and various strategic components of the company. According to Victor (1985) market share is the goal of marketing strategy in which there is information using factors of porter performance one of them is strategy.

*Managerial Implications.* Based on the results of the study and data processing on the influence of branding strategy and market share in establishing brand equity of Mie Sedaap, the managerial implications can be seen in table 5.

Table 5 – Influence of branding strategy and market share in establishing brand equity

Results	Managerial Implication
1. Branding strategy variable has an influence on brand equity, with indicators that contribute the most are:	Brand positioning
a. Brand positioning	<ul style="list-style-type: none"> <li>• Purchase</li> </ul>
b. Brand personality	Making up the top of mind or position of Mie Sedaap brand in consumers' heart
c. Brand communication	Brand Personality
	<ul style="list-style-type: none"> <li>• Simbol exposure</li> </ul>
	The use of symbols that aims to make it easier for consumers to recognize a brand through a visual display of the symbol
	Brand Communication
	<ul style="list-style-type: none"> <li>• Advertisement dan Family Branding</li> <li>• Doing advertising activities and display the phrase "by wings foods"</li> </ul>
2. Market share variable has an influence on brand equity, with indicators that contribute the most are:	Service Experience
• Service experience	<ul style="list-style-type: none"> <li>• Free product</li> </ul>
• Product acceptable	Sharing free products after the purchase of Mie Sedaap, doing promotions or rebates.
	Product acceptable
	<ul style="list-style-type: none"> <li>• Product availability</li> </ul>
	Increasing the number of Mie Sedaap product in the market, so that it is easier for consumers to find the product.

Table 5 describes the implications formulated is in accordance with the indicators that have the greatest contribution, first on the purchasing side when the consumer buys the Mie Sedaap product, the marketer (the company) must maintain the position of Mie Sedaap brand at the top of the consumer's heart. In the application of simbolexposure, marketers are required to communicate about Mie Sedaap easily and directly to the top of community's feeling. A display in the form of images and visual certainly can facilitate Mie Sedaap brand accepted and embedded in the society's heart. Both official and partnership agencies can be used by the marketers to do a direct promotion to community, promotions are done by distributing free products after purchase such as buying five free one bowl. The product availability becomes one of the products that has the greatest contribution, the great number of products in the market can facilitate society to get Mie Sedaap products, even when becomes an alternative product, Mie Sedaap products can be easily found by the community.

## CONCLUSION

The conclusions obtained in this study are each variable has a direct relationship and related to each other. This study suggests that there is a direct influence of branding strategy on market share, market share on brand equity, as well as an influence of branding strategy on market share, and vice versa. One thing that must be considered in forming brand equity of Mie Sedaap is how the company applies the branding strategy; one of the indicators that play an active role is the symbol exposure, which is the use of symbols that aims to facilitate consumers to recognize the brand. The availability of Mie Sedaap products is the most significant indicator in the market share variable that the great number of products in public can show the power of the brand.

## RECOMMENDATIONS

It should be considered as a suggestion based on this study that there is an indicator that can form brand equity of Mie Sedaap, which is the branding strategy. In formulating a strategy, Mie Sedaap is suggested to consider the influenceive ways, two of which are the use of symbols that aims to facilitate consumers to recognize the brand and advertising as one of ways to communicate the brand.

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## **GOOD GOVERNANCE IMPLEMENTATION TOWARDS SUB-DISTRICTS GOVERNANCE SERVICE: A CASE STUDY OF SIDOARJO DISTRICTS, INDONESIA**

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### **ABSTRACT**

The enactment of Law #25 of 2009 on Public Service brings great consequences for the government as a public service to the community. The quality of the public service is often regarded as a mirror of the quality of the bureaucracy in general. The public service is closely related to system, apparatus resources and more staple is the paradigm of thinking behind the process it given to community. The one of spearhead the public service to the community is village. This study attempted to describe the condition of conducting the current administration and see how the village government's effort in implementing the principles of good governance in providing service to the community. The constraints of personnel / apparatus competence and disproportionally budget as well as a challenge for the village to remain able to provide service to the community in order to realize good governance.

### **KEY WORDS**

Good governance, public service, village, government.

The implementation of Law number 25 of 2009 about Public Service creates a great consequence for government as the servant of society. The quality of public service from government is the representation of bureaucracy quality in general. The public service is very close to a system, the apparatus empowerment and the more important aspect is the cognitive paradigm which becomes backgrounds of service process given to society.

The region autonomy which is already implemented long enough could not able to improve the quality service towards society. The apparatus of state bureaucracy in Indonesia is not yet in full consciousness about the importance of giving best service as the representation to civil serve.

Public service is the bridge of how the State (the bureaucratic apparatus) performs its functions in relation to the society (people), so the effort to reform the public service in accordance with the socio-cultural character of society or as desired by the public, should at least be a government issue to continue to be considered in order to be the best solution.

The reform of the public service paradigm is a change in the pattern of service delivery from the former oriented to the government is now changing towards the needs of society.

Thus, the improvement of civil participation in public service is an important factor.

At least, there are three reasons as trigger to raise public service reformation in order to achieve the good governance principle. First, the fixation of working performances of the apparatus maintained directly by stakeholders, they are the society, government, and economic actors.

Secondly, public service is one of three good governance materials which interact with people intensively. It is the implementation of public service, government, society, and economic actors. Thirdly, the principles as representation of good governance are already easier and exist through public service.

From those phenomena, there is a movement which try to portray the reflection of the smallest public service area which is village, it is very interesting topic to examine such phenomenon. Village, as the ultimate and the front line of country to count on its people, becomes a suitable target for implementation of good governance through public service.



*Research Problem.* From background of study above, the research problem of this study will be “the role of head of village in public service to realize good governance in Sidoarjo regency government”. The problem study raised two research questions as follow:

- How is the implementation system of village governance in Sidoarjo regency?
- How is the implementation of good governance through public service in Sidoarjo regency?

*Purpose of Study.* Along with the background and problems of study, the objectives of study are as follow:

- To analyse the implementation system of village governance in Sidoarjo regency;
- To analyse the implementation of good governance through public service in Sidoarjo regency.

*Significance of Study.* From the two objectives above, there will be some purposes of study as follow:

- In theoretical purposes, the study is aimed to improve and advance the knowledge of the related study or case. It could be also add the academics references in accordance with the role of head of village to realize good governance;
- Practically, this study will help Sidoarjo regency as their reference and plan to improve the role of head of village in the implementation of public service towards good governance;
- As reference for the next research.

## LITERATURE REVIEW

The establishment of village governance is stated in the decision of Ministry of home Affairs number 65 of 1999 about the general instruction of village establishment. Different from Law number 5 of 1979 about Village governance, in the Decision of Ministry of home Affairs number 65 of 1999 about the general instruction of village establishment, it is stated that village is established in the area of city within the condition of its width, population, potency, and social culture condition.

By the publication of Law number 32 of 2004 about region regulation, the position of village governance is ascended from authority of sub-district governance to be Regency/City in the environment of Sub-district working area.

The public bureaucracy must be able to provide more professional, effective, simplified, transparent, punctual, responsive and adaptive public service. The service will also improve the quality life and individual capacity as people will able to determine its own future.

Professional public service is a service within accountability and responsibility from state apparatus.

Governance is defined as the mechanisms, practices and procedures of governance and citizens governing resources and solving public problems. In the concept of governance, the government only becomes one of the actors and is not always a decisive actor. The implications of the role of government as development and service providers and infrastructure will shift into the driving force of creating an environment that is able to facilitate other parties to the other communities.

It could be concluded that good governance is a development of management implementation which is solid and concerned with the basic principles of democracy and efficient market, to prevent the act of political/administrative corruption and mal financial allocation, to realise the budget discipline and the establishment of legal politics and political framework for economical growth.

In the document of United Nation Development Programme (UNDP) policy, it states several characteristics of good governance as follow: Participation; Rule of law; Transparency; Responsiveness; Consensus Orientation; Equity; Efficiency and effectiveness; Accountability; Strategic vision.

The actors, in the context of public service improvisation, regard the principles of good governance, it becomes very important. The principals of good governance are:

Transparency; Accountability of Public Service; Public Service Responsiveness; Fairness equality; Efficiency & Effectiveness; Public Service participation.

## METHODS OF RESEARCH

This study uses descriptive qualitative method. Descriptive research is a research which is conducted to describe something in significance place and time.

Qualitative method defined as social study method which collect and analyse the data in the form of text (written or spoken). The method could also analyse the behaviour actions of humans. The researcher does not use count nor quantitative technique to collect them. That is why; numbers are rarely served as data in this study.

The sample classification technique used in this study is known as purposive sample. It is a technique to choose the sample based on their capability to answer and respond towards the case study of the experiment. Thus, the sample will able to provide more information than some random samples as representation of general population. The respondents are as follow:

1. The informant respondents are:

- Head of Taman sub-district;
- Head of Bebekan village;
- Head of Ketegan village;
- Head of Wonocolo village;
- Head of Ngelom village;
- Head of Kalijaten village;
- Head of Taman village;
- Head of Geluran village;
- Head of Sepanjang village.

2. The respondents of local people which apply for some public service certification. It will be 40 people in total which means 5 people for each sub-district.

The technique to collect data used in this study is using field observation and in-depth interview instruments.

## RESULTS OF STUDY

### *Village government implementation system in Sidoarjo Regency:*

Explicitly, the position of urban village is not part of local apparatus anymore, but it is already under the umbrella of sub-district governance. The law enforcement of village existence in Sidoarjo regency is stated in several laws as follow:

- Local regulation of Sidoarjo regency number 19 of 2011 about the establishment of society council in villages;
- Local regulation of Sidoarjo regency number 11 of 2016 about the establishment and the composition of local apparatus in Sidoarjo regency.
- Regulation Sidoarjo regent number 91 of 2016 about position, organisation composition, duty and function, and the working procedure in sub-districts of Sidoarjo regency.

From eighteen sub-districts in Sidoarjo regency, the urban villages only found on four sub-districts which are in Sidoarjo, Porong, Taman, and Krian sub-district. In total, there are thirty one urban villages of Sidoarjo regency as follow in Table 1.

Concerning with urban village empowerment council (LPMK), hamlet, neighbourhood, empowerment and prosperous activators (PKK), Young villagers' community, and another civil society are established by the Law of local regulation Sidoarjo regency number 19 of 2011 about the instruction of urban village and village civil society establishment.

From working procedure aspect, urban village already has standard operation procedure (SOP) to support the duty and implementation of law in urban village level. Coordination is the principle of external working procedure and local apparatus organisation

(OPD). If there is any problem out of urban village authority, the urban village must report and sub ordinate with the institution who possessed the authority to determine and concern about the problem.

Table 1 – Urban Villages of Sidoarjo Regency

No.	Sub-District	Urban Village	Annotation
1.	Krian	Kemasan	-
2.		Krian	-
3.		Tambak Kemerakan	-
4.	Taman	Sepanjang	-
5.		Bebekan	-
6.		Ketegan	-
7.		Wonocolo	-
8.		Ngelom	-
9.		Kalijaten	-
10.		Taman	-
11.		Geluran	-
12.	Sidoarjo	Bulusidokare	-
13.		Celep	-
14.		Cemengkalang	-
15.		Gebang	-
16.		Lemahputro	-
17.		Magersari	-
18.		Pekauman	-
19.		Pucang	-
20.		Pucanganom	-
21.		Sekardangan	-
22.		Sidokare	-
23.		Sidoklumpuk	-
24.		Sidokumpul	-
25.		Urangagung	-
26.	Porong	Gedang	-
27.		Jatirejo	Proposed for revocation because of natural disaster known as "Lumpur Lapindo"
28.		Juwetkenongo	-
29.		Mindi	Proposed for revocation because of natural disaster known as "Lumpur Lapindo"
30.		Porong	-
31.		Siring	Proposed for revocation because of natural disaster known as "Lumpur Lapindo"

Urban village is also already possessed standard service documents. The urban village must periodically socialise and inform people about the procedure of some administration process in small limited conference with its people. They also could use brochure, banner or another media to tell people some important information.

From the field observation, generally, the public service implementation is well served toward society.

In general, technology and infrastructure service in Sidoarjo District is sufficient. Because, since the existence of Monitoring and Evaluation of some of the authority of the Regent to the Camat (Regent of Sidoarjo Regulation Number 78 of 2008 on the Delegation of some of the Regent's Authority to the District Head and Regulation of Sidoarjo Number 18 of 2009 on Guidelines Technical Assignment of Part of the Central Government's Authority to the Head of Sub-district and the Regulation of the Minister of Home Affairs Number 4/2010 on the Integrated Service Guidelines of Kecamatan / PATEN) in 2014, Sidoarjo District Government requires the Village Administration to prepare Standard Operation Procedure (SOP) (SP), including the fulfilment of technology and minimal infrastructure to support the service.

The position of urban village as sub-district governance causes inability of urban village to possess its own Budget Implementation Document (DPA). The document is already attached along with DPA sub-district.

*Good governance in urban village governance service.* Good governance implementation towards public service is one of movement commenced by Sidoarjo regency government in order to accomplish administration law enforcement. Administration law

approach, according to Philippus M.Hadjon, consists of three approaches as follow: Government Power Approach; Right Based Approach; Functionaries Approach.

Law number 23 of 2014 about local government; it classified the duty of government based on its authority. Explicitly, the position of urban village is not part of local apparatus anymore, but it is already under the umbrella of sub-district governance. From the regulation change, the position of urban village based on law number 23 of 2014 about local government, the authority change is very wide. In the other hand, stated in law number 32 of 2004 about local government, it decides the position of urban village as village device position (article 120 act 2).

The explanation above becomes proves that urban villages is an entity/part of sub-district governance which possesses a right to serve the public. That is why, the urban villages as servant of society is mandatory to complete general principles of good governance (known as AUPB in Indonesia).

The implementation of good governance principles in serving the public service is part of human Right complement as stated in Article 28I act (4) Fundamental Law of Indonesian Republic of 1945 which firmly states that protection, improvement, enforcement, and complement of human Right are responsibility of government.

Good governance is very close to human rights as it is connected by three fundamental duties of government.

General principles of good governance in serving the public needs of urban village as part of local governance or as the administrators of local government is already regulated at least at six laws as follow: Law number 23 of 2014; Law number 25 of 2009; Law number 28 of 1999 about state establishment which is clean and free from corruption, collusion, and nepotism; Law number 30 of 2014 about State Administration; Law number 37 of 2008 about Ombudsman; Law number 5 of 2014 about Civil State Apparatus (known as ASN in Indonesia).

From all of six laws which control the good governance principle, they are all connected with the authority and duty of government in the implementation of urban village public service. There are eight principles to establish good governance; they are law certainty, public priority, transparency, quality, austerity, authority effectiveness, good service and justice principle. By holding to those principles, the good governance law will be well established.

The implementation of good governance principles (AUPB) in the administrative services of urban village, based on the approach of functional aspect, is the a step and action of the government from the perspective of the behaviour of the apparatus while implementing the regulations governing the service to the community in accordance with the authority of stakeholders in performing the task in charge government service to the community.

The comprehensive manifestation of the basic values and codes of conduct and code of conduct in the administrative offices of urban village administration is one of the keys to the achievement of good governance in the service of village administration to the community.

Table 2 – Details of the respondents

Sex			Education Level			Occupation		
	Total	Percentage		Total	Percentage		Total	Percentage
Male	12	30%	Elementary	4	10%	Businessman/Entrepreneur, Private Employee	11	27,5%
			Junior High	3	7,5%	Civil Servant	5	12,5%
			Senior High	15	37,5%	Police or Soldier Officer	4	10%
Female	28	70%	Diploma	9	22,5%	Driver/Pedicabman	2	5%
			Bachelor	7	17,5%	Students	3	7,5%
			Master	2	5%	Housewife	8	20%
						Retired Civil Servant	7	17,5%

*Implementation of Good Governance towards Urban Village Service.* From those principles and approaches of good governance, the experiment of this study is limited to three major principle of good governance which are Participation, transparency, and accountability principle. The 40 respondents which are people of urban villages who are taking care of their state affairs. The details of the respondents are shown in Table 2.

From the table above, we could assume that the respondents are filled with more female samples about 70%. Next, the majority of education level is held by Senior high School level while the occupation column is controlled by Businessman/Entrepreneur, Private Employee, it gains 27,5%.

*Implementation of Participation Principle in Urban Village Service.* According to the result from interview and observation process, it discussed about the contribution of society in establishing an event or a program with government within the service provided by the urban village governance. The plaint and complaint towards urban villages service about the contribution of society in some of urban village program, it could be synthesised in N: quantity, %: percentage.

Table 3 – Contribution of society in some of urban village programs

Participation Aspect	Criteria	Service Type								Total	
		ID Card		Family Card		Certificate		Other		N	%
		N	%	N	%	N	%	N	%		
The society is included in the program	Always	3	7,5	4	10	2	5	1	2,5	10	25
	Often	10	25	6	15	3	7,5	3	7,5	22	55
	Rarely	4	10	2	5	1	2,5	1	2,5	8	20
	Never	0	0	0	0	0	0	0	0	0	0
The Policy Decision Contribution of Society	Always	0	0	0	0	0	0	0	0	0	0
	Often	2	5	1	2,5	3	7,5	1	2,5	7	17,5
	Rarely	4	10	3	7,5	2	5	1	2,5	10	25
	Never	12	30	4	10	5	12,5	2	5	23	57,5
The Plaint elated to the Service	Always	0	0	0	0	0	0	0	0	0	0
	Often	0	0	0	0	0	0	0	0	0	0
	Rarely	14	35	6	15	2	5	0	0	22	55
	Never	8		7		2		1		18	45

The table above shows participation of society towards the type of service type in urban village, the details are:

- People are often included and participate in government program up to 55%;
- For policy decision participation, the highest point is found in 'Never' category up to 57,5%;
- In accordance with, the plaint and complaint of service, the highest answer is 'Rare' column up to 55%.

The implementation of participation principle must be supported with the discipline of society to give their contribution and obey the procedure in every demand of their affair. People must complete the requirement documents before; they will earn their right as the procedure is completed.

*Transparency Principle.* Transparency principle is much related with the effectiveness of the information provided by local government to the society about public service.

Based on the results of observations and interviews, their responses to the dissemination of information to the public is related to service procedures performed by non-government elements, the effectiveness of delivering information about the Village service through media brochures / leaflets, media Radio, Newspapers and internet, can be seen in Table 4.

From the table above, we could conclude that: the participation of Non-Government element is not yet effective to distribute the information into society, the amount of 67,5% is not high enough; the most effective media, according to the respondents, is by using brochure / leaflet media which is 62,5%.

Table 4 – Effectiveness of delivering information

Transparency Aspect (Information Distribution)		The Respondents Hear/See the Information Distribution								Total	
Criteria	N	Always		Often		Rare		Never		N	%
		N	%	N	%	N	%	N	%		
Non-Government Elements Participation	Very High	0	0	0	0	0	0	0	0	0	0
	High	2	5	6	15	0	0	0	0	10	25
	Low	4	10	2	5	1	2,5	1	2,5	27	67,5
	Very Low	0	0	3	7,5	0	0	0	0	3	7,5
Media Brochure/leaflet Effectiveness	Very Effective	0	0	0	0	0	0	0	0	0	0
	Effective	4	10	18	45	3	7,5	0	0	25	62,5
	Less Effective	4	10	3	7,5	2	5	1	2,5	10	25
	Ineffective	0	0	2	5	3	7,5	0	0	5	12,5
Radio Effectiveness	Very Effective	0	0	0	0	0	0	0	0	0	0
	Effective	0	0	0	0	0	0	0	0	0	0
	Less Effective	14	35	6	15	2	5	0	0	22	55
	Ineffective	8	20	7	17,5	2	5	1	2,5	18	45
Newspaper Media Effectiveness	Very Effective	0	0	0	0	0	0	0	0	0	0
	Effective	0	0	8	20	2	5	0	0	10	25
	Less Effective	14	35	6	15	2	5	0	0	22	55
	Ineffective	8		7		2		1		8	20
Internet Effectiveness	Very Effective	0	0	0	0	0	0	0	0	0	0
	Effective	0	0	10	25	2	5	0	0	12	30
	Less Effective	14	35	6	15	2	5	0	0	22	55
	Ineffective	0	0	4	10	2	5	0	0	6	15

**Accountability Principle.** Implementation of the principle of accountability relates to the extent of accountability of the urban village government to the community related to the provision of services. The results of observations and interviews to Respondents related to the accountability of urban village service seen through the clarity aspects of service mechanisms and procedures, the timeliness of service and clarity of service costs can be seen in the following table:

Table 5 – Accountability of urban village service

Accountability Aspect		Service Type								Total	
Criteria	N	ID Card		Family Card		Certificate		Other		N	%
		N	%	N	%	N	%	N	%		
Service Procedure Clarity	Very Clear	3	7,5	4	10	2	5	1	2,5	10	25
	Clear	10	25	6	15	3	7,5	3	7,5	25	62,5
	Less Clear	0	0	0	0	3	7,5	2	5	5	12,5
	Unclear	0	0	0	0	0	0	0	0	0	0
Punctuality	Very Clear	0	0	0	0	0	0	0	0	0	0
	Clear	0	0	0	0	0	0	0	0	0	0
	Less Clear	0	0	0	0	2	5	3	7,5	5	12,5
	Unclear	15	37,5	16	40	1	2,5	1	2,5	33	82,5
Service Cost Transparency	Very Clear	0	0	0	0	0	0	0	0	0	0
	Clear	14	35	15	37,5	4	10	1	2,5	34	85
	Less Clear	0	0	0	0	2	5	0	0	2	5
	Unclear	0	0	0	0	3	7,5	1	2,5	4	10

From the table, the conclusions are:

- The service clarity in urban village public service is already high, it is 62,5%;
- The service punctuality in urban village public service is already high, it is 82,5%;
- The service cost transparency in urban village public service is already high; it is 85% as all public service in urban village is free of cost.

The process and procedure found in urban village public service is followed the SOP (Standard Operational Procedure). The head of urban village is fully responsible to head of sub district. The hierarchical mechanism and the investigation towards public service of urban village are held by head of sub district.

## CONCLUSION AND SUGGESTIONS

According to the discussion and findings above, there is some conclusions related t the implementation of good governance in urban village public service of Sidoarjo regency as follow:

- The state establishment in urban village of Sidoarjo regency follows and obeys the recent regulation of state. The only problem is found on the personal/apparatus and the finance expenditure which is not yet clear.
- The implementation of good governance in urban village public service, in participation, accountability, and transparency, is not yet achieved. There is a problem in punctuality service while people want to arrange their identity card and family card; there is also legality of urban village head signature in administration of land certificates.

Furthermore, some suggestions related to the implementation of good governance in the service of urban village administration in Sidoarjo Regency are as follows:

- The Government of Sidoarjo Regency immediately formulate the Regent Regulation related to consolidation of the urban village capacity, especially, those related to the fulfillment of personnel / apparatus and the occasional rotation of personnel in the urban village employees refreshment.
- So that, the Sidoarjo Regency Government will immediately evaluate the urban village budgeting system to be proportional in accordance with the scope of service and the scope of accountability.
- Government need to be guided and monitored by the institution regularly related to the implementation of services organized by the village administration.
- There must be regular coordination between urban villages; the head must be in line with the relevant agencies concerned with the service of land administration in order to clear the position and responsibility of the head in providing services.

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## ANALYSIS OF LIQUIDITY RISK EFFECT TOWARD PROFITABILITY OF STATE OWNED AND FOREIGN EXCHANGE NATIONAL PRIVATE COMMERCIAL BANKS IN INDONESIA

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### ABSTRACT

This research aims to analyze liquidity risk effect toward profitability of State Owned and Foreign Exchange National Private Commercial Banks in Indonesia. The indicators of liquidity risk used in this research include loan to deposit ratio, liquidity gap and non-performing loan. In addition, the profitability used is return on assets. The samples used in this research are State Owned and Foreign Exchange National Private Commercial Banks. The data used in this research were obtained from the financial statements of each company on 2010-2016 periods. After passing through the purposive sample stage, the appropriate samples included 4 State Owned Banks and 8 Foreign Exchange National Private Commercial Banks. The analysis method used in this research is multiple regression analysis using E-views software 9. The findings showed that the loan to deposit ratio variable does not affect the profitability of State Owned Banks but has a positive and significant effect toward profitability of Foreign Exchange National Private Commercial Banks. In addition, liquidity gap variables have negative and significant effect on the profitability of State Owned and Foreign Exchange National Private. Non-performing loan variables also have negative and significant effect on the profitability of State Owned and Foreign Exchange National Private.

### KEY WORDS

Liquidity risk, loan to deposit ratio, liquidity gap, non-performing loan, profitability of bank.

The banking system has an important role for economic development in various countries including Indonesia. Bank is a financial institution that serves to receive customer funds and channel the funds back to the interests of the community. The Bank also serves as an institution that organizes and provides financial services and traffic of payment services. Therefore, banks should be able to maintain their performance in order to become a healthy industry (Attar et al 2014). Company performance can be seen from the results of its profitability level. Profitability describes the company's ability to generate profits (Kartika and Hatane 2013). Companies that can generate large profits can attract investors to make investment in the company. Good profitability is a reward for the investors on the investments that they have been planted (Ongore and Kusa 2013). Profits generated by banks in recent years vary widely. The Bank with the largest profit is the State Owned and Foreign Exchange National Private Commercial Banks. The data of bank profitability development which is categorized based on the ownership in Indonesia from 2012 2016 can be seen in Table 1 below.

Table 1 – Bank Profitability in Indonesia in 2012 - 2016 (in Billion Rupiah)

	2012	2013	2014	2015	2016
State Owned Bank	3.402	4.066	4.531	4.655	4.343
Foreign Exchange Commercial Bank	2.641	2.789	2.738	2.427	2.599
Non-Foreign Exchange Commercial Bank	233	257	193	174	15
Regional Development Bank	746	894	806	883	957
Joint Venture Bank	287	378	352	149	263
Foreign Owned Bank	428	510	727	431	702

*Source: Indonesia Banking Statistics (processed).*



Distributing public funds in the form of credit, banks will face risks and one of them is liquidity risk. Liquidity risk is a risk caused by liquidity uncertainty. Liquidity risk has become a serious concern and challenge for the Bank in the modern era (Anam 2013). Low quality asset and liquidity are the main causes of bank failures, which start with liquidity risk. It drew the attention of researchers to examine its effect toward bank profitability (Almazari 2014). The bank's ability to manage its liquidity will have an impact on the community's trust to the bank itself, which will help the operational continuity and existence of the bank (Prasetyo and Darmayanti 2015). Indicators of liquidity risk include loan to deposit ratio (LDR), liquidity gap and non-performing loan (NPL).

This study aims to examine the effect of liquidity risk toward bank profitability in Indonesia. Similar researches have been conducted in many countries including Indonesia. However, this study differs from previous research, where the sample used is State Owned and Foreign Exchange National Private Commercial Banks with the period of observation for seven years in 2010-2017.

## LITERATURE REVIEW

Banks have an important role to the economy of a country. Based on the Law no. 10 of 1998 concerning banking, what is meant by a Bank is "a business entity that collects funds from the public in the form of savings and distributes it back to the community in the form of credit and/or other forms in order to improve the standard of living of the people". Kasmir (2016) revealed that banks can be interpreted as a financial institution whose main activity is to raise public funds and channel the funds back into the community and provide other bank services. The functions of commercial banks showing the importance of the existence of commercial banks in the modern economy include: (1) money creation, (2) support for the smoothness of payment mechanisms, (3) fund raising, (4) support for the smoothness of international transactions, (5) storing goods and securities, and (6) provision of other services (Manurung and Rahardja, 2004).

Gitman and Zutter (2012) revealed that profitability is a company's ability to generate profits derived from sales, assets, and owner investment. Profitability of the company is one way to judge precisely how far the rate of returns derived from investment activities (Arihaha, 2009). Profitability can be measured by one of the financial ratios namely return on (ROA). ROA measures the effectiveness of management in generating profits using the assets they own (Gitman and Zutter, 2012). The greater the ROA then it indicates the better the bank management in using the asset to generate profit; then the better the performance of the bank (Taswan, 2010).

Liquidity risk is a ratio to measure the risk that the bank will face if it fails to meet its obligations to depositors with liquid assets they own (Kasmir, 2016). Arif and Anees (2012) argued that these risks can affect bank capital and income. Ardianto et al. (2016) mentioned that liquidity risk may be due to the bank being unable to generate cash flows from productive assets, or deriving from the sale of assets including liquid assets, or from the collection of public funds, interbank transactions or the received borrowings. A bank is considered to be liquid if the bank can pay all its debts, especially short-term debt.

LDR states how far the ability of banks to repay the withdrawal of funds made by depositors by relying on loans given as liquidity (Rosyidah, 2012). A good LDR achievement is when the LDR is within the limits set by Bank Indonesia (Eng, 2013). Bank Indonesia shall set an LDR limit of 78% -100% mentioned in Bank Indonesia Regulation no. 12/19/PBI/2010 which is amended by Bank Indonesia Regulation no. 15/15/PBI/2013 with an LDR limit of 78%-92%. Sulistyowati (2016) argues that the higher the LDR level, it shows the increasingly risky condition of bank liquidity. Conversely, the lower the LDR level, it indicates a lack of bank effectiveness in distributing its credits.

According to Arif and Anees (2012), one of the main causes of liquidity risk is the maturity mismatch between assets and liabilities. Liquidity gap is a net liquid asset of a company which is derived from the difference in the value of liquid assets and the value of the company's liquidity (Culp, 2008). In the banking business, most of the assets are funded

by deposits that are likely to be cashed at any time (Anam, 2013). Culp (2008) proposed the main function of liquidity gap as a benchmark of static assessment of liquidity risk. Positive gap occurs when the asset position is greater than the liability in the maturity period. A company with a large negative gap should focus on the possibility of unexpected changes in the value of the cash balance. Liquidity gap can be seen from the maturity table of assets and liabilities of a bank (Arif and Anees, 2012).

The main functions of the bank include providing credit to customers in order to improve the standard of living of the people. The main reception of the banking industry is prioritized and expected coming from credit disbursement. The problem with common credit activities is the inability of customers to perform their obligations to lenders (Prasetyo and Darmayanti, 2015). The NPL shows that banks that are not professionals in their credit management will get an impact on the bank's losses (Septiani and Lestari, 2016). According to BI Regulation no. 17/11/PBI/2015, the best standard of NPL is below 5% and higher NPL resulted in decreasing bank performance.

## METHODS OF RESEARCH

The type of data used in this research is secondary data in the form of panel data. The samples used are State Owned and Foreign Exchange National Private Commercial Banks in Indonesia during 2010-2016 periods. The financial data used in this research were obtained from the financial statements of each bank. Based on the data collection criteria, a total of 12 samples were obtained which included 4 State Owned Banks and 8 Foreign Exchange National Private Commercial Banks. Furthermore, the 12 banks are multiplied by the year of observation (seven years), resulting in 28 observations of the State Owned Bank and 56 observations of Foreign Exchange National Private Commercial Bank. The following is the measurement variable used in this research.

Table 2 – Measurement Variable

Dependent Variable	
Return on Asset :	Net income / Total assets
Independent Variables	
Loan to Deposit Ratio :	Total loan / Total Deposits
Liquidity Gap :	(Total assets – Total liabilities) – (Fixed assets – Equity)
Non-performing Loan :	NPL's rate

## CONCEPTUAL FRAMEWORK

This research aims to analyze the effect of liquidity risk on the profitability of State Owned and Foreign Exchange National Private Commercial Banks in Indonesia. The things that are assumed as indicators of liquidity risk, which have influence on the profitability of State Owned and Foreign Exchange National Private Commercial Banks in Indonesia, are LDR, liquidity gap and NPL. Profitability is an end goal of the company's performance including the company within the banking sector. Thus, the conceptual framework of this research is as follows.

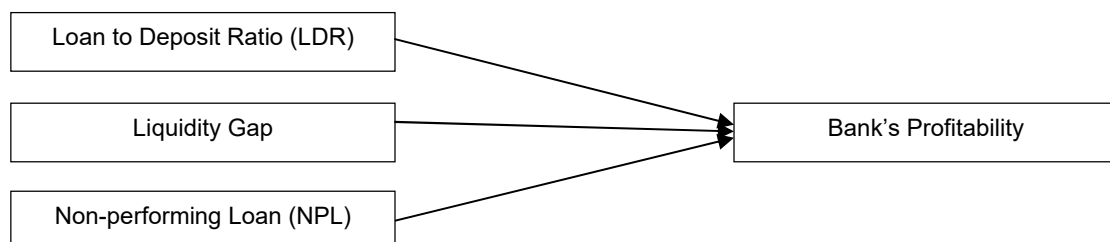


Figure 1 – Conceptual Framework of the Research

Based on the conceptual framework above, the proposed research hypotheses are:

H<sub>1</sub>: Loan to Deposit Ratio (LDR) has a positive and significant effect on bank's profitability;

H<sub>2</sub>: Liquidity gap has a negative and significant effect on bank's profitability;

H<sub>3</sub>: Non-performing Loan (NPL) has a negative and significant effect on bank's profitability.

## RESULTS AND DISCUSSION

Before performing multiple regression analysis, several tests were conducted including:

*Chow Test:*

Table 3 – Calculation Result of Chow Test

	Chi-Square Statistic	Prob.
State Owned Bank	42.025313	0.0000
Foreign Exchange Commercial Bank	58.396051	0.0000

Based on chow test at State Owned Bank and Foreign Exchange National Private Commercial Bank shows that the probability value of cross-section Chi-square is  $0.0000 < 0.05$  then H<sub>0</sub> is rejected. Thus, the model to be used is fixed effect model.

*Hausman Test:*

Table 4 – Calculation Result of Hausman Test

	Chi-Square Statistic	Prob.
State Owned Bank	73.200594	0.0000
Foreign Exchange Commercial Bank	14.490818	0.0000

Based on hausman test at State Owned Bank, it shows that the probability value of cross-section Chi-square is  $0.0000 < 0.05$ , while for Foreign Exchange National Private Commercial Bank, the probability value of cross-section Chi-square is  $0.0023 < 0.05$  then H<sub>0</sub> is rejected. Thus, the model to be used is fixed effect model.

*F-Test:*

Table 5 – Calculation Result of F-Test

	Prob. (F-Statistic)	Conclusions
State Owned Bank	0.0000	H <sub>a</sub> accepted
Foreign Exchange Commercial Bank	0.0000	H <sub>a</sub> accepted

The result of data processing shows that the independent variables (LDR, liquidity gap and NPL) are known to have probability F of  $0.000000 < 0.05$  at State Owned and Foreign Exchange National Private Commercial Banks. It means that this regression model can be used to measure the relationship between LDR, liquidity gap and NPL toward profitability.

*Goodness of Fit Test (Adjusted R<sup>2</sup>):*

Table 6 – Calculation Result of Adjusted R<sup>2</sup>

	Adjusted R <sup>2</sup>
State Owned Bank	0.936297
Foreign Exchange Commercial Bank	0.785311

Based on the result of data processing using fixed effect model, it is known that the coefficient of double determination (Adjusted R<sup>2</sup>) at State Owned Bank is 0.936297. It shows the variation or behaviour of independent variable namely LDR, liquidity gap and NPL, is able to explain variation of dependent variable namely profitability that is equal to 93.6297%. Meanwhile, the remaining 6.3703% is a variation of other independent variables that affect profitability.

Based on the result of data processing using fixed effect model, it is known that the coefficient of double determination (Adjusted R<sup>2</sup>) at Foreign Exchange National Private Commercial Bank is 0.785311. It shows the variation or behaviour of independent variable namely LDR, liquidity gap and NPL, is able to explain variation of dependent variable namely profitability that is equal to 78.5311%. Meanwhile, the remaining 21.4689% is a variation of other independent variables that affect profitability.

*t-Test:*

Table 3 – The Calculation Result

Variable	State Owned Bank	Foreign Exchange Commercial Bank
Constant	11.59852	14.66634
LDR	0.001244	0.032185**
Liquidity Gap	-0.265779*	-0.509393**
NPL	-0.392841***	-0.361732***

Note: \* significant at 10% level, \*\* significant at 5% level, \*\*\* significant at 1% level.

Based on the findings, LDR has no significant effect toward profitability of State Owned Bank. It can be seen from the P-value of LDR variable which is equal to 0.8996 with coefficient of 0.001244. However, LDR has a positive and significant effect toward Foreign Exchange National Private Commercial Bank with P-Value and coefficient of 0.0019 and 0.032185. Thus, if the LDR rises 1% then profitability will increase by 0.032185% in Foreign Exchange National Private Commercial Bank with the assumption of *ceteris paribus*. The effect of LDR toward profitability shows the higher LDR of a bank. Thus, the bank will be able to increase the distribution of funds to the customers. Thus, the bank will earn higher interest income and will increase bank profitability. Conversely, if the bank decreases LDR, bank profitability will also decrease. It is in line with the research conducted by Eng (2013) which reveals that LDR has a positive effect on bank profitability. The absence of LDR effect toward the profitability of State Owned Bank is likely due to the large asset ownership of State Owned Bank (Bilian and Purwanto, 2017). It is evidenced by the size of the State Owned Bank in 2010-2016 which was much higher than Foreign Exchange National Private Commercial Bank. In addition, as the NPL increased, it was followed by a decrease in credit growth rates occurring in Bank Rakyat Indonesia and Bank Tabungan Negara in 2014-2016. It is in line with the research conducted by Bilian and Purwanto (2017) which reveal that the LDR does not affect the profitability of State Owned Bank.

Based on the findings, liquidity gap has negative and significant toward profitability of State Owned and Foreign Exchange National Private Commercial Banks. It can be seen from the P-value of liquidity gap variable which is equal to 0.0823 with coefficient of 0.265779 for State Owned Bank. P-Value of liquidity gap variable is 0.0049 with coefficient of -0.509393 for Foreign Exchange National Private Commercial Bank. Thus, if liquidity gap increases 1%, it will decrease profitability by 0.265779% in State Owned Bank and 0.509393% in Foreign Exchange National Private Commercial Bank with the assumption of *ceteris paribus*. In the banking industry, most assets are funded by deposits that allow to be cashed at any time (Arif and Anees, 2012). This will result in a mismatch between assets and liabilities. The greater the mismatch between assets and liabilities, the liquidity gap will arise greater (Ramadanti and Meiranto, 2015). Liquidity gap will affect liquidity risk. Thus, greater the liquidity gap will be able to lower bank profitability. The findings of this research are in line with the research conducted by Arif and Anees (2012) and Anam (2013).

Based on the findings, NPL has negative and significant toward profitability of State Owned and Foreign Exchange National Private Commercial Banks. It can be seen from the P-value of NPL variable from the entire group of the bank which is equal to 0.0000 with each coefficient of -0.392841 for State Owned Bank and -0.361732 Foreign Exchange National Private Commercial Bank. Thus, if NPL increases 1%, it will decrease profitability by 0.392841% in State Owned Bank and 0.361732% in Foreign Exchange National Private Commercial Bank with the assumption of *ceteris paribus*. The higher NPL will worsen the quality of bank loans, which means that the number of non-performing loans is growing.

Thus, it allows a bank to be in an increasingly troubled condition (Eng, 2013). The higher NPL level will result in lower interest income received by the bank so that the bank cannot pay the obligations to the depositor. It certainly can reduce the level of bank profitability. The findings of this research are in line with research conducted by Arif and Anees (2012) and Anam (2013).

### **MANAGERIAL IMPLICATIONS**

For banking industry companies, in an effort to improve bank profitability, it should consider liquidity risk indicators that include LDR, liquidity gap and NPL. For State Owned Bank, it is expected to pay more attention to the level of NPL then followed by liquidity gap. For Foreign Exchange National Private Commercial Bank, it is expected to pay attention to NPL level then followed by LDR and liquidity gap.

For investors who want to make investment in State Owned Bank, they do not have to worry about LDR. Seeing the NPL and liquidity gap only is enough. Meanwhile, if investors want to invest in Foreign Exchange National Private Commercial Bank, the investors are expected to pay attention to NPL, LDR and liquidity gap.

### **CONCLUSION**

Based on the findings and discussion of research on the effect of liquidity risk including LDR, liquidity gap and NPL toward the profitability of State Owned and Foreign Exchange National Private Commercial Banks in Indonesia, it is concluded that LDR variable has no significant effect on profitability of State Owned Bank but has positive and significant effect toward the profitability of Foreign Exchange National Private Commercial Bank. The findings of the liquidity gap variable estimation show that the liquidity gap has negative and significant effect to the State Owned and Foreign Exchange National Private Commercial Banks. The result of the NPL variable estimation shows that the NPL has a negative and significant effect toward the profitability of State Owned and Foreign Exchange National Private Commercial Banks. Overall, from both groups of banks, the most liquidity risk indicator affecting bank profitability is NPL. In addition to NPL variables, liquidity risk indicators that affect bank profitability are liquidity gap and LDR. Based on the findings, it can be concluded that liquidity risk affects bank profitability.

### **SUGGESTIONS**

Suggestions that can be submitted in this study concerning the effect of liquidity risk on the profitability of State Owned and Foreign Exchange National Private Commercial Banks for related parties include: the banking industry should pay attention to indicators of liquidity risk as it may affect bank profitability. Liquidity risk is one of the risks that most affect bank profitability. Liquidity risk can be seen by investors through these three indicators. Thus, if these three indicators are valued well by investors, it will affect the investment made by the investor which leads to the effect of profitability that will likely increase. Investors may use the methods in this research as a tool of information and indications in making investment decisions. Investors are expected to pay attention to the liquidity risk indicators before making the investment to prevent losses in their investments. For further researchers are expected to do the development of this research. It is by adding other variables or conducting research from other risk variable within the banking industry which can be developed further from this research.

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**EFFECT OF COMPETENCE AND EFFORT OF AUDITORS TO AUDITOR  
PERFORMANCE TO THE USE OF INFORMATION TECHNOLOGY  
AS VARIABLE MEDIATION**

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**ABSTRACT**

The purpose of this study is to determine whether there is influence between competence and effort to auditor performance with information technology usage as mediation variables. Objects in this study are the auditor who work in Kantor Akuntan Publik. Data were collected by questionnaire survey method. Primary data generated as much as 61 questionnaires can be processed using the Partial Least Square. Evaluation models in PLS is done by evaluating the outer and inner models. The results of this study indicate that the auditor's competence and effort had a positive influence on the performance of auditors, but the use of information technology is not a mediating variable between competence, effort auditor to auditor performance.

**KEY WORDS**

Competence, effort auditor, information technology, auditor performance.

Moral hazard problem often occurs between the management and the principal (shareholder) where management only the pursuit of the interests of himself at the expense of the principal, causing the agency conflict. One way to reduce the consequences and the costs associated with moral hazard is to hire an independent external third party that is a public accountant to audit books, records, and financial statements, thereby reducing asymmetric information between the agent of the company and its principals.

Public Accountant Services are services used in economic decision-making and influence widely in the era of globalization which has an important role in supporting the national economy healthy and efficient so that the transparency and quality of financial information increases (Law No. 5 of 2011). Therefore public accountant must carry out their duties in accordance with the standards and code of professional conduct set professional organizations as well as follow the rules or regulations in force and have an attitude of independence.

However, with the discovery of accounting scandals that occurred Enron Corporation, WorldCom and on several public companies in the United States has caused a crisis of public confidence in the quality of the resulting audit by public accountants (Duff, 2004). The accounting scandal became a global issue because it involves one of the largest Kantor Akuntan Publik The big-five accounting firm Arthur Andersen namely (Choi, et al., 2010).

Not only abroad, some Kantor Akuntan Publik (KAP) and Public Accountants in Indonesia was also found guilty of violation of standard audit and sanctioned by the Minister of Finance of the Republic of Indonesia. Non-compliance is a violation of the provisions Pasa1 25 paragraph (2) c of Undang-Undang 5 of 2011 on Public Accountant and pasal 44 of PMK Number 17 / PMK.01/2008 concerning Public Accountant Services which resulted in the freezing of public accountant's permit and public accountant's license.

Based on audit cases above, caused a decline in public confidence in the profession of public accounting for the low quality of the audit was doing. Quality audits as a possibility (probability) that the auditor during the audit the financial statements can detect and report a possible violation of the client's accounting system. Technical ability independensi auditor and the auditor can find the probability of an offense (De Angelo, 1981). Violations of the Standards on Auditing (SA) resulting lack mainstay of financial reporting information so as to

produce audit reports that are not qualified. Therefore, the performance of auditors as independent external parties questioned.

The challenges facing auditors today is how to maintain the quality of the audit (audit quality) in the middle of the business environment and information technology are changing so fast. To improve the quality of implementation audit, pressures on audit profession will emerge, either from the internal environment of KAP and the rules of standard setters.

Auditors need to master an understanding of the technology, the Internal Control (IC) and the Information System (IS) adopted by KAP where she worked. In order to facilitate the completion of the audit, each KAP have different policies on technology and information systems it uses.

As an agency or organization, the Firm also helped implement information technology systems in its work. Application or adoption of information technology systems aims to bring efficiency and effectiveness in the performance of auditors. At a Kantor Akuntan Publik, auditor or the auditor's staff are required to master information technology or information systems adopted by the previous KAP.

*Computer-Assisted Audit Tools And Techniques* (CAATTs) has been considered as the main technology applications for auditor (Coderre, 2009). CAATTs normally used for audit control of the application (Hall, 2010). CAATTs integrate data from multiple systems and databases and facilitate the analysis to achieve the objectives of the audit. CAATTs also be used to write scripts to perform automated audits and achieve the goal of auditing and continuous monitoring (Sun, 2012).

After KAP applying information technology used, the audit team should develop an audit plan, identifying the data needed, determine how to properly analyze the data, and then provide the right advice to management. This process relies heavily on professional judgment, knowledge, and skills of auditors (Coderre, 2009). To use CAATTs in auditing computers, auditors should have knowledge of auditing and CAATTs. With the competency to improve the performance of auditors. This has been proven by research conducted by Hsien Wu, et al. (2017) that the competence of auditors positive effect on the performance of auditors. In addition to competence, effort auditor also has an influence on the performance of auditors. This is in line with research conducted by Bonner (1994) that Capacity of the auditor to address the different environments and makes the quality of judgment depends on effort (effort) of their own to improve).

In this study, subjects were sampled are auditors who work in Kantor Akuntan Publik (KAP) in Surabaya. This study aims to determine whether there is influence between Competence And Effort Against Auditor Auditor Performance With Information Technology Usage As Mediation Variables.

## LITERATURE REVIEW

*Goal-Setting Theory.* Goal setting theory is a cognitive motivation theory originally developed from the idea of Locke (1968) of human action in specific work situations. The basic idea of this Locke refers to what Aristotle said "final causality", namely that the action was caused on purpose (Locke, 1996). Human intentions (human conscious intentions) as a goals, and behavior or human action is one pendent proposition underlying this theory. Term goals in this theory shows on an expression of interest, the object or action to be achieved person (Latham and Locke, 1990).

Locke (1997) suggested that the main source of motivation is the intention to achieve a goal. That is, the purpose of an auditor told what to do and how much effort should be spent. The evidence strongly supports the value of interest so that they can said that the improved performance is due to a special purpose, a higher performance resulting from difficult goals than younger goals, and feedback than no feedback, Specific goals showed levels higher yields than general purpose "do your best". The specificity of the goal itself seems to act as an internal stimulus.

*Competence.* Competence as the knowledge, skills, attitudes and behaviors that characterize and successful performance in the specific context (Crackin & Carol, 1998).



Competence is the personal aspects of a worker who allows him to achieve superior performance (Loma Dictionary, 1998).

A competent person capable of resolving the problem better than others. A challenge and the problem is seen as a means to an end by Individuals like this.

Spencer and Spencer (1993) shows that the competence consists of the following attributes: motives, traits, self-concepts, knowledge, and skills. Motif, nature, and self-concept is the core aspects of personality are striking and difficult to grow through training. Instead, the skills and knowledge that is striking and easy to grow through training. As a result, they are easier to evaluate.

One element of competence that is self-efficacy. Bandura (1993) states that Self-efficacy is a person's belief that he can perform a task at a certain level, affecting private activities towards the achievement of objectives.

Wang et al. (2004) reported that coordinate and integrate three core competencies of marketing, technology, and integrative competence can improve work performance. Previous studies also showed that the competence of a significant effect on work performance (Levenson et al., 2006). This is supported also by Zenita et al., (2015) and Afifah et al., (2015) that self-efficacy positively and significantly affects the performance of auditors. Iskandar & Sanusi (2011) also showed that better performance generated by auditors with a high degree of self-efficacy compared with auditors who have a low self-efficacy.

From the above it can be concluded that with the competencies both in terms of knowledge, self-efficacy, good skills possessed auditor can improve work performance auditor. Therefore, this study proposes Hypothesis 1 as follows:

H1: Competence positive effect on the performance of auditors.

*Effort Auditors.* Social cognitive theory Robbins (2006) states that the social cognitive theory establishes a framework for the understanding, prediction and responsibilities of human behavior. This theory identifies human behavior as the interaction of individual factors, behaviors and environments. The amount of cognitive effort expended in duty can be raised either through the duration of the effort (eg, work longer) or intensity of effort (eg, work harder), or through both the duration / length and intensity of effort (Cloyd 1997).

Chang et al., (1997) found that the justification / justification represent non-financial performance incentives increase the duration / length effort. Thus, when the auditors are given an incentive to perform tasks, they are expected to increase the amount of effort (effort) to complete the task. Improved performance depends on the effort of auditors so that they are able to cope with different environments and makes the quality of a good judgment (Bonner, 1994).

From the above it can be concluded that the presence of high auditors effort to complete the task to improve the performance of auditors. Therefore, this study proposes Hypothesis 2 as follows:

H2: Effort auditor positive effect on the performance of auditors.

*Competence, Use of Information Technology, and Performance Auditor.* The lack of direct knowledge limit the scope of the audit computer (Goldberg, 2011). When auditors have sufficient competence related to data analysis tools, IT, internal control and audit methods, they can acquire the data needed for the audit, analyzing the appropriate data, and build a complete and comprehensive automated audit. This effectively increases the completeness of the audit activities and improve the performance audit computer generated.

Hsien Wu (2017) found that competence indirectly affect the performance of internal audit through mediation effects team problem solving skills and computer audit activity. This means that with sufficient competence to audit the auditor will be able to operate a computer that allows the auditor to carry out audit work ranging from data acquisition, data analysis to preparing the audit report. With the computer audit activity performance of auditors will increase as well.

From the above it can be concluded that the presence of sufficient competence for auditors in operating a computer audit, the auditor makes it easy to carry out their duties so as to improve the performance of auditors. Therefore, this study proposes hypotheses 3 and 4 as follows:

H3: Competence auditor positive effect on the use of Information Technology.

H4: The relationship between the auditor and the performance of the auditor's competence mediated by the use of Information Technology.

*Effort Auditor, Usage of Information Technology and Performance Auditor.* Payne and Curtis (2010) noted that because the auditor may not only take the decision to adopt the technology, but is also responsible for implementing the technology, the efforts made by the adoption of the technology may be more prominent than other IT professional auditors. Thus, Payne and Curtis (2010) argues that the effort expectancy will be associated with the behavior.

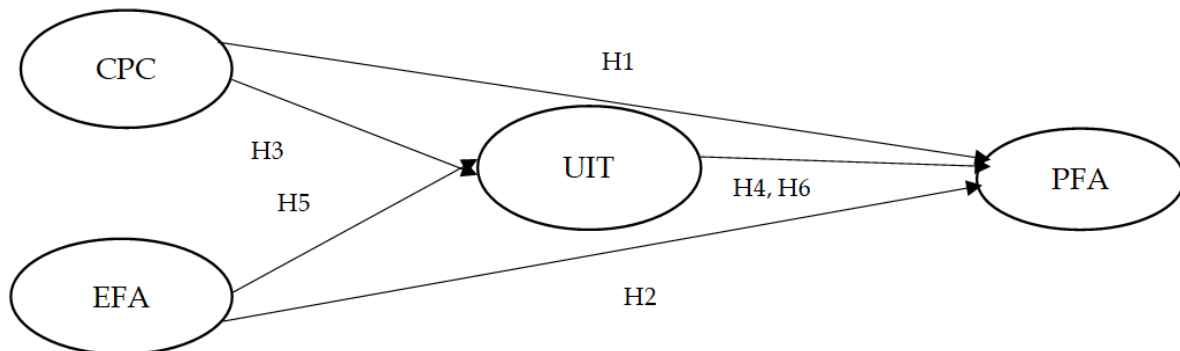
Research conducted Shamsuddin et al., (2015) proved that effort expectancy has a positive impact on the level of use of CAATs by internal auditors in Malaysia. When the auditor has a high level of effort to use information technology in the form of CAATs may improve the quality of judgment to improve the performance of audits produced. This is supported by research conducted Iskandar et al., 2012 that accountability pressure and self-efficacy positive effect with performance audit assessment through a process of high effort. Therefore, sIKAP effective against themselves against the pressures of accountability will have a high level of effort, which in turn improves the performance audit assessment.

From the above it can be concluded that when the auditor has a high effort on the use of information technology, it can improve the performance of auditors. Therefore, this study proposes hypotheses 5 and 6 as follows:

H5: Effort internal auditor positive effect on the use of Information Technology.

H6: The relationship between the auditor and the performance of the auditor's competence mediated by the use of Information Technology.

Many diagnostic hypotheses developed from, the model of this research can be seen in Figure 1 as follows:



Note: CPC (competence); EFA (Effort Auditor); UIT (Use of Information Technology); PFA (Performance Auditor)

Figure 1 – Research model

## METHODS OF RESEARCH

*Population and Sample Research.* The population used in this study were all auditors who work in Kantor Akuntan Publik (KAP) in Surabaya listed on the Directory Indonesian Institute of Certified Public Accountants (Certified) 2017 in Surabaya. The sampling technique in this study using purposive sampling method. Under this method, the criteria for determining the sample used in this study are as follows:

- Respondents in this study is the auditor who worked on KAP in Surabaya.
- Respondents were not limited to the auditor at KAP (partner, supervisors, senior, or junior auditors) so that all auditors working in the firm can be included as a respondent.
- Respondents in this study is the auditor who works for a minimum period of 1 year.

*Operational Definition and Measurement of Variables.* Constructs used in this study is the competence, effort auditor, the use of information technology and the performance of

auditors. Measurement of each construct using a Likert scale of 1 to 5 which has the meaning (1) strongly disagree, (2) do not agree, (3) neutral, (4) agree, and (5) strongly agree. As for the types of variables, constructs, definitions, indicators, and the code indicator in this study are described in Table 1 below:

Table 1 – Constructs, Definition, Measurement

Variable Type	Construct	Source	Definition	Indicator	Code Indicator
Endogenous Variable (Dependent)	performance Auditor	Esya 2008	Working behavior of an auditor in performing work tasks to achieve optimal results	The use of working time as effectively as possible to produce the maximum results of the audit.	PFA1
				Communication factor has an important role in the execution of audit engagements.	PFA2
				Compactness in the audit team affect the speed of completion of the audit	PFA3
				Spending all efforts owned at the time of execution of tasks to match the expected goals	PFA4
				The use of the existing infrastructure to the maximum to get the job according to the standards and quality expected.	PFA5
Exogenous Variables (Independent)	Competence	Hsien Wu et al., 2017	Knowledge, skills, and behaviors associated with the auditor conducting the audit.	the ability to understand the company's policies.	CPC1
				ability to develop appropriate audit purposes.	CPC2
				the ability to plan the audit planning.	CPC3
				ability to carry out the audit work.	CPC4
				the ability to generate audit reports.	CPC5
				The ability to use a computer auditing software to ensure completeness of data	CPC6
				The ability to use computers to analyze the audit system audit data.	CPC7
				The ability to use a computer audit system to perform automated audits.	CPC8
Exogenous Variables (Independent)	effort auditors	Iskandar et al., 2012	The amount of cognitive effort expended in duty can be raised either by the length of effort or intensity.	The use of more effort in the audit assignment.	EFA1
				The use of time to complete an audit assignment	EFA2
Exogenous Variables (Independent)	Use of Information Technology (UIT)	Hsien Wu et al., 2017	Use of Information Technology is the use of a software audit form of CAATs	Understanding of risk and internal control related to operating processes and information systems major	UIT1
				The use of computer audit to obtain all the necessary electronic data for the audit object.	UIT2
				The use of computers to analyze data audit audit properly, make sure they meet the objectives of the audit.	UIT3
				The use of computer audit to make an automatic audit for audit objects	UIT4
				The use of computer audit to obtain sufficient audit results and appropriate.	UIT5
				The use of computer audit to conduct ongoing audits of the goal.	UIT6

**Data analysis technique.** The statistical method used to test the hypothesis proposed in this study is Partial Least Square (PLS) with the help of WrapPLS program. Evaluation models in PLS is done by evaluating the outer and inner models models. Outer model is a measurement model to assess the validity and reliability of the model. Outer equation model used is as follows:

$$\begin{aligned} \text{UIT} &= \text{UIT.CPC} + \text{UIT.EFA} + e_1 + \rho && \text{Substruktural 1} \\ \text{PFA} &= \rho \text{PFA.CPC} + \rho \text{PFA.EFA} + \text{PFA.UIT} + e_2 && \text{Substruktural 2} \end{aligned}$$

Where: a = constanta;  $\rho$  = coefficient beta; PFA = Performance Auditor; UIT = Use of Information Technology; EFA = effort auditors; CPC = Competence; e = standard error.

## RESULTS AND DISCUSSION

*Characteristics of Respondents.* Respondents in this research that the auditor who works on Kantor Akuntan Publik (KAP). Distributing questionnaires carried out during the event Education and Training Public Accountant Certification Audit Level Pusdiklat BPK held on 13 to 17 November 2017. The questionnaires were returned a total of 61 respondents. The following is a descriptive profile of the respondents including gender, age, years of service, position, and the last education:

Table 2 – Characteristics of Respondents

Information	Criteria	Frequency	Percentage
Gender	Man	36 people	59.00%
	woman	25 people	41.00%
Age	amount	61 people	100.00%
	20-25 years	23 people	37.70%
	26-30 years	14 people	23.00%
	> 30 years	24 people	39.30%
Years of service	amount	60 people	100.00%
	1-2 years	17 people	27.90%
	3-5 years	19 people	31.10%
	> 5 years	25 people	41.00%
Office	amount	60 people	100.00%
	Junior Auditor	23 people	37.70%
	Senior Auditor	27 people	44.20%
	supervisor	4 people	6.60%
	Audit Manager	2 persons	3.30%
	partner	4 people	3.30%
Last education	amount	61 people	100.0%
	D3	1 person	1.60%
	S1	47 people	77.00%
	S2	12 people	19.70%
	S3	1 person	1.60%
	amount	60 people	100.00%

Based on Table 2 above shows that the auditor men dominate the sample proportion accountant who works on Kantor Akuntan Publik (KAP) in Surabaya as many as 36 people with a percentage of 59%. The age of respondents mostly aged > 30 years with a percentage of 39.30%. These conditions show that the average respondent had an older age. Most of the time works respondent > 5 years and served as a senior auditor with a percentage of 41.00% and 44.20%. This shows that the respondents are long worked in the Office of Public Accountant and has a long experience and competence are pretty good. While education in the past, most respondents educated as S1 with a percentage of 77%.

*Evaluation Measurement Model (Outer Model).* Measurement model evaluation is performed to test the validity and reliability. The test results PLS stage measurement model will be presented in tables 2 and 3, as follows:

Validity test. Assessment in testing the validity can be seen from the results of the combined loading and cross loading and Variances Average Extracted (AVE), as follows in Table 3.

Table 3 shows that the variable performance of auditors, competence, effort auditor, and the use of information technology has a valid criterion by deleting some indicator which does not qualify / criteria. Overall variable with some indicators have met the following criteria loading values above 0.5 and p-valuenya (<0.05) and the average variance extracted (AVE) above 0,50 (Hair et al., 1987; 2009). This suggests that the terms of validity of the measuring instrument are met and means that all the items of the statements used in this study could reveal something that was measured in the questionnaire.

Reliability Test. Assessment in testing the validity can be seen from the results Composite reliability coefficients, as follows in Table 4.

Table 4 shows the carry value of composite reliability coefficient of 0.618 competence, effort auditor amounted to 0.933, use of information technology amounted to 0,812, and the performance of the auditor amounted to 0.889. Value Composite reliability coefficients of each construct has been qualified is worth over 0.70. Thus, it can be concluded that the

statements in the questionnaire is reliable because the reliability of composite value should be more than 0.70 (Hair et al., 2011). This shows that every item statement that is used will be able to obtain consistent data, which means when the statement was refiled be obtained relatively the same answer to the previous answer.

Table 3 – Validity of Test Results

Construct	item	PFA	CPC	EFA	UIT	P Value	AVE
Performance Auditor (PFA)	PFA1	<b>0680</b>	0.465	0047	-0247	<0.001	0,509
	PFA2	<b>0645</b>	-0363	-0229	0.279	<0.001	
	PFA3	<b>0691</b>	-0304	0084	0.275	<0.001	
	PFA4	<b>0776</b>	0.122	.196	-0267	<0.001	
	PFA5	<b>0766</b>	0043	-0123	0007	<0.001	
Competence (CPC)	CPC1	0.187	<b>0777</b>	.124	-0313	<0.001	.601
	CPC2	0045	<b>0766</b>	-0124	-0329	<0.001	
	CPC3	0,197	<b>0723</b>	-0131	-0456	<0.001	
	CPC4	0099	<b>0763</b>	-0129	-0155	<0.001	
	CPC5	-0191	<b>0789</b>	-0018	0.534	<0.001	
	CPC6	-0179	<b>0798</b>	-0001	.536	<0.001	
	CPC7	-0129	<b>0808</b>	0.256	.117	<0.001	
effort Auditor (EFA)	EFA1	.178	0.322	<b>0803</b>	-0271	<0.001	0,645
	EFA2	-0178	-0322	<b>0803</b>	0.271	<0.001	
Use of Information Technology (UIT)	UIT1	-0018	-0084	-0035	<b>0915</b>	<0.001	0.876
	UIT2	-0014	-0012	-0033	<b>0942</b>	<0.001	
	UIT3	-0042	.170	.110	<b>0917</b>	<0.001	
	UIT4	-0004	-0021	0015	<b>0969</b>	<0.001	
	UIT5	0077	-0051	-0056	<b>0934</b>	<0.001	

Source: Output WarpPLS, 2017.

Table 4 – Reliability Test Results

Variables	Composite Reliability coefficient	Information
Competence (CPC)	0.618	Reliable
effort Auditor (EFA)	0.933	Reliable
Use of Information Technology (UIT)	0,812	Reliable
Performance Auditor (PFA)	0.889	Reliable

Source: Output WarpPLS, 2017.

*Evaluation Model (Inner Model)*. Based on the analysis Partial Least Square for testing test structural models (inner model) with WarpPLS Program 5.0. obtained the results of the analysis as follows:

Table 5 – Evaluation Model (Inner Model)

Model	R-Squared	Q-Squared
Performance Auditor (PFA)	.471	.443
Use of Information Technology (UIT)	0.635	0,622

Source: Output WarpPLS, 2017.

Structural model (structural model of atainner model) is indicated by the R-squared value is recommended  $\geq 0.02$  (Kock, 2013). Table 4 above shows that the R-Squared value for Auditor Performance of 0.471 which means that the variable competence, effort auditor, and the use of information technology to explain the performance of auditors 47.10%, while the remaining 52.90% influenced by other factors which are not included in this model. While the R-Squared for the use of information technology for 0.635 which means that 63.5% variable auditor competence and effort explaining 63.50% of the use of information technology, while the remaining 36.5% is influenced by other factors that are not in this model.

*Q-squared* aimed at measuring how well the predictions generated by the model construct. Based on calculations, it can be seen that the Q-squared value for the

performance of auditors amounted to 0.445. This shows that the model in this study has predictive relevance (match prediction) for Q-squared value > 0. The variable-phase variable exogenous variables such as competence, effort auditor, and the use of information technology have relevance predictive variables auditor performance. While the Q-squared value for the use of information technology for 0.622. This shows that the model in this study has predictive relevance (match prediction) for Q-squared value > 0. The variable-phase variable exogenous variables such as competence, and effort auditor has predictive relevance in the variable use of information technology.

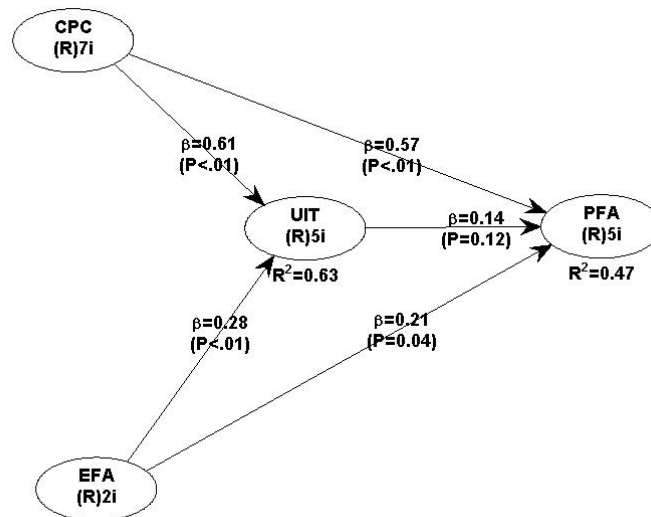
*Hypothesis testing.* Hypothesis testing is done by looking at the path coefficient to determine the influence between the latent variables by means of bootstrapping can be seen in Table 5 and the resulting structural model study of WarpPLS 5.0 can be seen in Figure 2.

Table 6 – Path Coefficient

path	path Coefficient	P-Values	standard Error	Information
CPC→UIT	0.615	0,000	.103	Significant
EFA→UIT	.284	0009	.116	Significant
CPC→PFA	0.567	0000	0,105	Significant
EFA→PFA	0,211	0041	0.119	Significant
UIT→PFA	.144	0120	0.122	Not significant

Source: Output WarpPLS, 2017.

Note: CPC (competence); EFA (Effort Auditor); UIT (Use of Information Technology); PFA (Performance Auditor).



Note: CPC (competence); EFA (Effort Auditor); UIT (Use of Information Technology); PFA (Performance Auditor)

Figure 2 – Structural Model

*Influence on Performance Auditor Competence.* From table 6 competence hypothesis test results on the performance of auditors shows that the path coefficient of 0.615 with a p-value  $0.000 < 0.05$ , this means that the positive effect on the competence of auditor performance means higher competence of an auditor, the higher the performance of auditors, Based on these results it can be stated that the first hypothesis is accepted. These results are consistent with research conducted by Levenson et al., 2006, Alexander & Sanusi (2011). Zenita (2015), Afifah (2015), and Hsien Wu, et al. (2017) that the competence of auditors positive effect on the performance of auditors.

High competence in self auditor, able to make the auditor believes that he can run a task on a certain level, affecting private activities towards the achievement of objectives. An auditor has a duty to constantly improve the knowledge that has been owned by the new insights that can be a maximum application of their knowledge in practice that will impact on their performance so that the quality of the resulting audit also getting better.

*Effort Influence on Performance Auditor Auditor.* From Table 6 results of hypothesis testing effort on the performance of the auditor's auditor shows that the path coefficient value of 0.567 with a p-value  $0.000 < 0.05$ , this means that the effort auditor positive effect on the performance of auditors means higher effort which is owned by an auditor, the higher the performance of auditors. Based on these results it can be stated that the second hypothesis is accepted. These results are consistent with research conducted by Bonner, 1994 that the auditor's ability to cope with different environments and makes the quality of judgment depends on effort (effort) of their own to improve performance.

In performing its duties, the auditor requires a high effort. Effort can be improved through the length of effort (eg, work longer) or intensity of effort (eg, work harder). With their high effort auditor to complete the task on time according to the audit schedule that has been made, so that it can improve the performance of auditors.

*Mediation on the Use of Information Technology Competencies, Performance Effort Auditor and Auditor.* From Table 6 results of hypothesis testing terh competence of auditors can be enhanced either through the duration of the effort (eg, work longer) or intensity of effort (eg, work harder), adap use of information technology shows that the path coefficient value of 0.615 with a p-value  $0.000 < 0.05$ , this means that the competence of auditors positive effect on the use of information technology means higher competence of an auditor, the ability of the auditor in the better use of information technology. Based on these results it can be stated that the third hypothesis is accepted.

From Table 6 results of hypothesis testing effort to use information technology auditor shows that the path coefficient value of .284 with a p-value  $0.009 < 0.05$ , this means that the effort auditor positive effect on the use of information technology means higher effort issued by an auditor the auditor's ability in the use of information technology is getting better. Based on these results it can be stated that the hypothesis is accepted 5.

But the results of a test of hypothesis use of information technology to the performance of the auditor is not significant, it is reflected in the value of significance (p-value) of 0.120 with the value path coefficient of 0.144. Thus the hypothesis 4 and 6 were not accepted, this means that hassociation between competence of auditors, auditors and performance auditors effort is not mediated by the use of Information Technology. The results of this study are not consistent with a study conducted by Hsien Wu (2017) found that the competence indirectly affect the performance of internal audit through mediation effects team problem solving skills and computer audit activity. And Samhuddin (2015) proved that effort expectancy has a positive impact on the level of use of CAATs by internal auditors in Malaysia. When the auditor has a high level of effort to use information technology in the form of CAATs may improve the quality of judgment to improve the performance of audits produced.

The results of this study explained that the existence of adequate competence and a high effort for the auditor to be able to operate a computer audit that facilitate auditor in performing the audit work but with the use of information technology for audit purposes did not improve the performance of auditors. This is because the auditors who work in Kantor Akuntan Publik (KAP) does not use information technology applications such as Computer-Assisted Audit Tools And Techniques (CAATTs) to achieve the purpose of their audit. They only use the help of Microsoft Excel to do the inspection, but it also respondents in the study with an average age > 30 years. It is also the reason why the auditors did not use information technology for audit purposes due to their age that much, they find it difficult to use information technology applications, and they chose to do the work of audit manually or using Microsoft Excel.

## **CONCLUSION AND RECOMMENDATIONS**

Kantor Akuntan Publik is an agency that offers services such assurance audit of the financial statements, which require high quality audits. To obtain a quality audit, the auditor needs a good performance too. The results of this study indicate that the auditor's competence and effort have direct influence on the performance of auditors. And the use of

information technology is not a mediating variable between competence and effort auditor with the auditor's performance. This is because the auditors working in the Kantor Akuntan Publik does not use a software audit information technology (CAATs) but still use microsoft excel in performing their duties.

An auditor has a duty to always develop the competencies they have. With the competence of auditors to improve their performance. Likewise with the effort issued auditors in performing their duties. The higher the effort auditor, auditor tasks can be completed on time so that the auditor's performance will be better.

This study contributes to the Kantor Akuntan Publik that the competence and effort can affect the performance of auditors. KAP thus need to include auditor training, seminar, which can increase their competence in order that the resulting performance is also getting better and the resulting audit quality is also good. And KAP needs to consider the use of information technology such as CAATs in performing its duties.

The subjects of this study was limited to the auditors working in KAP Surabaya, researchers can further expand the research subject. Use of information technology is also only limited use of the software audit form of CAATs, further research can add models Technology Acceptance Model (TAM), which can be used as a predictive tool to measure the acceptance and use of information technology, which is expected to provide results and power generalization greater for further research.

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## **BEHAVIOR OF RUBBER FARM HOUSEHOLDS ON THE LABOR USAGE IN CENTRAL KALIMANTAN, INDONESIA**

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### **ABSTRACT**

The objectives of this research are to identify the business profile of rubber smallholders and labor in Kapuas Regency, Central Kalimantan, to examine decision pattern of farm households and influencing factors in the labor usage allocation in rubber farm households. The research location was determined purposively. The method of determining the sample used disproportionate stratified random sampling method. Total farmers as the respondents were 134 farm households. The first objective of the study was achieved using descriptive statistical analysis. The second objective was analyzed using two-stage least squares (2SLS) method. Data processing used Statistical Analysis System version 9.1 for Windows. The results of this study showed that the profile of labor usage in the households was more dominant in the rubber plantations and the allocation of labor usage was employing more productive labor in the family i.e. husbands, wives, and the working-age relative members living together in one household. Rubber price and total rubber production had a positive and significant influence on the behavior of male labor in the rubber plantations. Rubber price and a number of household members had a positive and significant influence on the behavior of female labor in the rubber plantations. However, the number of minors in the family had a negative and significant effect on the behavior of female labor in the rubber plantations.

### **KEYWORDS**

Household economy, smallholders, male labor, female labor, labor allocation.

Developing countries generally believe that the industrial sector is able to overcome economic problems, assuming that this industrial sector can lead other economic sectors toward economic development. Similarly, in Indonesia, the industrial sector is prepared to be able to become the leading sector of other economic development sectors.

Based on data, most of the rubber plantations in 2013 were dominated by smallholders (*Perkebunan Rakyat*, PR) of 85.10 percent or 3.03 million hectares, Private Plantation (*Perkebunan Besar Swasta*, PBS) of 7.05 percent or 0.28 million hectares, and Government Plantation (*Perkebunan Besar Negara*, PBN) of 6.95 percent or 0.25 million hectares. Based on these data, most of the rubber plantations were community-owned plantations, causing the rubber development to be focused more on smallholders (Statistics Indonesia, 2014).

The facts show that the price of rubber in the international market not only fluctuates every year but also varies greatly. This condition impacts on the income of farm households and on the household economic behavior in the decision of the labor allocation in farm households. In the household economy, although the plantation is related to the production decision, it also indirectly influences the decision of the labor allocation in farm households. The income generated from the production activities will determine the labor allocation in farm households simultaneously. This study describes specifically the decision patterns for the labor allocation in rubber farm households and the influencing factors according to the specific location of the study. Based on the description above, the objectives of this research are (1) to identify the business profile of rubber smallholders and labor in Kapuas Regency,

Central Kalimantan, (2) to examine decision pattern of farm households and influencing factors in the labor usage allocation in rubber farm households.

## METHODS OF RESEARCH

The research was conducted by survey method at Kapuas Regency, Central Kalimantan Province, Indonesia. The research location was determined purposively. The method of determining the sample used the disproportionate stratified random sampling method. Determination of the number of respondents was done randomly (random sampling) by 30% for farmers of UPPB (*Bokar* Processing and Marketing Unit, *Unit Pengolahan dan Pemasaran Bokar*) members and 10% for farmers of non-UPPB members. Thus, 134 farm households as respondents were obtained. Data in this research included primary data and secondary data.

The first objective of the study was achieved using descriptive statistical analysis. Descriptive statistics illustrate or describe the collected data to provide useful information based on the plantation activities. The second research objective was analyzed using two-stage least squares (2SLS) or maximum likelihood method. Data processing was done using SAS (Statistical Analysis System) version 9.1 for windows. Furthermore, the significance test using a statistical t-test for partial test and F test statistic was employed. The coefficient of determination ( $R^2$ ) was used to know the accuracy of the model (goodness of fit).

## RESULTS AND DISCUSSION

*Business Profile of Rubber Smallholders.* Central Kalimantan is one of the rubber-producing provinces in Indonesia, in which rubber is one of the most potential plantation commodities in the plantation sub-sector. The total area of smallholders (*Perkebunan Rakyat*, PR), Private Plantation (*Perkebunan Besar Swasta*, PBS), and Government Plantation (*Perkebunan Besar Negara*, PBN) in Central Kalimantan in 2013 were 269,700 ha, with potential production of 227,042 tons. In this case, the Provincial Government of Central Kalimantan focused on assisting the development of rubber smallholders because the plantations were very helpful for people's lives. Rubber smallholders not only supported society life but also created employment opportunities for the society (Statistics of Central Kalimantan, 2014).

The development pattern of rubber plantation in the research location was rubber smallholders with traditional and subsistence pattern. However, it had an important role for regional economic income, especially for rubber farm households.

The dominant clones of rubber plants planted by the farmers were local rubber clones and the recommended clones of IRR 112 and PB 260 in accordance with the specific location obtained from rubber rejuvenation assistance from the regional Department of Forestry and Plantation. The number of rubber plants in farm households varied from 333-457 per hectare. Table 1 present the total production of rubber smallholders in the research area.

Based on Table 1, the rubber farm households in the three research villages encountered two seasons i.e. the dry season and the rainy season. The types of *bokar* (raw materials for rubber, *bahan olah karet*) output produced by the farmers in the research area consisted of smoked sheets, wind sheets, lumps, and slabs. However, rubber lumps were the dominant production for both farmers of UPPB and non-UPPB members since 2015. From Table 1, it can be concluded that the production of latex and lumps were dominant during the rainy season.

*The Labor Usage Allocation In Farm Households.* Labor is one of the capitals owned by farm households. Labor in farm household is employed to carry out various productive activities both in and outside agricultural sector including other social activities.

The labor usage in farm households employed more productive labor in the family i.e. husbands, wives, and working-age relatives living together in one household, except for

certain activities that cannot be done by family members in the household. Table 2 presents the distribution of labor usage in farm households in the research area.

Table 1 – Total Rubber Production of Farm Households in Three Research Villages

No.	Description	Anjir Serapat Tengah		Tamban Luar		Sekata Bangun	
		UPPB	Non- UPPB	UPPB	Non- UPPB	UPPB	Non UPPB
1.	Latex:						
	a. Dry season (L/Yr)	22,101.90	27,809.00	23,720.80	15,221.07	28,751.00	14,036.30
	b. Rainy season (L/Yr)	33,152.85	41,122.14	35,581.20	32,364.90	32,619.00	16,849.70
2.	Lump						
	a. Dry season (Kg/Yr)	16,965.10	20,848.50	18,339.00	16,909.98	19,822.00	10,385.23
	b. Rainy season (Kg/Yr)	25,447.65	32,193.58	27,508.90	25,364.97	24,321.00	12,694.61

Source: Primary Data, 2017.

Table 2 – Labor Usage in Farm Households

No	Activity	UPPB (HOK/Yr)	Percent (%)	NON-UPPB (HOK/Yr)	Percent (%)
1.	Rubber plantation:				
	Rubber	191.15	56.73	182.84	56.06
2.	Outside Rubber Plantation:				
	Rice field	48.24	14.32	38.42	11.78
	Livestock	36.31	10.78	51.06	15.65
	Other (Off and Non-Farm)	61.26	18.18	53.84	16.51
	Total	336.96	100.00	326.16	100.00

Source: Primary Data, 2017.

Based on Table 2, the dominant labor usage in farm households was for rubber plantation activities which were 56.73% for farmers of UPPB members and 56.06% for farmers of non-UPPB members. The labor usage in farm households for UPPB members was 191.15 HOK (Working Day, *Hari Orang Kerja*) per year, consisting of 149.34 HOK of male labor and 71.20 HOK of female labor, while for non-UPPB member were 182.84 HOK per year, consisting of 141.31 HOK of male labor and 61.44 HOK of female labor.

*The Behavior of Labor Usage in the Rubber Plantations.* The labor usage in the research location consisted of male and female labor. This term was used because, in the research location, the labors not only consisted of the husbands and wives but also family labors in kinship relationships living in one household such as adult siblings and nephews. In this study, farm households did not involve children labor in the rubber plantations due to the increasing household's awareness of the importance of education, causing the farmers' children to pursue their education inside and outside the sub-district or regency. This was in line with the government program to improve the education level in the society, especially people in the rural area.

The behavior of the labor usage was commonly from the farm households because this research only analyzed the farmers who directly owned and managed the rubber plantations. In addition, the farmers of UPPB members were mostly the owner of the rubber plantations. Table 3 presents the parameter estimation results of labor usage equation model in the rubber plantations.

Based on Table 3, the result of equation analysis on male labor behavior (TKPKR) in the rubber plantations obtained the coefficient of determination (R<sup>2</sup>) of 0.56600 which meant that 56.600 percent of male labor variable was able to be explained by variables in the model, while the rest was more influenced by other variables outside the model. The result of F test analysis was 32.78 with less than one percent significance of error rate. The result of autocorrelation test with Durbin Watson (DW) criterion test was 1.854083. The value was still between the determination of the value of 1.55-2.46 (Misbahuddin and Hasan, 2013). It can

be concluded that the structural equation had no indication of autocorrelation between variables.

Table 3 – Parameter Estimation Results of Labor Usage Equation Model In the Rubber Plantations

Dependent Variables	Explanatory Variables	Parameter Value	t-count	Error Rate
TKPKR	Intercept	71.69845	2.99	0.0002
	HBR	0.00794	2.72	0.0228
	LLK	15.45877	0.59	0.5576
	TPBR	0.045816	1.88	0.0622
	ERT	-512E-7	-030	0.7655
	R <sup>2</sup>	0.56600	Pr > F	<.0001
	F-Count	32.78	DW	1.854083
TKWKR	Intercept	19.75217	0.76	0.4459
	HBR	0.003795	2.80	0.0442
	LLK	-4.98240	-0.78	0.4392
	ERT	-1.41E-6	-0.68	0.4969
	JART	8.794727	2.11	0.0370
	JABU	-19.6025	-4.82	<.0001
	R <sup>2</sup>	0.62505	Pr > F	<.0001
F-Count	54.19	DW	2.079347	

The result of partial analysis with a t-test showed that the variable of *bokar* price had a positive and significant effect on the male labor usage with five percent error rate. A positive sign indicated that when the price of *bokar* was high, the farmers increased the number and productive working time of male labor usage in the rubber plantations. This behavior was in line with the conditions or symptoms occurring at the research location, in which increasing price of rubber caused more dominant male labor in the rubber plantations. On the other hand, the declining rubber prices caused a reduction in male labor usage. Female labor was the one working in rubber tapping process. Accordingly, the total *bokar* production variable had a positive and significant effect on male labor with 10 percent error rate. Therefore, the increasing total production of *bokar* caused the increasing male labor usage.

The result of equation analysis on female labor behavior (TKWKR) in the rubber plantations obtained the coefficient of determination (R<sup>2</sup>) of 0.62505 which meant that 62.505 percent of female labor variable was able to be explained by variables in the model, while the rest was more influenced by other variables outside the model. The result of F test analysis was 54.19 with less than one percent significance of error rate. It meant that all explanatory variables simultaneously affected female labor in the rubber plantations. The result of autocorrelation test with Durbin Watson (DW) criterion test was 2.079347. The value was still between the determination of the value of 1.55-2.46 (Misbahuddin and Hasan, 2013). It can be concluded that the structural equation had no indication of autocorrelation between variables.

The result of partial analysis with a t-test showed that the variable of *bokar* price (*harga bokar*, HBR) had a positive and significant effect on the female labor usage with five percent error rate. A positive sign indicated that when the price of *bokar* was high, the farmers increased the number and productive working time of female labor usage as an effort to increase the rubber farm household economy.

The number of family members (*jumlah anggota rumahtangga*, JART) had a positive and significant impact with five percent error rate. It meant that the more productive members of households, the more available labor in households useful for rubber production activities.

At the research locations, some working wives had minors. The t-test result on the variable of the number of minors (*jumlah anak di bawah umur*, JABU) was negative and significant with less than one percent error rate. The parameter value was -19.6025 significant with less than one percent error rate. It meant that if the number of minors increased by one child, the allocation of working time for female labor with minors reduced by 19.6025 HKP per year in rubber production activity.

## CONCLUSION AND RECOMMENDATIONS

The profile of labor usage in the households was more dominant in the rubber plantations. The environmental condition of rubber farmers greatly influenced household economic behavior especially in the decision of the labor allocation in farm households. In the household economy, although the plantation is related to the production decision, it also indirectly influences the decision of the labor allocation in farm households. The labor usage involved male and female labor. This behavior was in line with the conditions or symptoms occurring at the research location, in which increasing price of rubber caused more dominant male labor in the rubber plantation. On the other hand, the declining rubber prices caused a reduction in male labor usage

Rubber price and total rubber production had a positive and significant influence on the behavior of male labor in the rubber plantations. Rubber price and a number of household members had a positive and significant influence on the behavior of female labor in the rubber plantations. However, the number of minors in the family had a negative and significant effect on the behavior of female labor in the rubber plantations.

For the policymakers, in order to increase the allocation of labor usage in the rubber plantations, it is necessary to provide assistance with more intensive counseling in the plantation management. It is due to the rubber plantations are the main income source for the farmers and a support for economic needs of rubber farm households.

For the farmers, it is expected that the allocation of male and female labor usage can be further improved and balanced with the improvement of rubber quality. Thus, the farmers can focus more on rubber plantation management in order to increase the household income.

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## **STRATEGY ANALYSIS OF SMALL-SCALE BUSINESS DEVELOPMENT OF LEATHER PRODUCTS IN SIDOARJO REGENCY OF EAST JAVA, INDONESIA**

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### **ABSTRACT**

Micro, Small and Medium Enterprises of East Java has contributed 54.34% to the total value of Gross Regional Domestic Product of the region. Various problems experienced by the leather processing industry located in Sidoarjo and Surabaya. These problems include management which includes poor accounting system and procedures, transaction recording is still done manually and do not have profit balance report. The purpose of this research is to know the strengths, weaknesses, opportunities, and threats faced by the leather craftsmen in Surabaya and Sidoarjo in the short and long term and to know how the participation of local government and related agencies in developing leather processing industry in these two locations.

### **KEY WORDS**

Strategy, SWOT, small business, leather, revolution 4.0, innovation.

The history of skin-processing crafters in Tanggulangin – Sidoarjo started in 1939 and these skills were handed down from generation to generation as some of the crafters in Tanggulangin Sidoarjo started making bags, suitcases and other processed leather products. In 1976, the Intako Cooperative (industrial bag and suitcase) was established with only 27 members. Currently, Intako Cooperative continues to grow to have 350 more members of crafters. The occurrence of Lapindo mud disaster in 2006 had decreased the visitors drastically resulted in bankruptcy of 70% craftsman. Some of them only work if there is an order. MSMEs accounted for 54.39% of all industries in East Java. In addition to prospering business actors, MSMEs can also help the government to cope with unemployment. 2013 BPS data shows that the number of MSMEs in East Java is 6,825,931. Every year the contribution of MSMEs is always improving. In 2012 the role of MSMEs to East Java GRDP is 54.39% of total East Java GRDP of 1,0011.72 Trillion, one of the existing MSMEs in East Java is the leather craft industry in Sidoarjo.

The results of preliminary observations indicate that there are various problems experienced by the skin processing industry located in Sidoarjo. These problems include management such as poor bookkeeping procedures; recording transactions are still done using systematic manual using a computer, and does not have a balance sheet of profit and loss. The Value Chain raw material supply becomes one of the problems experienced by industrial owners because the supply chain is also influenced by large leather processing companies in Sidoarjo which have exported their products abroad. One of the causes of the lack of optimal assistance done by the local government is that the difficulty in uniting and cooperating among crafters, the lack of promotion by LG and INTAKO, in general, the crafters do not have their own brand. Thus, most of their products will be sold again by the entrepreneurs using another brand. The phenomenon of small entrepreneurs, especially the processed leather crafters becomes the focus of this research. The purpose of this research is to know the result of internal factor analysis and external factor with SWOT and to give strategic plan to improve the competitiveness of leather crafters.

### **MATERIALS AND METHODS OF RESEARCH**

Research to be reviewed by researchers is a matter of a social and dynamic nature. The further research method used is qualitative research method by using phenomenology



analysis. SWOT analysis is used to determine the internal and external conditions of leather handicraft to be developed as appropriate strategy to improve the quality, productivity and improve the competitiveness and selling value of handicraft processed leather industry in the form of bag, luggage, and others.

The research was conducted in leather industry area located in Tanggulangin - Sidoarjo. The data were collected by interview questionnaire and recording process was also done to the interview. The data retrieval and field observation were conducted from January 2017 to March 2018.

The informant of this research consists of 6 people who are the owner of leather processing business in Sidoarjo. Secondary research data is also obtained from the Department of Trade, Department of MSME of Sidoarjo Regency.

## RESULTS OF STUDY

### *Internal factors (Strengths):*

- Product quality. The product quality is excellent because it comes from 100% genuine leather for the genuine leather type.
- Design. The products of the processed leather crafters of Intako members vary greatly. Product design updates are also continuing to follow the market demand and popular trends.
- Skill. Most of the crafters who joined the cooperative Intako have good skills and the skills have been passed down from their parents. The additional workforces who work in their business place also have proven their skills and ability to produce excellent quality goods.
- Internet. Most of the crafters have been using the internet to search for up to date new designs and always try to keep up with the current trends.
- Time of product work. Crafters have a commitment to be able to complete the order in accordance with the agreed time specified with consumers. Up until now, all orders are completed in a timely manner.
- Brand. Some have their own brand name making it easier for consumers to remember the brand.
- Consumer Warranty. The crafters provide the warranty to the consumer. The warranty is either free repair or replacement with a new product. This warranty will provide satisfaction and increase consumer confidence in the product.

### *Internal factors (Weaknesses):*

- Capital from Bank Loans. The derived capital comes from the Bank's credit and part of the cooperative's savings. Loan obtained from the Bank will have an impact on the interest payable by crafters. The existence of this interest will have an impact on the increasing production costs.
- The Profit and Loss Balance Sheet have not been performed. Bookkeeping and recording of profit and loss on a regular basis should be done.
- Raw material. High-quality leather raw materials are difficult to obtain. Currently, the supply of raw materials also depends on the private company. Some auxiliary materials should be imported due to the limited material.
- Cleanliness and Safety Factors. All raw materials need to be cleaned in accordance with applicable procedures. The company should pay attention to the health of the crafters especially to the Work Health and Safety and Occupational Diseases
- No business entity. Most crafters do not have registered business entity. The business is only run by individual.
- Poor purchasing system of raw material. Value chain supply of raw materials is still poor. Sometimes, raw materials have been sold out while the product of sales results has not been sold. This makes the production does not work well and hampers the productivity.

Table 1 – Internal Matrix of Small Processed Leather Products in Sidoarjo Regency

Internal factors	Weight	Rating	Weighted Score
<b>Power:</b>			
• Quality Product	0.3	4	1,2
• The designs vary	0.05	3	0.15
• Have skills	0.15	4	0.6
• Utilizing the Internet	0.05	3	0.15
• Work on time	0.05	3	0.15
• Own brand	0.2	4	0.8
• Providing warranty to the production results	0.2	4	0.8
Total	-	-	3.85
<b>Weakness:</b>			
• Capital from Bank loan	0.3	4	1,2
• Incorrect financial records	0.2	3	0.6
• Poor estimation of raw materials	0.15	3	0.45
• Health protection is not a priority	0.05	3	0.15
• Do not have a business entity	0.2	4	0.8
• Do not have standard purchase system	0.1	3	0.3
Total	-	-	3.5

*External Factors (Opportunities):*

- Buyers know the quality of the product results. The quality of the processed leather products from Tanggulangin, Sidoarjo is well-known in the market. Hence, the quality of the products is not questionable. The public trust can increase the selling value of the product.
- Competitive price. The price offered by the crafters is relatively cheaper when compared with similar products from abroad. A cheaper price with a similar quality product will make its position as the main choice in the market.
- Leather processed enthusiasts are still high. The interest in leather products is still high, especially middle to upper class. For them, it is necessary to have high-quality products in order to show their social strata.
- No competitors. There is no competitor which a serious barrier to the sustainability of this product can be.

*External Factors (Threats):*

- Imitation of raw materials and accessories depending on import. Imitations of raw materials, auxiliary materials and many accessories that must be imported have increased the production costs. In addition, the dependence of this material can obstruct the production process; the import process also takes longer which obstruct the production process.
- Not Optimal Role by the Government. The role of government in developing MSMEs should be improved. According to Law No. 20 of 2008 on MSME stating that the government and local government have to facilitate the development of MSMEs in the field of production and processing, marketing, human resources, design, and technology. One of the business developments facilitated by the government is to provide easiness in the procurement of facility and infrastructure, production and processing, raw materials, auxiliary materials, and packaging for MSMEs products. The results of this study indicate that the role of government is still not optimal in developing MSMEs. The role of government needs to be revived in terms of assistance. Thus, MSMEs, especially small-scale entrepreneurs of processed leather (crafters) can grow and survive well. In addition, they will be encouraged more to improve its competitiveness.
- The implementation of the sale and purchase transaction is not in accordance with the agreement. In the execution of sale and purchase transactions, there are still cases in which the buyer does not pay or pick up goods at the completion time of ordered of processed leather products. This has obstructed the flow funds which in turn affect or disturb the production process.

Table 2 – External Matrix of Small Processed Leather Products in Sidoarjo Regency

External Factors	Weight	Rating	Weight score
<b>Opportunities:</b>			
• Buyers know the quality of the products	0.3	4	1.2
• Has a competitive price with other products	0.3	4	1.2
• High interest in leather products	0.2	3	0.6
• No competitor has tried to bring down the manufacturer yet	0.2	3	0.6
<b>Total</b>	-	-	<b>3.6</b>
<b>Threat:</b>			
• Imitation raw materials and accessories still depend on imports	0.3	4	1.2
• The role of the government is limited to providing information	0.5	4	2.0
• Implementation of the sale and purchase is not in accordance with the agreement	0.2	4	0.8
<b>Total</b>	-	-	<b>4.0</b>

The results of IFAS and EFAS calculations show that the weighted value is in the ST quadrant position ST. The difference in the weighted value of the internal factor is 0.35 while for the external factor is -0.4. This shows that the craft of leather products has internal strength but has external threat.

Table 3 – The Value of Weighted Difference of Internal and External Factors

Weighted Value of Strength	3.85
Weighted Value of Weaknesses	3.5
Difference	0.35
Weighted Value of Opportunity	3.6
Weighted Value of Threat	4.0
Difference	-0.4

In accordance with the calculations of IFAS and EFAS, the position of leather craft in Sidoarjo District is as follows:

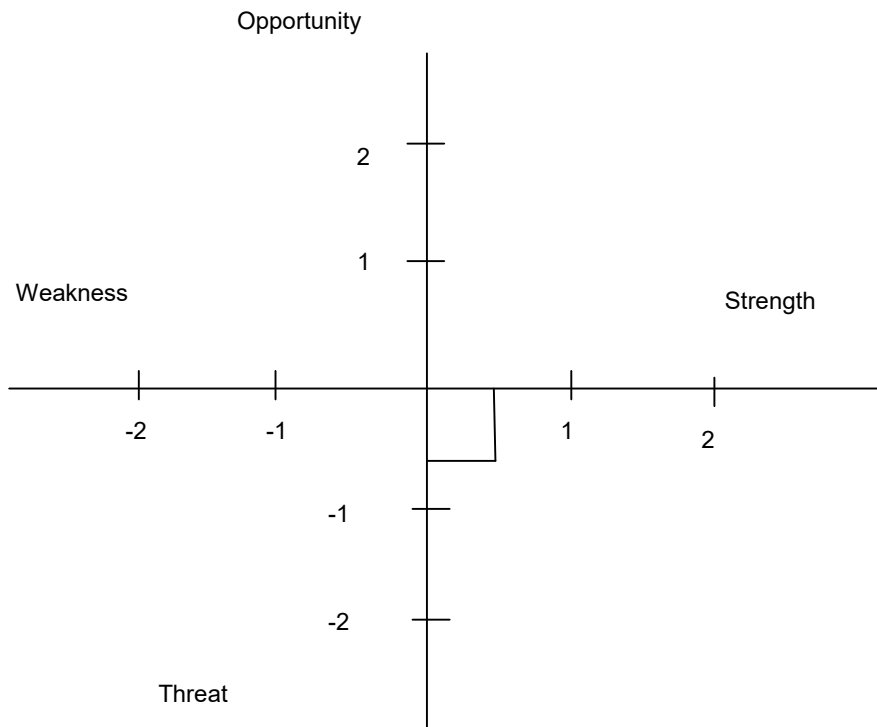


Figure 1 – The SWOT diagram shows that the position of the Sidoarjo leather processed craft is in the ST Quadrant

The result of weighting and calculation with SWOT shows that ST strategy should be done namely diversification.

Table 4 – Strategy that is expected to be applied to Small Scale Business of Leather Products in Sidoarjo Regency

	Strength (S)	Weakness (W)
Opportunity (O)	Online sales so that the goods will get more recognition and can be bought by the public Innovate products for the dominant market segment Improve the human resources capability to improve the quality of the already good product, to make it better	Improve the bookkeeping system and create a balance sheet Selectively choose loan capital from the bank
Threat (T)	Innovating and developing industrial products to compete with imported products Keeping and maintaining the good-quality product.	Empowering one worker to be able to perform marketing and financial functions Merger with other industry owners

A good and suitable strategy to implement is a diversification strategy. Some of the ways that can be done are innovation and development of industrial products that are not inferior to imported products. In addition, it is important to keep and maintain the quality of the product to stay good. This is in line with research conducted by Rahmana(2012) where the applied diversification strategy is to innovate products by utilizing technology and maintaining the quality of the product so as not to lose with imported products. Quality improvement can be done by continuously innovating, conducting training, monitoring product standards and conducting good cooperation with raw material suppliers so that the value chain can be well controlled. Forshman (2011) also believes that innovation program is also suitable for small businesses. Hence, the sustainability of the business will be able to keep surviving.

A diversification strategy is a strategy the company undertakes to expand its business by opening a new business unit of either the same or different business type than the previous business (George, 2005). Sigh and Mahmood (2007) argue that diversification can have a positive impact on the business performance and can increase the generated profit and reduce the threat of external elements.

Diversification can also be done through various innovations in a business entity which can be considered as something of value (Java Post, 2003). Innovation will not be useful if it is not strategically meaningful, potentially productive, and gives the effect of continuity. A productive innovation can work in the field as good as the expectation. There are four levels of innovation namely creative, strategic, productive and sustainable.

- Creative Innovations is an innovative program or policy that is intelligent in terms of ideas and the potential to produce short-term positive effect although it has not shown any practical positive field.
- Strategic innovation is an innovative program or intelligent policy in terms of ideas, potentially providing both short- and long-term impacts that are positive. However, it has not been proven to be implemented in the field
- Productive innovation is an innovative program or intelligent policy in terms of ideas, potentially having a positive short-term impact and has been proven to be implemented in the field but not necessarily convincing for the long term.
- Continuous innovation is an innovative program or policy that is not only intelligent in terms of ideas, potentially positive in the short and long term but it has not been proven to be implemented in the field.

The innovation of a product is an important thing that should be done. A research conducted by Hidayat (2015) stated that the lack of innovation of a bag product derived from leather preparation making it difficult for small business to develop. Thus, the innovation process should be carried out to keep the business survive and thrive.

In developing this processed leather craft, sustainable innovation strategy needs to be implemented. Thus, that leather processed crafters can continue to compete, produce good products and be well received by the market. Innovation by a producer or crafters can increase consumer interest in purchasing a production work (Livianne, 2013). Continuous innovation needs to be done and followed by the existence of the media campaign. Hence, the that creativity results that appear after the innovation can be recognized by the prospective buyer. In addition, promotions can also improve information about the quality of the product. Hence, it will ultimately increase the consumers' desire to buy such processed leather products (Pratama, 2017).

In its current development, Revolution 4.0 requires us to innovate and also pay attention to aspects of information technology which grows rapidly (Suwardana, 2018). Revolution 4.0 that combines digitalization and automation that combines the internet and manufacture. This can be used as an opportunity for small businesses such as the processed leather crafts that produce bags, luggage, and others to be able to market the product results more widely. Revolution 4.0 will increase the potential buyers, not only from one or two regions but also from all over Indonesia. This opportunity certainly needs to be supported by the readiness of crafters to have specialized human resources online sale and also provides a set of computers and the Internet as the supporting tools.

Currently, the expansion of buying and selling in Indonesia is very supportive for continuous innovation. The processed leather crafters can take advantage of various popular e-commerce in Indonesia. Various e-commerce such as Bukalapak, Olx, Shoope, Lazada and others can be utilized by the crafters to market their handicraft products either in the form of bags, luggage or others. Based on the research conducted by Mumtahana (2017), there is relationship between online sales with an increase in income. Thus, one aspect of Revolution 4.0 can essentially help leather crafters in Sidoarjo to market the product innovation globally in Indonesia. Hence, it will indirectly increase the marketing range and it is expected to increase the income of crafters in the end.

## CONCLUSION

The processed leather industry located in Tanggulangin Sidoarjo has excellent internal strength but has weaknesses in external factors. The strategy that needs to be developed is the Diversification strategy. This needs to be done so that the processed leather craft can continue to survive and develop.

It is suggested for future researcher to research value chain of the raw material of the processed leather products. This is because raw materials become one of the important factors for the continuity of this small-scale business. Another interesting thing is that the raw material becomes crucial due to its dependency on the small supplier that only hopes for a fast profit. In addition, the auxiliary materials are still rare; they must be imported from China.

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## **THE IMPACT OF DEMOGRAPHIC AND MACROECONOMY FACTORS THE NON-PERFORMING LOAN IN PROPERTY SECTOR**

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### **ABSTRACT**

There are various types of housing loans owned by Bank X, they have a risk of non-performing loans (NPL). For keeping the NPL ratio always good, bank have to do the process of analyzing the selection of good prospective borrowers. The aim of this study was to analyze the factors that affect the Non-performing loan of Bank X include demographics and macro-economy and to analyze the development of credit property at Bank X, period 2012 until 2016. The methods used are descriptive analysis and logistic regression, with secondary data from financial statements for five years from 2012 until 2016 in Bank X Indonesia branch Surabaya. The results showed that recent education of borrower has positive and significant effects on NPL with 0.031 for P value and 5.584 for odds ratio. Based on the results it is concluded that the recent education have a significant effect on the NPL because higher a person's education, the better the job will be obtained by the debtor, so that the impact on income will be higher and is expected to make the debtor can pay the loan smoothly.

### **KEY WORDS**

Nonperforming loan, housing loans, macro-economy, demographics.

Surabaya as the Capital of East Java Province is the second largest city in Indonesia after Jakarta with total population until 2016 reaches a total of 3,016,653 people, which is 2.5% increase from 2015. The increasing population growth, causing the need for shelter, offices, shopping centers, amusement parks, and the need for the property sector also increased. Given the growth in the property sector, the mortgages (House Ownership Credit or the so called KPR) is one alternative that is used by the community in order to have a house or property desired by repaying to a certain period and with a predetermined interest rate, (Manurung and Raisa, 2016).

KPR can be classified into two kinds, namely subsidies and non-subsidies. Subsidized mortgage is a program of the Ministry of Public Housing run by designated banks aimed at lower middle income communities, while non-subsidized KPR is aimed at the wider community. Bank X is known as the pioneer and market leader of KPR that has a main program that is a million home program. The large number of Bank X lending makes Bank X has non-performing loan (NPL) risk. According to Jiménez et al., (2013) if a bank has a high NPL level, the bank will suffer losses and even become bankrupt and the public will move to a bank that has better performance and this will likely affect the economy of the country in general.

The amount of NPLs allowed by Bank Indonesia is currently at a maximum of 5% (Riyadi, 2006). In keeping the NPL ratio to always be below the 5% level, one of the efforts that can be done by the bank is by the process of analyzing the selection of good prospective

borrowers. Based on Decree of Bank Indonesia No. 31/147 / KEP / DIR dated November 12, 1998 regarding the quality of productive assets disbursed in the form of credit can be divided into five groups, namely smooth, in special attention (DPK), substandard, doubtful, and loss. In the Decree also states that there are three classes of problem loans, ie non-performing loans, doubtful loans, and bad loans. This classification is based on its collectability. Loans with a collectability of three to five are problem loans that are avoided by banks. The amount of NPLs allowed by Bank Indonesia is currently at a maximum of 5% (Riyadi 2006). In keeping the NPL ratio to always be below the 5% level, one of the efforts that can be done by the bank is by the process of analyzing the selection of good prospective borrowers.

In general, the valuation used by banks to gain confidence in crediting is called the 5C principle analysis which consists of analysis of character, capital, capacity, collateral, and condition of economy. In addition to the 5C principle, the influence of demographic factors such as gender, age, income, recent education, employment, and macroeconomics such as inflation and interest rates have also been widely studied. One of the demographic factors is gender. In Godquin (2004), female sex debtors do not prove to be better in credit repayment performance, but other demographic factors such as age and education have a positive effect on credit payment performance. The demographic factor about marriage in Moffat (2003), decreases the likelihood of default. Job factors, age, gender also become demographic factors that affect the possibility of default.

Education level has proven to have a positive impact on payment performance. Fatollahi (2015) found that higher-educated borrowers would be more aware of the detrimental effects that are at risk if they are late in paying their credits. Anjom (2016) in his research on NPL relationship marked by changes in ROA, ROE, LDR, and CAR with macroeconomic factors such as GDP, interest rate, and inflation in banks proves that there is a positive relationship between inflation and NPL. Based on some research, it can be seen that the inflation that occurred can give effect to the unemployment causing debtor cannot pay KPR smoothly causing NPL at Bank.

One of the main branch offices of Bank X which has NPL ratio is always below the ratio of NPL of Bank X throughout Indonesia is Surabaya branch. The following data shows that for the last 3 years in a row the ratio of NPL of Bank X Indonesia is higher than that of Bank X branch Surabaya. Whereas the city of Surabaya has a high population and property growth.

Table 1 – The Comparison between NPL of Bank X Indonesia and Bank X Surabaya

Year	NPL	
	Bank X Indonesia	Bank X Surabaya
2014	2.79	1.9
2015	2.11	0.79
2016	1.85	0.46

Source: Report of the Finacial Performance of Bank X Surabaya, website of Bank X.

Based on the picture above, it can be seen that there is a difference of NPL ratio caused by factors affecting NPL in each branch of Bank X in Indonesia is different, causing the total of NPL of the Bank is high and NPL in Surabaya branch is lower. Based on the above description, the researcher is interested to analyze the influence of demographic and macroeconomic factors, to NPL on KPR customers. NPLs at the Bank should be avoided, therefore the bank should have an effort to keep the NPL ratio not above 5%. One effort that can be done is to consider the demographic factors of customers as well as macroeconomic factors. Therefore, the purpose of this research is:

- To describe the development of KPR at Bank X period 2012 – 2016;
- To test the influence of demographic factors of customers and macroeconomic factors partially and simultaneously to NPL on KPR Bank X;
- To analyze and strategize Bank X to control NPLs in the future.



## LITERATURE REVIEW

*Home Ownership Loan (KPR)*. According to Bank Indonesia, Home Ownership Loan is a credit facility provided by banks to individual customers who will purchase or repair houses. A mortgage is defined as a loan granted by a bank to a debtor to be used to buy or pay for a residential building with its land to own or occupy. The principle of KPR is to finance in advance the cost of purchasing or building a house, and funds to pay back are made by installments or installments. Mortgages can not only be done for home purchases, but can also be used to build a house on the land owned by the customer, buy a flat house, buy an apartment, or renovate the house.

Based on this understanding, it can be concluded that the mortgage is a funding facility by the bank for the ownership of a property where the funding will be repaid by the debtor by repaying the bank. To obtain a mortgage loan in the form of mortgage from a bank, the debtor must meet the requirements filed by the bank and provide collateral to the bank. There are two types of KPR, namely:

- **KPR Subsidized** KPR Subsidies are mortgages intended for low-income middle-income households to own homes or repair homes. Forms of subsidy given in the form of credit waivers and subsidies additional funds for the construction or repair of houses. This subsidized credit is regulated separately by the Government, so not every community applying for credit can be granted this facility. In general the limit set by the government in subsidizing is the applicant's income and the maximum credit granted.
- **Non Subsidized KPR** Non Subsidized KPR is a KPR that is intended for the whole community. If the provision of Subsidized KPR is governed by the government, the provision of non-subsidized KPR shall be determined by the bank, so that the determination of the credit and interest rate shall be in accordance with the policy of the bank concerned. The advantage of using a mortgage is the customer does not have to provide funds in cash to buy a home. The customer simply provides an advance and because the mortgage has a long period of time, the paid installment can be accompanied by expectations of increased income.

*Non-Performing Loan (NPL)*. Non Performing Loan is a financial term indicating the non-payment of a credit. NPL is the ratio used to measure the management of a bank's assets to measure how far the amount of credit allegedly stalled and unpaid. The high NPL is the result of customers who cannot afford the credit. NPLs reflect credit risk, the higher the NPL, the greater the credit risk borne by the bank, (Vazquez et al., 2012). According to the Dictionary of Bank Indonesia, NPLs are problem loans and are included in substandard, doubtful and loss credits. Generally, accounts are said to be Non Performing Loan when after the third month (ninety days) the payment is not current. Based on Decree of Bank Indonesia No. 31/147 / KEP / DIR dated November 12, 1998 regarding the quality of productive assets disbursed in the form of credit can be divided into five groups, namely:

- **Current**, if meet the payment criteria on time in accordance with the requirements of the time set.
- **In Special Attention (DPK)**, in case of late payment of credit up to 90 days from the due date.
- **Substandard**, in case of late payment of credit up to 90 days up to 180 days from the due date.
- **Doubtful**, in case of late payment of credit up to 180 days up to 270 days from the due date.
- **Loss**, in case of late payment of credit more than 270 days or not paid at all.

The Decree also states that there are three classes of problem loans, ie non-performing loans, doubtful loans, and bad loans. This classification is based on its collectability. Loans with a collectability of three to five are problem loans that are avoided by banks. This may indicate that poor bank performance in managing credit. According to Bank Indonesia Regulation (PBI) no. 15/2 / PBI / 2013 dated May 20, 2003 regarding the status

and follow-up of supervision of conventional commercial banks, stipulates that banks are deemed to have potential difficulties that endanger their business continuity, ie banks under intensive supervision if they meet one or more of the criteria, net more than 5% of total credit. The higher the NPL ratio, the level of bank liquidity to third party funds (DPK) will be lower. This is because most of the funds disbursed by banks in the form of credit are deposits of DPK. There are many factors that cause NPL that can be classified into two groups according to Dendawijaya (2009).

Internal factors of banks that provide credit, such as intentional mark ups, feasibility studies are made so that the project is very feasible, the practice of corruption, less stringent credit monitoring and so forth. The existence of these factors at least affect the level of bank health ratios such as CAR and LDR and affect the total assets owned by banks that are reflected in the ratio of bank size. Internal factors of the company (bank customers), such as mismanagement in the customer's company, financial difficulties, errors in production, errors in marketing strategy, and so forth.

External factors such as macroeconomic conditions are reflected in the level of Gross Domestic Product as well as the inflation rate, the increase of the US dollar exchange rate against the rupiah that raise the cost of products / services, government policies, and so on. Bank Indonesia Regulation (PBI) no. 7/2 / PBI / 2005 dated January 20, 2005 concerning Asset Quality Rating for Commercial Banks Article 34 (2), the debtor that is considered defaulted is a debtor who has arrear in arrears or interest for 90 days before maturity, no principal or interest payment at when due, and does not meet other requirements which allows default.

*Demography.* Demography comes from Greek meaning "Demos" is "the people or the population" and "Grafein" is "writing". So, demography is the writings or articles about the people or the population. Demography is the Science of population or population study to know the number, structure and development, (Lutz et al., 2003). Demographics study the number, distribution, territory and composition of the population and its changes and causes of change, which usually arise from fertility, mortality, territorial movement (migration) and social mobilization (status change), (Castles et al., 2013).

Demography explain the characteristics of a population and are grouped into the same characteristics. This means that a group of people who have the same characteristics will be grouped into a particular group. The variables included in the demographics are age, sex, income, occupation and education level, (Azziz et al., 2004). Kotler and Armstrong (2010) argue demography is the science of the human population in terms of size, density, location, age, gender, race, livelihood, and other statistics. So based on the understanding of some experts, demography is the science of the population who studies the number, distribution, territorial and factors that cause changes in these things in which also have variables according to their characteristics such as age, gender, income, occupation and education level. States that marital status, occupation, age and gender have an influence on the possibility of default, (McDonald and Kennedy, 2004).

*Level of education.* In the Law of the Republic of Indonesia Article 1 Number 20 Year 2003 on National Education, the definition of education is a conscious and planned effort to create an atmosphere of learning and learning process so that learners are actively developing their potential to have spiritual power, self-control, personality, intelligence, noble character, and skills needed by himself, society, nation and state. Elrangga (2016) based on regression results found that the level of education has a significant and positive effect on the number of mortgages. The level of education is the stages of education defined based on the level of development of learners, the goals to be achieved and the willingness to be developed. According Suryadarma and Jones (2013) the level of education can be distinguished on the basis of certain levels such as: 1. Initial primary education for 9 years includes SD / equal, SLTP / equal. 2. Higher education which includes diploma, bachelor, master, doctor and specialist organized by universities.

*Sex.* Gender is the difference between women and men biologically since a person was born. This gender difference can be easily recognized from a person's physical appearance. Unlike animals and plants, humans only recognize two sexes, male and female.

Adusei & Appiah (2011) states that research results that the evidence presented in the study supports conclusions that contradict previous research that debtors female sex is no better than the male sexist.

**Age.** Age According to a large Indonesian dictionary, age is defined as the length of time of existence or existence (since birth or held). The following categories of age Childhood period: 0-5 years 2) Childhood: 5-11 years 3) Early adolescence: 12-16 years 4) Late adolescence: 17-25 years 5) Adolescence age: 26-35 years 6) Elderly age: 36-45 years 7) Early Elderly: 46-55 years 8) Late age of the elderly: 56-65 years 9) The elderly: > 65 years, (Cawthon et al., 2003). Iswantoro & Anastasia (2013) that age does not have relationship with the type of funding selected.

## METHODS OF RESEARCH

In this study, the primary data were obtained by interviewing credit analysts. While the secondary data to complement the primary data in writing this research, comes from panel data consisting of time series. The time series data used is annual data for five years ie the 2012-2016 mortgage customers of Bank X Surabaya branch and credit officers.

The type of data and information used in this study consists of secondary data derived from the analysis of consumer credit reports Bank X Surabaya branch. Respondents were taken from mortgage loan customers in 2012 - 2016 with 9356 customers, with the criteria of KPR mortgage customers. Descriptive analysis used in this research is used to describe or describe customers of KPR Bank X Surabaya branch. To help the analysis, researchers use Microsoft Excel 2016.

**Logistic Regression Analysis.** Binary regression model is a model used to determine the relationship between explanatory variables (X) with the response variable (Y) is binary. The response variable Y follows the distribution of Bernoulli with the opportunity distribution:

$$f(Y = y) = \pi^y (1-\pi)^{1-y}$$

Where: y = NPL or non NPL, and  $\pi$  is the probability of occurrence of y = NPL. If the response variable event (Y) is n, the probability of each occurrence is the same, and each event is independent with the other, then Y will follow the Binomial distribution. The regression model with E (Y = 1 | x) as  $\pi(x)$  is:

$$\frac{\exp g(x)}{1 + \exp g(x)}$$

In the logistic regression required the logit connective function, the logit transformation as a function of  $\pi(x)$  is:

$$g(x) = \ln [\pi(x) / 1 - \pi(x)] = \beta_0 + \beta_1 X_1 + \dots + \beta_6 X_6$$

So in general, the equation is:

$$g(x) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_6 X_6$$

Where:

g(x) = non-performing loan;

X<sub>1</sub> = Age;

X<sub>2</sub> = Occupation;

X<sub>3</sub> = Sex;

X<sub>4</sub> = Income;

X<sub>5</sub> = Marital Status;

X<sub>6</sub> = Education Background;

X<sub>7</sub> = Interest Rate;

$X_8$  = Inflation;  
 $\beta_0$  = Intercept;  
 $\beta_1, \beta_2, \dots, \beta_6$  = coefficients of each variable.

**RESULTS AND DISCUSSION**

*Demographic Description of KPR Customers in 2012 – 2016.* KPR is one of the credit products from Bank X to buy a new home or second with the calculation of payment fees that must be paid by the customer every month until the debt is paid off. Here is a description or description of mortgage distribution each year, as well as demographic and macroeconomic factors related to debtors who make mortgage loans at Bank X branch Surabaya from 2012 until 2016. The overall KPR distribution in this research took place for 5 years from 2012 until 2016. Total within 5 years Bank X branch Surabaya has 9,356 debtors.

Compared to all mortgage disbursements from 2012 to 2016, 2016 is the year with the least amount of credit, while 2012 is the year with the most credit channeling. This is due to Bank Indonesia's regulation on Loan to Value (LTV). The LTV Rules are the rules governing the financing of property and the down payment for credit. Bank Indonesia issues LTV as property values in Indonesia in recent years continue to rise and it is feared to cause a property bubble.

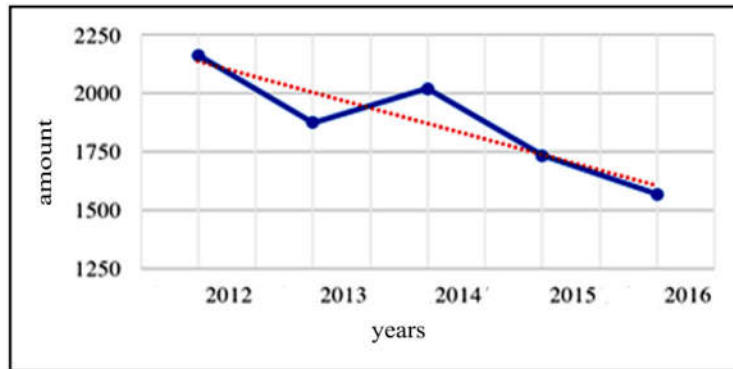


Figure 1 – Distribution of KPR in 2012 – 2016 (Source: Bank X, 2017, processed)

*Based on Age.* Age is part of the demographic factor that becomes a requirement in the submission of mortgages that are inserted into the debtor's personal data. The minimum age allowed to apply for a mortgage is 21 years and above or if married. When associated with the collectability of 3 - 5 in each age group, collectability 5 has the largest number of debtors with age ranging from 21 to 30 years. Based on the above descriptive analysis this is in line with research Iswantoro & Anastasia (2013) that age does not have relationship with the type of funding selected. This is because the age does not determine the work and income of the respondent so it also does not determine the income selected by the respondents.

Table 2 – The development of KPR based on Age and Collectability

Age	Debtor		Default			Total Default
	Subsidy	Non Subsidy	Col 3	Col 4	Col 5	
<21 Years	-	-	-	-	-	-
21 - 30 Years	0,588%	0,666%	0,108%	0,108%	0,431%	0,647%
30 - 40 Years	0,231%	0,497%	0,070%	0,117%	0,257%	0,444%
40 - 50 Years	-	0,577%	0,051%	0,154%	0,256%	0,462%
>51 Years	-	0,357%	-	-	0,296%	0,296%

Source: Bank X, 2017 (processed).

Gender is not related to the large number of debtors default due to data taken, more of the debt of male sex. Many results from previous studies have shown that debtors of female sex

are better than male-sex debtors, but according to Adusei and Appiah (2011) research results that the evidence presented in the study supports conclusions that contradict previous research that debtors' female sex is no better than the male sexist.

Table 3 – The development of KPR based on Sex and Collectability

Sex	Debtor		Default			Total Default
	Subsidy	Non Subsidy	Col 3	Col 4	Col 5	
Male	0,075%	0,619%	0,087%	0,189%	0,262%	0,538%
Female	0,439%	0,395%	0,040%	0,040%	0,322%	0,403%

Source: Bank X, 2017 (processed).

In filling the data of prospective borrowers, one of the required data is education. Education basically becomes a supporter of the debtor's work and related to his financial ability. The higher a person's education, the better the job will be obtained by the debtor, so that the impact on income will be higher and is expected to make the debtor can pay the loan smoothly. If associated with collectability 3 to collectability 5 in each educational group, collectability 5 has the number of debtors with the most junior high school education. According to Elrangga (2016) based on regression results found that the level of education has a significant and positive effect on the number of mortgages. The higher the education level of a person, the higher the level of quality of human resources that will affect the job or high position, and the income earned.

Table 4 – The development of KPR based on Education Level and Collectability

Education Level	Debtor		Default			Total Default
	Subsidy	Non Subsidy	Col 3	Col 4	Col 5	
Primary High School	-	-	-	-	-	-
Junior High School	2,778%	2,521%	-	0,645%	2,581%	3,226%
Senior High School	-	-	-	-	-	-
College	0,893%	0,748%	0,160%	0,320%	0,320%	0,640%
University	0,185%	0,531%	0,087%	0,112%	0,262%	0,461%

Source: Bank X, 2017 (processed).

Employment is one of the things that counts in the process of submission of KPR because the type of job is a means for debtors to earn income / income and serve as one source of funds to pay KPR. The majority of debtors have jobs as private employees. If associated with collectability 3 to collectability 5 in each work group, collectability 5 has the largest number of debtors. The largest number of debtors included in collectability 5 is in debtors who have employment as others.

Table 5 – The development of KPR based on Education Level and Collectability

Employment	Debtor		Default			Total Default
	Subsidy	Non Subsidy	Col 3	Col 4	Col 5	
BUMN and BUMD	0,431%	0,252%	0,098%	0,098%	0,098%	0,293%
Private Employees	0,239%	0,581%	0,085%	0,119%	0,305%	0,508%
Entrepreneurs	-	0,615%	0,130%	0,130%	0,260%	0,519%
Civil Servants	-	0,626%	0,242%	0,121%	0,121%	0,484%
Others	1,010%	0,635%	0,121%	0,242%	0,362%	0,725%

Source: Bank X, 2017 (processed).

Marital status can describe whether the debtor has a dependent or not. The number of dependents owned by the debtor causes the allocation of debtors' income to be used to support the dependent. Elrangga (2016), the number of dependents have an understanding of how many children and other family members whose cost of living is the responsibility of the customer. The more the number of family dependent customers, the more the amount of expenditure. So the more family members the number of family needs that must be met also

tend to encourage customers to work in order to meet the economic needs of their families and cause allocation of income that will be used to pay the credit will also be reduced.

Table 6 – Description of Marital Status of subsidy debtor

Marital Status	Debitur		Default			Total Default
	Subsidy	Non Subsidy	Col 3	Col 4	Col 5	
Marriage	0,300%	0,543%	0,063%	0,063%	0,063%	0,190%
Single	0,170%	0,622%	0,141%	0,141%	0,141%	0,423%
Divorce	1,429%	-	-	0,483%	-	0,483%

Source: Bank X, 2017 (processed).

If connected with collectability 3 to collectability 5 in each group of marital status, debtor having marital status divorce has the highest number of debtors, it can be matter because single parents usually have much lower incomes and much higher poverty rates than their married counterparts and two incomes, even if they are low, are always better than one.

One of the internal factors that influence the debtor when applying KPR is income. Factors of income can be a picture to determine whether the debtor is able to pay off the debt or not. Because in general when the debtor has a large income every month, the better the ability of debtors to pay off mortgages. When associated with collectability 3 to collectability 5 in each income group, collectability 5 has the largest number of debtors. The largest number of debtors who are included in collectability 5 are in debtors with income of IDR 1,000,001-5-5,000,000. Distribution having the least 3 - 5 collectability is the debtor with income > IDR 25.000.001.

Table 7 – The development of KPR based on Income and Collectability

Income	Debitur		Default			Total Default
	Subsidy	Non Subsidy	Col 3	Col 4	Col 5	
<=Rp 1.000.000	-	1,099%	1,087%	-	-	1,087%
Rp 1.000.001 - Rp 5.000.000	0,308%	0,520%	-	0,109%	0,299%	0,408%
Rp 5.000.001 - Rp 10.000.000	-	0,432%	0,095%	0,119%	0,213%	0,427%
Rp 10.000.001 - Rp 25.000.000	-	0,957%	0,147%	0,221%	0,589%	0,957%
Rp 25.000.001 - Rp 50.000.000	-	-	-	-	-	-
> Rp 50.000.000	-	-	-	-	-	-

Source: Bank X, 2017 (processed).

Loan Interest rate is a policy of Bank X based on the economic conditions as well as the maximum credit size, the higher the maximum credit given, the smaller the interest rate. There is a difference in interest rates on subsidized and non-subsidized mortgages, subsidized KPR has a fixed interest rate of 5%. Customers who default on the most non-subsidized KPR are customers with interest rate of 9.75%, which is 27 borrowers with credit ranges from IDR 30,000,001 to IDR 250,000,000 and from total customers 1,988 debtors with subsidized KPR facilities, there are 6 default debtor.

Inflation may affect the ability of the debtor to return the mortgage, the higher the inflation the higher the price of goods and services in the country. When associated with collectability 3 to collectability 5 in each of the inflation groups, collectability 5 has the highest number of debtors with inflation between 4.1% -6%.

Table 8 – The development of KPR based on Income and Collectability

Inflation	Debitur		Default			Total Default
	Subsidy	Non Subsidy	Col 3	Col 4	Col 5	
Inflation <4%	0,147%	0,446%	0,049%	0,247%	0,049%	0,346%
Inflation 4.1% - 6%	0,250%	0,783%	0,115%	0,172%	0,373%	0,661%
Inflation 6.1% - 7%	-	0,448%	0,080%	0,080%	0,239%	0,399%
Inflation > 7.1%	0,794%	0,406%	0,385%	0,039%	0,039%	0,462%

Source: Bank X, 2017 (processed).

*Binary Logistic Regression Results.* In this study variable is also called the variable, both independent and dependent. The independent variable is also called the explanatory variable, whereas the dependent variable is called the response variable. The model shows that the explanatory variables of debtor internal factors and macroeconomic factors that have no significant effect are age, sex, occupation, income, marital status and interest rates and inflation.

Based on the above output it can be concluded that when both age, sex, occupation, income, and marital status as well as interest rates and inflation have no effect on the smoothness or non-credit payment. The explanatory variables that have a real influence from internal factors are recent education. Debtor recent education is grouped into five categories. The results showed that the coefficient value of 0 and P value of 0.031 with an odds ratio of 5.584.

From these, it can be concluded that recent education have a significant effect on the NPL because the P value smaller than 0.05. Seen from the odds ratio of 5.584, has the understanding that debtors with higher education are more mindful with risk that they may get if they not pay their loan on time.

### **MANAGERIAL IMPLICATIONS**

Based on descriptive analysis, the number of default customers from total 9356 mortgage distribution is 47 customers or only 0.5%. So, it can be concluded that the process of analysis of prospective borrowers and management of Bank X is well assessed from the number of NPL customers but it would be better if the variable that has an influence on the risk of default or NPL at the bank that recent education can be more in the review again when the process of selecting prospective borrowers because based on this study the higher recent education, the less risk of default will be faced by the bank which is feared to degrade the financial performance of Bank X Surabaya branch that has been good.

So, the vision of Bank X Surabaya branch can be adapted by other branch so that the number of NPL customers is also low. The vision of Bank X Surabaya branch is mapping business potential, ensuring business processes, designing and managing marketing programs, managing promotional budgets, managing and controlling risks, fostering good relationships with others, developing human resources, and creating work plans and budgets.

### **CONCLUSION AND RECOMMENDATIONS**

Both subsidized and non-subsidized KPR at Bank X Surabaya branch appear fluctuative and tend to decrease the growth from 2012 until 2016. If viewed by age, mortgage debtors of Subsidies and Non Subsidies are more between 30 to 40 years. The customer's last education of both types of KPR is also dominated by graduates from the University. Based on the type of work, the clients of both types of mortgages are mostly employed as private employees who have salary or income between Rp 5.0000.000, - up to Rp 10,000,000, - for non-subsidized KPR customers and between Rp 1,000,000, - up to Rp 5.000.000, - for subsidized KPR customers.

Based on marital status data, both types of KPR concluded that the majority of customers have marrital status. Overall, customers who experienced defaults were few in number when compared to the total number of mortgage customers, both subsidized and non-subsidized. This indicates that the selection process conducted by Bank X for prospective customers who will propose a KPR is good.

Based on the results of research using logistic regression analysis, there is only one variable approaching the number of positive effect that is recent education. This is in accordance with the results of previous research that when someone has higher education, the better the job will be obtained by the debtor, so that the impact on income will be higher and is expected to make the debtor can pay the loan smoothly. The interest rate of Bank X tends to increase and causes the number of customers to be reduced, so the concern is that

although statistically the higher the interest rate will lead to a decrease in the NPL as the number of customers will also be better filtered, it would be better if Bank X did not increase the interest rate, because it can result in the decrease in the number of KPR.

Based on the results of research and conclusions, some things can be suggested for further research in order to include other variables in order to obtain a more complete result. Some of the variables that can be used are macroeconomic variables that have the possibility of affecting NPLs or variables that are quantitative that can be associated with other sciences so that it can be used in addition to the credit score used to screen prospective customers. This study does not include these variables due to the lack of data and time.

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**INDONESIAN CAPITAL MARKET REACTION ON THE REGULATION  
OF THE MINISTER OF FINANCE CONCERNING TECHNICAL INSTRUCTIONS  
ON INFORMATION ACCESS FOR INTEREST OF TAXATION**

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**ABSTRACT**

This study aims to determine whether there is a market reaction as a result of the announcement of Regulation of the Minister of Finance on Technical Guidelines on Access to Financial Information (PMK #73/PMK.03/2017). Market reactions in this study were measured using abnormal return. The level of significance of the abnormal return was tested by One Sample t-test. The results of this study indicate a negative abnormal return. This study suggest that government should respond by appealing and inviting the community to follow the Voluntary Asset Disclosure with Final Rate Program (PAS Final Program).

**KEY WORDS**

Financial information, event study, abnormal return, market reaction, regulation, tax.

Financial institutions are businesses that rely on trust (Wijaya, 2016). This trust is closely related to banking secrecy. Bank secrecy is the most important thing because it concerns the security of customers' property. Therefore the Indonesian government guarantees it through provisions regulated by the banking and tax authorities. Regulation of Bank Indonesia number: 2/19 / PBI / 2000 stated that the banking should keep secret everything related to information about depositors and customer deposits (Kencana, 2017). related to taxation, the Law on General Provisions and Procedure of Taxation (UU KUP) regulates in Article 35 paragraph (2) that banking secrecy is eliminated by the written request of the Minister of Finance. Referring to the above, the tax authorities intend to obtain data or information concerning the customer's account for tax purposes or Taxpayer, it must start by the request for permission from the commissioner of the Financial Services Authority (OJK).

According to the Minister of Finance, now the Directorate General of Tax has data about the taxpayer who keeps the treasures abroad and within the country completely. But the data can not be followed up due to the limited ability of the Directorate General of Tax, and it is not apart from the existence of bank secrecy article in the Banking Act. So far, using the procedure manual of the process of verifying customer data or taxpayers takes a long time so that many tax inspectors get constraints in obtaining banking data information (Kencana, 2017). This is one of the reasons on May 8, 2017 President Joko Widodo issued Government Regulation in Lieu of Law (Perppu) No. 1 of 2017 on Access to Financial Information for Interest of Taxation. The Perppu is also issued to fulfill Indonesia's commitment to Automatic Exchange of Information (AEOI) and must immediately establish legislation at the law level on access to financial information for tax purposes. A total of 101 countries have agreed to implement an automatic exchange of information (AEOI) in the field of financial services for tax purposes. Currently as many as 100 countries or jurisdictions have committed to participate in AEOI, with 50 countries starting in 2017, and 50 other countries by 2018, Indonesia following in 2018 and must be completed in July 2017. Perppu consisting of 10 (ten) articles regulates the authority of the government in this case the Directorate General of Tax to view reports containing financial information of customers for tax purposes from financial services institutions conducting activities in the banking sector, capital markets, insurance, other financial services institutions and other entity categorized as a financial institution in accordance with the standards of exchange of financial information under international agreements in the field of taxation (Sukmana, 2017).

In relation to AEOI there is legislation to be fulfilled by the Indonesian government. First, primary legislation is the enactment of the legislation of Perppu No. 1/2017 enacted on May 8, 2017. Second, secondary legislation is the Regulation of the Minister of Finance No. 70/2017 on 31 May 2017. Broadly speaking the content of PMK No. 70 / PMK.03 / 2017 regulates the procedures for reporting financial information, account identification procedures, requirement of documentation by financial institutions, sanctions for non-compliant financial institutions, confidentiality of financial information received by the Directorate General of Tax (DJP) and criminal penalties for Tax officers who do not comply with the provisions of such confidentiality. PMK No. 70 / PMK.03 / 2017 on Technical Guide on Access to Financial Information for Interest of Taxation also requires the banking sector to report customer data with aggregate balances in accounts of at least Rp200.000.000,00 (two hundred million rupiah). The requirement of reporting for the bank related to the customer with a balance of at least Rp200.000.000,00 is reserved for a personally owned financial account, whereas for an entity, entity or company there is no minimum balance limit. This makes the business actors especially Small and Medium Enterprises (SMEs) to be restless, because with account balance of Rp200.000.000,00 has become the target of the Directorate General of tax and impressed the Government wants to pursue the tax of SMEs that should be protected and even given incentives for can survive and develop.

Responding to the public's reaction, the Government again issued the Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 on amendments to the previous regulation, PMK 70 / PMK.03 / 2017 on June 15, 2017, to support the implementation of access to financial information . The Rule stated the amount of balance or account to be reported by the Financial Services Institution (LJK) is at least Rp1,000,000,000.00 (one billion rupiah) or with the equivalent of foreign currency. In the preceding rule, the balance limit must be reported by LJK at least Rp200.000.000,00. The issuance of PMK No. 73 / PMK.03 / 2017, has considered many aspects to make this rule acceptable in the community. This legal provision is necessary because Indonesia will faces the era of financial information disclosure for the purposes of international taxation cooperation (AEOI) which is ready to be followed by 140 countries in the world. According to the OECD (Organization for Economic Cooperation and Development) states that in the Common Reporting Standards (CRS) account, all accounts owned by individuals and companies must be reported regardless of their balance value, in the implementation of automatic data exchange for tax purposes. Especially for accounts owned by the company opened before July 1, 2017, must be reported only accounts worth more than US \$ 250,000 (approximately Rp3,300,000,000.00) by June 30, 2017. For individuals there is no minimum limit on the value of accounts to be reported. This regulation Announcement is undoubtedly bad information for financial services firms that have been relying on the trust of their customers to keep everything confidential with information about depositors and customer deposits (Quddus, 2017).

Testing of Indonesia capital market reaction to Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 on Amendment to Regulation of the Minister of Finance No. 70 / PMK.03 / 2017 About Technical Guide Regarding Access to Financial Information for Interests of Taxation is an event study. Jones (2012) mentions the event study is an empirical study of the market efficiency of a half-strong form which means that stock returns are examined to determine the impact of an event on stock prices. Testing information content is intended to see the reaction of an announcement. The market reaction is indicated by the price change of the securities. This reaction can be measured by using return as the value of price change or by using Abnormal Return. By using Abnormal Return can be said an announcement that has information content will give abnormal return on the market and vice versa.

Various studies have been conducted related to the event study. Ghani & Chaudary (2016) tested the monetary policy announcement event on the stock market in Pakistan. The sample used is 14 banks listed in KSE index (Karachi Stock Exchange) 100. To calculate the expectation return, this study used market model. The results of this study show a significant impact of all monetary policy announcements on bank stock returns. While Hall & Kenjegaliev (2016) tested the event of changes in oil prices on shares of oil companies of

China and Russia. The result of this study is a big abnormal return generated from shares of oil company, this means the change of oil price responded positively by market. Also the oil company is considered as a strategic company in China and Russia, so vulnerable to political influence.

The issues in this study are whether the Indonesian capital market especially financial services sector companies will react to the Announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 on Amendment to Regulation of the Minister of Finance No. 70 / PMK.03 / 2017 About Technical Guidelines Regarding Access to Financial Information for Interests of Taxation.

## THEORETICAL REVIEW

Efficient market hypothesis was first proposed and popularized by Fama (1970). Fama (1970) explains that an efficient market is a market where securities prices can "fully reflect" the information available. The definition is emphasized on two aspects of "fully reflect" and "information available". Fully reflect shows that the price of securities strongly reflects the information. The market will be efficient if by using information available to investors, investors can accurately expect the price of the securities in question. Fama (1970) divides the efficient market hypothesis into three forms, namely weak form, semi-strong form, and strong form. On the weak form, the price of the securities already reflects all existing historical information. In semi-strong form, the price of the securities already reflects all public information available. And on the strong-form, the price of the securities already reflects all the information including insider information.

Return is the result of investment. Return can be either the realized Return that has occurred or the Return of expectation that has not happened but is expected to happen in the future. Hartono (2017) defines Return realization as a Return that occurs which can be calculated based on historical data. While Return of expectation is Return expected to be obtained by investor in the future. In contrast to Return realization, Return of expectation has not happened yet.

The event study analyzes the Abnormal Return of securities that may occur around the announcement of an event. Abnormal Return or Excess Return is an excess of normal Return. Normal Return is Return of expectation (Return expected by investor). Thus Abnormal Return is the difference between actual Return that occurred with Return expectations (Hartono 2017).

Table 1 – Previous Research

No	Author name, year	Event	Research Variable	Conclusion
1	Odongo (2013)	Changes in Capital Adequacy Regulation	Abnormal Return, Security Return Variability (SRV)	the market reacts negatively to the capital adequacy announcements as the market returns were negative in values though the magnitude of the abnormality was not high.
2	Rahman, dkk. (2014)	Policy Rate Changes on Bank Stock Returns in Pakistan	Abnormal Return	The study finds 31 out of all 35 events have significant impact on banks stock returns and returns were normal at 4th day of MP announcement
3	Hall dan Kenjegaliev (2016)	oil price changes on the price of Russian and Chinese oil shares	Abnormal Return	The results of both parametric and non parametric tests suggest that the fluctuations in oil prices have an effect on the stock prices.
4	Ghani dan Chaudary (2016)	Policy Announcement: Evidence from Banking Sector of Pakistan	Stock Return	The results show significant impact of all monetary policy announcements on banks stock returns.
5	Wulandari dkk. (2017)	Announcement of Tax Amnesty Policy On July 1, 2016	Abnormal Return, Trading Volume Activity (TVA)	There is an abnormal return difference before and after the Tax Amnesty Act.

Table 1 shows some previous research results that have been done by previous researchers. Previous research shows different results. Various studies have been conducted in the format of research event study both from indonesia and from abroad.

Based on background, literature review and previous research related to the study of events with abnormal return as research variables that have been proposed, it can be described into a frame of thought as follows:

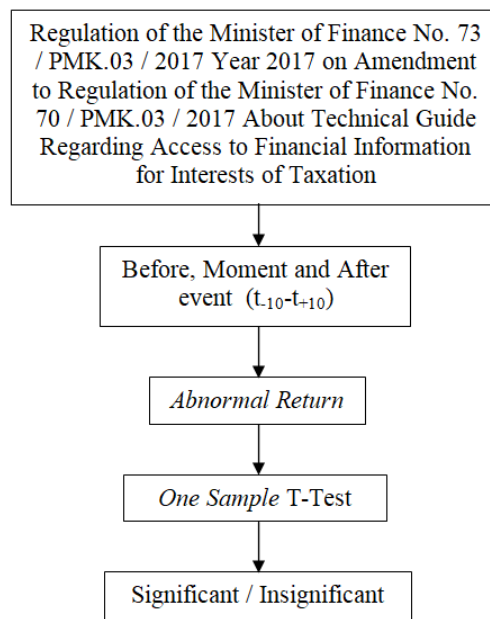


Figure 1 – Research Framework

Based on the conceptual framework that has been proposed, the research hypothesis is proposed as follows: Capital market reacts to the events of the announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 on Amendment to Regulation of the Minister of Finance No. 70 / PMK.03 / 2017 About Technical Guidelines Regarding Access to Financial Information for the Interest of Taxation shown by the existence of abnormal return or abnormal return is not equal to zero.

## METHODS OF RESEARCH

This research is designed in the form of explanatory or descriptive research design that explains about the subject of market reaction in Indonesia Stock Exchange especially financial services sector to the announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 About Technical Guide Regarding Access to Financial Information for Interest of Taxation. To obtain a complete picture of the subject, this study starts from the data collected including daily stock price, JCI daily and the date of announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 on Amendment to Regulation of the Minister of Finance No. 70 / PMK.03 / 2017 Concerning Technical Guidelines on Access to Financial Information for Interests of Tax. Date of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 Concerning Amendment to Regulation of the Minister of Finance No. 70 / PMK.03 / 2017 Regarding Technical Guide Regarding Access to Financial Information for Interests of Taxation in this study is indicated by  $t = 0$  in the period of the event or event window period. The period of observation is ten days prior to the day of the announcement, on the day of the announcement, and ten days after the day of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 on Amendment to Regulation of the Minister of Finance No. 70 / PMK.03 / 2017 About Technical Guidelines Regarding Access to Financial Information for Interests of Taxation. Location of this research is a financial services sector companies listed on the Indonesia Stock Exchange (IDX) in 2017. Indonesia Stock Exchange provides information on financial statements by accessing the official website that is [www.idx.co.id](http://www.idx.co.id) and also through yahoo finance website ([finance.yahoo.com](http://finance.yahoo.com)). The population used in this

study is the financial services sector companies listed on the Indonesia Stock Exchange period 2017, amounted to 86 companies. Sampling technique is purposive sampling that is election by using specific criteria. Obtained sample of 58 companies that can be seen in table 2.

Table 2 – Selection of Research Sample

Description	Total
Population	86
data not available	10
Inactive trading	8
has extreme data	10
number of samples	58

Source : Processed by author in 2018.

The type of data collected is in the form of quantitative data which includes daily stock price, JCI Daily from 58 samples of financial services sector companies listed on the BEI in 2017.

Dependent variable to be analyzed in this study is Abnormal Return. And the independent variable is the Event of Announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 About Technical Guidelines Regarding Access to Financial Information for Interests of Taxation. The collected data is then processed so that it can be compared between t-count with t-table to determine whether or not there a significant abnormal return in the event. The stages of the data analysis methods are listed as below:

- Calculating Return Realization, Return Realization is calculated by reducing the price on one day ( $P_t$ ) with the previous day's price ( $P_{t-1}$ ) then dividing the result with the previous price ( $P_{t-1}$ ).
- Calculating Return of Expectation, The calculation of expected return in this study using market adjusted model. Market Adjusted Model assumes that the best estimator to estimate the return of a securities is the market index return at that time (Hartono, 2017).
- Calculating Abnormal Return, Abnormal Return is the difference between the actual return that occurs with the expectation return.
- Calculating cumulative abnormal Returns, cummulative abnormal return (CAR) is the sum of abnormal returns the previous day in the event period for each of the securities.

Statistical test of abnormal return has the purpose to see the significance of abnormal returns that exist in the event period. The significance in question is that the abnormal return is statistically significant not equal to zero (positive for good news and negative for bad news) (Hartono, 2017). The technical of the test in this study is to compare t-count with t-table.

## RESULTS AND DISCUSSION

In accordance with the framework of thought and hypotheses of research that have been determined, the analysis technique used in this study is statistical analysis of one sample t-test. The results of the Descriptive Statistics of cummulative abnormal return (CAR) test in Table 3 show the average value, maximum value, minimum value, standard deviation of the research object on the event of announcement Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 About Technical Guidelines Regarding Access Financial Information for Interests of Taxation.

Based on table 3, CAR in the period of announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 About Technical Guide Regarding Access to Financial Information for Interests of Tax. Minimum CAR value in the period of announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 About Technical Guide Regarding Access to Financial Information for Interest of Tax at - 41.18% contained in the company Insurance Jaya Tania Tbk. (ASJT) while the maximum

CAR value is around the Announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 on Technical Guide on Access to Financial Information for Tax Interest in 18.77% of Bank Pan Indonesia Tbk (PNBN). Mean value of CAR around the announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 About Technical Guide on Accessing Financial Information for Tax Interest at -3.47% with standard deviation of 10.81%.

Table 3 – Descriptive statistics

-	N	Minimum	Maximum	Mean	Std. Deviation
car	58	-,4118	,1877	-,034719	,1081927
Valid N (listwise)	58				

Source : Data analysis by using SPSS (2018).

Testing for normality was performed using the Kolmogorov Smirnov Test statistic test method in testing the mean difference. If the calculation of normality test data shows the value of sig.2 tailed > 0.05 then the data is normally distributed and then the data can be tested by Test One Sample t-test. The results obtained as shown in Table 4 above show that asymptotic significant values in Cumulative Abnormal Return of 0.098 in the period of announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 About Technical Guide Regarding Access to Financial Information for Tax Interest, the sig value of 0.098 is greater than 0.05 it can be concluded that the Cumulative Abnormal Return data before the announcement event Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 About Technical Guidelines Regarding Access to Financial Information for Tax Interest Normally distributed, so to analyze the significance of abnormal return in the event period may use a one sample t-test.

Table 4–Normality Test

-		CAR
N		58
Normal Parameters <sup>a,b</sup>		Mean
		Std. Deviation
Most Extreme Differences		Absolute
		Positive
		Negative
Test Statistic		,107
Asymp. Sig. (2-tailed)		,098 <sup>c</sup>

Source : Data analysis by using SPSS (2018).

Testing of significance to CAR is done by comparing t-count with t-table value of 2,00247 (sig 5%) during the period of the event with Ho testing criteria accepted and H1 rejected if -t table < t arithmetic < t table, otherwise Ho is rejected and H1 received if -t arithmetic < -t table or t arithmetic > t table with probability P value < 0.05. Hypothesis in this research are:

Table 5 – One Sample t-Test

Test Value = 0					
t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
-2,444	57	,018	-,0347190	-,063167	-,006271

Source : Data analysis by using SPSS (2018).

Abnormal return test results with one sample t-test shows the value of t-count and significance of abnormal return in the event period. From the test results, Cumulative Abnormal Return in the event period is statistically significant seen from the value of t arithmetic compared with t-table is -2.444 < -2.00247 with probability 0.018 < 0.05 then Ho is

rejected and H1 accepted. A negative-valued t-test means that investors' reactions result in investors getting negative abnormal returns or capital losses.

Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 About Technical Guide Regarding Access to Financial Information for Tax Interest This is a follow-up of Tax amnesty program (Tax Amnesty) which used theme of information access disclosure for taxation activities and is one of the requirements for Indonesia can join AEol (Automatic Exchange of Information). This Regulation of the Minister of Finance (PMK) also implies the discretion of the Directorate General of Taxes to know the accounts of all Indonesian Citizens (WNI) in indonesia and outside the country, as well as foreigners (WNA) in Indonesia. However, financial service companies should have anticipated when the tax amnesty program is implemented so that the expected impact on the financial services company is not significant negative. But in reality the response given by investors to this event is negative and significant. This can be because there are still taxpayers who do not follow the tax forgiveness program or taxpayers who follow the tax forgiveness program does not disclose all the assets they have (Doly, 2018) can cause this PMK responded negatively. The Government responds to this by giving the Taxpayer another opportunity to report his property correctly through the PAS Final program (Disclosure of Voluntary Assets with Final rate- after Tax Amnesty program) because there is no more gap for taxpayers to hide their wealth (Deny, 2017).

In general the findings in this study indicate Announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 on Amendment to Regulation of the Minister of Finance No. 70 / PMK.03 / 2017 About Technical Guide Regarding Access to Financial Information for Interests Taxation affects investor expectations to inculcate funds in the financial services sector. Investors are more cautious in investing because the announcement of the PMK gives a negative sentiment on the shares of financial services companies, but the performance of financial services companies are still considered good enough by the observers of the capital market encourages investors not to overreact on the occurrence of this PMK announcement and predicted this reaction only is temporary because of the Final PAS program is expected to overcome and be a solution of the fear of the Taxpayer who has not reported his assets. On the basis of such matter if at any time there is a similar regulation announcement is expected investors do not sell its shares, because the reaction of this rule is only temporary.

## CONCLUSION

Based on the results of the discussion and analysis of the acquisition of Abnormal Return of shares sampled around the date of announcement can be summarized as follows:

- Announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 on Amendment to the Regulation of the Minister of Finance No. 70 / PMK.03 / 2017 Concerning Technical Guide on Access to Financial Information for Tax Interest results negative market reaction.
- Announcement of Regulation of the Minister of Finance No. 73 / PMK.03 / 2017 Year 2017 Concerning Amendment to Regulation of the Minister of Finance No. 70 / PMK.03 / 2017 Regarding Technical Guide Regarding Access to Financial Information for interest of Taxation causes a market reaction so the announcement contains information (information content) shown by the existence of a significant Abnormal Return around the event period.

From some conclusions obtained should be submitted suggestions as follows:

- investors need to anticipate and analyze any information that may affect investment decision making. so investors are advised to attempt to obtain as much information and review the information, especially information that allegedly can affect the capital market so that it can take the right decision in the investment.
- Because the cumulative Abnormal Return obtained is negative and it means that the market response negatively to this announcement. So government should respond by suggest to the public, especially taxpayers who do not follow the tax amnesty

program or taxpayers who have followed the tax amnesty program but did not disclose all assets which he has, to participate in the PAS Final program.

- Develop similar research in other fields, given the reaction of capital market actors who react not only because of political and economic events, but also other events that affect people's lives.

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## THE CONCEPT OF ACCOUNTABILITY BASED ON THE VALUE OF ISLAMIC JUSTICE

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### ABSTRACT

This study aims to find Islamic values that can be used to develop the concept of accountability. This research has employed *bayani*, *burhani*, and *irfani* as methods. This research was conducted at the Institute of Zakat in Indigenous Region of Ammatoa. The research found that the concept of accountability is based on the values of justice. This comprises three elements: justice divert mandate (*amanah*), justice in the conduct of *amanah*, and accounting for the value of justice in *amanah*.

### KEY WORDS

Accountability, justice, bayani, burhani, irfani.

Accountability serves to enhance the performance benchmarks in providing public services, increase managerial accountability process, and as an element management control in organizations (Sadjarto 2000; Fikri et al. 2010; Fikri and Isnaini 2013; and Salle 2015). The demand for transparency in the management process requires an accountability pattern that is built through accounting system in order to provide opportunities to improve the provision of information that is accurate and reliable (Salle 2015). It has become a necessity in the management process, because each organization has to build relationship with the organization's internal and external parties.

In the last decade, attention and effort to uncover the link between accounting and accountability with religion have undergone many improvements, such as shown in the study by Lehman (2004), Triyuwono (2004), Quattrone (2004), Kholmi (2010), and Randa et al. (2011). The study focused on the relationship between accounting and accountability to religion on moral and ethical order. These studies were motivated by their concern over the tendency of increasing distance between accounting science and religion and theism. Modernization is characterized by a disregard for theism. For Lehman (2004), this is considered as the main cause of estrangement link between moral and ethics derived from religious teachings with accounting practices as a key explanatory accountability. Research on accountability in the non-business religious organizations have been carried out by Randa et al. (2011); Simanjuntak and Januarsari (2011); and Hadi and Yana (2011). Randa et al. (2011), for example, examined a religious Non Governmental Organization (NGO) accountability in a church and found that accountability of the church is different from non-religious NGO accountability. Research on zakat management, as also one of the NGOs (Wahid et al., 2009, Wahid and Kader, 2010, Hadi and Yana 2011, and Huda and Sawarjuwono 2014) are included in the criteria for the issue of accountability.

Several studies of accountability on non-business organizations have tried to understand the religious practices of accounting and accountability. Basically, conventional management employs limited use of horizontal accountability instrument (stakeholders and nature), while the vertical accountability (God), which became the major premise (Triyuwono 2006, 2012) in the accountability is still not fully used. In this study, the financial statements is limited as accountability media. Financial statements in the media is actually a physical form that connect people (agent, organization) with the principal (Triyuwono and Roekhudin 2000). This means that the agent and the principal relationship is not limited to the physical relationship, but also moral and spiritual relationship.

It must be understood that human beings are active and responsible (Triyuwono 2012). That is, on one hand man is free to be creative, but on the other hand, he/she is limited by

his/her responsibility, which is always subject to the ethical values of sharia. The sharia ethical values are reflected in Islamic research methodology. In Islamic tradition, it is understood that the reality of the human family life is actually not limited to material reality, but also includes a higher reality, that is the reality of psychic, spiritual, nature of God, and God himself as absolute reality and the highest (Bakar 1994).

In the context of the mandate (*amanah*) metaphor (Triyuwono 2006 and 2012) philosophically, accountability is a mandate (*amanah*). A mandate (*amanah*) is something entrusted to others to be used appropriately in accordance with the wishes that have been instructed. It means that the party that gets the mandate does not have the right of possession (ownership) to what is mandated. However, it has an obligation to maintain the trust of the mandate giver and use it in accordance with the mandate intended by the giver. Triyuwono (2012) explicates that there are three important parts that must be considered in the metaphor of the mandate, *i.e* the mandate giver, recipient of the mandate, and the mandate itself. Grantor trust, in this case, is Allah, God the Creator of the Universe, the God who creates humans as Khalifatullah fil-Ardh (His representative on earth), as related in the Qur'an, which means "Remember when thy Lord said to the angel: Behold, I will make a vicegerent on earth." (QS. Al-Baqarah [2]: 30). In another letter Allah says: He was the one who made you caliphs in the earth (QS. Al-Fatir [35]: 39).

Being a caliph as stated, gives an understanding that a person who has been appointed as Caliph, is demanded to perform the tasks entrusted to him and run it according to what is desired by God. This study aims to find the values of Islam which can be used to develop the concept of accountability based on values of justice.

## METHODS OF RESEARCH

In the history of the development of science, Islamic world has developed three types of epistemology in constructing knowledge. The three epistemology according to Abid al-Jabiry are epistemology *Bayani*, *Burhani*, and *Irfani*. (Abdullah 2007: 11-24). This epistemology has been successfully delivering exceptional achievements in knowledge of the Islamic world. It's only until recently that they have been abandoned as the Western technology flourished.

Epistemology *bayani*, is a method of thinking is based on the text (*nass*) of revelation. Sacred texts according to this epistemology is deemed to have full authority to give direction and meaning to the truth. Intellect is not given the freedom to determine the meaning and intent of the text, but he had to rely on the original text (Sumarna 2005).

Epistemology *burhani*, a source of knowledge that is rooted in reality or *al-waqi'*, both the reality of natural, social, humanity, and religion. Sciences are compiled and systematized through the premises of logic or *al-mantiq*, and not through text or Salaf authority nor by the authority of intuition (Arif 2008). Thus, the underlying principle of *Burhani* epistemology is rationality, causality, and the essentiality of the main methods developed through deduction and induction. This epistemological approach model is based on the ability or sense ratio which is done through the arguments of logic, sequential meaning logic as its main epistemology (Sumarna 2005; Arif, 2008; and Alimuddin 2011).

*Irfani* epistemology constitutes a source of knowledge which is based on intuition rather than on the text and logic. A source of knowledge in the tradition of *Irfani* thinking is a direct experience on religious spiritual reality (Sumarna 2005).

According to Triyuwono (2006), this intuition process will enhance spiritual energy that can be used to obtain information directly from the All-Knowing, because the spiritual energy is connected with the Creator. Further more Triyuwono provides alternative instructions on how to obtain knowledge through intuition, by doing mental exercises. Basically, the inner exercise includes *dhikr*, prayer *tahajjud* will help a person to relax without any interference, then he/she can plead to the All-Knowing, and end the routine with praise to Allah (Triyuwono 2006).

Based on the explanation above, the epistemology that is used in this discussion is the epistemology of Islam, where the revelation (Qur'an and Sunnah) is placed at the sole and

absolute truth and not inviolable. Therefore, this revelation has come down a few centuries ago, it is necessary to interpretation, both textually and contextually to be more operational.

In accordance with the qualitative research design developed Hamidi (2010, 54), there are eight stages of research work that are arranged with a more detailed explanation as follows:

*Informant and Site Research.* This research sites in the Indigenous Region Ammatoa, which is located in South Sulawesi Province Bulukumba. The informants in this study are:

- Puang Hatong, Chairman of Zakat Management Organization village of Tana Toa, daily activities are farmers chocolate and clove.
- Puang Masong, Imam village of Tana Toa concurrently Imam Hamlet Balagana and Imam Hamlet Buttu. His daily activities as clove pickers.
- Jumarlin, traditional leaders/religious with daily activities as a civil servant at the Department of Forestry Bulukumba.

*Approaches and Perspectives Research.* This study used a qualitative approach with the typical presentation of the data in narrative form, in-depth or detailed stories of the informants based on interviews and observation (Hamidi 2010, 55). The researchers explored in-depth information related to the informants understanding of the concept of accountability both at normative and practical level.

*Data collection technique.* Data were collected through interview, observation (observation) and documentation of the research subjects. Items interview question are free and open. By its very nature tend to be flexible and follow the rhythm of the discussions that occurred between researcher and informant.

The second technique is the observation of the informant's behavior includes verbal and non-verbal actions at the time of the interview or other informal activities. Final data collection techniques was through documentation. This data collection techniques researchers use adapted to the conditions of the study sites.

*Data Collection Strategy.* The interview process largely took place in an informal situation, in a warm atmosphere but without leaving the element of seriousness. Conditions and situations as such are very important to be created to create rapport so that they are willing to be open, to participate and be happy to provide data or information that is needed by researchers (Hamidi, 2010, 156).

*Data Analysis.* Data obtained from the informant used as material to assess the understanding and application of the concept of accountability in the viewpoint of reality. So far the preparation of a concept, rules, norms and laws largely based on the reality that is happening in the field. The process of refining the data analysis through the stages of empirical material in the form of field notes are still roughly into research note. This stage is known as a process of exclusion-inclusion (Hamidi, 2010, 157). With this process, the simplification of data that contains the original statement of the informant has been transformed into several units and focused detailed information.

*Data Validity examination techniques.* There are several techniques examination of the validity of data that can be used, but this study focuses more on the triangulation method. According to Hamidi (2010, 68), the method triangulation technique emphasizes the need to test the results of interviews with the results of observation and documentation of data collected so that the level of validity of the collected data will be more accurate.

## RESULTS AND DISCUSSION

Among the values of basic human justice brought by Islam and serve as the pillars of personal life, household, and community is justice (Qaradawi 2013: 201). In the Qur'an, justice is among human beings' heavenly goal, as Allah says:

"Indeed, We have sent Our Messengers with bringing tangible evidence and We have sent down with them the Bible and the balance (of justice) to enable people to carry out justice..." (QS. Al Hadid: 25).

The above verse emphasizes the value of justice through books of justice that are sent through God's apostles.

Rawls (1999: 3) argues that, justice is an essential virtue in an organization. Everyone has the honor which is based on justice. Ibn Taymiyyah said, that "God uphold fair though pagan country, but does not enforce unjust country though a believer," and that "the world can survive with justice and wisdom, but not with injustice and Islam" (Chapra 1992: 230).

Ibn Taymiyya argued, that the justice system is everything. If world affairs are upheld by the justice, they would remain erected, even though the doer did not have a part in the afterlife. However, if they are not enforced with fairness, these affairs would not erect, although the doer has faith and would be rewarded in the after life (Islahi 1997).

Justice is an important foundation in Islamic economics. Justice has been emphasized in the Qur'an as the primary mission of the prophets sent by God, including the enforcement of economic justice and the elimination of the income gap. Allah revealed Islam as a system of life for all mankind, stressing the importance of justice in every sector, whether economic, political or social. Commitment of the Qur'an about justice is very clear. This is evident from the mention of the word justice in the Qur'an that reached more than a thousand times (Suryani 2014). Justice is on the third place of the most mentioned words in the Quran after the words God and 'Ilm (science).

In understanding economic justice, according to Hartropp (2010) there are three different ways to understand, namely the right, needs, and the reward. This understanding has similar meaning to a certain extent with each other, but all three were significantly different from each other and may be said to have conflict with each other.

In the view of Islam, the values of justice implies placing or distributing things according to the context (Shihab 2006). Fairness in the organization occurs where all stakeholders feel that there is a fair treatment between them. It is said to be unfair if there is a group of people who get special treatment compared with the other groups.

Thus economic justice in Islam includes justice to oneself, justice to humanity, and justice to the environment. Economic justice to one self implies that everyone is trying to be able to meet their basic needs. This basic need comprises carrying out activities in the world and implementing the pillars of Islam (zakat and hajj). Economic justice to mankind is also essential through the provision of opportunity for individuals to meet their basic needs. The economy to environmental justice requires that every human being should protect, preserve, and maintain the environment which will result in sustainable development for the coming generation.

*Justice values in Accountability.* Man was created by God to care for this earth in order to achieve prosperity and happiness with should not take actions other than to justice. According to Alimuddin (2011), justice is one of the universal values upheld and to be the desire and hope of mankind whenever and wherever they are.

Caliph Umar bin Abdul Aziz has said that:

"It is the leader/authorities who must first be fair, then the people. If this is true, then justice is a shared responsibility. Long live a ruler sinned by doing a tyranny, the people also sin if they do not want to control and monitor. In fact, according to the Caliph Umar bin Abdul Aziz, the people who do not want to do it is entitled sanctioned punishment, especially if they do not deny immorality or injustice committed by the authorities" (Ahal 2002: 100).

The words of Umar bin Abdul Aziz can be interpreted that the demands for justice do not only apply for the ruler or leader, but also required for everyone.

Human is derived as *khalifatullah fil ard* (representative of God on earth) to carry out a mandate that must be done in accordance with the wishes of Allah (grantor trust) see Triyuwono (2006). Humans are predicated as caliph in the earth are required to carry out a specific mandate (*amanah*) to do with a sense of responsibility.

There are three important parts that must be considered in the value of equity in accountability, namely: fairness transferring the mandate (*amanah*), justice in the conduct of *amanah*, and accounting for the value of justice in *amanah*.

*Fairness in Transferring Amanah.* Qutb (1994) argues that Islam gives freedom in the form of common humanity in its deepest meaning. However, Islam does not also allow freedom in chaos; faceted society has its own terms, humanity has its terms, and the high religious purpose also has certain values as well. Therefore, Islam establishes the principles

of good-bad in humans in accepting freedom in this case accepting the mandate. Further, it also establishes rules for humans such that they include individual responsibility and community.

Islam does not forbid his people to be leaders (receiver *amanah*), even giving the widest possible opportunity to carry out a task (*amanah*) as a form of devotion. But Islam also does not want his people to be greedy, to provide an opportunity for individuals who have the ability to carry out the mandate (*amanah*).

Related to the above, Puang Hatong tells his appointment as a business leader in the village of Tana Toa Zakat Indigenous Regions Ammatoa:

In 1987, I was appointed by Imam of Desa Tana Toa to be the leader [*imam*] of Dusun Balagana... may be I was the leader for around 5 years. After that, I replace the Imam of Desa Tana Toa. I accepted this position after asking the consideration from the Ammatoa. Two years ago [2011]. I was asked to be replaced since there are already people who can replace me, and I have been doing this, collecting zakat in Desa Tana Toa for a long time. But the chief of the village said "hold on to it, because there still no one to be trusted". I have proposed BAZCAM [an organization that collects zakat] to do it, but the chief gave the same answer. So, Sir...until now I still take care of zakat (Interview dated June 2013).

Of the various explanations of the above, the meaning of which can be obtained from the value of justice in transferring the *amanah* according *bayani* method is that the position does not need to be asked. However, the *amanah* will be given if we are deemed able to take on the position or *amanah*.

By employing *Burhani*, it can be interpreted that human must equip himself with the knowledge that enables him to be capable and hard working. Without the hard work, he will not necessarily be a trustworthy leader.

Through *Irfani* it can be evaluated that the value of fairness in transferring the *amanah* is interpreted as getting a blessing and enjoyment. Any high position, if it is not blessed, it was short-lived. On the contrary, if it is an endowed position, it will be long-lived. Positions in jobs can be seen as dirt attached to our bodies that any time can be removed.

*Justice in the Conduct of Amanah.* Qutb (1994) argues that Islam guarantees between the individual and society, and between community members must walk in reciprocity and regulates the rights of each party. The guarantees given by Islam is really reached the level of unification between the two interests, and the boundaries of rewards and sanctions for anyone between the parties that are more active in mutual cooperation in various aspects of life, both material and that was immaterial.

Every individual, first became party guarantees to perform the work, each carried out with the best. Try your best at work is also a worship to God, for the work in a particular field that is owned by the community and ultimately benefit was restored to society. Described in the Qur'an Surah at-Tawbah: "And say: 'Work ye, then Allah and His messenger and the believers will soon see your work ...'" (QS. At-Tawbah [9]: 105)

Each individual is also the person who ensures the interests of society as if they were here the guards were given the power to maintain it. Life is like sharing a boat in the middle of the ocean, and every passenger is responsible for safety, and there is no right for anyone to sink the ship on behalf of individual freedom (Qutb 1994). In a hadith narrated by Bukhari and At-Timidzi, with redaction of Bukhari; it is stated that:

"The likeness of an individual who tried to maintain the continuity of the Shari'ah of God is like the people who are on the ship; there while among those at the bottom and the other at the top. People who are at the bottom of the ship when fetching water, they will go through the people who live on them. So they then said: 'If we are holes in this ship (to draw water), we we will no longer disturb the people above us that! ". But if they were allowed to act like that, then everything will experience a disaster. But if they help one another, they must be saved".

The hadith gives a very clear picture about the necessity of tolerance and commonality of interests, with the exclusion of individuals who are not thought to think about the influence of the thinking of practical action.

Of the various explanations of the above, the meaning of which can be obtained from the value of justice in carrying out the mandate (*amanah*) according *bayani* method is that the position (*amanah*) given by the giver of the mandate (*amanah*) should be implemented in accordance with the rules that have been set by the mandate giver. Through *Burhani*, it can be interpreted that if we carry out the mandate well, then Allah will bring down His blessings to us. Through *Irfani* method, it can be said that by carrying out the mandate (*amanah*) properly, we will get His blessings both in this world and in the Hereafter.

*Accounting for the value of Justice in Amanah.* Every human being is required to eliminate all forms of evil and injustice wherever he sees it. As described in the hadith narrated by Muslim , Abu Daut , At- Tirmidhi and An- Nasa'i :

"Whoever among you can see evil, then he should change it by hand (power), and if he can not do so, he should use his words, and if he is not able to do so, he should keep silent and this is the least of weak faith" ( Qutb 1994: 90 )

Based on the hadith can be interpreted that each person is responsible for all forms of bad deed in society, even if in this case it alone without any friend. In a society that is a unity, if evil deed is found, it becomes an obligation for everyone to protect this community. Qutb (1994) explains that the whole community will be affected by the threat of sanctions and the punishment, both globally and in the hereafter, if all members of the community keep silent against any form of evil actions that occur on some of its members.

Each community is responsible for ensuring each of its members maintain the *amanah*. Described in the Qur'an Surah al-Isra':

"And if we want to destroy a country, then we ordered the people living in luxury in the country (in order to obey Allah) but they do iniquity in the land, then it is appropriate that the provisions applicable to him we, then we destroy that country"(Qur'an, Al-Isra' [17]: 16)

It is also described in the Tafsir Ibn Katsir that states that even among the many people who do not commit sin, if they keep silent against any form of wickedness that is all around them, then it is only fair God shatters them. It is also emphasized in the Qur'an Surah al-Anfal "And fear of the torment that is not specifically override *dzalim* people among you..." (Qur'an, Al-Anfal [8]: 25). God's torment of this kind does not mean *dzalim*, because the community it self has committed bad deed, they have seen it but do not try to change it. This is a chaotic community and live towards their doom. Thus the destruction as God promised is a natural and common result.

In its mission to account for, people are required to be fair, as it has been described in this study. It is not only leaders who demanded justice, but members of the public too. Such is explicated by Puang Masong in the following:

During my appointment as Imam, seven days before Eid', I walked into people's homes to to tell them that it's time to pay zakka. Usually people paid directly but sometimes later. Once there was a zakka payer who was late to pay. So I tell him to reduce the payment. There are seven people in one house, but then he only paid for six people. He says "my wife just gave birth indeed, but only six people can I pay for. It's the least I owe you". Well ...I was forced to accept only the payment but I noted six people as the same report (while showing a recording sheet zakat) (Interview dated August 2, 2013).

Of the various explanations of the above, the meaning of which can be obtained from the value of justice in trust according *bayani* is that every human being should be held accountable in any way for *amanah* that has been given by the giver of the *amanah*. He is a leader and as well as a part of general society. The meaning of justice in trust according to *Burhani* is that any *amanah* given by God must be accounted for to avoid being penalized in the world or in the hereafter. Mean while, according to *Irfani*, the fairest accountability to the *amanah* is a form of servitude to Allah SWT.

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**THE EFFECTS OF TANGIBILITY OF ASSETS AND NON-DEBT TAX SHIELD  
TOWARD CAPITAL STRUCTURE WITH PROFITABILITY AS INTERVENING VARIABLE  
OF MANUFACTURING COMPANIES REGISTERED AT INDONESIAN  
STOCK EXCHANGE**

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**ABSTRACT**

This research was aimed to identify the effects of tangibility of assets and non-debt tax shield toward capital structure with profitability as intervening variable of manufacturing companies registered at Indonesian Stock Exchange. The samples of this study were 42 companies in manufacturing sector in the period 2012-2016. Samples were chosen by using simple random sampling method. The data was analyzed by using path analysis with the help of SPSS 23. The results of the research explained; tangibility of assets positively and significantly affected capital structure. Non-debt tax shield and profitability negatively and significantly affected capital structure. Tangibility of assets negatively and significantly affected profitability. Non-debt tax shield did not affect profitability. Profitability mediated tangibility of assets towards capital structure. Profitability was unable to mediate non-debt tax shield towards capital structure.

**KEY WORDS**

Tangibility of assets, non-debt tax shield, profitability, capital structure.

The development of manufacturing industry has been relatively better nowadays compared to four years ago which only grew approximately 3%. This is supported by the high rate of society consumption, the increase of investment in industrial sector, and the maintenance of performance. When the company intended to increase the company performance, the capital was needed to support both operational and non-operational activities. The fulfillment of the fund for the company might come from inside the company (internal) or outside the company (external). The company needed to consider whether the fund was fulfilled by their own capital, debt, or the combination of those two. This consideration was identified as capital structure. According to Brigham and Houston (2014), a developing company needed a capital which was originated from debt and equity.

Capital structure was an essential matter for the company since it became the representation of financial state of the company. The fineness state of the capital structure would give direct impact to the financial position of the company. The height rate of the capital structure would surely affect investors' decision when they intended to invest the capital to a company. Besides, the financial state of the company could affect the consideration of the investors, whether the company's policy which was handled by the finance manager could provide affluence for the stockholders.

There were many factors that affect capital structure, such as tangibility of assets, non-debt tax shield, and profitability. Tangibility of assets described some assets which could be collateral value of assets. Based on trade-off theory, when the company needed an addition of capital, it also needed tangible assets to offer collateral to the creditors. Brigham and Gapenski (2006) stated that generally, the company which had collateral for the debt would be easier to receive debt than the company which did not have any collateral. The company



whose assets were suitable for the collateral credit tended to use more debt. There were a lot of researches that discussed tangibility of assets toward capital structure. A research by Biorck and Lagercrantz (2011), Chen (2013) presented that tangibility of assets positively and significantly affected the capital structure. It was different from a research by Rizky et al., (2016) which showed that tangibility of assets negatively affected the capital structure. Meanwhile, Thippayana (2014) stated that tangibility of assets had no impact to the capital structure.

The company that had big taxes charges would find a method to reduce those taxes charges. The method which could be utilized to reduce the taxes was by a tax shield. Debt charges could be utilized as a tax shield since the interest could reduce income tax (Van and Wachowicz, 1998). Trade-off theory stated that the company which had to pay high taxes should use more debt than the company which had to pay low taxes. The company which had high non-debt tax shield did not need to use high amount of debt (Sari, et al., 2013). This was because the depreciation charges could be utilized as a substitute for tax shield which was originated from debt interest charges, so that the company did not need to use more debt to receive the tax shield.

The result of empirical research on the effect of non-debt tax shield towards the capital structure was still inconsistent. Non-debt tax shield which affected the capital structure could be seen from research by Sari et al. (2013) and Sundari and Susilowibowo (2016). Biorck and Lagercrantz (2011), Lim (2012) and Krisnanda and Wikusuana (2015) on their research, meanwhile, concluded that non-debt tax shield positively and significantly affected capital structure.

The result of the investigation on empirical study of tangibility of assets and non-debt tax shield was still inconsistent, so that there was a gap which could be done by putting profitability variable as intervening variable with a pattern that high profitability would affect the use of relatively low debt. This was occurred since the company utilized retained profit or internal fund to support their operational activities.

According to the explanation above, the research problems included: 1) how did tangibility of assets and non-debt tax shield directly affect capital structure? 2) how did tangibility of assets and non-debt tax shield affect capital structure with profitability as an intervening variable?. The objectives of the research were: 1) to identify and analyze the direct effects of capital structure and non-debt tax shield toward capital structure in manufacturing companies which were registered at BEI in 2012 – 2016. 2) to identify and analyze the effects of capital structure and non-debt tax shield toward capital structure with profitability as an intervening variable in manufacturing companies which were registered at BEI in 2012 – 2016.

## **CONCEPTUAL AND HYPOTHETICAL FRAMEWORK**

The objective of capital structure management was to determine the sources of the fund which were utilized by the company for its operation that would maximize the value of the company. The manager of the company had to choose an appropriate costing alternative to provide optimum result for the company and the owner. The objective of the research was to identify the effects of tangibility of assets and non-debt tax shield toward capital structure with profitability as intervening variable. Some utilized variables included capital structure which was correlated to tangibility of assets (TOA) and non-debt tax shield (NDTS) as independent variables, profitability which was correlated to return on assets (ROA) as intervening variables, and capital structure which was correlated to debt to equity ratio (DER) as dependent variables.

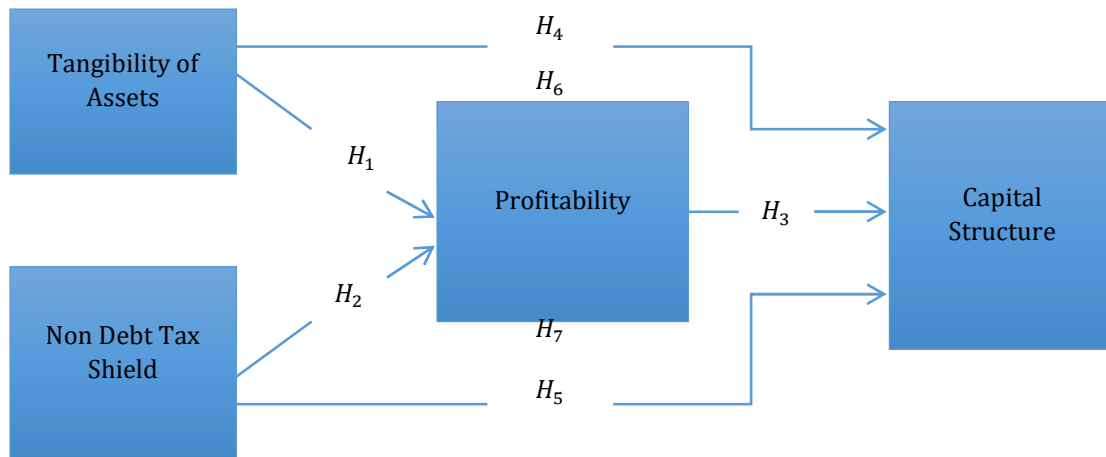


Figure 1 – Hypothetical Model of the Research

**Hypotheses:**

- $H_1$  = Tangibility of assets positively and significantly affected capital structure;  
 $H_2$  = Non-debt tax shield negatively and significantly affected capital structure;  
 $H_3$  = Profitability negatively and significantly affected capital structure;  
 $H_4$  = Tangibility of assets negatively and significantly affected profitability;  
 $H_5$  = Non-debt tax shield positively and significantly affected profitability;  
 $H_6$  = Profitability mediated tangibility of assets towards capital structure;  
 $H_7$  = Profitability mediated non-debt tax shield towards capital structure.

**METHODS OF RESEARCH**

The populations in this research consisted of 150 manufacturing companies registered at Bursa Efek Indonesia (BEI) based on the publication of Indonesian Capital Market Directory (ICMD) in the period of 2012 to 2016.

The sampling technique utilized in the research was in the form of probability sampling by simple random sampling. It was called as simple since the sample members from the populations were chosen randomly without paying attention to the stratum in that population (Sugiyono, 2014). The sampling technique in this research was carried out by choosing the companies randomly from the list of 42 manufacturing companies registered at Bursa Efek Indonesia (BEI) in 2012 – 2016 with the number of observation about 210 companies (42 companies, 5 years).

Table 1 – Operational Definition

No	Variable	Definition of Variable	Formula	Scale of Measurement
1	<i>Tangibility of Assets (TOA)</i>	Comparative ratio between fixed assets and current assets	$\frac{\text{Fixed Assets}}{\text{Total Assets}}$	Ratio
2	<i>Non Debt Tax Shield (NDTS)</i>	Measurement ratio of the reduction of taxes except reduction of debt	$\frac{\text{Depreciation} + \text{Amortization}}{\text{Total Assets}}$	Ratio
3	<i>Return on Assets (ROA)</i>	The ration which measures return rate of the assets	$\frac{\text{Nett Profits}}{\text{Total Assets}}$	Ratio
4	<i>Debt to Equity Ratio (DER)</i>	Comparative ratio between total debt and total capital (Hamidy,	$\frac{\text{Total Debt}}{\text{Total Equity}}$	Ratio

Source: adapted from various journals.

The data in this research was secondary data in the form of financial report of the company in the period of 2012 to 2016.

The method of data collection was documentation, in which the data was collected from the annual financial report of the companies and annual report of the companies in the period of five year from 2012 to 2016. The method was carried out by listing the whole data needed

in the research to calculate tangibility of assets, non-debt tax shield, return on assets, and debt to equity ratio which later to be analyzed.

Operational definition of the research variables was the explanation of each variable in the research towards their indicators. The operational definition could be seen in Table 1.

This research provided average statistics which was equipped by the highest and the lowest score on each variable of investment decision, risks factors, liquidity ratio, and company value.

Inferential statistics used in this research was in the form of path analysis. It was a technique of extension or development from double linier regression analysis. Statistical Product and Service Solution (SPSS) verse 23 was utilized as an application to analyze the data.

## RESULTS AND DISCUSSION

### *Descriptive Statistics:*

Table 2 – The Result of Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TOA	210	.03	.86	.3790	.20181
NDTS	210	.01	.52	.2076	.11303
ROA	210	-7.71	19.69	5.8565	5.93057
DER	210	.04	1.64	.6771	.37107
Valid N	210	-	-	-	-

Source: Researcher's data.

The result of research variable statistics description could be seen from Table 2 above. The lowest TOA value (minimum) was 0.03 by PT Jaya Pari Steel (Persero) Tbk while PT Holcim Indonesia Tbk had the highest value (maximum) 0.86. The mean of TOA variable was 0.3790 with lower standard deviation 0.20181 described that there was small fluctuation of TOA. Table 2 presented the lowest score of NDTS 0.01 which was held by PT Indospring Tbk, while the highest value 0.52 was PT Keramika Indonesia Assosiasi Tbk. The mean of NDTS variable was 0.2076 higher than the standard deviation 0.11303 in which showed that the fluctuation of NDTS was small.

The value of ROA variable from the entire sample during the observation was the lowest (minimum) -7.71 by PT Keramika Indonesia Assosiasi Tbk while the highest score (maximum) was 19.69 by PT Lion Mrtal Works Tbk. The mean of ROA was 5.8565 with standard deviation 5.93057. The lower mean than the standard deviation indicated that there was high fluctuation in the company which was chosen as a sample.

The capital structure which was represented by proxy Debt to Equity Ratio (DER) had the lowest value (minimum) 0.04 by PT Jaya Pari Steel (Persero) Tbk while PT Indofarma (Persero) Tbk had the highest value (maximum) 1.64 from the sample and the set time of the research. The mean of DER was 0.9278 which was higher than the standard deviation 0.57098 so that the fluctuation of the capital structure of the company was small. This could be indicated from the standard deviation of the capital structure which was lower from its mean.

*Inferential Statistics.* Linearity test was carried out to identify whether the model was accurate to explain the relationship between variables being observed and was considered as a good model. One of the assumptions in regression was that the relationship between dependent variables and independent variables was linear.

Table 3 – The Result of Variables Linearity Test

Independent Variable	Dependent Variable	Test Result ( $\alpha = 0.05$ )	Sig.	Decision
TOA	ROA	All models were significant	0,000	Linear
NDTS	ROA	All models were not significant	0,387	Linear
TOA	DER	All models were significant	0,000	Linear
NDTS	DER	All models were not significant	0,070	Linear
ROA	DER	All models were significant	0,000	Linear

Curve Fit approach was utilized in which the rules of decision referred to parsimony concept, when the entire models as the basis of the test were significant or not significant, or the linear function was significant so that the model was considered as linear. Table 3 presented that all forms of relationships between variables in the structural model were linear. Therefore, the linearity assumption in this structural model was fulfilled.

The test result of the goodness of fit model could be fulfilled if it was supported by a valid data calculation. Goodness of fit structural model analyzed was the total determination coefficient value ( $R^2_m$ ). This value was calculated based on  $R^2$  value of each dependent variable. According to those  $R^2$ , the value of predictive relevance ( $Q^2$ ) was 0.632 in which the model utilized to predict dependent variable was worth to test the hypothesis. The value of total determination coefficient was 63.2% which meant that it was good and accurate value to predict corporate obligation value, the remaining 36.8% was not included in this research.

Table 4 – R Square value of Dependent Variable

Dependent Variable	R square
DER	0,421
ROA	0,365
Predictive-relevance ( $Q^2$ )	0,632

*The Result of Hypothesis Testing.* Direct testing was carried out to identify the effect of investment decision towards the value of the company. The basis of the hypothesis used p value 5%. If p value was lower than 5% it indicated that the hypothesis was significant, on the other hand, if p value was greater than 5%, the hypothesis was considered not significant. The result of the testing could be seen in Table 5:

Table 5 – Test Result of the Direct Effect

Independent Variable	Dependent Variable	Path Coefficient	p-value	Information
TOA	DER	0,356	0,000	Significant
NDTS	DER	-0,199	0,003	Significant
ROA	DER	-0,305	0,000	Significant

The analysis of tangibility of assets (TOA) towards capital structure (DER) resulted path coefficient value 0.038 with positive significance level 0.000. Hypothesis 1 ( $H_1$ ) which stated that tangibility of assets positively and significantly affected the capital structure was accepted. The significance level of the effect of non-debt tax shield (NDTS) towards capital structure (DER) was 0.003 with path coefficient value -0.915. Hypothesis 2 ( $H_2$ ) which stated that non-debt tax shield negatively and significantly affected the capital structure was accepted. The effect of profitability variable (ROA) towards capital structure variable (DER) resulted path coefficient value -0.216 with negative significance level 0.002. Hypothesis 3 ( $H_3$ ) which stated that profitability negatively and significantly affected the capital structure was accepted.

The test on the effects of mediation variable or the test on the indirect effects was aimed to identify the position of mediation variable in this research: profitability. The examination process towards profitability variable to determine the type of mediation whether it was partial mediation or complete mediation could be carried out by (1) Calculating path coefficient by including profitability variable in the empirical model and (2) Calculating p value by using sobel test. The result of these two methods explained in Table 6.

The analysis of tangibility of assets (TOA) variable towards profitability variable (ROA) resulted path coefficient value -0.368 with negative significance level 0.000. This indicated that tangibility of assets (TOA) moved in reverse with the profitability (ROA). Hypothesis 4 ( $H_4$ ) which stated that tangibility of assets negatively and significantly affected profitability was accepted.

The significance value of the effects of non-debt tax shield (NDTS) variable towards profitability (ROA) resulted path coefficient 0.016 with positive significance level 0.812. This indicated that non-debt tax shield (NDTS) was not significantly affected profitability (ROA).

Hypothesis 5 ( $H_5$ ) which stated that non-debt tax shield positively and significantly affected profitability was declined.

Table 6 – The Result of Mediation Variable Testing

Independent Variable	Intervening Variable	Dependent Variable	Path Coefficient	<i>p-value</i>	Sobel Test	Information
TOA		ROA	-0,368	0,000		Significant
NDTS		ROA	0,016	0,812		Not significant
TOA	ROA	DER	0,112	0,000	3,550	Mediating
NDTS	ROA	DER	-0,004	0,812	0,2337	Not mediating

The result of the calculation described that total effect coefficient (0.468) was higher than indirect effect (0.112) and direct effect (0.356). This indicated that there was a probability of partial mediation by referring to sobel statistics value and its significance level. The result of sobel statistics was 3.550 with  $p$  value  $0.000 < 0.05$  so that it could be summarized that sobel statistics was significant. In conclusion, profitability had the role as an intervening variable in the form of partial mediation. Hypothesis 6 ( $H_6$ ) which stated that profitability mediated tangibility of assets towards capital structure was accepted.

The result of the calculation stated that total effect coefficient (-0.2013) was lower than indirect effect (-0.004) and direct effect (-0.199). This indicated that there was a possibility that mediation did not occur. The result of sobel statistics was 0.237 with  $p$  value  $0.812 > 0.05$  so it could be concluded that sobel statistics was not significant. Hypothesis 7 ( $H_7$ ) which stated that profitability mediated non-debt tax shield was declined.

The high tangibility of assets described that the company was at the ease to receive debt. Fixed assets owned by the company could be designated as a collateral for the creditor to receive agreement for the debt. The higher the tangibility of assets, the higher the capability of the company to receive debt collateral for a long period of time.

The company with high tangibility of assets tended to use fund from external parties or from debt to support their capital needs since a big-scale company had more capability and flexibility to access external sources of fund so that it was likely to increase the debt. This was occurred because the creditor was more interested in the big company than the small company since the debt from creditor required a decent collateral as much as the amount which was lent to the company. The company which had greater assets tended to face lower risk of bankruptcy than the company which had smaller assets (Dewi, 2016). The result of the research identified that tangibility of assets positively and significantly affected capital structure so that the increase of tangibility of assets was followed by the increase of capital structure.

The research findings explained that non-debt tax shield negatively and significantly affected capital structure. When the company had high non-debt tax shield it could affect the decrease on capital structure. The company which had high non-debt tax shield did not required to use high amount of debt. This was because the depreciation charges could be utilized as tax shield substitution which came from debt charges so that the company no longer required to use a lot of debt to obtain tax shield.

The company which had high taxes charges would seek for a method to reduce the charges. The method that could be used was by tax shield, however, by the existence of non-debt tax shield, the company no longer used tax shield to reduce taxes charges. Non-debt tax shield determined the capital which did not come from debt, on the other hand, they came from depreciation cost and amortization towards profit and loss.

The company with high capability to earn profits would utilized retained profits (their own capital) as the capital to support their operational activities without spending the fund from outside of the company (Stella, 2015). Retained profits was utilized support their operational activities so that the company would not require some amount of fund from external parties. The use of retained profits or their own capital would affect capital structure to be smaller. This was in line with the pecking order theory (Myers and Majluf, 1984) which

explained that the company with high profitability tended to have low debt, since they had abundant internal fund resources.

Investment for fixed assets expected for an optimal return of the invested capital. For the company, fixed assets were the power to acquire optimal return. The proportion of fixed assets which is bigger than the current assets would affect the return rate. Nichols and Buerger (2002) claimed that if the company had too many fixed assets, the interest charges would be too high and would result very low profits. The research findings stated that there were negative and significant effects between tangibility of assets and profitability. If tangibility of assets was higher, the profitability would be lower.

Myers and Majluf (1984) stated that the company with high non-debt tax shield would lower the debt rate if the profits of the company did not increase. This was due to non-debt tax shield as internal fund resources for the company. According to the research findings, non-debt tax shield did not significantly affect profitability. It showed that depreciation charge of the assets could replace debt charges to reduce the tax charges.

Tangibility of assets indicated the ratio between fixed assets with total assets owned by the company which determine the fund allocation for each component of the assets. The higher tangibility assets, the higher the capability of the company to receive debt collateral for a long period of time. The company with high tangibility of assets tended to use the fund from external parties or from the debt to support their capital needs while the big-scale company had more capability and flexibility to access external resources so that it resulted the increase of the debt. This was occurred since the creditors would be more interested in the big-scale companies rather than smaller companies because the debt from the creditors required decent collateral as much as the amount of the debt.

The research findings stated that the profitability partially mediated tangibility of assets towards capital structure. This explained that the profitability made the effects of tangibility of assets became stronger so that the company tended to use more external funds for their operational activities. According to this assumption, the profits obtained by the company would not be retained since the company used debt as their resource. The profits would be distributed to the stockholders through dividend. As a result, if the dividend was continuously distributed, the company would gain more value from the investors.

Armstrong et al. (2012) explained that the reduction of the tax from the depreciation would substitute the benefits of the tax from credit finance so that the company with high non-debt tax shield would use small amount of debt. The company which used small amount of debt would use retained profits or internal fund as their finance resource. It indicated that the profits of the company were high.

The research findings described that profitability could not be mediation variable between non-debt tax shield and capital structure. It was assumed that the company preferred external funding than internal funding. The company was more focused on the assets of the company to assure the creditors for the debt of the company. The profits of the company would be a dividend so that investors would be attracted to invest their capital to the company.

## **CONCLUSION AND SUGGESTIONS**

The followings were the conclusions of the research:

- Tangibility of assets positively and significantly affected capital structure;
- Non-debt tax shield negatively and significantly affected capital structure;
- Profitability negatively and significantly affected capital structure;
- Tangibility of assets negatively and significantly affected profitability;
- Non-debt tax shield did not significantly affected profitability;
- Profitability mediated tangibility of assets variable towards capital structure variable;
- Profitability could not mediate non-debt tax shield variable towards capital structure variable.

*Suggestions:*

- The company should be more thorough in determining the value of fixed assets, because if the fixed assets exceed its portion, it results low profits. However, if the company has low assets, they would not have any collateral to acquire debt from the creditors.
- The management officials should be able to maintain the stability of the profits, increase financial performance and the value of the company for the existence and good prospect of the company in the future.
- The investors are supposed to be more careful in making the decision of investment to manufacturing sectors. The investors should be able to explore and examine the information of tangibility of assets owned by the company so that they could identify whether the company utilizes internal or external funding to support operational activities of the company.

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**EFFECT OF STOCK PRICE, DEBT TO EQUITY RATIO, RETURN ON ASSET,  
EARNING PER SHARE, PRICE EARNING RATIO AND FIRM SIZE ON INCOME  
SMOOTHING IN INDONESIA MANUFACTURING INDUSTRY**

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**ABSTRACT**

The study was conducted to observe the income smoothing on the manufacturing company listed on the Indonesian Stock Exchange. Income smoothing is capable to mislead investors in analyzing financial statements and mislead creditors in long-term loan decision making. The research object is manufacturing industry group, basic industry and chemical sector, cement sub-sector listed on BEI since 2005 - 2017. The research result exhibits that factors influencing the partial earnings are par value stock, debt to equity ratio, earnings per share and price earnings ratio. On the other hand, return on asset and firm size is not significant. All variables studied influences income smoothing.

**KEY WORDS**

Stock price, debt to equity ratio, return on asset, earning per share, price earning ratio, firm size, income smoothing.

The high economic growth of a country can reflect the greater role of the capital market. The important role of the capital market in the economy is as a means of business financing and as a means for people to invest. According to Sunariyah (2011: 4) the capital market, in general, is an organized financial system, including commercial banks and all financial intermediaries, as well as all circulating securities. United Nations Industrial Development Organization (UNIDO, 2012) research stated that global manufacturing industry in the third quarter of 2012 only grew by 0.2 percent compared to the previous year. The world's manufacturing industry is experiencing severe challenges due to recession in European countries and weakening economic growth in North America, East Asia and slowing economic growth in some developing countries. This global recession will be a constraint to the development. The impact of this slowdown in world economic growth will be a serious problem as it will affect Indonesia's export-oriented manufacturing industry.

Table 1 – GDP Growth per First Quarter Sector 2017

Sectors	2011	2012	2013	2014	2015	2016	2017*	Share 2016
Manufacturing industry	6,26	5,62	4,37	4,64	4,33	4,29	4,21	20,51
Agriculture, forestry, & fishery	3,96	4,59	4,20	4,24	3,77	3,25	7,12	13,45
Wholesale & retail trade, cars & motorcycles reparations	9,66	5,40	4,81	5,18	2,59	3,93	4,77	13,19
Construction	9,02	6,56	6,11	6,97	6,36	5,22	6,26	10,38
Mining and Quarrying	4,29	3,02	2,53	0,43	-3,42	1,06	-0,49	7,20
Transportation and warehousing	8,31	7,11	6,97	7,36	6,68	7,74	7,65	5,22
Finance and insurance	6,97	9,54	8,76	4,68	8,59	8,90	5,73	4,20
Public adm, defense, and compulsory social security	6,43	2,13	2,56	2,38	4,63	3,19	0,58	3,86
Information and communication	10,02	12,28	10,39	10,12	9,69	8,87	9,10	3,62
Education	6,68	8,22	7,44	5,47	7,33	3,84	4,11	3,37
Accommodation, food and beverages	6,86	6,64	6,80	5,77	4,31	4,94	4,68	2,92
Real estate	7,68	7,41	6,54	5,00	4,11	4,30	3,67	2,81
Other services	8,22	5,76	6,40	8,93	8,08	7,80	8,01	1,71
Business services	9,24	7,44	7,91	9,81	7,69	7,36	6,80	1,70
Electricity and gas	5,69	10,06	5,23	5,90	0,90	5,39	1,60	1,15
Health and sosial activities	9,00	7,96	7,96	7,96	6,68	5,00	7,13	1,07
Water, Waste management, cesspit, and recycling	4,73	3,34	3,32	5,90	0,90	5,39	1,60	0,07
Gross Domestic Product	6,17	6,03	5,56	5,01	4,88	5,02	5,01	100,00

Source: Central Bureau of Statistics, 2017.



Table 1 exhibits the current condition of the manufacturing industry in Indonesia which is continuously decreasing. the role of the manufacturing industry in GDP remains the highest, at 20.5% in 2016. Unfortunately, the trend in the manufacturing sector continues to decline from 6.26% in 2011 and in 2017 to 4.21%. Currently, the government is accelerating economic growth by boosting the manufacturing sector. The acceleration of growth in the manufacturing sector is expected to increase GDP if the manufacturing industry experiences a 1% increase alone can increase 0.2% economic growth.

The development of manufacturing industry in a country can be a parameter of national industrial development. According to Heizer, et. al (2005) manufacturing industry is a group of similar companies that process materials into semi-finished goods or finished goods with greater added value. The Indonesian Cement Association (ASI) statistics data of 2016 cement consumption growth in Indonesia shows a positive trend of increase, the annual average reached 8.4% in 2010-2015 period. But that figure is still below the national cement production capacity. The Indonesian Cement Association (ASI) expects a 5% growth in cement sales in Indonesia which is expected to stimulate investor interest in investing in the cement industry. Increasing sales of the manufacturing industry is not enough to stimulate investor interest, managers recognize that financial statements are parameters used to measure earnings management performance. Earnings information is an important component of financial statements aimed at assessing management performance, as has been recognized that industry manufacturing in its activities rely on capital from investors. This can also trigger the interest of investors to provide or withdraw investment from a company.

Earnings information is a component of a company's financial statements aimed at assessing management performance, forecasting earnings, and estimating risks in investing. Earnings information has an enormous effect on the users in making a decision, so the attention of investors is often focused on earnings information. As already mentioned in the Statement of Financial Accounting Concepts (SFAC) No. 1 that earnings information is generally a major concern in assessing performance or accountability of management and earnings information to help the owner or other party conduct an assessment of future earnings of the company. Under these conditions, management tends to perform an undue behavior in order to make good financial statements. This behavior is usually done by conducting income smoothing that aims to overcome the various interest conflict that arises between management with various parties of interest from the company. The act of smoothing can be defined as the process of profit manipulation, earnings time or earnings reporting to report fewer earnings flow.

Widaryanti (2009) research result stated that firm size, profitability, financial leverage, net profit margin, and variance of company stock value do not affect the practice of income smoothing in manufacturing companies. Another study that examines the factors affecting income smoothing is Pramono (2013), research result exhibits that the debt to equity ratio has no effect on the practice of income smoothing while return on assets, net profit margin, firm size affects income smoothing.

Another factor capable to affect profitability is stock price and earnings per share. Fachrorozi, et. al (2017) conclude a company's stock price has the positive and significant effect on income smoothing while earning per share variable have the negative and significant effect on income smoothing. Based Rahmat's research (2016) on various industry companies listed on Indonesia Stock Exchange, it can be concluded that managerial ownership, return on asset, and economic growth has a positive effect on income smoothing, but price earning ratio has no effect on income smoothing. Price-earnings ratio is not expected to be influential as investors in Indonesia observe capital gains rather than price-earnings ratio. Some of the above research results possess inconsistent results on income smoothing and need to be re-examined. The researcher will develop research model by studying variable stock price, debt to equity ratio, return on asset, earnings per share, price earning ratio and firm size. The purpose of this research is to know the direct influence between variable stock price, debt to equity ratio, return on asset, earnings per share, price earning ratio and firm size to income smoothing in the manufacturing industry.

## LITERATURE REVIEW

*Income Smoothing.* According to Koch (1981), income smoothing is defined as the means used by management to reduce reported earnings fluctuations to fit desired targets artificially through accounting methods, as well as in real terms through transactions. According to Ronen and Sadan (1989) and Barnea in Belkoui (1993) income smoothing could be conducted in three ways:

- Management may set a time of occurrence of certain events to reduce reported earnings difference.
- Management may allocate certain revenues and expenses in different accounting periods.
- Management at the discretion of classifying specific profit items into different categories.

Foster (1986) states the purpose of income smoothing is to (1) Improve the image of the company in the eyes of outsiders, that the company has a low risk; (2) Provide relevant information in predicting future earnings; (3) Improving business relationship satisfaction; (4) Improving external party perceptions of management capabilities; (5) Increase compensation for management.

*Stock Price.* Brigham and Houston (2010) defined stock price as determinants of shareholder wealth. Maximizing shareholder wealth translates into maximizing the company's stock price. The stock price at one particular time will depend on the cash flow expected to be received in the future by the "average" investor if the investor buys the stock. According to Sartono (2015) "Stock market prices are formed through the mechanism of demand and supply in the capital market.

*Debt to Equity Ratio.* Cashmere (2014) states that "Debt to Equity is a ratio used to assess debt and equity. This ratio is sought by comparing the entire current debt with all equity debt ". Meanwhile, according to Syafri (2010) "This ratio describes the extent to which the owner's capital can cover the debts to outsiders, The smaller the ratio the better. This ratio is also called leverage ratio. For outsider security, the best ratio is when the capital is greater than the amount of debt or at the same amount. Nevertheless, leverage ratio should be large for shareholders or management". Based on the two expert opinions, it can be concluded that the Debt to Equity Ratio is the ratio used to calculate debt and capital, which can cover the debts to outsiders. Debt to equity ratio in each company is different, depending on business characteristics and diversity of cash flow. Firms with stable cash flow typically have higher ratios than less stable cash ratios.

*Return On Asset.* According to Riyanto (1999), Return On Asset is a ratio that shows the company's ability to generate a net profit for all investors of the capital invested in the overall assets. The higher the Return On Asset the higher the company's ability to generate profits. Analysis of Return On Assets in the financial analysis has a very important meaning as a comprehensive financial analysis technique. Return On Assets (ROA) itself is one form of profitability ratio that is intended to measure the ability of the company with the overall funds invested in the assets used for the company's operations to generate profits. Thus Return On Assets connects the profits derived from the operating company (Net Operating Income) with the amount of investment or assets used to generate operating profit (Net Operating Assets).

*Earning Per Share.* Earnings per share are the ratio that shows the income earned per share (Gibson, 1996). Meanwhile, according to Weygandt et. (1996) earnings per share assesses the net income earned per share of common stock. One reason investors buy stocks is to get dividends if the value of earnings per share is small, the possibility of companies to distribute dividends is small as well. Therefore investors will be more interested in stocks possessing high earnings per share than stocks that have low earnings per share. Low Earnings per Share tends to keep stock prices down.

*Price Earning Ratio.* Garrison and Noreen (2000) stated that the Price Earning Ratio reflects the relationship between stock market prices and current EPS widely used by investors as a general guide to measuring stock values. Price Earning Ratio is used by

investors to predict the company's ability to generate future profits. Investors can consider this ratio to sort out which stocks will benefit substantially in the future. Price Earning Ratio shows the relationship between the market price of common stock and earnings per share. Companies with a high growth rate opportunity usually have a high PER, and companies with low growth have a small or low PER. PER has no meaning if the company has very low (abnormal) or negative profits.

*Firm Size.* Machfoedz (1994) defined firm size as a scale which classifies a company's size in various ways, including total assets, log size, stock market value, etc.. The size of the company is only divided into 3 categories: large, medium and small companies. The determination of the size of the company is based on the total assets of the company. Moses's (1997) study proves that larger firms have a greater incentive to conduct income smoothing than smaller firms because larger firms are subject to scrutiny (closer scrutiny from governments and the general public). Albretch and Richardson (1990) research found that larger firms have a drive conduct income smoothing compared to smaller firms because larger firms are studied and viewed more critically by investors.

## METHODS OF RESEARCH

The type of data used in this study is secondary data 2013 to 2017 obtained from [www.finance.yahoo.com](http://www.finance.yahoo.com) and [www.idx.co.id](http://www.idx.co.id) The research population is companies that are in the manufacturing industry, basic industry and chemical sector, cement sub-sector listed on BEI. The sample used is based on the criteria of the company whose shares are always registered and active in IDX trading minimum since 2005 and always present the financial information during the observation period. Based on the criteria, the companies that are being sampled are Indocement Tunggak Perkasa Tbk, Holcim Indonesia Tbk, Cement Indonesia (Persero) Tbk. Data analysis method used is multiple linear regression models as follow:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6$$

Where:  $Y$  = Income Smoothing;  $\alpha$  = Constant;  $\beta_1 \beta_6$  = Coefficient of Regression;  $X_1$  = Stock Price;  $X_2$  = Debt to Equity Ratio;  $X_3$  = Return on Asset;  $X_4$  = Earning Per;  $X_5$  = Price Earning;  $X_6$  = Firm Size.

The simultaneous influence of exogenous variables on endogenous variables can be determined to explore the significance test F, with the following hypothesis:

- $H_0$  = exogenous variables have no significant effect on endogenous variables;
- $H_a$  = exogenous variable has a significant effect on endogenous variable.

Terms accepted or  $H_0$  accepted hypothesis proposed simultaneously if the value of Sig  $F > \alpha 0.05$  and if the value of Sig  $F < \alpha 0.05$  then  $H_a$  accepted.

To determine partially the effect of exogenous variables on endogen, researchers used t significance test with the following hypothesis:

- $H_0$  = exogenous variable ( $X_i$ ) has no significant effect on endogenous variables;
- $H_a$  = exogenous variable ( $X_i$ ) have a significant effect on endogenous variables.

Terms accepted or  $H_0$  accepted hypothesis proposed simultaneously if the value of Sig  $t > \alpha 0.05$  and if the value of Sig  $t < \alpha 0.05$  then  $H_a$  accepted.

The beta regression coefficient test is conducted by determining standardized coefficients beta obtained from multiple regression analysis using SPSS version 22 software. This test is conducted to determine which exogenous variables have a dominant influence on endogenous variables. To ensure that the obtained model actually meets the best linear unbiased estimator (BLUE) principle, the researchers used the basic assumption test and the classical assumption test. Test of basic assumption in this research utilized normality test. As for the classical assumption test used multicollinearity test and autocorrelation test.

## RESULTS OF STUDY

Examination result on the basic assumptions and classical assumptions. The first assumption test is the normality test, where the test is performed by determining the Kolmogorov-Smirnov value, where the results of the data have a normal distribution because the Kolmogorov-Smirnov value has a significance level of  $0.325 < 0.05$ .

Table 2 – Results of Kolmogorov Smirnov Test

Kolmogorov Smirnov Z	.303
Asymp. Sig (2-tailed)	.325

Source: reprocessed, 2018.

The next stage is the Multicollinearity Test. A model is said to not occur multicollinearity, if the value of variance inflation factor (VIF)  $< 10$  (Ghozali, 2016). Table 3 exhibits that Multicollinearity does not occur between independent variables because of the VIF value of each variable  $< 10$ .

Table 3 – Multicollinearity Test Results

Model	Collinearity Statistics	
	Tolerance	VIF
Stock Price	.802	1.247
Dept to Equity Ratio	.709	1.410
Return on Asset	.831	1.203
Earning Per Share	.851	1.175
Price Earning Ratio	.797	1.255
Firm Size	.962	1.039

Source: reprocessed, 2018.

The last test to fulfill the principle of best linear unbiased estimator (BLUE) is an autocorrelation test. A model can be declared no symptoms of autocorrelation if the Durbin Watson value  $> 0.05$  (Ghozali (2016; 107)). Table 4 exhibits the Durbin Watson value at  $1.936 > 0.05$ , it can be said that the model has no autocorrelation.

Table 4 – Multicollinearity Test Results

Durbin Watson	Description
1,936	No Autocorrelation occurrence

Source: reprocessed, 2018.

Results obtained from software SPSS Ver.22 to determine the value used as a proof of hypothesis is presented in table 5 below:

Table 5 – Recapitulation of Results of Multiple Linear Regression

Formula	Coefficient of Regression	T-test (Sig)	Coefficient of Determination	F Test (Sig)
	$\alpha = 1.315$	1.207 (0.230)		
	$\beta_1 = 0.350$	3.778 (0.007)		
	$\beta_2 = 0.060$	2.384 (0.009)		
Income Smoothing	$\beta_3 = 0.010$	0.666 (0.507)	0,359	9.439 (0.000)
	$\beta_4 = - 0.089$	-2.282 (0.006)		
	$\beta_5 = 0.075$	2.225 (0.008)		
	$\beta_6 = - 0.005$	-0.046 (0.964)		

Source: Reprocessed, 2018.

The results are presented in table 5, it obtained multiple linear regression equations as follows:

$$Y = 1.315 + 0.350X_1 + 0.060X_2 + 0.010X_3 - 0.089X_4 + 0.075X_5 - 0.046X_6$$

The test column F in table 5, exhibits sig value for regression testing 0.000. This value is smaller than 0.05 or sig <math>\alpha</math> value. This indicates the hypothesis stating "exogenous variable significant effect on the endogenous variable" accepted. Furthermore, column T test exhibits sig value for each variable. Only return on asset and firm size that has value > 0.05 at 0.507 and 0.964 respectively. This means the hypothesis stating "variable return on asset and firm size no effect significant to income smoothing "is accepted. While the other variables are stock price, debt to equity ratio, earnings per and price earning respectively have value 0.007, 0.009, 0.006 and 0.008, this means the hypothesis which states "variable stock price, debt to equity ratio, earnings per and price earnings significant effect on income smoothing "is accepted.

Table 5 also exhibited coefficient of determination value equal to 0.359. This means that stock price, debt to equity ratio, return on asset, earnings per share, price earnings ratio, and firm size variables contribute to income smoothing value equal to 35.9% while the rest of 64.1% is explained by other variables not included in this research model.

## **DISCUSSION OF RESULTS**

Based on the research result, empirical evidence found a tendency of companies listed on the Jakarta Stock Exchange to conduct income smoothing. This was proposed by Setyaningsih and Marisan (2010). In accordance with research result, only return on asset and firm size possess no significant effect on income smoothing. ROA variable does not affect the income smoothing to support the research result conducted by Jin and Machfoedz (1998), Salno and Baridwan (2000), and Juniarti and Corolina (2005). Most research conducted in Indonesia on factors affecting earnings smoothing practices does not succeed in supporting that profitability (ROA) has a significant effect on the practice of income smoothing.

Furthermore, a firm size that has no effect and not significant to income smoothing. It can be said that firm size is not a variable that affects income smoothing in the manufacturing industry. This result indicates that while observing a relatively optimal position of corporate assets, it also makes it difficult for managers to use assets as a means of income smoothing. This research result is similar to Jin and Machfoedz (1998), Jatiningrum (2000), Juniarti Carolina (2005), and Dewi and Carina (2008). However, unlike the Budiasih (2009) research result, it shows that firm size variable significantly affect income smoothing.

## **CONCLUSION**

It is estimated that there are manufacturing companies listed on the Indonesia Stock Exchange to practice income smoothing. The income profit practices undertaken by a manufacturing company will mislead investors in analyzing financial statements as a basis for making investment decisions as well as for creditors in long-term loan decisions. Stock price, dept to equity ratio, earnings per share and price earning ratio partially possess influence to income smoothing. Return on asset and firm size is not significant to income smoothing. All variables studied have the influence to income smoothing.

## **LIMITATION AND FUTURE STUDY**

Limitations that exist in this study in determining the effect of income smoothing merely through analyzing six factors. The six factors are stock price, debt to equity ratio, return on asset, earnings per share, price earning ratio and firm size. There are many other factors that can influence income smoothing. In this research manufacturing companies in the basic and chemical industry sector and cement sub-sector listed in BEI does not include all companies engaged in the manufacturing industry.

This research can be developed more broadly by paying more attention to return on asset and firm size. These factors can be developed because in this study these factors do not significantly affect income smoothing. The company engaged in the manufacturing industry and listed on the stock exchange of Indonesia could be used as a sample of research. Therefore it can represent the income smoothing occurred in Indonesian manufacturing industry.

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## **THE MANAGEMENT POLICY OF ASPHALT BUTON MINE IN REFORMATION ERA IN THE POLITICAL ECONOMY PERSPECTIVE IN BUTON REGENCY INDONESIA**

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### **ABSTRACT**

The purpose of this research is to describe the management policy of Asphalt buton mine in Reformation Era in the political economy perspective of Buton Regency, Indonesia. Decentralization of mining management caused many problems, authority distribution in central and local government still keep many problems unsolved. Because of that, the government conducted intervention in giving mining license in Indonesia. State needed take action rationally in building business climate in Buton Regency, especially in asphalt buton mining sectors through rational policies.

### **KEY WORDS**

Policy, asphalt mine, government, rent, regency, descriptive qualitative, reformation period.

Management and utilization of natural resources has been defined through the constitution 1945 chapter 33 which the main purpose is to prosper the whole of Indonesian people. Mandatory of constitution 1945 is become the base foundation to issuing mining policy such as constitution No.11 1967 about mining principle of mineral and coal, later replaced by constitution No.4 2009 about mining of mineral and coal. According to Saleng (2007), constitution No.4 2009 about Mining of mineral and coal is the consequences of constitution number 33 2004 about central government and local government finance balancing which is arranged in government regulation number 25 2000 about the government authority of regency and province as Autonomy area. Later, the regulation totally changed by issuing constitution No.23 2014 about Autonomy area and decided that Province took over the Regency authority.

In the context of policy in reformation era, decentralization of utilization mining management caused many problems, authority distribution in central and local government still keep many problems unsolved effectively until today, such as overlap authority. At least, there are about 10.640 issued new mining licenses. Government issued about 50% from total mining license. Later, there are problems came from (Indonesia Mining Association (IMA): 2015) related to this license.

Because of the problems mentioned above, the government conducted intervention in giving mining license in Indonesia. This condition clearly described the important role of the government in many national economic sectors (Solichin Abd. Wahab: 1999). Being dominant of the mining policy above would become natural and make sense because the government have more right to manage mine resources that exist, as mentioned in chapter 33 verse 2 and 3 about expression "dominated by the state" and the words "and the words". The utilization is to prosper all the Indonesian people "initiatively to share with investors who oriented in the importance of earth and water and all natural resources. This illustration, clearly described the importance of the government role to aim at economic and business sectors, which is relevantly to use in describing the situation happen in Indonesia. (Sholichin Abd. Wahab: h. 13, 1999).

Domination through the contribution of mining policy is one of interfere of government that need to be supported as long as the government could play the role fairly and responsibly, however if the government are unable to do it right, automatically it would give impact to the country prosperity. In political economic approach described that government



play in secondary role, they play as the instrument or as institution for individual or groups to achieve personal purpose. Caporaso and Levine (1992). As Wolin feared that when government as instrument were unable to take control of individual interest (market, economy), so the position of the government would be *derivative*. Caporaso and Levin (1992).

In Buton regency, the government took an importance role in mining sectors of asphalt Buton, the role was issued in constitution No. 23 2014 about Local Government, taking over government authority from the regency to central government and province in managing forestry, maritime, energy and other matters. On the other hand, those came some consequences such as; inharmoniously policy, overlap, inconsistent, social conflict, that implied to the low of Genuine Local Income and prosperity of the people in Buton regency.

The weak of management policy of asphalt buton in reformation era has changed significantly compared with policy in the previous era. The weak of utilization of asphalt buton was not developing the local economy: 2011 Local income for asphalt buton mine was Rp. 6.354.605.250,-, year 2012 Rp. 8. 146.549. 567 and year 2013 Rp. 10. 115. 291. 794. ( source PAD Mining Service Buton Regency 2014), and the low level of people prosperity, poverty level in year 2013 in position 67,55 percent, and in 2014 increased to 68,07 percent (BPPS, Kab. Buton,2016).

Although this country has been changed significantly from centralistic to decentralization (local autonomy), however that does not give guarantee to raise up the people prosperity in Buton regency until today. Many monopoly opportunity and economic sector governance for certain actors become historical notes and hard work beginning for government in reformation era especially in Buton Regency, so Robison and Hadiz, (197: 2004) stated that government/state in reformation era needed to do a lot of changes institutionally into creation of democracy institutional and decentralization significantly. Therefore, it can conclude that democracy is as a leader to open the political system transparently.

For that reason, government, which get involved in managing economy sectors directly, should become a mediator in managing market activities Bremmer (2011). That is why government involvement through mining policy presupposing state power to control the market place in mining sectors. In considerable study of political economy, state often referable as unit of analysis because state always get great intention portion from political economy expert for long time ago.

The understanding about political economy in mining sectors in Indonesia related to the background of its institution. State is an entity that has direction authority of economy and politic life. Hence, the importance of state in implementing regulation adjust political economy activities. The existence of various regulations that settle about mining management is always appropriate with ideology view of the state implementation when they issued the policy. As stated by Solichin Abdul Wahab,(1999), that environment factor influenced the state power (especially in political environment) through business sector. We can see the effects from the impact through strategic decision taking, especially in long range planning in an infestation decision.

In the similar thinking plot, some study stated by the experts such as Lauterbach (1966) in some state in Latin America, Davis (1970), in Chili and Lauter (1970) in Turkey showed that there are many strong correlation between conditions of economy, politic, and strategy planning function ( trade extension/infestation) in a state's business sectors Solichin Abdul Wahab (34.1999). Relevance between government importance and business world (rente) as an actor that play economy/market activity. State importance by Wolin in Coraso and Levine (446: 1992), described that a state get position as instrument in derivative way did not have its own logic, did not have motivation energy sources using outside from economy, identically as dependent variable in economy. So, Krasner (1978) and Skocpol (1983) stated that state should be free from any external influences or society influences, it means that state should have autonomy character, so there wouldn't influence outside itself contained. However, market or rent in political economy context assumed as market group to

get profit that some people enjoy it because they could get privilege/protection from certain traders to seek the rights of the government. (Hudiyanto, 21: 2014).

### **METHODS OF RESEARCH**

This research method was descriptive qualitative (Moleong, 2007), by considering to the need of the research study to interpret description of a social phenomenon, that's policy portrait of reformation era in the authority of asphalt mining management in Buton Regency. Chosen period hopefully able to accommodate the changes policy through asphalt buton management in Buton regency. There were three ways to collect the data: phenomenon, documents and deeply interview with some informants in purposive technic. The researcher interviewed functionaries, local society, mine experts and investors of asphalt Buton mining. The researcher got the phenomenon by recording any activities of the actors whether individuals or organization in term of government relation vertically or horizontally, cooperation relation between government institution, private later He obtained the data from data record, that is fidelity and structure. However, the researcher obtained the document sources from the phenomenon or events in relevant documents. They are like Letter of central and local government decision, other secondary data such as: strategic plan, manual of the implementation of mining management policy, event reports and collaborate with some local or state which get involved in management policy of asphalt mining, and some pictures of the activity in management asphalt buton.

### **RESULTS OF STUDY**

Many monopoly opportunities and governance economy of sector player become historical notes and become beginning of hard work for the government in reformation era. In this period the government conducted many changes institutionally into democracy institutional creation and decentralization significantly Robison and Hadiz, (197: 2004). Related to the statement above, it concluded that management policy of asphalt buton mining in political economy perspective could be seen on two things, there were state involvement and rent seeking.

State with political economy perspective has important involvement in secondary term, a state assumed not as an active actor but as instrument for intentions and importance through regulation Caporaso & Levine (445: 1992).

Replacement of state position in managing asphalt buton categorized as regulator in asphalt buton management. The government was still controlling the management of asphalt buton in reformation era, they played dynamically in mining management policy especially asphalt buton.

Asphalt buton management policy was not only in exploration and exploitation aspects but also in diversification policy aspect (diversification products), and asphalt buton environment conservation. We can see from the picture mapping utilization mining area issued by South East Sulawesi province in acquire preservation and roads need about 1,2 million tons asphalt.

Policy of mining diversification by government purposed to supply asphalt buton utilization so it would not exploited only to raw material but could give multi product so, potential deposit asphalt buton would not greatly exploit. This policy way conducted through deposit supply guarantee of asphalt buton and optimizing of asphalt buton production to be more multi product. It hoped the utilization of asphalt buton be more effective and efficient.

Besides, government as the player of asphalt buton potential as mandated in constitution 1945 chapter 33 verse 2 and 3, about words "governance by state" and "utilization to prosperous Indonesia people" become initiative from state to keep sharing with many investors who have orientation of profit importance. Local law (perda) No. 17 2013 about founding local company asphalt buton mining management, and interlacing cooperation with any foreign countries through socialization about potential prospect of asphalt buton like in Tiongkok, Beijing, and China by Buton regency government in year 2014. On the other hand, by issuing policy constitution No.23 2014 about Local Government,

leaving controversy and new problem through inconsistent policy in managing asphalt buton mining in Buton Regency, as stated by ED:

“Recently we had been doing many socialization activities and interlacing communication with many players especially the investors from foreign country (Tiongkok), in collaborating for potential utilization asphalt buton, moreover we issued policy through Local Law No.17 2013 about founding Local Company (Perusda) management of asphalt buton mining, however this policy had not been running optimal because since the issue of policy constitution No. 23 2014 from central government so the relation had been made was unfinished, and inharmonious communication with government disturbed activity of management asphalt buton in local area.” Interview, 24 November 2016.

There are 2 matters of State involvement in managing asphalt buton mining in reformation era: *First*, State get involved directly in founding capitals to invest their money in managing asphalt buton through some local companies. *Second*, State get involved indirectly through the planning, regulation formula and implementation policy in local area, but in the other side it caused controversy and new problem in local policy (inconsistent).

The involvement of businessman in asphalt buton mining sectors become the point in reformation era, different with new order era where the involvement private sectors in asphalt buton management were very weak but in reformation era the government has been involving the private in managing asphalt buton through mining in Buton Regency that can be shown from the table:

Table 1 – Companies involved in asphalt buton management

No	Name of the companies	Mining location	Wide (Ha)	Reserve (Ton)
1	PT. SARANA KARYA	Kabungka Lawele	318.526 100	38.223.120 30.000.000
2	PT. OLAH BUMI EL CIPTA	Waesiu/Rongi/ Sampolawa Kabungka Lawele Lawele	97,69 1.056.425 100 1.182,36	3.516.000 - - -
3	PT. TIMAH (Persero) Tbk	Blok Ulala Lawele Lawele	1.928,20 1.171,36 50	- - 15.000.000
4	PT. YUMAN JAYA TAMA	Kabungka/ Pasarwajo	1.650,38	11.760.000
5	PT. PUTINDO BINTECH	Kabungka/ Pasarwajo	142	8.520.000

Source: Distaben Buton Regency, 2016.

From the data above showed that the Mining and energy Service of Buton Regency is still restrictive until today, starting from 2001 asphalt production reached into 200.000 tons per year. However deposit asphalt reached until 650.000 tons well-kept spread out 70.000 hectare in some pointed location, such as; Kabungka Lawele, Waesiu/Rongi/Sampolawa, Blok Ulala and Pasarwajo.

However for the involvement of utilization asphalt buton according Mining and energy Service South East Sulawesi that there are 41 mining trade license consist of: 33 mining trade license for operation production and 8-exploration mining trade license.

The involvement utilization asphalt buton from State to private was great, so it hoped that business relation term between State and private in asphalt buton management could run by its portion, however expectedly there are some businessman and government side conducted open negotiation about the transaction of State natural sources share. As explained by BC one of the head of mining and energy service explained as follow:

“Transaction and negotiation about fight of state resources has happened long time ago in Buton regency especially for land management of asphalt buton. Since there has greatly open land, issuing license by negotiating about the profit with functionaries so, they issued many asphalt buton licenses but because of bad processing so some mining licenses started to manage orderly, it was not more than 10-20 years.” (Deeply interview, 1 December 2016).

Based on the explanation above, the researcher observed that management of asphalt buton has not been running well all this time because state policy was still weak in controlling mining license, businessman assumed to share state resources whereas *rent seeking* become prominent in business relation, those actions conducted openly in democracy era that increased corruption along this era. As stated by LD that:

" there were intervention from national trader of asphalt mining who owned asphalt mining license in BUton Regency through management policy of asphalt buton, if the management asphalt buton specifically involved monitoring from central government, province and local area they would tried to prevent it. So, although Buton regency government socialized and tried hard to collaborate with local trader to produce asphalt buton, the central government has not been giving positive respond through management policy of asphalt buton." (Deeply Interview, 1 December 2016).

Rent seeking in reformation era took an important place to influence regulation asphalt buton management; many freed of mining license, limitation of asphalt buton utilization become a problem unsolved until today in Buton regency.

## DISCUSSION OF RESULTS

There were two aspects in management asphalt buton from political economy perspective, such as state Involvement and rent seeking.

State involvement in managing asphalt buton in reformation era can be seen from two aspects, such as: First, the state participated directly by its money to invest on management of asphalt buton through some local companies. Second, the state participated indirectly through planning, regulation formula and policy implementation in local area.

This research finding similar with Solichin Abdul Wahab (1999) statement, said that there is a relationship with environment in business sector. It effected to the term of strategy decision taking, especially in long-range planning such as infestation decision. Later, in study of Davis in Chili (1970), described that a question for some functionaries like how long the distance from formal planning to market place is. The answer was a state through its political position was able to support the business movement that assumed can give some profit or even loss. From some opinions above, showed that state involvement in economic activities gave less benefit, later the state would be in market spectrum by extreme ideology aim to capitalism in a real world. As happened in Cuba. Ian Bremmer (46: 2011).

For that reason, the state involvement hoped able to manage economic activities as a mediator in market activities Ian Bremmer (2011), if it happen in management of asphalt buton mine the state would become neutral institution by using its independent ability from social factors especially in economic factors Ian Bremmer (448: 2011).

So that, the state should have autonomy rights, it means that the state is free from external influence, like: (first), a state should be free and able to "win to fight" from civilization pressures, because a state have its own purposes through policies. (Second), the action of a state is uninfluenced power from any groups or certain coalition. (Third), a state should reject or restrain outside pressure especially in policy taking (caporaso & Levine, 450: 1992).

An independent and strong state implicitly assumed able to play the role and respond other intention as long as not disturbing state purpose to increase its state prosperity.

State authority in economic extension asphalt buton mining investment is necessary to do as long as the state be able to play fairly and able to neutralize investment through rationally regulation.

Democracy pressured through decentralization made private get access and opportunity from government to get involved in managing asphalt buton. It proved from the big three company from private, they are: PT. Olah Bumi Elcipta, PT. Yuman Jaya Tama, PT. Putindo Bintech which is having land and deposit asphalt production has been distributed abroad. The private involvement in managing asphalt buton mining is not only in production and in distribution but that assumed there were businessman and government functionaries conducted openly negotiation to make transaction in sharing state resources and participated in policy intervention. Rent seeking activity become an important role in business relation and

the activity happened openly in reformation era, in the end it caused corruption, cut throat competition.

Actually, they should anticipated and detected when economic failure happened in new order era, where the government gave greatly opportunity to the market place, although there happened higher growth compared with other ASEAN countries. However, historical facts proved that the activities in new order era infected political economic stigma since middle decade 1980's. There were great distortion happened in social economic sectors and this peak was in 1990's, along with the increase of capital investment flow in many sectors caused the stumble of new order era, as the result of corruption, nepotism practical, this moment even happened in the best economic achievement in 1992. (Solichin Abdul Wahab: 1999).

Based on the previous experience hoped that rent seeking in economic sectors especially in managing asphalt buton mining shouldn't practice freely, the involvement of regulation intervention should be minimized so the opportunity of rent seeking wouldn't be wider which effected to new distortions.

As stated by Didik J. Rachbini, (2006) that in political economic, rent seeking was getting income by manipulated license and power in business. Traders got profit by negative way in the market place. They used power and authority to influence the market place which caused distortion. Economic rent seeking would happen when a trader or a company took advantage or value which didn't get compensation from others by doing manipulation work or business environment. Manipulation in work environment also happened because of monopoly struggle on role play or regulation.

There was similar opinion with Olson in Yustika (107: 2012) that rent seeking in political economic view tends to negative stigma because it can create negotiation opportunity as short cut action which effect colossal then caused decision making run very slow and the economy in the end could not respond fast through changes and new technologies.

From the statement above, rent seeking seemed like struggle profit obtain which tend to inflict a financial loss, corruption opportunity would be wider, by this condition a state would be susceptible to build clean government indirectly state and nation in unprofitable position. Most executives should realize and understand that the main target of trade institution was not only profitability and growth, but also image, image building which was the target from long-term purpose in every business institution. Positive image would become precious valuable "asset" for corporate world if they want to pay attention to it. (Rumokoy N.K in Building Strategy journal: 2010).

## CONCLUSION

From the references above, it expected that government should be able to prevent the spread out of rent seeking like: monopoly practice, intervene regulation that referred to corruption and nepotism indirectly gave impact to the inflict government loss in a long term.

Management policy of asphalt buton mining in political economic perspective included two aspects; they are state involvement and rent seeking. An independent state/country in managing through asphalt buton should be harmony and distinctly. It does not mean that a state is strict, closing faucet for investor involved in mining management. State needed take action rationally in building infestation climate in Buton Regency, especially asphalt buton mining sectors through rational policy.

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## **EFFECT OF ENTREPRENEURSHIP TRAINING TOWARDS ENTREPRENEURSHIP BEHAVIOR, BUSINESS MOTIVATION AND ENTREPRENEURSHIP ORIENTATION**

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### **ABSTRACT**

This study aims to determine the effect of entrepreneurship training, entrepreneurship behavior, and business motivation towards entrepreneurship orientation in SMEs which became members of SMEs Training Center in Indonesia. This research was conducted with paradigm of quantitative research method, with sample amounted to 73 participants of SME training. The results of the study explain that all the relationships developed in this study have a significant effect. One of them is entrepreneurship training that has a significant effect on entrepreneurship orientation. The theoretical and practical benefits in this study emphasize on the study of entrepreneurship training of SMEs in developing countries important for continuous research.

### **KEY WORDS**

SMEs, entrepreneurship training, entrepreneurship behavior, business motivation, entrepreneurship orientation.

Indonesia as one of the developing countries in a world with the fourth largest population. (BPS, 2016) has a wide variety of human resource characteristics that can be utilized to improve the economy. Through this large population, Indonesia becomes an attractive market for both domestic and foreign investors. With regard to domestic entrepreneurs, Small and Medium Enterprises (SMEs) act as one of the main economic in Indonesia (Tambunan, 2008). Small and Medium Enterprises (SMEs) always related to entrepreneurship. The actors of Small and Medium Enterprises (SMEs) in Indonesia has a wide range of innovations by the knowledge of the complex entrepreneurial as their background (Tambunan, 2008). That is has the phenomenon many actors of small business can achieve success even though they do not have a high education background related to entrepreneurship. In addition there are business actors who already have a high education background related to the business world has not achieved the desired success. Based on the phenomena that arise in entrepreneurship creates a new question, is entrepreneurship created or born? (Priyono and Muqorobin, 2015).

Newly entrepreneurs can be created through government programs so that more and more educated entrepreneurs with highly competitive can be created for economic progress of the country. Through a view that promotes Small and Medium Enterprises (SMEs) it is explained that the government plays an indirect and direct role for the development of Small and Medium Enterprises (SMEs) in Indonesia. The role can be indirectly through the development of infrastructure and also a good public servant, while the role can be directly through the program of business capital loans or training in terms of improving the quality of Small and Medium Enterprises (SMEs).

The importance of training for small businesses is expressed by Katerina et al., (2010) which states that training programs for entrepreneurs can broaden thinking about new ideas and insights that have been unthinkable. Entrepreneurship has a process that must be passed by Small and Medium Enterprises (SMEs). The process through various challenges and difficulties both from yourself and the factors of business competition. However, these

processes can cultivate and train positive entrepreneurial behaviors and make an entrepreneur increasingly mature in the face of business challenges. Entrepreneurial behavior owned by an entrepreneur in fact it needs to be developed, for example by adding knowledge insight. The addition of knowledge and insight should be done gradually and continuously through the learning process. Kirkley (2016) states that sometimes every learning process is not recognized as a tool in developing entrepreneurial behavior, since it is usually considered a part of the experience. The process of learning about entrepreneurship is a way that can grow business motivation.

Sanches et al., (2013) states that entrepreneurial behavior continues to grow, capable of becoming a personal motivation to achieve better goals in entrepreneurship. Business motivation is a stimulus either from themselves or outside environment to encourage someone in behaving related to entrepreneurship. Hytti et al., (2013) states that the motivation to be an entrepreneur can be formed with the pattern of entrepreneurial education systematically and measurable in the process. In addition, according to Azwar (2000) motivation is a form of stimulation obtained due to environmental conditions, groups, and individuals who personally affect the thinking in it to do something with more spirit.

High motivation in essence will increase enthusiasm for business actors to continue to focus on entrepreneurship or entrepreneurship oriented. When creating new or existing business activities, entrepreneurs have at least an entrepreneurial orientation such as a desire to achieve goals, take risks, and be able to take advantage of new ideas integrated with the use of their resources, and personal imagination to make a difference not only make business as a way to survive everyday but also able to grow better and able to reach a wider market for the economic improvement of business actors.

The explanation of the variables discussed in the previous research is known to be a research gap, such as research with the importance of training for small and medium enterprises (SMEs) in Indonesia which is still rare (Tambunan, 2008), especially on the role of government in the development of Small and Medium Enterprises (SME). While studies with the theme of entrepreneurship training that emphasizes the role of government have been done in developed countries such as Audet and Couteret (2012) in Canada and Katerina et al., (2010) in Sweden. So the gap of this research to enrich the discussion of the development of Small and Medium Enterprises (SMEs) in developing countries such as Indonesia, especially the role of government in it.

## **LITERATURE REVIEW**

Entrepreneurship training according to Bolton and Lane (2014) is the process of shaping the mindset, attitude, and behavior of being a true entrepreneur thus directing the decision to be an entrepreneurship as a career choice. Good entrepreneurship training will be able to stimulate someone to direct the focus on entrepreneurship deeper. The intended focus in this regard is that training will shape entrepreneurial behaviors that may not have been utilized in terms of enhancing entrepreneurial skills. Clarke and Sweet (2004) argue that entrepreneurship training can encourage a person to want to know more about entrepreneurial science that can shape entrepreneurial behavior and can become a positive routine for the future. In addition, Hytti et al., (2010) also states that entrepreneurial behavior can be grown through training media or experiences that have been owned by individuals so far. So the relationship between entrepreneurship training and behavior is a good causal relationship for business actors. Based on the relationship described, the proposed research hypothesis is:

Hypothesis 1: There is a relationship of Entrepreneurship Training to Entrepreneurship Behavior.

Character of small business actors have diverse differences, the difference is a natural thing that is owned because a lot of factors that influence it. Heinonen et al., (2010) states that entrepreneurial learning or training is aimed at shaping the skills, insights, ways of business development and for improving business performance. In the process through which the training is one of the main objectives is to motivate business actors to start a new



business or to improve the quality of the business that has been running. Collete et al. (2005) states that to stimulate intrinsic and extrinsic factors of business actors can be done through broad suggestions and insights that are packaged in the form of entrepreneurship training. Therefore entrepreneurship training is one of the right tools to stimulate or motivate small and medium enterprises actors (SMEs).

Hypothesis 2: There is a relationship of Entrepreneurship Training to Business Motivation.

Business Motivation is broadly divided into two main parts namely internal and motivation from external influences. Seinonen et al., (2013) suggests that entrepreneurial behavior can influence the behavior of individuals in terms of intrinsic or extrinsic. Intrinsic factors can be formed through the unity of one goal and from the process of growing personal motivation to do something more eagerly. In addition, Kirkley (2016) states that extrinsic factors can be influenced by environmental factors that together have the same goal so that the positive motivation to achieve the vision and mission are applied, this can be done on motivation to entrepreneurship. Factors The entrepreneurial behavior associated with business motivation is based on the study of Eijdenberg et al. (2016) theory which states that there is an influence of entrepreneurial behavior on one's stimulation to be more motivated in running a business.

Hypothesis 3: There is a relationship of Entrepreneurship Behavior to Business Motivation.

Entrepreneurship training is established with the aim of helping to direct small and medium business actors (SMEs) to be entrepreneurial oriented. Audet and Couerret (2012) states that the effectiveness of entrepreneurship training will appear when small and medium business actors (SMEs) know the market conditions and how appropriate strategies are in responding. In the past, small and medium enterprises (SMEs) do not have clear direction and objectives related to their business, training as a solution to guide clear and specific objectives and that can be measured through innovative, pro-active and risk-taking attitude. The entrepreneurship orientation can be initiated through the process of managing the creativity and innovation of small business owned by small and medium enterprises (SMEs) by adjusting to market needs. This is in accordance with the opinion of Katerina et al., (2010) which states that Small and Medium Enterprises (SMEs) have a high level of innovation then directing according to market needs is a solution to improve the quality of Small and Medium Enterprises (SMEs).

Hypothesis 4: There is a relationship of Entrepreneurship Training to the Entrepreneurship Orientation.

Entrepreneurial behavior is the process of finding self-identity in the business world, and is able to benefit many people through positive behavior. The relationship of entrepreneurial behavior and entrepreneurial orientation has been an inseparable relationship. This is in accordance with the opinion of Seinonen et al., 2013 which says that entrepreneurial behavior is one important part in improving the orientation of entrepreneurship. Entrepreneurial behavior becomes the basis of someone who has a common goal to improve the quality of life through the formation of a competitive business. Sanches and Sahuquillo (2013) states that entrepreneurial behavior can improve relationships or positive relationships and then these relationships can be utilized to improve the focus at actors of small and medium enterprises (SMEs).

Hypothesis 5: There is a relationship of Entrepreneurship Behavior to Business Motivation.

The quality of a small and medium enterprises (SMEs) can be influenced by various factors, but the main influencing factor can be seen through the high spirit of business actors to succeed. The high spirit can be built through the level of motivation. Eijdenberg et al (2016) states that the actor's motivation of small and medium enterprises (SMEs) can reflect the quality of business achieved. Morris et al. (2016) states that the great motivation in starting a business is a great business opportunity and can be seen by small and medium business actors (SMEs) as a phenomenon that must be utilized. Business Motivation is able to provide direction to Small and Medium Enterprises (SMEs) to be more pro-active, risk-taking and

innovative, all of which are context in entrepreneurship orientation. Based on these opportunities the business actor will mobilize all the expertise and thinking system that is in order to be able to take advantage of the existing situation.

Hypothesis 6: There is a relationship of Business Motivation to Entrepreneurship Orientation

## METHODS OF RESEARCH

This research was conducted on the SME training participants through the government which was formed specifically as the development program of government at SMEs Training Center in East Java, Indonesia. Through simple random sampling technique, a sample of 73 SMEs. The research analysis used the path analysis. Then the measurement of variables developed from several previous studies, namely Entrepreneurship Training in measuring by seven items that adopted research from Katerina et al., (2010).

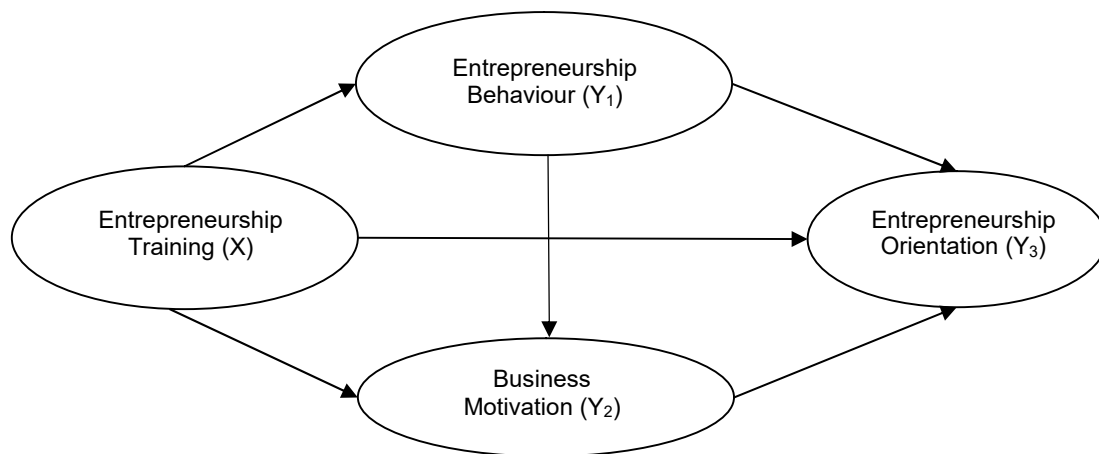


Figure 1 – Conceptual and Hypothesis Model

Entrepreneurial behavior refers to Seinonen and Sahuquillo (2013) and Kirkley (2016) studies with five items. While the business motivation was developed from the research findings Hytti et al., (2010), with six items. Finally the entrepreneurial orientation of this variable measurement adopts research from Wiklund (2007) and Narver and Slater (2000) which consists with six items. The conceptual model of the current study is described in the following Figure 1.

## RESULTS AND DISCUSSION

The direct influence of Entrepreneurship training on entrepreneurial behavior is in line with research results from Katerina et al. (2010) which states that entrepreneurship training has a positive effect on entrepreneurial behavior. While in this research the beta coefficient of 0.394 shows that the effect of Entrepreneurship Training on Entrepreneurship Behavior, with t count of 5.465 and probability of 0.000 ( $p < 0.05$ ). The direction of a positive relationship indicates that the more often or better the entrepreneurship training will increase Entrepreneurship behavior. Katerina et al., (2010) in her research results stated that well-crafted entrepreneurship training will be able to stimulate an individual to direct the focus on entrepreneurship deeper. The intended focus in this regard is that training will shape entrepreneurial behaviors that may not have been utilized in terms of enhancing entrepreneurial skills. Hence, Hypothesis 1 on the research is accepted and significant. This study supports Audet and Couteret (2012) research which states entrepreneurship training is positively related to business motivation. The results of testing the influence of Entrepreneurship Training on Business Motivation show the beta coefficient of 0.319 indicates that the effect of Entrepreneurship Training on Business Motivation, t count 3.241

and probability of 0.002 ( $p < 0.05$ ), then the decision is Hypothesis 0 rejected, so that Entrepreneurship Training has a significant effect on Business Motivation.

Table 1 – Recapitulation Path Analysis

Relation of Variable	Standardized	t count	Probability	Information
$X \rightarrow Y_1$	0.544	5.465	0.000	Significant
$X \rightarrow Y_2$	0.319	3.241	0.002	Significant
$Y_1 \rightarrow Y_2$	0.499	5.073	0.000	Significant
$X \rightarrow Y_3$	0.360	3.813	0.000	Significant
$Y_1 \rightarrow Y_3$	0.248	2.409	0.019	Significant
$Y_2 \rightarrow Y_3$	0.313	2.920	0.005	Significant
$X \rightarrow Y_1 \rightarrow Y_3$	0.135	2.027	0.021	Significant
$X \rightarrow Y_2 \rightarrow Y_3$	0.100	2.287	0.011	Significant

Source: Path Analysis.

Notes:  $X$  = Entrepreneurial Training;  $Y_1$  = Entrepreneurship Behavior;  $Y_2$  = Business Motivation;  $Y_3$  = Entrepreneurship Motivation.

The direction of a positive relationship indicates that with increasing entrepreneurship training it will further increase business motivation. Character of small business actors have diverse differences, the difference is a natural thing that is owned because a lot of factors that influence it. Heinonen et al., (2010) states that entrepreneurial learning or training is aimed at shaping the skills, insights, ways of business development and for improving business performance. In the process through which the training is one of the main objectives is to motivate business actors to start a new business or to improve the quality of the business that has been running. Then Hypothesis 2 in this research is accepted and significant.

This study also supports the research of Hytti et al., (2010) and Eijdenberg et al., (2016) which explains the positive relationship of entrepreneurial behavior to business motivation. The test result of Entrepreneurship Behavior on Business Motivation shows the beta coefficient of 0.499 indicates that the influence of Entrepreneurship Behavior on Business Motivation, with t count 5.073 and probability of 0.000 ( $p < 0.05$ ), then the decision is Hypothesis 0 rejected, so Entrepreneurship Behavior has a significant effect on Business Motivation. Therefore Hypothesis 3 in this study is accepted and significant.

This study is in line with the research of Seinonen et al., (2013) which explains there is a positive relationship between entrepreneurship training on entrepreneurship orientation. The results of testing the effect of Entrepreneurship Training on the Orientation of Entrepreneurship shows the beta coefficient of 0.360 indicates that the effect of Entrepreneurship Training on the Orientation of Entrepreneurship, with t count 3.813 and the probability 0.000 ( $p < 0.05$ ), then the decision is Hypothesis 0 rejected, so Entrepreneurship Training significantly Orientation of Entrepreneurship. Entrepreneurship training is established with the aim of helping to guide SMEs to orient to entrepreneurship. Audet and Couteret (2012) states that the effectiveness of entrepreneurship training will be evident as small business actors know the market conditions and how appropriate strategies are in responding. So Hypothesis 4 in this study was accepted and significant.

Relating to entrepreneurial behavior has a positive effect on entrepreneurship orientation. This study supports the research conducted by Seinonen et al. (2013), Sanches and Sahuquillo (2013). The results of testing the influence of Entrepreneurship Behavior on Entrepreneurship Orientation show the beta coefficient 0.248 shows that the effect of Entrepreneurship Behavior on Entrepreneurship Orientation, with t count 2.409 and probability 0.019 ( $p < 0.05$ ), then the decision is Hypothesis 0 is rejected, so that Entrepreneurship Behavior influential and significant to Orientation of Entrepreneurship. The direction of a positive relationship indicates that the more entrepreneurial behavior increases, will result in a stronger orientation in doing business. The relationship of entrepreneurial behavior and entrepreneurial orientation has been an inseparable relationship. This is in accordance with opinion (Seinonen et al., 2013) entrepreneurial behavior is an important part

in improving the orientation towards entrepreneurship. Entrepreneurial behavior becomes the basis of someone who has a common goal to improve the quality of life through the formation of a competitive business. So that the Hypothesis 5 in this study is accepted and significant.

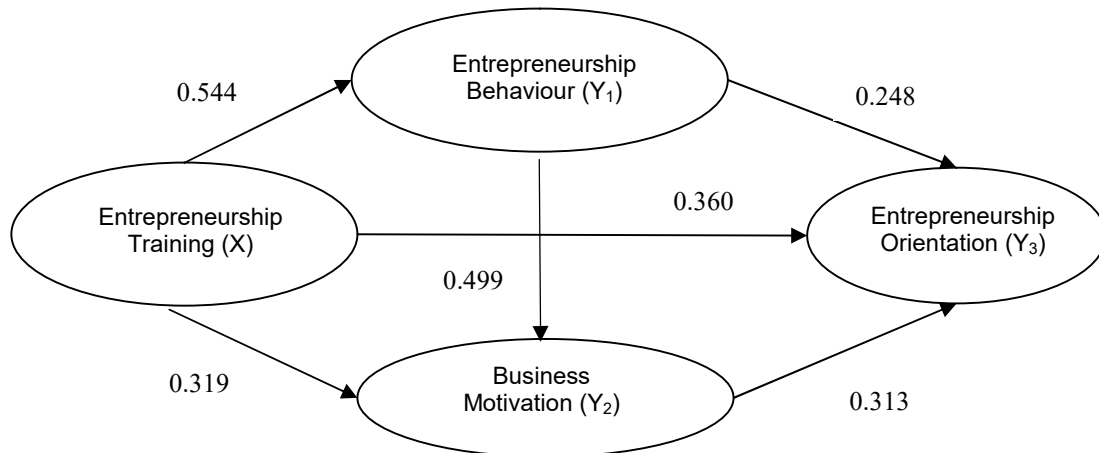


Figure 2 – Research Result  
Source: Path Analysis

This research is in line with Eijdenberg et al., (2015) and Freese (2016) which states that business motivation affects entrepreneurship orientation. The result of examination of the influence of Business Motivation to the Entrepreneurship Orientation shows the beta coefficient 0.313 indicates that the influence of Business Motivation on the Entrepreneurship Orientation, with t count 2.920 and the probability 0.005 ( $p < 0.05$ ), then the decision is Hypothesis 0 rejected, so that Business Motivation significantly Orientation of Entrepreneurship. The quality of a UMKM can be influenced by various factors, but the main influencing factor can be seen through the high spirit of business actors to succeed. The high spirit can be built through the level of motivation built. Business Motivation are able to direct small business actors to be more pro-active, risk-taking and innovative, all of which are contextual in the entrepreneurial orientation. So that Hypothesis 6 in this study is accepted and significant.

## CONCLUSION

Research that conducted on training participants and the development of SMEs in Indonesia explains that SMEs become the main pillar of Indonesian economy as a developing country is very big benefits. The entrepreneurship training established in the government program has a significant effect on improving entrepreneurial behavior, increasing business motivation, and also being able to bring UMKM to orient to entrepreneurship. However, this study has some limitations as research is conducted only in one province in Indonesia, so it is expected that further research can conduct research on other areas more broadly to improve reference on the topic of entrepreneurship training in UMKM in Indonesia.

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## **INSTITUTIONAL OWNERSHIP CAPABILITY IN MODERATED DISCLOSURE EFFECT OF ENTERPRISE RISK MANAGEMENT, INTELLECTUAL CAPITAL, AND CORPORATE SOCIAL RESPONSIBILITY ON FIRM VALUE**

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### **ABSTRACT**

This study aims to obtain empirical evidence of institutional ownership capability in moderated the effect on firm value. Population on this study are banking companies sector that listed in Indonesia Stock Exchange for 2012-23016. Non probability sampling use in this study as a sampling technique with purposive sampling method and get 30 companies as sample of this research. The results of empirical evidence showing that high value of institutional ownership able to strengthen the effect of intellectual capital disclosure on firm value.

### **KEY WORDS**

Enterprise, risk, management, intellectual capital, corporate social responsibility, institutional ownership, firm value.

A company is basically established with the aim to optimize the owner's prosperity. The owner's prosperity can be seen from the high value of the company as reflected by the company's stock price (Devi et al., 2016). Investors will know the value of a company from information disclosed to public. Signaling theory states that investors and other stakeholders will use the information released by the company in helping them to make decisions (Jogiyanto, 2000). Hoyt et al. (2008) states that company value can be improved and maintained through the disclosure of information that published by the company both financial and non financial disclosure. In Indonesia the concern about the value of the company has become very important especially in the banking industry, because banks as financial institutions are considered to have high business complexity and are highly vulnerable to risks primarily because it involves the management of public funds (Maulani and Rahayu, 2015).

The phenomenon that occurs related to the value of the company in the banking sector can be seen from the decline in stock prices of Bank International Indonesia (BII) in 2012 and Bank Mega in April 2011 (Kompas.com, May 3, 2011). From both cases, it can be seen that there is an indication of the lack of attention to risk management by Bank International Indonesia (BII) and Bank Mega especially on internal environmental control because both cases are done on cooperation among company employees.

Implementation of risk management becomes very important to do because by implementing ERM will be able to reduce the potential losses that occur in the company (Bertinetti et al., 2013). Hoyt and Lienbenberg (2011) explain that the disclosure of ERM as one of the non-financial information disclosure in a company will provide additional benefits and information for investors. Wider disclosure of ERM will increase investor confidence and will affect the value of a company (Beasley et al., 2008).

Attention to the knowledge of human resources owned by a company is also very important thing in the modern business as today (Widarjo, 2011). The awareness that knowledge-based businesses become an important role for corporate growth will make an attention to intellectual capital (IC) disclosure (Wang et al., 2014). Bontis et al. (2001) defines IC as the knowledge ownership of an organization that contributes to enhancing the competitive position by adding value to those with interests. The information contained in IC

disclosure can be utilized by investors to assist them in making predictions and assessing the company's ability to create wealth in the future (Bukh et al., 2005).

Disclosure of information about corporate responsibility to society and the social environment is also a matter of concern. The success of a business entity is not only seen from the increase in profits but also influenced by how the contribution to the welfare of society and the surrounding environment (Jo and Harjoto, 2011). The form of corporate responsibility in social and environmental aspects is realized by running a Corporate Social Responsibility (CSR) program. CSR is a form of commitment and cooperation between employees, local communities, and communities to contribute to sustainable economic development (Servaes and Tamayo, 2013). Disclosure of CSR is one of the factors affecting corporate value because CSR is seen as a goodwill of the company with responsibility for society and its social environment (Chetty et al., 2015).

However, there are also some inconsistent results of previous studies on the relationship between ERM, IC, and CSR disclosures on firm value. Mulyasari et al. (2016) found no influence between ERM disclosure to firm value. This is supported by research conducted by Agustina and Baroroh (2016) and research conducted by Aditya and Naomi (2017). Sunarsih and Mendra (2012) found no effect of IC on firm value. Research conducted by Wibowo et al. (2016) produces empirical evidence that CSR disclosure negatively affects firm value. The inconsistency of the research results prompted the author to add institutional ownership as a moderating variable. Institutional ownership is chosen as a moderating variable because with a high degree of institutional ownership it can reduce agency problems, especially in controlling opportunistic behavior of management (Sari et al., 2013).

## LITERATURE REVIEW

*Signaling Theory.* Signaling theory has a strong association with the availability of information. Jogiyanto (2000) states that information published to the public as an announcement will provide a signal to users of financial information in decision making. User information, especially investors will interpret and analyze the information as a good news or bad news. One type of information issued by a company that can be a signal for parties outside the company is annual report (Tahir and Razali, 2011). The information disclosed in annual report can be financial information that is information relating to financial statements and nonfinancial information that is information that is not related to the financial statements. Non-financial information that should be disclosed by banking companies are ERM and CSR. Voluntary disclosure is an attempt by management to provide private information to potential investors in the hope of becoming good news for the company. One form of voluntary disclosure that can be good news for users of information is the disclosure of IC which is expected to increase the value of the company.

*Agency Theory.* The agency relationship is a contract whereby one or more persons (principal) asks the other as an agent to carry out some work that involving the delegation of some authorities (Jensen and Meckling, 1976). Agency theory explained that there is a conflict between agent and principal. Contractual relationships between company owners and management will be difficult to create due to conflicting interests (conflict of interest). Both parties, principals and agents involved in the contract will try to maximize the utility they have. The conflicts that occur are caused by the asymmetry of information that the agent has more information that is used to maximize its utility when compared with the principal. Institutional ownership is believed to reduce management behavior for opportunistic acts. The higher the institutional ownership in the company, the more effective the monitoring to reduce the conflict. Management will be increasingly compelled to disclose information in a timely manner to avoid diminishing the relevance of available information. The information presented should be understandable, reliable, relevant, and transparent because the information is used as a basis for decision-making for interested parties (Amran et al., 2009).

*The Capability of Institutional Owners Moderates the Influence of ERM Disclosure on Corporate Value.* Prayoga and Almilia (2013) in their research stated that ownership structure is considered to improve the quality of risk management within a company. With the



ownership of the institution as a form of ownership structure in a company, shareholders will have a strong preference to control the action and improve supervision on the performance of management so that the demand by the shareholders about the identification of risks that may be faced by the company will increase. Disclosure of risk management practices undertaken by management can improve the image of the company to be viewed favorably by all stakeholders (Agista and Mimba, 2017). It will be reflected in the company's higher stock price, thus indicating the company's increasing value.

H1. Institutional ownership moderates positively the impact of ERM disclosure on firm value.

*The Capability of Institutional Owners Moderates the Effect of IC Disclosure on Corporate Value.* Ali et al. (2007) found that institutional ownership can improve the quality and quantity of voluntary disclosure. Disclosure of the IC is one of the voluntary disclosures committed by the company. Voluntary disclosure done by a company will create added value so as to increase the competitive advantage in the long term. Institutional ownership is an important oversight mechanism in minimizing agency conflicts that occur between company owners and managers. The greater the ownership by the institution, the greater the power of voice and the drive to optimize the value of the company. In other words, companies with a high degree of institutional ownership will attempt to express intellectual capital more broadly and more comprehensively than firms with low institutional ownership levels in order to increase company value (Febriana and Nugrahanti, 2013).

H2. Institutional ownership moderates positively the influence of IC disclosure on firm value.

*The Capability of Institutional Owners Moderates the Influence of CSR Disclosure on Corporate Value.* Agency theory states that the separation between ownership and management of a company can lead to agency conflicts caused by principals and agents having different and conflicting interests so that both the agent and principal will equally seek to maximize the utility it has. Therefore, it needs a control mechanism from management performance so as not to behave opportunistic. One such mechanism is the existence of institutional ownership. The control mechanism of institutional ownership can encourage a company to pay more attention to its social and environmental responsibilities. The better the performance of the company in improving the environment then the value of the company will increase. This is supported by research conducted (Sari et al., 2013) stating that institutional ownership positively affects CSR disclosure.

H3. Institutional ownership moderates positively the influence of CSR disclosure on firm value.

## METHODS OF RESEARCH

This research was conducted in banking companies for the period 2012-2016 listed in Indonesia Stock Exchange (BEI). The reason for choosing the period of research from 2012-2016 period is because in 2011 there was a phenomenon in banking companies that affect the company's stock price which one of the causes is due to lack of attention to enterprise risk management. The sample in this research are 30 companies. The criteria considered in the sampling of this research are banking companies registered consecutively during the observation period that is from 2012-2016.

Data analysis used in this research includes classical assumption test and moderated regression analysis (MRA) test. MRA is an application, especially multiple linear regression where in the regression equation stems the interaction elements (multiplication of two or more independent variables) (Liana, 2009).

*Operationalization of Variables.* In this study, the dependent variable is corporate value. Corporate value is a market value that can provide maximum shareholder wealth if the company's stock price increases. The corporate value in this study is proxied using Tobin's Q

Independent variables in this research are the disclosure of ERM, IC, and CSR. ERM disclosure is a form of disclosure of the implementation and management of corporate risk that has been managed to minimize uncertainty and maximize opportunities to achieve

corporate goals. ERM calculations in this study use ERM Framework created by COSO where there are 108 items of disclosure. The calculation of ERM disclosure items uses a dichotomous approach, where each item of ERM disclosure is disclosed given value 1 and value 0 if not disclosed (Meizaroh and Lucyanda, 2011).

IC disclosure is the level of disclosure of intellectual capital owned by a company (Bontis et al., 2001). The disclosure index used in this study is the index of intellectual capital disclosure used by Singh and Zahn (2007). This index consists of 81 items of disclosure. The calculation of disclosure items on the IC using the dichotomy approach, each disclosed item of disclosed IC is given a value of 1 and a value of 0 if not disclosed.

CSR disclosure is the disclosure of information on corporate social responsibility in the annual report as measured by Corporate Social Responsibility Index (CSRI). The CSR measurement instrument used in this study was based on Global Reporting Initiatives Generation 3.1 (GRI G3.1) with 84 items of disclosure. Each CSR item in a research instrument is assigned a value of 1 if it exists and a value of 0 if does not exist.

The moderating variables in this study is institutional ownership as the variables that influence (strengthen or weaken) the relationship between independent variables with dependent. Institutional ownership is the ownership of shares of an enterprise by institutions such as cooperatives, banks, pension funds, and others. A high degree of institutional ownership will lead to a larger oversight effort that is expected to reduce opportunistic behavior on the part of management. The institutional ownership in this study is the percentage of ownership owned by the institution (Sari et al., 2013).

## RESULTS AND DISCUSSION

*Sample Description.* The population in this study is the banking sector companies listed on the BEI during the period 2012 to 2016. The sample used in this study selected by purposive sampling based on predefined criteria so that the sample used can represent the existing population so that in accordance with the purpose of the study. The results of the research sample selection are shown in Table 1.

Table 1 – Sample Selection Process

No	Criteria	Number of Companies
1	Banking companies listed on the Indonesia Stock Exchange during the period 2012-2016.	43
2	Banking companies that are not listed in a row on the Indonesia Stock Exchange during the period 2012-2016.	(13)
	Number of Final Samples	30
	Year of Observation	5
	Number of Observations	150

Source: data processed (2018).

Table 1 shows that based on predetermined criteria, 30 companies were selected to be sampled with a five-years observation period, resulting in a total of 150 observations.

*Descriptive Statistics Analysis.* Descriptive statistics are used to provide descriptions and descriptions of data from all variables in the study. The results of descriptive statistical tests are presented in Table 2.

Table 2 – Descriptive Statistics Results

Variable	N	Minimum	Maximum	Average	Std. Deviation
NP (Y)	150	-0,05	0,86	0,1	0,16
ERM (X <sub>1</sub> )	150	0,35	0,91	0,6	0,14
IC (X <sub>2</sub> )	150	0,17	0,77	0,46	0,15
CSR (X <sub>3</sub> )	150	0,15	0,49	0,31	0,07
KI (X <sub>4</sub> )	150	25,91	99	73,31	17,56
Valid N (listwise)	150				

Source: data processed (2018).

Based on Table 2 it can be explained that the firm value variable proxied by using Tobin's Q has an average value of 0.10; with the highest score of 0.86; the lowest value of -0.05; and with a standard deviation value of 0.16. A larger standard deviation value compared to the average indicates that the value of firms in the banking companies listed on the IDX has large fluctuations. Descriptive analysis results show that the minimum value of the value of the company has a negative value indicating that there is a banking sector company whose assets are rated very low by the market.

The ERM disclosure variables proxied using the ERM disclosure index have an average value of 0.60. The highest value of ERM disclosure is 0.91; while the lowest value is 0.35; with a standard deviation value of 0.14. A smaller standard deviation value compared to the average indicates that the ERM disclosure in the banking companies listed on the IDX has small fluctuations.

The IC disclosure variables proxied by using the IC disclosure index have an average of 0.46. The highest value of IC disclosure is 0.77; while the lowest value is 0.17; with a standard deviation value of 0.15. A smaller standard deviation value compared to the average indicates that IC disclosure in a banking company listed on the IDX has small fluctuations.

The CSR disclosure variables proxied using the CSR disclosure index have an average of 0.31. The highest value of CSR disclosure is 0.49; while the lowest value is 0.15; with a standard deviation value of 0.07. A smaller standard deviation value compared to the average indicates that CSR disclosure to a banking company listed on the IDX has small fluctuations.

The institutional ownership variable (X4) has the lowest value of 25.91; highest score of 99.00; average of 73.32 and has a standard deviation of 17.56. The average value of 73.32 closer to the 99.00 high indicates that the institutional shareholding of 150 companies is greater than that of the management.

*Normality test.* Normality test in this study using Kolmogorov-Smirnov test. The normality test results from this study are presented in Table 3 below.

Table 3 – Normality Test Results

	Unstandardized Residual
N	150
Kolmogorov-Smirnov Z	1,06
Asymp. Sig. (2-tailed)	0,21

Source: data processed (2018).

Research data is said to be normal distribution if Asymp value. Sig. (2-tailed) is greater than  $\alpha = 5\%$  or 0.05. Based on Table 5.3 above Asymp value. Sig. (2-tailed) model of the equation tested of 0.21 is greater than  $\alpha = 5\%$  or 0.05. This shows the residual data from the regression model in this study is normally distributed.

*Heteroscedasticity Test.* The heteroscedasticity test was performed to test whether in the regression model there was a variance inequality of the residual one observation to another observation (Ghozali, 2016). The test used in this research is Glejser test. If the level of significance of each independent variable is greater than 0.05 then it is concluded that there is no heteroscedasticity. The results of heteroscedasticity test are shown in Table 4.

Table 4 – Heteroscedasticity Test Results

Variable	Significance
ERM	0,80
IC	0,92
CSR	0,99
KI	0,52
ERM*KI	0,70
IC*KI	0,35
CSR*KI	0,36

Source: data processed (2018).

Based on Table 4 it is known that all independent variables in the regression model have a significance value greater than 0.05 so it can be concluded that the regression model of this study is free from symptoms of heteroscedasticity.

**Autocorrelation Test.** The autocorrelation test aims to test whether in a regression model there is a correlation between the confounding error in the previous t-1 period (Ghozali, 2016). The autocorrelation test in this research was conducted by Durbin-Watson test (DW test). The results of the autocorrelation test are shown in Table 5.

Table 5 – Autocorrelation Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,55	0,29	0,27	0,14	1,989

Source: data processed (2018).

The autocorrelation test results showed that the regression model used in the study did not have autocorrelation, which is seen from the Durbin-Watson value of 1.989 with  $n = 150$  and  $k = 4$  shows the  $dU < d < 4-dU$  value of  $1.788 < 1.989 < 2.212$ . This value indicates there is no positive or negative autocorrelation in the regression model. This indicates that the research regression model is free from autocorrelation

Based on the results of the data with the help of SPSS, then obtained the results presented in Table 6 below.

Table 6 – Regression Test Results

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig
	B	Std. Error	Beta		
(Constant)	0,10	0,09		1,21	0,23
ERM (X <sub>1</sub> )	0,08	0,01	0,49	5,99	0,00
IC (X <sub>2</sub> )	0,06	0,01	0,31	4,36	0,00
CSR (X <sub>3</sub> )	0,04	0,01	0,21	2,93	0,00
KI (X <sub>4</sub> )	0,00	0,00	0,07	0,97	0,37
ERM*KI (X <sub>1</sub> *X <sub>4</sub> )	0,00	0,00	0,05	0,63	0,53
IC*KI (X <sub>2</sub> *X <sub>4</sub> )	0,00	0,00	0,23	2,36	0,02
CSR*KI (X <sub>3</sub> *X <sub>4</sub> )	0,00	0,00	0,02	0,25	0,80
F count				8,66	0,00
Adjusted R <sup>2</sup>				0,27	

Source: data processed (2018).

Based on Table 6 can be seen the results of determination coefficient test with an adjusted value of R<sup>2</sup> of 0.27 this means 27% variation of firm value influenced by variation of ERM disclosure (X<sub>1</sub>), disclosure of IC (X<sub>2</sub>), disclosure of CSR (X<sub>3</sub>), and institutional ownership X<sub>4</sub>) as a moderator, the remaining 73% is influenced by other factors outside the model.

Based on the results of regression analysis in Table 6 it can be seen that the independent variables simultaneously affect the dependent variable shown by the significance value of F at 0.000 is smaller than 0.05. This means that all independent variables, ERM disclosure (X<sub>1</sub>), IC disclosure (X<sub>2</sub>), CSR disclosure (X<sub>3</sub>), and institutional ownership (X<sub>4</sub>) as moderators can predict or explain the phenomenon of corporate value at a banking company listed on the BEI from year 2012-2016, so it is concluded that the model in this study worthy to be studied.

Based on Table 6 it can also be seen that institutional ownership ability (KI) moderates the effect of ERM disclosure on firm value indicates a t value of 0.634 with significance of t 0.527 greater than 0.05. It shows that institutional ownership (KI) does not moderate the effect of ERM disclosure on firm value so it can be deduced that H<sub>1</sub> is rejected. The ability of institutional ownership (KI) to moderate the effect of IC disclosure on firm value shows a t value of 2.358 with a significance of t 0.020 smaller than 0.05. It shows that institutional ownership (KI) moderates the effect of IC disclosure on firm value so it can be deduced that H<sub>2</sub> is accepted. As well as the institutional ownership ability (KI) moderate the influence of

CSR disclosure on firm value shows t value of 0.252 with significance t 0.802 greater than 0.05. It shows that institutional ownership (KI) does not moderate the influence of CSR disclosure on company value so it can be concluded that H3 is rejected.

## CONCLUSION

Institutional ownership does not moderate the effect of ERM disclosure on the value of a banking firm. The high level of ownership of an enterprise by the institution in the banking sector companies does not affect the extent of ERM disclosure that will be done to increase the value of the company. Institutional ownership moderates positively (reinforces) the influence of IC disclosure on the value of banking firms. High institutional ownership will expand the IC disclosure conducted by companies in the banking sector as a form of voluntary information to stakeholders in order to increase the value of the company. Institutional ownership is able to moderate the influence of CSR disclosure on the value of a banking company. The high level of ownership of an enterprise by the institution in the banking sector does not affect the extent of CSR disclosure that will be done to increase the value of the company.

There are several limitations and suggestions that can be given from the results of this study for further studies. Further research can add other variables considering the value of Adjusted R-squared in this study is only 0.27 or 27%. The suggestion that can be given is that further research can add control variables that theoretically and based on empirical results have been shown to have an effect on firm value, such as firm size. In addition, further research may also attempt to use independent commissioners as a moderating variable of the effect of ERM, IC, and CSR disclosure on firm value.

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## **THE IMPLEMENTATION OF COMMODITY AND SERVICE PROCUREMENT BY VILLAGES IN SIDOARJO REGENCY**

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### **ABSTRACT**

Law #6 of 2014 on Villages, furthermore referred to as the Village Law, is enacted effectively in 2015. This law covers, among others, the Status and Types of Villages, Village Arrangement, Village Authority, Village Governance, Village Roles and Villages and Rights Village, Finance and Village Assets, Rural Development, and Rural Area Development. The law states that villages are domiciled in the district / municipal territory consisting of Desa and Desa Adat or in accordance with the applicable mention in the local area. In order to organize the life of the nation, the government is required to promote the general welfare of the social justice for all of Indonesian. To achieve this, the government is obliged to provide for the people in various forms of goods, services, and infrastructure development. In addition, the government, in the implementation of government needs also goods services, for it needs of goods and services procurement. With this research shows that the authority of villages in implementing the procurement of goods and services aims to realize good governance in order to ensure the village administration is organized in accordance with the provisions of applicable legislation.

### **KEY WORDS**

Goods, services, procurement, authority, village.

The administration of commodity and service procurement is the most crucial as it attracts many problems in price fixing, tender winning, the plaint and complaint. The procurement in village is better when it uses self management method. Because, the budget of village will be used to improve the village itself, it needs the contribution from people in it. For example, infrastructure development must use the procedure of PNPM or mutual cooperation. The price bargaining must follow the fixed price published by higher government such as City or regency, the different price may be found in shipping cost. The standard price list should be conducted in e-catalogue form by Commodity and service procurement council (LKPP). If the procurement in villages is occurred by tendering method, there will be many possibilities for the government to deceive the process. The deceiving act is very fragile among apparatus as, according to Priesident Decision number 54 of 2010, they never receive tendering workshop. Because, the workshop would consume much time and money. This problem makes the private sector to use in such illegal way to make them win and take over the project.

The procurement administration which is funded by APBD of villages must follow the principle of efficiency, effectiveness, transperancy, society priority, mutual cooperation, accountability and must be able to adapat with local culture. The principles must be followed to establish good commodity and service procurement in village level for more advanced development.

### **METHODS OF RESEARCH**

Legal research is the process of finding the rule of law, legal principles, and legal doctrines to address legal issues faced. This is in accordance with the prescriptive character of jurisprudence. Different with research carried out in descriptive scientific knowledge test the truth whether there is a fact caused by a factor Certainly, legal research is conducted to



generate arguments, theories, or new concepts as prescriptions in solving problems encountered on a descriptive scientific answer the expected answer is true or false, the expected answer in legal research is right, appropriate, inappropriate, or wrong.

Associated with this legal research there are two approaches used by the authors are:

a. The statutory approach, namely an approach using legislation and regulation. The legislation approach is done with reviewing all laws and regulations which arrangement relates to Procurement Implementation Goods and services.

b. A conceptual approach is a approach by trying to build a concept that will used as a reference in the study by moving from developing views and doctrines in the science of law. By studying views and doctrines the author can find ideas that can give legal notions, legal concepts, and the principles of law, legal principles relevant to the legal issues faced.

## RESULTS AND DISCUSSION

*Commodity and Service Procurement in Village.* The commodity and service procurement, literally, is an act of users to obtain or realise the commodity or service by using controlled process and method to reach a deal in price, time, and etc. in order to realise the definition of procurement, both users and provider must pegged on the philosophy of procurement, act in ethics and norms of local procurement regulation, and follow the principles of method and process of legal procurement.

A good system of commodity and service procurement is a procurement which follows and implements the principles of good governance, support the effectiveness and efficiency of public expense, and the management of three pillars of behaviours (Government, Private sector, and Society). Thus, the good procurement will be in line with good governance.

In reformation era, the government struggle to realise a transparent and democratic state. One of the programs is by improving and optimising public service towards society through policies/regulations which must be effective, efficient, and able to represent the transparency and democratic state. Moreover, it is mandatory for government to provide and distribute information to society as stated in Law number 14 of 2008 about the public transparency which the vision of the transparency is to realise a good governance which are effective, efficient, accountable and responsible. As stated in article 3 alphabet C Law number 14 of 2008 about public transparency, State Gazette Number 4846 of 2008.

The law also states that everyone has a right to gain public information based on the regulation of the corresponding law. As stated in article 4 act 1 Law number 14 of 2008 about Public Information Transparency. The word transparency means a big chance for public to access the information towards governance program process. Meanwhile the efficiency means any actions that shorten the bureaucracy process of public service. Government as civil servant must provide a professional and maximum duty to realise good governance principle and implement clean governance.

Because of the problem, a new way of procurement is invented; it is electronic procurement of e-procurement. The regulation details are stated in President Law number 8 of 2006 about the fourth amendment of president law number 80 of 2003 about the instruction of commodity and service procurement. E-procurement started in 2007 with help of procurement council (LKPP). As stated before, the legal basis of LKPP establishment is stated in president decision number 106 of 20067 about the procurement of commodity and service council. E-procurement uses website and internet to offer the tenders towards third parties.

Electronic procurement has started their campaign as law number 11 of 2008 about electronic transaction information; the law allow wide and vast options legally. E-procurement, as information system, is a data fusion, the artificial intelligent and the human who obtain and sent the information. The purposes of e-procurement are as follow: to improve transparency and accountability; to improve market access through fair competition; to fix the efficiency of conventional procurement; to support audit and monitoring process; to provide real time information.

The implementation of e-procurement will help the relation between private sector, government, and the society become easier and faster. Moreover, the electronic procurement, automatically, will minimise the act of deception who may break the rule and result in society disadvantageous. In one hand, the electronic procurement could be supported with e-purchasing.

Even though e-procurement uses internet as media between both parties, it does not mean that the agreement between offeror and offeree is occurred on it. Paperless transaction is not an option for e-procurement. Because, not only entering data through website but the offeror is also need to upload some legal documents in the form of printed documents to the offeree. The deal is reached when the letter of agreement or memorandum of understanding states that the corresponding offeror win to do the project. In other words, e-procurement still prefer paper transaction to paperless one. Thus, the law is still worked for e-procurement.

For Corruption Eradication Commission (KPK), e-procurement is ultimate weapon to help them to trace and watch project of state. The state project is one of biggest project that would consume lot amount of money. That is why, any efficiency to prevent corruption would help state to minimise some financial lost. By publishing president law number 54 of 2010 as amendment of law number 80 of 2003 about commodity and service procurement by LKPP. In article 111 number 54 of 2010, it regulates the establishment of e-procurement (LPSE) to support LKPP procuring state needs.

The implementation of e-procurement is one of national program for the realization of a clean and corruption-free government. Where it will be through the program all government agencies both central and blood apply e-procurement in the procurement of goods / services. E-procurement offers the widest opportunity for improvement in cost and productivity. Therefore e-procurement is one of the most effective ways to improve management, either directly or indirectly, in the disbursement of the source of purchase. As a result, e-procurement will increase the key to success in improving future competitiveness.

*Commodity/Service Procurement Aspects.* Procurement initially began with the sale and purchase of goods in the market. The method or method of procurement of commodities and services in transactions is done by bargaining directly between the buyer (user) and the seller (provider of goods), including when the price agreement has been reached, the transaction process is also directly done. The process is not supported by the purchase, payment and receipt of goods. In its development into the sale and purchase of the term of payment, accompanied by documents of responsibility between the buyer and seller. The large number and types of items to be purchased take a long time if you have to bargain. Usually the user lists the amount and type of items to be purchased in writing. It is then submitted to the supplier to offer in writing anyway. The list of items that are written in writing is the origin of the purchase documents. While the price offer made in writing is the origin of the offer document. The next development, the user submits a list of items to be purchased not only to one, but to some providers of goods. Through their offerings, users can choose the cheapest price offer. That way is the forerunner of procurement of goods by auction. Procurement of goods is not limited to tangible goods, but also intangible goods. Intangible goods in general are services. For example health services, education services, consultancy services, supervision services, management services and so on.

From state administration law perspective, the procedure of commodity and service procurement is divided into two major laws. According to Prajudi Atmosudirjo, the two administration law are the law that regulates and created by the law who controls authority responsibility of state apparatuses.

The local autonomy of government duty is to fulfil the need of its people wther it is in form of commodity needs or services. The government, to do its duty, also needs some commodities and services. The commodity and service procurement of local government covers all contracts between local government (local institution, local state company) and even the private company.

*Village Budget Allocation.* Law number 6 of 2014 mention several policies, they are the definition, authority, right and duty, and the village financial status. In accordance with village

financial, in this case is village budget, Village Ministry Law, Remote Area Development, and transmigration number 5 of 2015 about priority of village budget expense of 2015 states that the definition of village budget is a budget came from National Expense and Income Budget which is allocated for village and transferred through City/Regency Expense and Income Budget to facilitate governance, infrastructure development, socialization, and society empowerment. The simplified version is a budget which is run by village allocated and expensed through Village Expense and Income Budget (APBDes).

The village income comes from these points below: the village pure incomes are business result, asset result, self-contribution and participation, mutual cooperation, and etc; State Income and Expense allocation; Gained from part of taxes and City/Regency retribution; balance budget from City/Regency; financial aid from Province, City/Regency Income and Expense Budget; financial grant or donations from unbounded third parties, etc.

*Regent/Mayor Regulation about Procurement by Village.* In head of LKPP regulation number 13 of 2013, it instructs that the procurement of commodity or service in villages must use APBDes, crawled by Regent/Mayor Regulation, but still in line with head of LKPP regulation. Regent/Mayor must able to provide the result of program. From that responsibility, all Regent/Mayor must publish a regulation concerning commodity/service procurement in their area. But, there is no more regulation about procurement regulation until 2015, there are few numbers of places who conduct such regulation.

As a result, the government publish regulation of LKPP head number 22 of 2015 about amendment of LKPP head regulation number 13 of 2013 about commodity/service procurement in villages. Generally, this law tell us that the village who does not possess procurement regulation from its Regency/City, the instruction will be handed and followed LKPP Head regulation or follow the village procurement polices as long as it does not harm local norms and against LKPP Head current regulation.

Some local government had published their regent/mayor regulation about procurement. Unfortunately, the details are too general; they are not yet practical and operational details. There are several details that need to be revised to make it easier and more practical. Moreover, these details had become questions among politicians, the details are:

1. The number of program implementer team (TPK) is not firmly stated. In LKPP regulation, it states that a village could have more than one TPK; the number of team is decided by current situation and the job description that should be finished. Regent/mayor could determine the number of the team or they just leave the decision to the village based on their financial condition.

2. In the other hand, the Regent/mayor regulation must provide the details of the payment for these TPK crews. The detail must cover the amount of money they could received as their right or a certain money that they must not accept as present. In this case, it is the head of village, in some area, the head of village is prohibited to be part of TKP team, but others would allow it.

3. The regulation must assume the fixed price list that will be used as standard in their procurement are. Because, every districts had its own unique within the geographic condition. If the priced is fixed, the budget arrangement will be easier to determine which commodity is appropriate for the village.

4. E-catalogue is an option to arrange the budget if standardised price is not yet determined by the government. But, it is just as reference of the price, the procurement does not require e-catalogue. Because, e-catalogue would confuse TPK team if the system of fixed price is not provided within e-catalogue.

5. If the government is unable to do the project by itself, it could use the help of third parties for consultation purposes. But, the government already had Village Assistance Team (TAD) to solve such problem. That is why, more workshop and training must be applied to these apparatuses. TAD team was established and taken oath by Regent/Mayor to be responsible in procurement. It must provide the details of their SOP within its function.

6. Nowadays, head of sub-district role is consolidated, although not as the Head of Region again, because the sub-district consists of several villages, it is necessary to

delegate the Regent/Mayor to the sub-district head in terms of supervising the procurement in the village. This oversight instrument should also be contained in the Regents/Mayors Regulations, so that, sub-district head can able to use its authority if he/she found things that deviate in accordance with the provisions in the procurement process of goods / services. The involvement of the Regional Inspectorate is possible, but the Inspectorate's supervision serves to thoroughly oversee the implementation of village budget arrangement and the administration of the village administration or other special matters. It may be that the results of supervision by the sub-district head are forwarded or reported to the Regent/Mayor with a copy of the Regional Inspectorate.

7. The procurement by villages does not use what we called as Self-Assumed Price (HPS). That is why the arrangement of budget must be based of the closest market within its current situation. Thus, the arrangement of procurement price list is the representation of villages' current financial status. But, if the fixed prices are already provided and legalised by Regency/City level, villages must obey and follow the price. The movement of price in market is very unpredictable, if the price change while implementing the arrangement; the price must follow the most up to-date price to achieve the efficiency and effectiveness principles of procurement.

8. The Regent/Mayor Regulation must provide templates and formats for TPK team such as offering letter template and purchasing letter to referrer, memorandum of understanding, acceptance certificate between TPK and Private sector and result of acceptance letter among them. The letters and templates could be printed and distributed by city or regency government to the villages, but if the people could not afford, they could just write it down in piece of paper.

9. Article 31 Ministry of Home Affairs number 113 of 2014 about management of village budget states that the treasurer of villages must able to provide taxes. It is mandatory to collect taxes and transferred them to state bank account by procedure stated in law. The regulation and instruction is very clear that the treasurer must send them. That is why the treasurer must register their self to obtain tax identification number. That is why the regency or city regulation must restate this law firmly.

*Self-Management Implementation.* The self management of procurement by villages is the most interested thing in recent years, the higher budget that each village gets every year even draws more attention among societies. The ministry of home affairs and villages state that self management becomes priority in commodity and service procurement.

The method of self management procurement of commodity and service is a result of two principles fusion from five principles as stated and regulated in article 3 of Regent Regulation number 54 of 2014, the principles are:

- a. Society must able to learn how to manage their village by studying from implementation of commodity and service procurement.
- b. Mutual cooperation is a free help from societies to support the development of their village.

These two principles would create different procurement of commodity and service established by village and the procurement which is commenced by Ministry/Institution/Local Government/Institution.

Stated in Sidoarjo Regent Regulation article 15 act (1) number 54 of 2014, it states "based on the principle, any procurement must be established by self management by using local material optimally, with the help of the people, the procurement will open new job vacancies and social empowerment"

For Society, the investment, in terms of economic aspects, will provide opportunities to increase revenue. So, the impact of socio-economic aspects of the implementation of procurement in the village is very large for the life of the village community both from the positive side and the side problems that will arise in the future. Local governments should continue to assume potential problems that will probably occur, they also must conduct a review/revision as the results Village Conference, Sub-District, and District, for example delivered the cycle of APBDes, village finance signs, the management of commodity/service in the village in practical ways which is easily understood by the village community. This

must be achieved to monitor and evaluate each stage of implementation of the APBDes itself. Particularly, in the implementation of procurement of commodity/service in the village, for regions that have issued Regents/Mayors Regulation on Procurement Procedure of commodity/service in the Village or have not yet issued the regulation, to immediately conduct assessment and determination related to the procurement of commodity/service in the village by - a practical way that is easily understood by local villagers. Taking into account the social and cultural conditions and geography of the local community so that the rules made can be implemented.

*Commodity/Service Procurement in Village through Private Provider.* By using procurement provider aid, there are two condition that may be face by both parties, they are:

a. the procurement for less than Rp. 50.000.000,- in this procurement, the implementation is lead by head of TPK. The procedure started with negotiation among two parties by face to face meeting and proceeds to payment step. There are no more documents from both provider and government but payment bill and receipt. Most of the budget of village is spent in this condition.

b. The procurement which is more than Rp. 50.000.000,-there are several phases as procedure for this condition, as follow:

- TPK invite two written offering letter from two providers which is bale to support local village development. It must be attached with the details of commodities or services, volumes, and the specification of the commodities or services.
- The provider must bring written offering letter within details of the commodities or services and the pricelist.
- TPK examine the specification of the technical procedures from the provider who sent the offering letter.
- TPK must be able to obtain cheaper price in bargaining process
- The result of negotiation must be mentioned in agreement sheet of both.
- The final result is handed out to head of village.

*The Economic Aspect by Using Procurement Provider Aid.* The inability of village governance to implement all procurement by itself forced the government to obtain aid from the private sector. There are several procurements that aided by private sector such as electronic devices, furniture, office stationery and etc.

The construction project is one of procurement that government must get aid from provider. Because, the complex building and high skill architect need more work and time to be completed

Generally, people assume that procurement providers are big tender company who must be in a group. In reality, the provider must not always be from company, it can also come from individual private sector.

Government will gain advantage if the procedure and range of the procurement are simplified. Because, the level of this procurement is on village level which is completely different from Ministry/Institution/Village Council/and another institution. There is a significance principle such as "mutual cooperation" and "Society Empowerment" which replace the principle of competitive, fair and not discriminative it is appropriate for government spending in the scope of Village Government.

The procurement is very simple in village level. For example, if government tend to make an event or a little limited meeting, they could use local sources commodities to procre their need such as food and beverages. They could buy it on a local streetfood as long as the quality is good. by buying the food and average, the village governance has used its state budget for their activity. it is a simple example of individual procurement of commodities in villages.

The simple procurement also works on office stationery. The government could just buy it on a local store to but the office needs. But, if they cannot find tools on their own village, they could buy it on another village's store. For example, if they could not find motorcycle dealer in their village, they are allowed to buy it on another village as it is impossible for their own village to provide it.

Unfortunately, for complex building such as big bridge, TPK must offer the procurement to the private providers. It is top priority for the government to find local provider that still belongs to the source of the village. But, the advantages of using private sector may not be obtained especially for society, because of these following reasons as follow:

a. The labours are not local people

The providers commonly have permanent workers from different places that are willing to be paid lesser than local labours.

b. The materials will not use local resources.

The providers already had permanent colleagues to buy materials which enable them to control their financial circulation

Beside of that, the building will be the only advantage gained from construction procurement by the providers as it is finished.

### **CONCLUSION AND SUGGESTIONS**

The implementation of commodities and services procurement is started from direct transactions in market, it develops into instalment payment method, the next development is by using contract between two parties, and the last evolution is by using auction process. In auction process, there are many people who include on the process; the process must possess norms and principles to control these actors. The procurement in villages give positive impacts compared with auction held by any higher institution. Because, the villages have "mutual cooperation" and "Society Empowerment" which replace the principle of competitive, fair and equity, it is appropriate for government spending in the scope of Village Government.

There must be revision accordance with Regent regulation that controls procurement policies of commodities and service especially in Sidoarjo Regency as the current regulation does not appropriate with Village Financial Administration.

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## **THE LEGALITY OF GOVERNMENT ACTION IN AUDITING AND ASSESSING THE ACQUISITION VALUE OF ACQUISITION DUTY OF RIGHT ON LAND AND BUILDING IN SIDOARJO**

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### **ABSTRACT**

The transfer of Customs Acquisition of Land and Building Rights from the central to the regional government based on Law #28 of 2009 provides an opportunity for the regions to increase local revenues. BPHTB has great potential for local tax revenues because property growth in Sidoarjo Regency is quite large. To increase the acceptance of BPHTB referred to the Government of Sidoarjo Regency to conduct inspection and assessment of Tax Objects Value of BPHTB by re-regulating the Procedure of Collection of Acquisition Levy of Land and Building Rights in Sidoarjo Regent Regulation #21 of 2017.

### **KEY WORDS**

Authority, examination authority, revenue, land, buildings.

Increasing the efficiency and effectivity of government performances and public services, every regions have rights and obligation to manage and maintain their own administrations. While running their own government, every regions have rights to have tax collecting on their resident. Tax will be funded based on the official regulations. The tax constitution has regulated in article 23A of The 1945 Constitution of the Republic Indonesia, it affirms that the placement of working load, such as tax and other forcing charges has been arranged under The Constitution, therefore the tax collection should be complied The Constitution.

The background of Acquisition Duty of Right on Land and Building (BPHTB) are the social function of the land and building as one of the part of the nature resources, as well as its economical function for the owner, beside giving the access to fulfill basic human needs as a home and place for business.

In the other words, for those whom have their right on the land or/and building, the obligation of giving some of their income for the country as a tax, known as BPHTB, paying needs to be fulfilled.

BPHTB is a tax collected from the right on land and building. This tax firstly applied by Indonesia Government as the center of the tax in 1997 with the stipulation of The Constitution #21 Year 1997 that has been revised and The Law #20 of 2000. Based on the Article 12 Act. 4 and 5 of The Law #33 of 2004 about Fiscal Balance between central government and local government.

In the other words, all of the BPHTB income collected by the central government will be transferred to the local government with a revenue sharing fund mechanism, although it will not be given to the contributor district/city fully.

The basis of BPHTB is the income of the taxable object (NPOP), those are transaction value and market value, however in the practice it uses Sales Value of Taxable Object (NJOP) of Land and Building Tax. It happens because the recognition of selling and buying usually under NJOP, even though it is corresponding with The Law #12 of 1985, and emphasized by the Government Ordinance #25 of 2002, the sales value for the NJOP is 20% up to 40% of the real values.

Based on the Article 3 of Government Ordinance #55 of 2016 about The Mechanism of the tax collection and local retribution, among the 11 types of tax, only 3 types of tax that will be collected based on the stipulation of the District Head, those are Advertisement Tax, Groundwater Tax, and Land and Building Tax of Rural and Urban Area (PBB-P2). Even

though, the tax collection is stipulated by the District Head, Advertisement Tax and Groundwater Tax use Notice of Local Tax Assessment (SKPD). SKPD is an official letter that defines the value of the basic principle repayment on the tax. This stipulation is final, individual, and concrete in every process of its stipulation. The taxpayer has been involved on the process of the value calculation as the following the instructions.

Whereas PBB-P2 is an Notice of Land and Building Tax Payable (SPPT). It is a letter used to inform the value of the PBB-P2 that have to be paid by the taxpayer.

Giving the authority on managing BPHTB to the District/City gives opportunities to set the value of BPHTB based on the Acquisition Value of Object (NPOP). NPOP is the transaction values and market values which are not only referring to the selling value of the object which is mentioned on the tax return (SPPT) PBB-P2.

In the same time, the transition of BPHTB and PBB-P2 become local taxes is not accompanied by the transition of the human resources of the appraisers in terms of appraising PBB-P2 in local District/City. This case appears because the appraisers handles PBB-P2 in the central government and has to change its authority to handle local PBB-P2. This case leads to the slowing down the PBB-P2 assessment and data rejuvenation in Sidoarjo. In contrast, the activity of the citizen is dynamic as Sidoarjo is one of the pillar of Surabaya, Sidoarjo is the living place for the workers in Surabaya. The industrial, trading, and services growth and increasing population in Sidoarjo as the impact of urbanisation impulses the demand of land while the amount of the land never grows. Technology, Internet has made the process of selling and buying land and building in Sidoarjo reach a wider area, the buyer is not always from Sidoarjo but from other cities as well as other province. It may cause the diversity of value over the same object.

The transfer of land and building rights connected with 2 aspects, those are the transfer of the rights and the recipient of the rights. Both of them are faced with the provision of rights and obligations with respect to the transfer of rights. When the transfer has been received the income, in the Article 4 Act 2 The Law #36 of 2008 about Income Taxes, the income received is taxable which is final.

The Income tax on the land and building transfer is regulated by The Government Ordinance #34 of 2016 about Income Taxes by The Income of the Transfer Land and/or Building Rights, and Sales and Purchase Agreement of the Land and/or Building and its Changes. As an illustration the income of BPHTB in 2012 until 2015 is listed on the table below:

Table 1 – The realisation of the PBB-P2 and BPHTB revenue in Sidoarjo District compared to the PAD and Income (APBD) in 2011 until 2015

Year	PBBP-2 (Rp.)	BPHTB (Rp.)	%	PAD	Income (APBD)
2011	-	91.429.345.870	-	484.313.737.307	2.005.191.397.714
2012	111.326.978.118	99.138.455.803	08,43	669.617.556.904	2.317.444.096.384
2013	147.187.993.871	155.400.719.381	56,75	858.433.670.217	2.618.589.423.484
2014	157.683.880.579	181.411.980.178	16,73	1.115.332.938.500	3.273.379.955.995
2015	158.631.832.684	220.217.563.615	21,39	1.266.786.627.409	3.556.219.038.762

Source: DPPKA Sidoarjo District.

Based on the data above, the growth of the BPHTB revenue from year to year increased compared to the previous year. The biggest positive growth happened in 2013, reach the of 56,75% from 2012. This increase happened because in that year there was an adjustment NJOP PBB-P2.

*Statement of The Problems.* Based on the explanation on the background of study, there will be two problems that will be discussed:

- How do the authority of the auditing and determination of the acquisition value of taxable object BPHTB based on the regulation of the Head of Sidoarjo #21 of 2017 about the process of collecting the Acquisition Duty of Right on Land and Building?



- How are the mechanism of the taxable object's acquisition value on the Acquisition Duty of Right on Land and Building based on the regulation of The Head of Sidoarjo #21 of 2017?

*The Purposes of the Study.* In the background of the study there are a lot of explanation related to the tax collecting as well as the problems appear on the tax collection in Sidoarjo, in relation to them, there will be two purposes that are:

- To understand the authority of the Sidoarjo government in the auditing and determination the acquisition value of taxable object Acquisition Duty of Right on Land and Building based on the regulations of The Head of Sidoarjo #21 of 2017;
- To reveal and analysed the mechanism of the auditing and determination the value of taxable object of Acquisition Duty of Right on Land and Building based on the Head of Sidoarjo regulation #21 of 2017.

*The Objectives of the Study.* The result of the study is expected to give two objectivities that contains if the territory and practice usage.

- From the territory perspective, hopefully this study will help the stakeholder to arrange a regulation about auditing and stipulation the value of taxable object of of Acquisition Duty of Right on Land and Building.
- From the practice perspective, this study can give a new suggesstion on the process of maintaining the regulation and its implementation of the value taxable pbject of the of Acquisition Duty of Right on Land and Building that encompass three aspects of the authority, procedure, and substance of the auditing. As the result the local government's action has a validity.

*References:*

*The Legality of the tax collection in legal system in Indonesia.* Indonesia is a constitutional state, and the application of its concept in Indonesia is written in the country contitution, that is The 1945 Constitution of Republic Indonesia which is known as UUD NRI 1945. UUD NRI 1945 is a basic constitution of Indonesia that has the highest contitution in Indonesia's legal order.

The tax in UUD NRI 1945 is regulated in article 23A stating that Tax and other fund collection that compel for the country need is arraged in the Law.

Based on the article 1 #1 UU #6 of 1983, as the final enhanced by UU #28 of 2007 about the Taxation General Provisions and Taxation Regulation is the obligatory contribution for the country. This obligation is done by individual and compel. This regulation is based on the Law and wihout directreciprocal and will be used for the country needs to actualize the prosperity of the people.

*The Requirements of Tax.* To avoid any problems, Tax collection have to fulfill the following requirements:

- The tax collection have to be fair (terms of Justice);
- The tax regulation should based on the Constitution;
- The tax collection should not interfere any economic activity (terms of economic);
- The tax collection have to be efficient (terms of financial);
- The tax colection's regulaion should be simple.

*The Legality of Government action.* The scope of the legality in government's action that covers the authority, procedure, and substance. The authority and substance are the base of formal legality. If one of those scope are not fulfilled, it leads to the juridical defects on the government's action. Juridical defects that will be appear will be on the authority, procedure, and substance. The Government's action should have a basis from the legal authority. The authority is gotten through three sources, that are attribution, delegation, and mandate. Attribution authority is usually given by dividing the authority in a country that has been regulated by The 1945 Constitution of Indonesia Republic or the Constitution, while the delegation and mandate authority are the authority that is delegated.

Those government regulatory and controlling authority for people's lives will be limited by substance, for example the authority to determine the Land and Building Tax will be limited

by the large of the land, the building, land classes, and building classes but not concerning on the furniture of the house.

*The Authority Based on the Administration Legal.* Philips M. Hadjon states that there are three concepts of the authority as the public legal concept, that are influence, basic legality, and legal conformity. The influencing factor is the usage of the authority is for controlling the legal subject. This component's will wants every government or state officials action have a certain benchmarks or normal standard for any kind of authority that is based on the legal action.

*The Sources of Authority.* In the decisions of administration legality there will be two ways to get government authority, that are attribution and delegation; sometimes mandate can be the source, which is placed as the other way to get the authority. An attribution points to the original authority on the basis of constitutional legality. While delegation emphasize on the delegating to a certain government agencies.

*The Benchmarks of the Misusing Authority.* In the legality administration concept, any given authority for the government agencies or the administration government officials always brings purposes and intentions. In the other words the application of the authority have to follow that purposes and intentions on the authority.

Legality principle is a basic guidance for the government's function to take actions in achieving goals. The given authority for the governments is given through the Constitution.

A lot of situation in running the government function, the officials is facing any situation related to the Constitution that do not give any authority to take an action, in fact there is urgent need for the government to take any action in reaching any goals. *Freies Ermessen* (diskresionare) is one of the facility that offer a space for the officials or any state administratives to take an action without being fully attached to the Constitution.

Measuring the administrative officials' misused authority if there is an action that categorized as an actual action that has been measured with the given authority. Arbitrary authority (*willekeur*) is an action that is not based on the government legal regulation and public principle.

## METHODS OF RESEARCH

Empirical normative is the method that will be used on this research. It is a merger of normative law and the addition of various empirical essentials.

The approaches that is used in law research is statute approach, case approach, case approach, historical approach, comparative approach, and conceptual approach. The approach that is used is related to the legality of the government's action in Auditing and Determination of Object Acquisition Value of Tax on Land and Building Rights are: Statute approach; Conceptual approach.

The legal sources used in law researches can be distinguished into primary sources and secondary sources. The primary sources is an authoritative legal sources, means it has authority. The primary sources contains of The Constitution, legal notes or treatise in the making of the Law and the judge decision

Whereas, the secondary sources is a publication about law that is not legal documents. The publication contains of book, text, dictionary, law journal, and comment or judge decision.

Data or primary sources collected through interview, while secondary sources taken from literature studies, being inventoried, and taken from a relevant law issues. These secondary source collected through library research.

## RESULTS OF STUDY

*The authority of auditing and assessment NPOP BPHTB in Sidoarjo district:*

*The Legality of Authority in Investigating The Value of Taxable Object.* Collecting the Acquisition Duty of Right on Land and/or Building (BPHTB) in Sidoarjo District is based on the Sidoarjo regulation #5 of 2010, previously the tax is a central tax, but it is diverted into a local tax based on the Law #28 of 2009 about local taxes and retributions. the Acquisition

Duty of Right on Land and/or Building (BPHTB) is a kind of taxes which is collected by self assessment system. Based on Adrian Sutedi, the self assessment system in collecting taxes is a system of taxes collection that the tax payer determine by himself the amount of taxes based on the law of taxation.

*The Legality of Authority in Invertigating and Assessment NPOP BPHTB.* The basis of Legality in tax collection of Indonesia is regulated by the Amandemen of The 1945 Constitution of Indonesia Republic of 1945 article 23A that states tax and other charges which are coercive for the country is regulated by the Law.

In the Law #28 of 2009 about Local Taxes and Retributions, the Acquisition Duty of Right on Land and/or Building is regulated in the article 85 until article 93.

The government action is based on the norms of government's authority which is gotten from attribution, delegation, or mandate. Therefore, any government's action which is not based on the Law on giving any authority to take an action is an outrage action.

The authority on the auditing of local taxes, included BPHTB, is regulated on the Article 170 Act (1) Law #28 of 2009 which states that the Head of the District has an authority to do auditing in testing the compliance fulfillment of local taxes and retributions obligations. This action is the sign that the government is implementing the law of local taxes and retributions.

The auditing authority of the Acquisition Duty of Right on Land and/or Building is regulated in Article 30 Act (1) and (3) of Local Regulation of Sidoarjo #5 of 2010. It is in line with the authority of local taxes auditing as stated in the Article 170 of Law #28 of 2009 as well as in Article 28 of the Government Ordinance #55 of 2016.

Based on the regulation in the Law and Local Regulation, it is clearly stated that the auditing authority on local taxes, including investigating BPHTB, is the authority of the Head of the District, and the further regulation about how to investigate, including who does the auditing whether it is The Head of the District or the others functionaries which is designated by the Head of the District, is regulated in the Regent's Regulation, while in the Government Ordinance #55 of 2016 clearly states the Head of the District or the designated functionaries have the authority to investigate for the purpose of testing the compliance of local taxes obligations and to implement the Law.

The legality principle of the government's action is clearly stated about the exertion of the government administration is based on the legality, the principle of the human rights protection, and the general government principle on the Article 5 Law #30 of 2014 about Government Administration. There are three principles about administration law:

- Yuridicity principle (rechmatigheid), emphasizes the state administration can not being outrage.
- Legality principle (wetmatigheid) states that every action of the state administration's functioners should have the basis law.
- Discretion principle (freies ermessen) is the freedom of the administrative officer to make a decision based on the self-opinions without contradicting with the legality principle.

*The Legality of Procedure in Investigating and Assessment NPOP BPHTB.* Taxes law is differentiate into formal taxes law and material taxes law. Formal taxes law regulates the procedur to implement material taxes law, therefore in formal taxes law there is a regulation related to the process (the procedure of fulfillment of taxation rights and obligations).

The process of supervision on the suitability BPHBT payments is done through research of SSPD BPHTB payments, while the supervision of of the material truth which is done through field research or auditing on the payments, including SSPD BPHTB within 5 years since the tax arrears as it is regulated in the Regent of Sidoarjo Ordinance #3 of 2011 about the procedure of the Acquisition Duty of Right on Land and Building.

The Local Tax notice that abbreviated to be SPTPD, is a notice which is used by the Tax Payer to report the tax calculation and/or payment, the tax and/or non-tax object, and/or assets and obligation based on the regulation of Local Tax Law. Based on the regulation, SSPD BPHTB is not only medium for the BPHT payments but also as the medium to do research on the assets and obligation.

Based on the regulation, the research and auditing of the BPHTB payments is done after the tax payers do its payments, after the signation of the transfer of rights deed by the notary public, minutes of auction by the Head of State Auction Office, and or after the transfer of rights deed being registered on the National Land Agency. If it happens because of owed tax already happens, accordingly the result of auditing after getting the auditing result respond from the tax payers will be appointed a notice of underpayment of local taxes, additional underpayment of local taxes, or zero assessment of local taxes, the amount of the principal tax will be charged by administrative payments in the amount of 2% (two percents) in a months that is counted from the taxes that are less paid or overtime for a maximum period of 24 (twenty four) months since the tax payable.

*The Legality of the Audits Substance and The Assessment of NPOP BPHTB.* The meaning of tax audits based on the Article 1 #75 Law #28 of 2009, Article 1 #31 Government Law Numbet 55 of 2016, or Article 1 #7 Local Government of Sidoarjo #5 of 2010, is a series of activities that collect and process the data, informations, and/or evidence that has been done objectively and professionally based on a standart of Audit to test the compliance fulfillment of local tax obligations and/or for the other purpose of fulfillment the regulation of the Law of Local Taxes. While the meaning of research is regulated in the Government Ordinance #55 of 2016 Article 1 #29 that states Research is a series of activities which is done to assess the completeness filling notification letter and the attachments include an assessment of the truth on writing and calculating. Based on the regulation, the Audit has bigger portion compared to the research because it concerns on the data collection and cultivation, information and/or evidence.

In Article 87 Act (6), the same regulation also states that Acquisition Value of Non-Taxable Object as it is states on the Act (4) and Act (5) is appointed by the Local Regulations.

The calculation of the Acquisition Value of Duty of Right on Land and Building is divided into 2 components that are land component and building component. The zone decisions or the market value is limited to the zone and market value on the land, while the assessment of the building beside on the condition, the development will be compared to the SPPT-PBB-P2, whether it will change, even become smaller on the building value, the decrease of the value or increase of the value.

The basic substance on the imposition of BPHTB is the value of the taxable object, on the buy and sell activity is based on the transaction value. The seller tax as well as the obligation of the repayment of PBB-P2 on the day of the transaction happen or the transfer of the land and building object is the obligation of the seller/the rights giver, and not the obligation of the buyer or recipient, but in reality the obligation is the responsibility of the buyer.

As one of the kinds of tax in District/City that is paid through the tax payer calculation, the result of the audit will be delivered to the tax payer through giving a letter of inspection results (SPHP), not a tax assessment, that the tax payer can give the respond of the audit result.

*Taxable object of acquisition duty of right on land and building:*

*The Mechanism of the Value Audit of Txable Object PBHTB based on the Sidoarjo Regent Regulation #21 of 2017.* The Audit of NPOP BPHTB has been done in 2014. The result of the NPOP BPHTB research that do not mention the surface area, building area, NPOP TKP, the amount of the payable tax in accordance with the contents and the purposes, as it is intended in the Local Regulation or the Regents Regulation, including:

- The form audit and completeness of the applicant documents;
- The Audit of NPOP BPHTB;
- The respond of the audit result;
- The payments of BPHTB;
- The Audit of the BPHTB payment.

*The implementation of Audit Mechanism in Acquisition Value of Acquisition Duty of Right on Land and Building:*

- The Implementattion on the Tax Payer obligation or the authorization of tax payer to apply for audit. For the tax payer who fulfill the conditions, the audit team will deliver

the value of the taxable object in accordance with the tax payer's explanation, so that the tax payer can do the payments as soon as possible without filed the respond of the audit result;

- Applicant Form of Audit and additional audit documents;
- Implementation of mechanism in certificate audit, application for the validation SSPD BPHTB and the audit of the BPHTB payment proof.

The implementation mechanism in the incompatible object compared to the regulation in SPPT PBB-P2:

- Implementation of the audit on some or partial transfer taxable object and the obligation of PBB-P2 repayments;
- Implementation of the audit NPOP TKP;
- The Audit on the gradual selling and buying;
- The Audit of taxable object selling in the housing as a raw material;
- The Audit on the addition of the tax payer name on the certificate;
- The Audit by the Audit Team;
- The Notice Letter Form of the Audit Result (SPHP) NPOP BPHTB.

### **CONCLUSION**

From the explanation above, the conclusion that can be declared related to the legality of the government action on the Value Audit on the Obtaining Object of Tax on Acquisition Duty of Right on Land and Building in Sidoarjo are:

The Audit of the Obtaining Object of Tax on Acquisition Duty of Right on Land and Building and the Value Audit of the Acquisition Taxable Object based on the regent regulation #21 of 2017 about the regulation of Collecting Acquisition Duty of Right on Land and Building as the replacement of Sidoarjo Regent #3 of 2011 about the Regulation of Collecting the Acquisition Duty of Right on Land and Building and the Regent Regulation #42 of 2015 about the Value Audit of the Obtaining Object of Tax on Acquisition Duty of Right on Land and Building as it is changed with the Sidoarjo Regent Regulation #55 of 2015, not only as a technique to increase the income of Acquisition Duty of Right on Land and Building, but also to have a legality not only for the Sidoarjo district government, the audit team NPOP BPHTB, but also for the tax payer and other institutions. The audit as it is regulated on the Sidoarjo Regent Regulation #21 of 2017 is a bridge for gap problems between the Local Regulation of Sidoarjo #5 of 2010 about the Acquisition Duty of Right on Land and Building, and the high community dynamic. Operational standart and procedure that mentioned in the Regent Regulations #21 of 2017 has characteristics like generals, and have to further defined in the n the Decree of Head of Regional Tax Service Office of Sidoarjo that fulfill some principles in making of operational and procedure standart, that are easy and clear, efficient and effective, harmony, measurement, dynamic, oriented to the user or parties service, compliance and legal certainty.

The Government Regulation #34 of 2016 about Income Tax on the Income from the Rights Transfer of Land and/or Building and the agreement of Shares and Sell pn the Land and/or Building, not only giving the easiness on paying the final PPh for the seller because of the decreasing value from 5% to 2,5% but also decreasing the will of controlling land for the speculation purpose by the community that selling and buying the land and building for the commercials purpose, through not applying the rights of the land and building to avoid the tax obligation, this case in line with the Regent Regulation of Sidoarjo #21 of 2017, because of the the sale and purchase agreement and the change is already owed the tax, for the seller and buyer. If the Final PPh payment obligation has been done by the seller, as it is regulated on the Government Ordinance #34 of 2016, it will decrease the obligation of the buyer who will do the transfer of land and building right years after, at that time the buyer already has the money to sign the deed of sale and purchase and apply for the rights transfer to the National Land Agency, because the seller tax has been paid, as the result it is not the charge of the buyer or the increase of the seller tax.

The forgery of the proof of payments Final PPh or BPHTB not only disadvantageous the local government, but also the tax payer, Notary Public, and National Land Agency. Inaccuracy and accuracy the audit officer happens because the validation is manual and has not been integrated in a system between the tax payer and the Notary Public/auction office, tax office, local tax office, and National Land Agency.

### SUGGESTIONS

Based on the conclusion of the research, some suggestion will be delivered related to the government action inf auditing NPOP BPHTB in Sidoarjo, that are:

The Sidoarjo Regent Regulation #21 of 2017 have to be followed up to establish the operational and procedure standart that will be established by the Head of Tax Office in Sidoarjo based on the inventory of the legal basis or the related Law, the connection of the Audit SOP NPOP BPHTB with SOP, warning, executor qualification, tools, and other equipments, also recording and data collection.

The need of sosialisation to the community that paying the tax can be done on the selling and buying transaction, the minimum of Final PPh is paid when the seller receives the money, wether it is full or partial payments, as the result the calculation of the seller's tax suitable with the amount of money that is received, not following the calculation of the amuount of buyer tax and not becoming a burden for the buyer in the future of the buyer will sign the dreed of sale and purchase or apply for the rights to the National Land Agency.

Need to synergybetween the institution in the tax collection and giving the service of the transfer of the rights of the land between the tax payer and Notary Public/StateWealth Service Office and Auction, Local Tax services agency, Pratama Tax Service Office, and National Land Agency to use an application that can be accessed together to ensure the legality of tax paying evidence, or to report PPAT because of the signation on the deed of shares and purchased.

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## **BUSINESS DEVELOPMENT STRATEGY OF STOCK FARMER COOPERATIVE OF SOUTH BANDUNG PANGALENGAN**

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### **ABSTRACT**

The purposes of this research are to identify and review internal and external factors in KPBS Pangalengan and to develop alternative strategies and priority strategies for business development in KPBS Pangalengan. Porter's value chain approach was used to analyze internal factors and PEST approach was used to analyze external factors. The method used in this research is descriptive analysis. Analyzers used in this research are SWOT matrix and combination of Analytic Hierarchy Process. The result of the sequence of strategies leads to business development that is by inviting the investors to make investment in KPBS and building alliances with more Milk Processing Industry. Both strategies will motivate the stock farmers to be more enthusiastic in the maintenance process until the production process. Thus, it can improve the competitiveness of the stock farmers. After performing these two strategies, KPBS can run the following four strategies: conducting periodic discussions among stakeholders, creating human resources training and development, conducting integrated supervision, optimizing milk processing units, and resuming expansion strategy by cooperating with franchise stores and e-commerce.

### **KEY WORDS**

Development strategy, milk cooperative, PEST analysis, SWOT, value chain.

The development of dairy industry in Indonesia that has been stagnant in the last 10 years indicates that dairy cattle business is no longer an economically promising business. It can be seen from the decline in national milk production that becomes a trend, (Morey, 2011). The slow development of milk production is influenced by several factors including: most of fresh milk producers is lower class society where the scale of their dairy cattle ownership is still low i.e. 3-5 cows, the management of livestock business is still low resulting in low resources of stock farmers, limited forage that has good quality, lack of expertise to help the stock farmers, low quality of the milk produced, high transportation costs due to inadequate infrastructure, low milk consumption of Indonesian society (Boediyana 2008).

According to Sirait (2009), an organization that directly deals with the development of dairy cattle business and resonates with the needs and development of national cow milk production is cooperative. Basically, the cooperative will make stock farmers more benefited in selling the milk because of the guarantee of a more stable market prices and in addition, the stock farmers get direct technical coaching by the cooperative (Mubyarto et al, 2014). Asmara et al (2016) stated that milk producer cooperative has the potential to strengthen competitiveness because of its potential to achieve economies of scale, minimize transaction costs, and increase bargaining positions in pricing decision.

Based on the number of KPBS members obtained from the 2012-2016 report book (Table 1), there was a downward trend in the number of members each year with a percentage of non-active members averaging above 30%. Thus, it raises the opinion on the commitment inconsistency of the cooperative members to the system that has been made



before. The low entrepreneurial motivation will lead to loss of opportunity and low innovation that should be the basic power of the cooperative, (Doupbrate et al, 2013).

Table 1 – Development of Total KPBS Members in 2012 – 2016

Membership	2012	2013	2014	2015	2016
Active Member	5031	3489	3145	3331	3184
Non Active Member	1340	2009	1905	1482	1501
TOTAL	6371	5498	5050	4813	4685

Source: Book of year-end meeting of KPBS 2012-2016.

Mandaka and Hutagaol (2016) argue that the high cost of production and management for livestock raising causes smallholder livestock farming tends to be less profitable than large and medium livestock farming business. In addition, the difficulty to meet the daily feed requirements is also an unresolved problem where limited land for feeding is also inadequate. It is also mentioned by Anggraeni (2012) that the planting of forage and the availability of the labor have a positive effect on milk production on large livestock farming business.

Based on the financial report of KPBS in 2014-2016, Table 2 shows the growth of cooperative profit that tends to fluctuate. In 2014-2015, KPBS experienced a sharp decline, namely a decrease in profit of 2.40% and a turnover of 8.7%. The fluctuation indicates that the performance of the cooperative effort is not maximal. Business units that affect the fluctuation are the business units of production, dairy processing, and forage factory. The problems of production and processing units are related to the price of milk purchased by IPS which is certainly influenced by milk quality and milk production of KPBS which tends to decrease. The KPBS party acknowledges a decrease in the amount of milk production. However, they also recognize the slow increase in milk quality. Livestock feed manufacturing units that produce and sell Complete Rations (CR) experience with the constraints of land availability to grow the feed crops, which also automatically decreases sales because the supply of feed crops doesn't meet the requirement, (Dong, 2006). Thus, with the crucial problem above, KPBS really need to pay attention to both units because the two business units are the units that have an effect on the prosperity of KPBS members.

Table 2 – Profit, Total Asset, Earning, and the Growth of KPBS Profit in 2014-2016

Year	2014	2015	2016
Profit	1.224.399.686	1.265.977.984	1.361.989.969
Total Asset	24.122.692.517	24.907.444.553	25.926.610.338
Earning	229.114.875.045	209.260.719.453	243.689.668.281
Profit Growth	5.80%	3.40%	7.58%

The identified problems can be analyzed by finding the internal and external factors affecting the development of KPBS business. The SWOT method can be used to develop some alternative strategies. In addition, some priority strategies will be selected using the AHP method.

**Research Problems.** Based on the above background, the problems raised in this research are as follows: 1) how are the internal and external conditions of KPBS Pangalengan?, 2) what alternative strategies play a role in influencing business development of KPBS Pangalengan?, 3) what priority strategies can be applied in business development of KPBS Pangalengan?

**Research Objectives.** The objectives of this research are: 1) identifying the internal and external conditions of KPBS Pangalengan, 2) formulating the alternative strategies that influence business development of KPBS Pangalengan, 3) formulating priority strategies for business development of KPBS Pangalengan.

**Significance of the Research.** The findings of this research are expected to contribute to the development of dairy cooperatives in West Java and become a consideration for the policy that has been established before, be able to be a reference for business actors

involved in making decisions, serve as one source of information and reference for further research, and become a means to develop insight and the ability to analyze problems related to business development.

*Scope of the Research.* This research is limited to the scope of discussion focusing on the management strengthening strategy of KPBS Pangalengan. The strategies existing in this research are limited to the setting stages of priority strategies. The implementation stage is fully handed over to the cooperative. The value chain discussed in this study is limited to dairy processing industry as the last consumer. Thus, it is not discussed in detail about the post-processing value chain by the related dairy industry.

## LITERATURE REVIEW

KPBS implements agribusiness and agro-industry patterns in its service and business using pre-cultivation stage, cultivation process, cultivation marketing, and business support which are actualized by making business units. The number of business units in Pangalengan currently amounts to six units. The units are established based on their function and purpose in order to provide services to the community around Pangalengan. They consist of: Service Unit of Member Goods and Forage, Service Unit of Forage Company (PMT), Service Unit of Cattle Breeding and Forage Product, Service Unit of Production and Processing, Service Unit of Animal Health and Members, Service Unit of Transportation and Marketing.

Cooperative is an association of people who volunteer to meet the same needs and economic, social and cultural aspirations through democratically owned and supervised segregation (Hendrojogi 2007). The purpose of the cooperative is to maintain the suitability between identity, purpose, and environment. The cooperative should develop strategies to maintain and develop its market share and have the ability to provide some supplies based on the needs of its members and customers thoroughly (Kumar et al, 2013).

According to David (2009), the strategic management process consists of three stages namely:

- Formulation of the Strategy: this stage is an analysis of the internal and external environment to give an idea of the company's position in the competition so that the strengths, weaknesses, opportunities, and threats of the company can be known.
- Implementation of the Strategy: this stage involves the previous stages which then developed logically in the form of action.
- Evaluation of the Strategy: This is the final stage in the strategy management process where managers are needed to evaluate the strategy. Management evaluation is intended to improve and ensure the system within the company is running properly.

## METHODS OF RESEARCH

*Research Setting and Time.* This research has been conducted in Pangalengan, Bandung for primary and secondary data collection. The study was conducted from September 2017 to December 2017.

*Data Types, Sources, and Analysis.* The data used in this research are primary and secondary data. Primary data was obtained from the first source by having depth interview to the respondents using questionnaire. Respondents are expert sources selected based on consideration of expertise, practical experience, and stakeholders. Secondary data were obtained from various sources through literature studies, related institutions, as well as references from the internet. This data are the result of literature review, reports, documentation, archives, and others. This research has conducted various processing stages and data analysis as in Table 3 below.

*Operational Thinking Framework.* This research tries to formulate development strategies in Stock Farmer Cooperative of South Bandung (KPBS) Pangalengan. There are several stages in this research including: analyzing the internal conditions (Porter Value Chain Analysis) and external conditions (PEST Analysis). Analysis of internal and external

environment is needed to know the current condition of milk cooperative in Bandung, namely knowing weakness and strengths, as well as opportunities and threats that must be faced by the cooperatives. SWOT matrix is used to see the factors influencing the internal and external consumptions of the cooperative. Prepare a strategy that will be created using AHP to prioritize the strategy. Schematic framework can be seen in Figure 1.

Table 3 – Processing Technique and Data Analysis

No	Objectives	Analysis Tools	Output
1	The analysis of internal and external factors	Internal: Porter value chain. (Main activities: logistics into, operations, logistics out, marketing and sales, service. Supporting activities: sales, technology development, human resources, company infrastructure) External: PEST Analysis (Political, Economic, Social, Technological)	To determine and map KPBS's internal and external conditions.
2	Formulation of alternative strategy	SWOT	Formulation of alternative strategy
3	Priority strategy	AHP (Software Expert Choice 2000)	Priority strategy

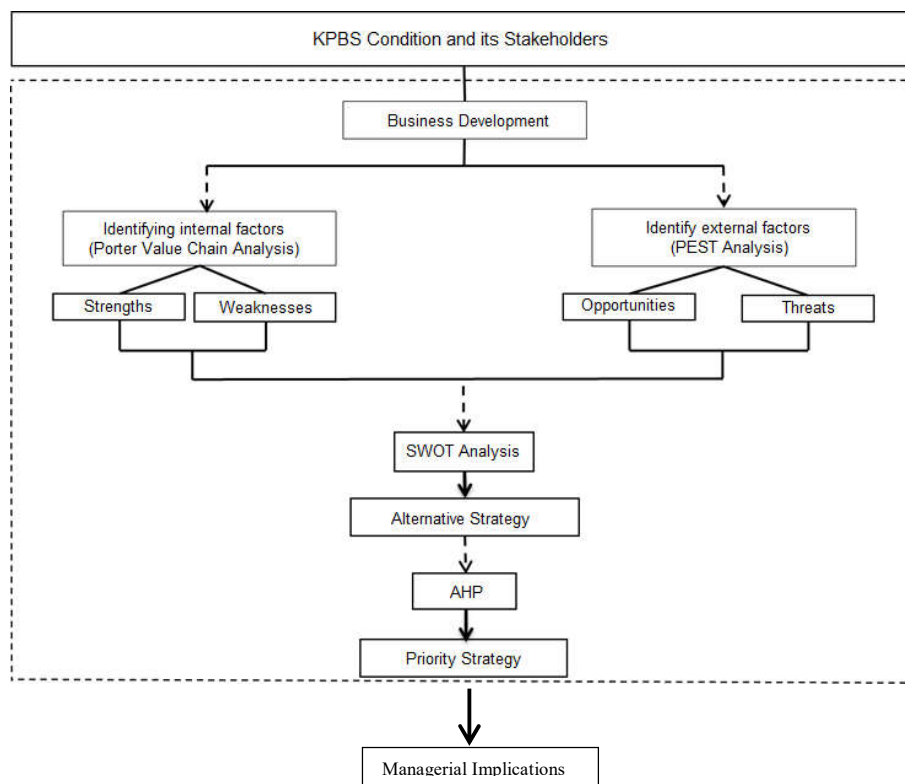


Figure 1 – Operational Thinking Framework

Note:

- Limitations of the Research - - - - -
- Process —————>
- Analysis tools - - - - ->

## RESULTS AND DISCUSSION

*Analysis of Internal and External Environment.* Porter value chain analysis can be viewed from two major activities, namely the main activities and supporting activities which are thoroughly influenced by nine indicators, namely logistics in, operational, logistics out, marketing and sales, service, purchasing, technology development, human resource

management, and company's infrastructure. The results of value chain mapping can be seen in the following Table 4.

Table 4 – Mapping of Porter Value Chain

Main Activities	
Logistics in	<ul style="list-style-type: none"> <li>The supply of fresh milk has not been sufficient for the market (W)</li> <li>Handling of fresh milk to maintain its quality (W)</li> <li>Limitations of the forage as raw material for Complete Rations (W)</li> </ul>
Operational	<ul style="list-style-type: none"> <li>Milk processing by Processing Unit into pasteurized milk and into milk derivative products (yogurt, cheese, candy, milk crackers, mozzarella) (S)</li> <li>Simple product packaging (W)</li> <li>Post-production milk storage in the storage (S)</li> </ul>
Logistics out	<ul style="list-style-type: none"> <li>Distribution of dairy products to several industries that have become partner. (W)</li> </ul>
Marketing and Sales	<ul style="list-style-type: none"> <li>Brand image of KPBS that has been formed before (S)</li> <li>KPBS products are marketed to the Milk Processing Industry through job order (S)</li> <li>KPBS milk is packed using papercup and prepack packaging (W)</li> <li>KPBS sells Complete Rations for stock farmers (S)</li> </ul>
Services	<ul style="list-style-type: none"> <li>Service from PT BPR Unit owned by KPBS (S)</li> <li>Product distribution service (S)</li> </ul>
Supporting Activities	
Purchase / Procurement	<ul style="list-style-type: none"> <li>Milk raw materials provided by stock farmers (W)</li> <li>Supporting raw materials required in making products that are quite affordable (S)</li> <li>The amount of transportation needs for the distribution of products (W)</li> </ul>
Company's Infrastructure	<ul style="list-style-type: none"> <li>Various tools used for milk production (S)</li> <li>Adequate transportation and road access for milk distribution (S)</li> <li>Land for forage owned by KPBS (S)</li> </ul>
Human Resources	<ul style="list-style-type: none"> <li>Lack of interest of the stock farmer as provider of fresh milk (W)</li> <li>Lack of ability of human resources in processing and packing the milk (W)</li> <li>Labor for distribution (W)</li> <li>The need for creativity and innovation for marketing human resources (W)</li> </ul>
Technology Development	<ul style="list-style-type: none"> <li>The use of traditional technology (W)</li> <li>Manpower is still dominantly used in the process of making the products (W)</li> </ul>

*PEST Analysis.* The external environment of the cooperative has the power that can cause adverse or beneficial influences for the cooperative. Positive influence will provide opportunities for cooperative to develop further whereas negative influence will make the cooperative difficult to develop. The result of PEST analysis is used to see how big the influence of environmental condition on KPBS development (Table 5).

Table 5 – PEST Analysis

Politics	<ul style="list-style-type: none"> <li>Influence of Minister of Agriculture Regulation No. 26 of 2017 (O)</li> <li>Government policies governing imports (O)</li> <li>The obligation of Milk Processing Industry to absorb domestic milk (O)</li> </ul>
Economy	<ul style="list-style-type: none"> <li>International trade affecting the price of milk (T)</li> <li>Distribution of dairy products made by the industry on a large scale (T)</li> </ul>
Social	<ul style="list-style-type: none"> <li>The consumption of quality milk for current society is increasing (O)</li> <li>E-business that provides easiness for people to buy the products (O)</li> </ul>
Technology	<ul style="list-style-type: none"> <li>The development of animal husbandry technology (O)</li> <li>Lack of understanding in the processing of feed substitution (T)</li> </ul>

*Alternative Strategies for KPBS Business Development.* The alternative strategy was obtained using SWOT analysis. Strengths, weaknesses, opportunities, and threats are determined based on the analysis on KPBS internal and external environments that have been described previously. The SWOT matrix will make it easier to see the alternative strategies affecting KPBS.

Table 6 – SWOT Matrix

Internal	<p><b>Strengths</b>                  S1. KPBS already has a brand image in West Java                  S2. KPBS owns PT BPR Bandung Kidul                  S3. KPBS owns its own land for forage                  S4. KPBS has MT and MCP                  S5. Milk KPBS has national standard</p>	<p><b>Weaknesses</b>                  W1. The reduce in the interest of dairy farmers                  W2. KPBS is still dependent on the Milk Processing Industry in terms of sales of fresh milk                  W3. Distance away from KPBS, member distribution, and Milk Processing Industry                  W4. Unattractive packaging design                  W5. Insufficient production of Complete Rations</p>	
External	<p><b>Opportunities</b>                  O1. Guarantees from the milk provider market                  O2. The increasing society milk consumption                  O3. The increasing milk production trends                  O4. The opening of online marketplace for KPBS products                  O5. Technological development                  O6. Government policy on milk import</p>	<p><b>SO Strategy</b>                  Build alliances with more Milk Processing Industries (S1,S3,S4,S5,O1,O2,O3,O4,O6)                   Cooperate with franchise stores and open the marketplace as a means of e-commerce (S1,S2,S5 O2,O4)                   Inviting investors to invest (S1,O1,O2)</p>	<p><b>WO Strategy</b>                  Integrated supervision (W2,W3,O1,O2,O3)                   Create human resources training and development (W1,W4,O4,O5)</p>
	<p><b>Threats</b>                  T1. The increase of forage prices                  T2. Global markets affecting milk prices                  T2. Competitors perform a wider distribution                  T3. Consumer's preference for quality milk                  T5. Competitors have more milk flavor variants</p>	<p><b>ST Strategy</b>                  Periodic discussions among stakeholders (S2,S3,S4,T1,T3,T4)</p>	<p><b>WT Strategy</b>                  Optimizing milk processing units and forage units (W2,W3,W5,T2,T3,T5)</p>

*Determination of Priority Strategy.* The determination of priority strategy is carried out using AHP method which is a method of making a priority sequence of various options so it can help to make a decision. There are seven alternative strategies generated from the previous SWOT analysis.

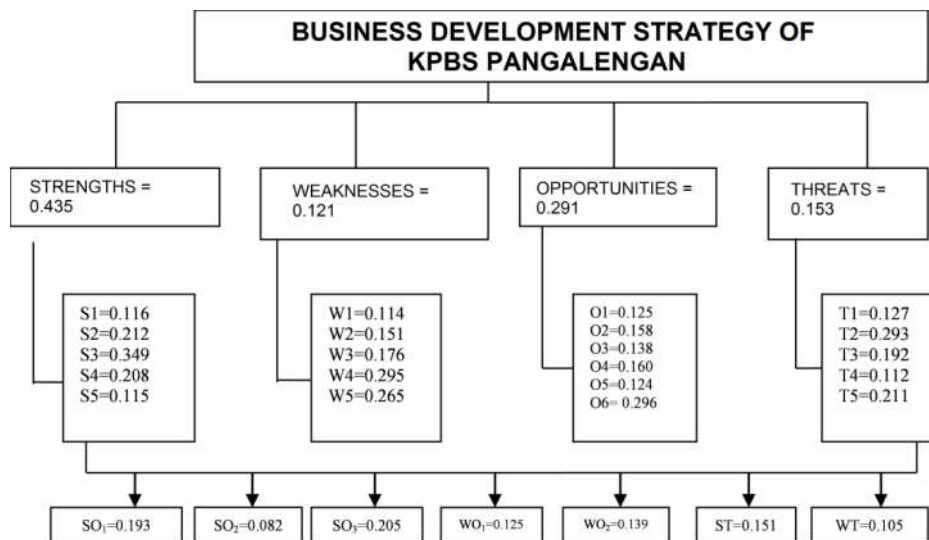


Figure 2 – AHP Hierarchy of KPBS Pangalengan

The hierarchy used in AHP consists of three levels: objectives to be achieved, criteria to be considered, and strategies used to achieve goals. The AHP hierarchy of KPBS can be seen in Figure 3. Then, the priority strategy results can be seen in Table 7.

Table 7 – Strategy Weight and Priority of KPBS Business Development

Strategy	Description	Weight	Rank
SO <sub>3</sub>	Inviting the investors to make investment	0.205	1
SO <sub>1</sub>	Building alliances with more Milk Processing Industry	0.193	2
ST	Conducting periodic discussions among stakeholders	0.151	3
WO <sub>2</sub>	Creating human resources training and development	0.139	4
WO <sub>1</sub>	Conducting integrated supervision	0.125	5
WT	Optimizing milk processing units and forage units	0.105	6
SO <sub>2</sub>	Cooperating with franchise stores and opening the marketplace as a means of e-commerce	0.082	7

The first strategy rank is inviting the investors to make investment with the weight of 0.205. KPBS requires a lot of capital to conduct expansion activities such as adding machine technology for processing units, establishing several buildings for dairy processing, and adding feed processing technology. The second strategy rank is building alliances with more Milk Processing Industry with the weight of 0.193. In addition to be the biggest consumers of cooperatives, stock farmers are expected to get assistance on milk production management, improvement of production facilities and infrastructure, quality improvement and productivity that can directly affect the increase of milk production and welfare of stock farmers. The third strategy rank is conducting periodic discussions among stakeholders with the weight of 0.151. The existence of this discussion aims to alert the stakeholders that they have a dependence on each other in running a business. Thus, this will facilitate problem solving because each stakeholder has a specific role. The fourth strategy rank is creating human resources training and development with the weight of 0.139. KPBS conducts professional training so that KPBS members have skills above the average.

The fifth strategy rank is conducting integrated supervision with the weight of 0.125. The supervisor must be able to analyze the existing problems so that it can become input for the next KPBS program. The sixth strategy rank is optimizing milk processing units and forage units with the weight of 0.105. Milk yield can be processed and provide added value so it can be marketed at a higher price than unprocessed fresh milk. Complete rations, as forage products, can be sold in a bigger number. The seventh strategy rank is cooperating with franchise stores and opening the marketplace as a means of e-commerce with the weight of 0.082. Expansion strategy needs to be carried out by KPBS because KPBS already has several advantages such as brand image that has been created in West Java and milk that has a national standard (SNI).

*Managerial Implications.* Step that needs to be done to convince investors to cooperate is to discuss the strong potential related with dairy farm business. Professionally, the KPBS also need to inform the possibility of business failure, considering that the business is a high-risk business. KPBS is expected to attract other Milk Processing Industry such as PT Ajinomoto Calpis Beverage Indonesia, PT Puri Purnama Delodyeh, PT Danone, and many more industries which produce milk derivative products. This cannot be separated from the assistance of the Livestock Service Office and the Cooperative Office of Small and Medium Enterprises where the two agencies are more experienced in the negotiations.

The neutral role of the academic institution is needed, especially the agriculture institution such as Bogor Agricultural University as a facilitator for the seminar to run smoothly. Stakeholders who can be invited to the event are the Indonesian Milk Cooperatives Association, Milk Processing Industry, and the Ministry of Agriculture. Associated with the transfer of information to the breeders, absolutely, it needs to be held training to increase the supervisory skills. Increasing the number of supervisors is also needed considering the distance between members in the KPBS in order to increase the frequency of counseling.

Local stock farmers can learn from those who have successfully developed a business and learn tips and tricks and appropriate technology that can be used in carrying out stock farming. Steps that can be taken to optimize the milk processing unit is to form a research and development unit specifically to analyze the prospects of dairy products either from the correct way of processing and how is the marketing of manufactured products. The existence of KPBS products in franchise stores such as Indomaret and Alfamart will make more people

know about KPBS products. This method is one effort to improve the competitiveness of farmers under the auspices of cooperatives to get other business opportunities.

### CONCLUSION AND SUGGESTIONS

The result of the sequence of strategies leads to business development that is by inviting the investors to make investment in KPBS and building alliances with more Milk Processing Industry. Both strategies will motivate the stock farmers to be more enthusiastic in the maintenance process until the production process. Thus, it can improve the competitiveness of the stock farmers. After performing these two strategies, KPBS can run the following four strategies: conducting periodic discussions among stakeholders, creating human resources training and development, conducting integrated supervision, optimizing milk processing units, and resuming expansion strategy by cooperating with franchise stores and e-commerce.

Supposedly, KPBS always pay attention to the weaknesses and threats they face by increasing the strength and exploit the existing opportunities. KPBS also needs to develop Resource and Development to create new products and increase product sales. Capital owned by KPBS should be used for productive business activity by conducting business development to franchise, e-commerce, and management of milk production. Government policies related to the development of cooperatives also need to be carried out appropriately.

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## THE INFLUENCE OF PERSONAL VALUE AND WORK MOTIVATION ON EMPLOYEE ENGAGEMENT IN GENERATION Y

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### ABSTRACT

Generational differences is an issue that has not been widely studied in Indonesia. Data from BPS (statistics indonesia) showed that Generation Y will be leading work force in the next few years. Generation Y has different characteristic, work value, behaviour from former generations. The aim of this study to analyze personal value and work motivation on employee engagement in Generation Y. The study was conducted by online survey in Indonesia. The data of this study was collected through a questionnaire to 351 respondents of Generation Y. Structural Equation Modeling results showed that there is significant differences between personal value and work motivation, personal value and employee engagement, work motivation and employee engagement. The results showed employee engagement on Generation Y can be increased by increasing work motivation and personal value.

### KEY WORDS

Personal value, work motivation, generations, employee engagement.

In an organization the role of human resources is very important. Human Capital is one of the most important elements of a company's intangible assets (Baron *et al.* 2013). Employee engagement is a positive condition, fulfillment, and mental activity with courage characteristics (full of energy), dedication, and absorption (Schaufeli & Bakker 2004). Employees, who are engaged, will be encouraged to do challenging goals. They have a desire for success and personal commitment to achieve that goal. Not only enterprising but also enthusiastic to use the energy that they have to work.

According to Ayu (2015) stated that personal resources is a variable that affects employee engagement. Personal resources are individual aspects that generally relate to the resilience and success of individuals to control the impact of the work environment (Hobfoll *et al.* 2003). There are many aspects of the individual that can affect how a person works some of them are value and motivation. Value is the basic concepts to describe the organization personally and socially as well as changes in the organization (Wibowo 2013). Value is a fundamental description of motivation (Parks & Guay 2009). There is a conceptual correlation between the value and motivation that a person has. These differences between value and motivation can lead to a gap that has an impact on employee engagement.

Based on BPS (Statistics Indonesia) data of 2017 showed the total workforce of Indonesian population is 131.544.111 millions people. Now the work force is dominated by Generation X of 43.28% of total work force population, while Generation Y is 40.77% and Baby Boomers is 15.95% of total work force population. Based on the total Generation Y number, there are 17.85% (15.234.991 millions people) who are in formal and non formal education, so if they complete their education then the next Generation Y group will dominate the workforce in Indonesia (BPS 2017). Meanwhile, those Baby Boomers have entered retirement so the company will find new employees to replace them. Generation X will replace Baby Boomers and take over the role of leadership in the company. Therefore, as a leader Generation X must prepare to work with Generation Y, where Generation Y has great potential as a company asset, but it takes time to get to know Generation Y.

Both Generation X and Generation Y have different characteristics, beliefs, work ethics, values, behaviors, and work expectations in performing their functions in a company (Niemic 2000). According to Jorgensen (2015) stated that there are differences in the way



of view between these two generations. Generation X prefers to work independently and gain authority in doing their work, whereas Generation Y prefers to work by following technology and getting information about their work. Gursoy *et al.* (2008) stated that Generation Y has a high loyalty to an idea than a company. Srinivasan (2012) stated that Generation Y is a generation that wants a freedom. This generation will ask the cause why it has to do something in a certain way. Doing a job as quickly as possible with a variety of alternative ways of using technology. Therefore, it is necessary to conduct further research on Generation Y. The purpose of this study is to analyze the effect of personal value on employee engagement in Generation Y, to analyze the effect of personal value on work motivation on Generation Y, to analyze the effect of work motivation on employee engagement on Generation Y and how strategies to improve employee engagement.

## LITERATURE REVIEW

A basic understanding of the classification of generations is the premise that generation is a group of individuals affected by historical events and cultural phenomena occurring and experienced in their phases of life (Twenge 2006, Nobel & Schewe 2003) and their occurrence and phenomena led to the formation of collective memory which affects their lives. Based on this, there are two things that underlie the generation grouping, namely demographic factors especially birth year and sociological factors in particular are historical events (Son 2016).

Wibowo (2013) explained that motivation is the stimulus for acting against a sequence of human behavior processes by considering direction, intensity, and persistence in achieving goals. Value is basic concepts in social research. Value is crucial factor to explain the organization not only personally or socially but also changes in the organization. Value also plays an important role not only in sociology but also in psychology, anthropology and other social sciences. Value is used to characterize the changing patterns of individuals, groups and communities and it is used to explain attitudes and behaviors based on motivation. Schwartz value inventory theory defines the value theory into ten values that arise based on the underlying motivation.

Value is grouped into four sections: Self-Transcendence, Conservation, Self-Enhancement, and Openness to Change. Each group contains different values. Self-Transcendence consists of 2 values such as *universalism* is a value that contains attitudes of understanding, appreciation, tolerance, protection for common prosperity; *benevolence* is an attitude in preserving and improving the welfare of relationships between people who often make personal contact. Conservation consists of 3 values such as *security* is harmony with society environment and self; *conformity* is the ability to refrain from interfering with others and violating existing norms; tradition is the respect, commitment and acceptance of ideas given by other religions or cultures. Self-Enhancement consists of 3 values such as *power* is a social and prestige status; *achievement* of personal success by demonstrating competence according to social standards, *hedonism* is pleasure or satisfaction for you. Openness to Change consists of *stimulation* of joy, novelty and kinship in life; Self-direction is an independent thinking in creating, choosing, and deciding a thing (Schwartz 1994).

According to Wahjosumido (1994) stated that motivation is a psychological process that reflects the interaction between attitudes, needs, perceptions, and decisions that occur in a person. Another notion given by Robbins and Coulter (2005) says that motivation is the willingness to do high-level business to achieve organizational goals conditioned by the ability of these businesses satisfy the needs of the number of individuals. Motivation according to Mangkuprawira & Hubeis (2007) is the stimulus that makes employees achieves certain goals.

The latest theory about motivation is a theory developed by Twenge *et al.* (2010), Twenge stated that work motivation can be divided into five factors, there is extrinsic, intrinsic, leisure, social, and altruistic motivator. Extrinsic work motivators are real rewards such as compensation, promotion and status opportunities. Intrinsic work motivator is a tangible reward that causes a person to be motivated in work. Leisure work motivator is an

award that allows work life balance such as flexibility of working hours, free from supervision. Social work motivator is an emotional reward that satisfies the need to connect with others (interpersonal). Altruistic work motivator is a tangible reward for satisfying the needs of helping others directly (Twenge *et al.* 2010).

The concept of employee engagement is a new concept that emerged over the past two decades. Employee engagement is the development of two previous concepts of commitment and organizational citizenship behavior (OCB). The concept of employee engagement is different from the previous concept because this concept is including the element of business awareness. Employee engagement also shows more mutual giving and receiving relationships between employees and companies. (Robinson, Perryman, Haydday 2004). Schaufeli and Bakker (2004) defined employee engagement as a positive, satisfying, job-related attitude characterized by vigor, dedication, and absorption, which refers to the state of true and consistent feelings and thoughts that not just focus on a particular object, event, individual or behavior. There are 3 aspects in forming engagement that are:

- Vigor, characterized by high levels of strength and mental resilience in work, a willingness to strive earnestly in the work and persistent in the face of adversity;
- Dedication, characterized by a feeling that is full of meaning, enthusiasm, inspiration, pride and challenge;
- Absorption, characterized by full concentration and an intense interest in the work, time passes so fast and difficult individual escape from work.

Employee engagement is categorized in the concept of motivation. The employee feels engaged, and then he will be compelled to do challenging goals. They have a desire for success and personal commitment to achieve that goal. Employees who are engaged not only enterprising but also enthusiastic to use the energy they have to work. Research showed that there is a positive relationship between employee engagement and organizational commitment (Demerouti *et al.* 2001), which will have an impact on employee performance (Kahn 1990). It is important for managers to strengthen engagement, since non-engaged employees become a problem where workers lose commitment and motivation (Aktouf 1992).

## METHODS OF RESEARCH

The research was conducted by online survey from January to March 2018 in Indonesian territory. The sampling technique used in this research is the convenience sampling technique. Researchers used Generation Y aged 18-36 years (Strauss & Howe 2000) who were working as research samples. According to (Ferdinand 2002) the determination of the number of samples in the study using SEM is 5-10 times of the research indicators. Indicator for this research is 56 indicators, so this research obtained 351 respondents of Generation Y. Data collection is using a questionnaire by spreading through social media. The questionnaire consists of 4 sections. The first section is the biodata of respondents. The second section consists of 21 indicators that reflect personal value based on SVI (Schwartz Value Inventory). The third section consists of 18 indicators that reflect work motivation according to Twenge *et al.* (2010). The fourth section consists of 17 indicators that describe employee engagement based on Utrecht Work Engagement (Schaufeli & Bakker 2004).

Data collected using likert scale, second and third part of questionnaire using measurement scale 5 (strongly disagree, disagree, neutral, agree, strongly agree) and fourth part of questionnaire using measurement scale 7 (Never, almost never, rarely, sometimes, often, very often, always). The analytical technique in this research tested by using structural equation model. The structural equation model (SEM) is a statistical technique that allows testing of a relatively complex set of relationships simultaneously. The results of these analyzes used as the basis for recommendations of organization on employee engagement. The recommendations were also based on literature studies related to research. The conceptual framework of this research can be seen in Figure 1.

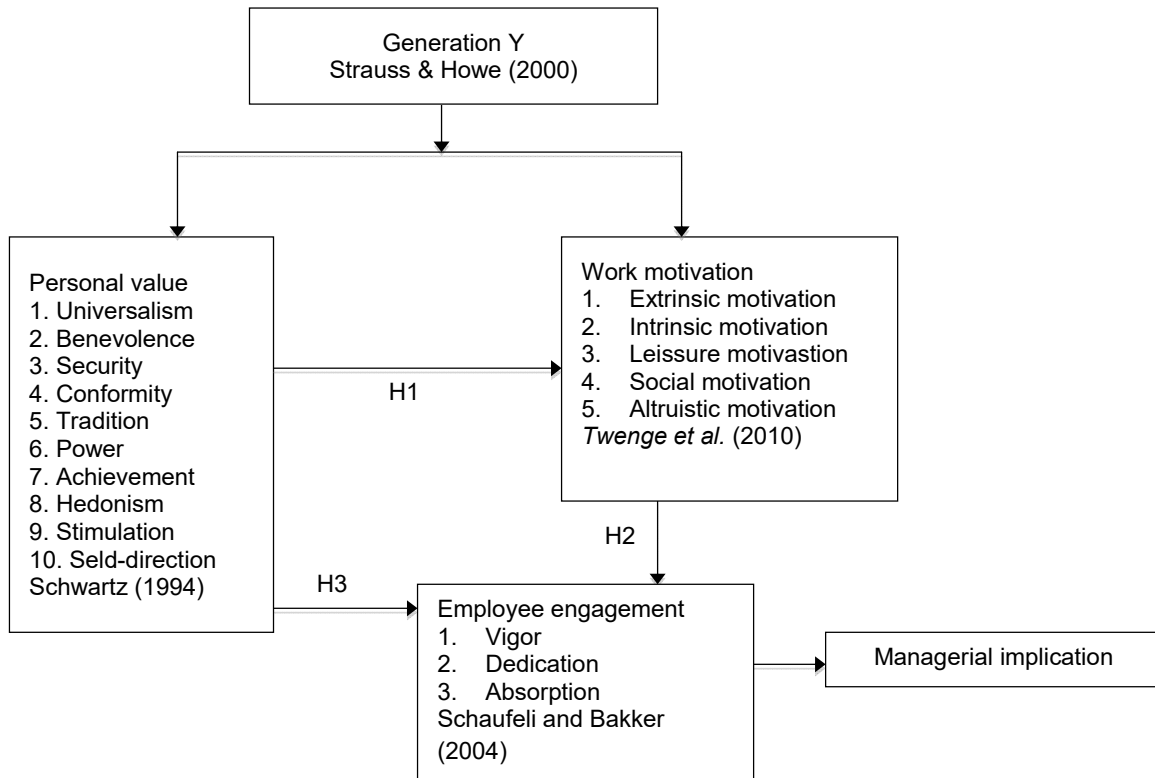


Figure 1 – Conceptual Framework of the Research

Based on the conceptual framework above, the proposed research hypotheses are:

- H<sub>1</sub>: The personal value has a positive and significant effect on work motivation;
- H<sub>2</sub>: The work motivation has a positive and significant effect on employee engagement;
- H<sub>3</sub>: The personal value has a positive and significant effect on employee engagement.

### RESULTS AND DISCUSSION

Table 1 showed the profile of 351 respondents. The respondents in this research are 56.4% women and 43.6% men. It was not obtained intentionally, because in the acquisition of respondents there is no difference of gender. Based on marital status 76.4% respondents are single and 23.6% respondents have been married. In line with BKN that average age of Indonesians married at 25 years (BKKBN 2013).

Table 1 – Respondent characteristic of Generation Y

Variable	Description	Frequency	Percent (%)
Gender	Male	153	43.6
	Female	198	56.4
Marital status	Single	268	76.4
	Married	83	23.6
Education	Senior high school	23	6.6
	Diploma	30	8.5
	Undergraduate	264	75.2
	Postgraduate	33	9.4
	Doctorate	1	0.3
Occupation	Government employee	27	7.7
	BUMN employee	30	8.5
	Private employee	285	81.2
	Entrepreneur	3	0.9
	Others	6	1.7

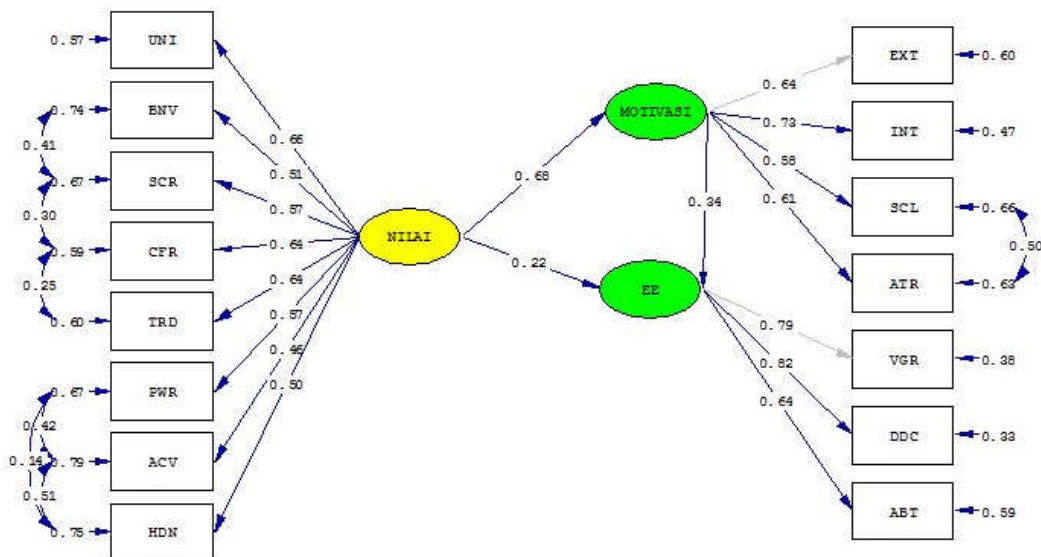
The respondents at the last level of undergraduate education dominate about 75.2% of total respondents. Respondents with postgraduate education level followed by a percentage of 9.4%. And the respondents with the last education senior high school and diploma were 6.6% and 8.5%. This suggests that Generation Y concern about their education because on second row occupied by postgraduate and a person already has doctorate degree. Table 1 also showed the distribution of respondents by profession dominated by private employee groups then others group. Due to Generation Y characteristic, this generation prefer dynamic environment in workplace.

Based on result of SEM processing evaluation model with chi-square value equal to 94.21 while chi-square table is 97.35, this condition means that chi-square criterion fulfilled (good fit) with p-value equal to 0.077. Criteria RMSEA has a value of 0.026 which means smaller than 0.08 so this model can define as a good fit. Table 2 showed some of the criteria that indicate a good model. Almost all criteria show that the model is a good model, so this model is used in this research.

Table 2 – The value of SEM model test

<i>Goodness of fit index</i>	<i>Cut-off Value</i>	Hasil	Kesimpulan
Chi-square	≤97.35	94.21	Fit
Sign probability	≥ 0.05	0.076	Fit
df	≥ 0	76.0	Fit
GFI	≥ 0.90	0.97	Fit
AGFI	≥ 0.90	0.95	Fit
CFI	≥ 0.90	0.99	Fit
TLI/NNFI	≥ 0.90	0.99	Fit
NFI	≥ 0.90	0.97	Fit
IFI	≥ 0.90	0.99	Fit
RMSEA	≤ 0.08	0.026	Fit
RMR	≤ 0.05	0.015	Fit

Figure 2 showed loading factors between latent variables between personal value and work motivation have good criteria, while the relationship between personal value variable and work motivation variable have low relationship with employee engagement but have positive influence. Loading factor indicates good criteria when the value is above 0.5 (Wijayanto 2008).



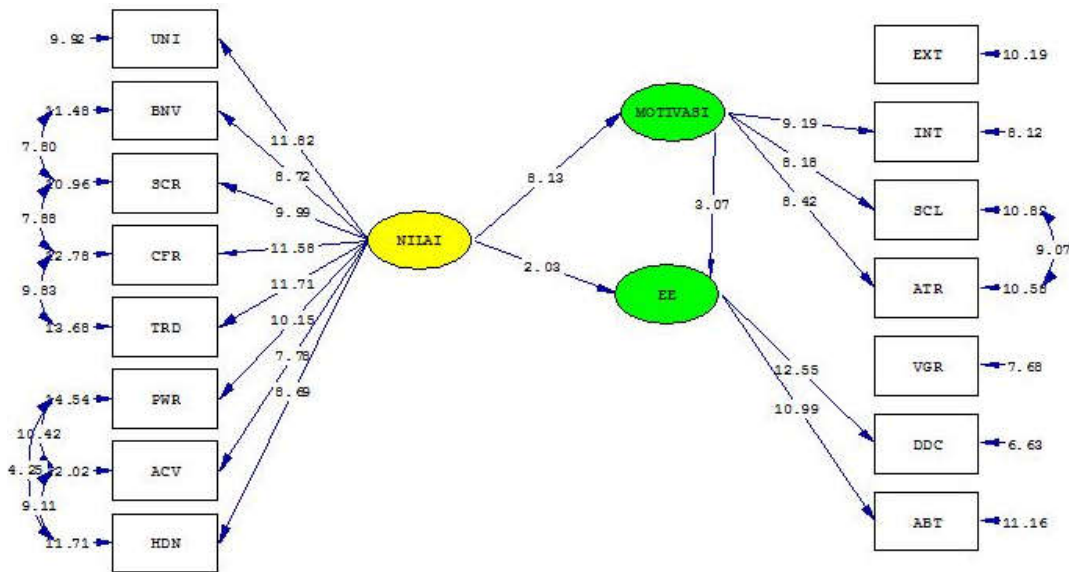
Chi-Square=94.21, df=76, P-value=0.07690, RMSEA=0.026

Figure 2 – The value of loading factor model of the influence of personal value and work motivation on employee engagement in Generation Y

The power indicator has a low charge value but the model criteria are categorized as a good model so this indicator remains listed in model. Indicators of stimulation and self-direction have loading factor below 0.5 so these indicators not listed in model. Work motivation has a good loading factor value but extrinsic indicator does not have an effect while the leisure factor has loading factor below than 0.5. In employee engagement variable, vigor indicator is not influenced by other variables while dedication and absorption have a loading factor above 0.5.

Universalism indicator becomes the biggest indicator affecting personal value (0.66). Generation Y is a generation which is viewing a lot of value in their lives. Ismail (2016) stated that Generation Y views strongly universal values compared to other generations. According to Ismail & Hoo (2014), individuals who exhibited a greater tendency to develop the challenging personal career goals. At work motivation intrinsic indicator becomes the biggest indicator that influence work motivation (0.73). The dedication indicator becomes the largest factor that affects employee engagement (0.82). Generation Y is a generation which is more loyal to their idea than a company, so this generation assesses intrinsic motivation higher than other generations (Gursoy *et al.* 2008).

The second evaluation was performed with t test statistic with standard t table at least 1.96. T value of this table is obtained by using error rate ( $\alpha$ ) of 5%. Based on the resulted of t test (Figure 3) the personal value of work motivation is 8.13 with the loading factor of 0.68, the personal value to the employee engagement is 2.03 with the loading factor 0.22, the work motivation towards employee engagement is 3.07 with the loading factor of 0.34 can be concluded that  $H_0$  is rejected (t count > t table or -t arithmetic < -t table).



Chi-Square=94.21, df=76, P-value=0.07690, RMSEA=0.026

Figure 3 – The value of t-test model of the influence of personal value and work motivation on employee engagement in Generation Y

Statistical test conducted using SEM found that three variables have a positive and significant relationship. Hypothesis testing showed three research hypotheses accepted can be seen in Table 3.

Table 3 – Conclusions of hypothesis

	Loading factor	T-statistic	T-table ( $\alpha=5\%$ )	Conclutions
Personal value -> work motivation	0.68	8.13	1.96	H <sub>1</sub> accepted
Work motivation-> employee engagement	0.34	3.07	1.96	H <sub>2</sub> accepted
Personal value-> employee engagement	0.22	2.03	1.96	H <sub>3</sub> accepted

Personal value affects work motivation significantly positive at the 5% level. Value is crucial factor to explain the organization not only personally or socially but also changes in the organization. Value is used to characterize the changing patterns of individuals, groups and communities and it is used to explain attitudes and behaviors based on motivation (Wibowo 2013). Generation Y views value in personal value influences their work motivation. Personal value has a significant effect on employee engagement also at 5% level. Universalism is the attitude of a person in assessing social welfare in society consists of the value of being broadminded, social justice, racial and gender equality, world at peace, world of beauty, unity with nature, wisdom, protecting the environment. This value also contributes to inner harmony and having a spiritual life (Sagiv & Schwartz 1995). Benevolence was positively related to organizational and occupational commitment (Cohen 2010).

Security indicator provides employees with security (protection of stability) in terms of social support will lead employees to feel more secure in their jobs (Ismail 2016). Conformity consists of the values of loyal and responsible. Conformity was positively related to organizational and occupational commitment of employees (Cohen 2010). Gen-Y has not only sought fulfillment and bring a full integration of work-life balance but also valued tradition as well. Power indicators relate to political behavior based on motivation to control resources. There is a positive relationship between the achievement and other personal and cultural indicators in particular with power (Feather 1998; Wigfield & Eccles 1994). Hedonism is believed to contribute to happiness by its positive effect on the physical health of an individual (Warburton & Sherwood 1996). It facilitates one's performance (Veenhoven 2003), which inevitably involves careers.

Work motivation has a significant effect on employee engagement at the level of 5% in line with research conducted by (Rachmatullah et al., 2015). Employee engagement is categorized in the concept of motivation. Employees who are engaged not only enterprising but also enthusiastic to use the energy they have to work. Research showed that there is a positive relationship between employee engagement and organizational commitment (Demerouti et al. 2001), which will have an impact on employee performance (Kahn 1990). It is important for managers to strengthen engagement, since non-engaged employees become a problem where workers lose commitment and motivation (Aktouf 1992).

Based on analysis results effect of personal value and work motivation on employee engagement, employee engagement can be improved through personal value and work motivation. Several ways that can be done to improve employee engagement as follows:

- Based on work motivation employee engagement can be improved by holding training to increase the ability of individuals in addition to corporate training another training can be done to provide space for employees to make them become more creative. The company also needs to organize social events involving all employees and companies need to improve further CSR programs.
- Company must implement a good two-way communication system. Good two-way communication is happening between the boss and subordinates, so that subordinates have space to express their opinions. Not only that but good two-way communication also implements a confirmation system that anything involving decision-making should be confirmed by superiors and subordinates.

## **CONCLUSION**

The conclusion of this study is employee engagement is influenced by work motivation and employee engagement is also influenced directly or indirectly by personal values significantly and positively in Generation Y. Generation Y assesses the universalism indicator of the personal variable has the greatest influence. In work motivation variable, intrinsic indicator is the biggest influence whereas in employee engagement dedication variable become the biggest influence. Enhancement in employee engagement can be done by training to increase the ability of individuals and also corporate training can also provide space for employees to make them become more creative.

## RECOMMENDATIONS

Generation Y is a younger generation who are more concerned with the convenience of work and life balance work, today many start-up businesses that emerge by recruiting this generation so it needs to do further research on the influence of the workplace of this generation, because start-up business is covering smart office concept. Further research can apply FGD method (focus group discussion) and interview to know deeper about generation characteristics.

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## **EFFECT OF APPLICATION OF GOOD GOVERNANCE, GOVERNMENT ACCOUNTING STANDARDS AND APPARATUS ON QUALITY OF FINANCIAL STATEMENTS**

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### **ABSTRACT**

The aim of this study is to obtain empirical evidence on the influence of good governance implementation and quality of apparatus on the quality of financial statements in Badung regency. Data analysis is done with multiples linear regression model. The results of the research showed that the implementation of good governance affect the quality of financial statements, meaning that if good governance is applied well and consistent then quality of financial report will increase. The quality of the apparatus affects the quality of financial statements, meaning that if the apparatus has the competence and good experience the quality of financial statements will increase.

### **KEY WORDS**

Good governance, government, accounting standards, staff, financial statements.

The general purpose of the financial statements is to present information on the financial position, current cash, budget realization and financial performance of a reporting entity. In presenting the financial statements should be contain useful explanations for users of accounting information in assessing accountability for decision making. The form of government accountability to the people for the management of public funds, whether from taxes, levies or other transactions, is presented in the government's financial report (Mahmudi, 2010). Local governments capable of realizing transparency and accountability in the management of regional finances as indicated in Government Regulation no. 71/2010 on Standards of the Accounting in Indonesian Government (SAP), relevant, reliable, comparable and understandable are qualitative characteristics criteria that must be met in the preparation of Local Government Financial Reports (LKPD) (Yusniyar<sup>1</sup>, Darwanis<sup>2</sup>, 2016). Badung Regency got disclaimer opinion in 2008 and unfair opinion in the year 2013. That predicate makes Badung Regency Government effort to improve the governance, application of SAP and quality of apparatus, so opinion obtained by Badung Regency continue to improve in the next year. Based on that phenomenon, the increase from financial report opinion of the Badung Regency Government indicates an effort to improve the quality of optimal in financial reports. The increase of opinion is a form of public financial accountability in accordance with Government Regulation No. 24 of 2005.

The quality of LKPD is influenced by several factors, including the implementation of good governance, the application of SAP and the quality of government apparatus or Human Resources (Bastian, 2007); (Deddi, 2009); (Azlim, Darwanis, & Bakar, 2012); (Sukmawaningrum, 2012) (Choirinisah, 2012); (Darman, 2015); (Efanita, 2013); (Irwan, 2011); (Sudiaranti, Ulupui, & Budiasih, 2015). HR is an indispensable organizational wheel drive in an effort to realize its vision and mission objectives (Sudarmanto, 2014: 76). The role of human resources in creating quality financial reports is the most important factor because the application of SAP is done by human or human resources, as stated by (Payaman, J, 2005) in the process of preparing financial reports requires human resources who have competence, experience, education and understanding about governance accounting. (Bastian, 2007), (Roviyanti, 2014) and (Zeyn, 2011) declare that competent human

resources in preparing financial reports in accordance with SAP will create quality financial reports. Competent human resources in their field are able to apply SAP in the preparation of quality government financial reports.

In a good governance realization or good governance is inseparable from technological and economic development which is the basic reference to realizing good local financial management. Implementation of good governance principles is needed to achieve effectiveness and efficiency in clean and transparent regional development. Implementation of good governance in a government is expected to create the achievement of the increasing value and optimally performance. Standards of the Accounting Government (SAP) is a principle used in preparing local government financial statements. The application of SAP is required to present an image of the financial capacity of a region to fund the implementation in the framework of regional development so that the management of the area can be analyzed. SAP is a requirement that must be done in an effort to improve the quality of the government's financial statements.

The existence of human resources / human resources (in this case the local government apparatus) is very influential on improving accountability of financial statements, because with the existence of good government apparatus then the presentation of financial statements will increase. Especially if supported by the existence of a very adequate capability possessed by the government apparatus in the preparation of financial statements. Parkinson (2012) stated that self-qualified human resources are in essence competent and have technical skills because they have the knowledge and skills to achieve the agreed outcomes and achieve the targets.

Research on the importance of quality apparatus in improving the quality of financial statements has been widely studied. (Irwan, 2011), (Sudiaranti et al., 2015), (Choirinisah, 2012) (Oktarina Raharjo, Si & Andini, 2016) proves empirically that the quality of human resources has a positive and significant impact on the quality of financial statements. (Hullah, A.R. S. Pangemanan, S. Tangkuman, N., 2012) and (Siwambudi, Yasa & Badera, 2017) concluded that human resources have a positive effect on the reliability of local government financial reporting. However, there are different results from the study (Ponaman, 2010) stating the capacity of human resources has no effect on the quality of financial statements. (Arfianti & Kawedar, 2011) and (Sukmawaningrum, 2012) which conclude the competence of human resources does not affect the quality of financial statement information. The research conducted (Indriasari, D. Nahartyo, 2009) states that the capacity of human resources has no influence on the reliability of local government financial reporting.

## LITERATURE REVIEW

The goal setting theory is based on evidence assuming that the target (ideas of the future, desired events) plays an important role in action. The goal setting theory is the individual model that wants to have a target, choosing a goal and ultimately will motivate for the achievement of goals / targets to be achieved (Birnberg, Mahennoko, 2011). The goal-setting theory requires that an individual be committed to a goal (Robbins, 2013).

Agency theory can occur in organizations including government organizations that focus on issues of information inequality between managers in this case (agency / government) and the public (represented by principals / councils). Principals should monitor and evaluate agency performance, so that organizational goals can be achieved effectively and efficiently and achieve public accountability (Lane, 2001); (Petrie, 2002). The relationship with agency theory is that governments acting as agents are obliged to do matters of interest and become the needs of government financial information users as principals (Faristina, 2011).

This theory is defined as the state of the manager is not motivated to individuals target but rather intended to the achievements that are generated and they get that directly interested in the organization. (Bartov, 2009) (Mardiasmo, 2007) describes within a public or environment organization governmental, the accountability is must by the government as a steward or something that has been entrusted to account for all forms of activities or

community activities to provide a mandate or authorize by disclosing all forms of information contained in the accountability report that has been made, whether information in the form of success or failure that has been experienced by the organization.

Good governance is a way of how a trusted government that refers to the process of achieving its decisions and execution can be accounted for jointly in order for transparency to be maintained. In order to create a good governance, the government should be in line with the principles that apply to clean and corruption-free government management, collusion and nepotism, the existence of this case can also be caused by the low performance of government apparatus both in manage state budgeting and the public service, therefore the creation of good governance or good governance is expected to reduce the things that can trigger less optimal performance of the state apparatus.

Standards of the Accounting Government are the basic principles of accounting that should be applied in preparing financial statements in this case public sector organizations (Mahsun, M., Firma S., 2007). In applying SAP must comply with the Government Regulation, namely Government Regulation No. 71 of 2010 on Government Accounting Standards is a substitute of Government Regulation Number 24 Year 2005 regarding Government Accounting Standards. In fiscal year 2013, local governments are still implementing SAP based on Government Regulation Number 24 Year 2005 regarding Government Accounting Standards.

Human resources are the drivers and actors to run the organization in accordance with the targets to be achieved in a major organization of public sector organizations in order to achieve the goals already valid and planned. Organizations need the quality of human resources that can help in achieving the goals set by the organization.

Good governance is an organizer of solid and responsible development that is in line with effective democratic and market principles, avoids the mistakes of allocating investment funds and preventing corruption either as political or administrative, as well as running a budgetary discipline. But there are still many occurrences of violations and problems arising from the lack of optimal implementation of good governance in a government and cause conflict with good governance that is still commonplace in Indonesia, namely officials who are still concerned with personal interests compared with the interests of the people, presenting financial reports that are less precise and transparency in the presentation of less than optimal reports, the management of resources that are less effective and efficient, and accountability for every activity undertaken by the government is still weak and less than the maximum that causes good governance is still weak in applied in the government sector. Based on the description that has been described above so that the hypothesis in this study:

H<sub>1</sub>: The implementation of Good Governance has a positive effect on the quality of financial statements.

Standards of the Accounting Government by (Bastian, 2007) in (Kusumah, 2013) are the principles of accounting application used in the preparation and presentation of financial reports in government. SAP is a standard that ensures the preparation of financial reports prepared to meet the qualifications of financial information useful to its users as a basis for decision making. Useful information is an indicator that the financial reports fit the proper information capacity and such principles that have been determined so that the financial reports are more qualified. SAP is a requirement that has the power of law in an effort to improve the quality of LKPD in Indonesia. The application of SAP has an impact on improving the quality of local government financial reports (Deddi, 2009); (Adhi & Suhardjo, 2013). Based on the description that has been described above so that the hypothesis in this study:

H<sub>2</sub>: Implementation of Government Accounting Standards has a positive effect on the quality of financial reports.

Quality apparatus is needed in order to manage a good local finance. Quality apparatus is supported with appropriate educational background in accounting and has a qualified experience in finance. This can be created by regular trainings and technical guidance to form human resources with competence and skills that will create quality financial reports. Professional government apparatus and competence in their field is needed

by local government to move government role which then will do the basic task and the function perfectly and reach the target. With its competencies, professional government apparatus will be able to meet the standards and performance targets that have been set. Competent government officials in accounting (finance) are able to prepare financial statements according to SAP. The application of SAP requires the competence of civil servants to ensure that the financial statements prepared meet the qualifications of useful information. The research conducted (Oktarina Raharjo et al., 2016) states that the quality of government apparatus has a significant effect on the quality of SKPD financial report of Semarang City Government. The research (Adhi & Suhardjo, 2013) also gives the same result that the Quality of Local Government Apparatus has significant influence on Quality of Kota Tua Government Financial Report. Based on the explanation described above, the following hypothesis in this study:

H<sub>3</sub>: The quality of the apparatus has a positive effect on the quality of the financial statements.

## METHODS OF RESEARCH

The data used in this study is the primary data. Survey method used in this research and conducted by way of questionnaire technique that is by passing list of statement filled by respondent to get the data. The population in this research is all of OPD in Badung Regency. Sample determination method used in this research is to use non-probability technique which is chosen by saturated sampling technique. The subject of the research that was taken as sample was KDP (Financial Administration Officer) of OPD in Badung Regency Government. The Data Analysis Techniques in this research is multiple linear regressions. Interpretation of the analysis of the data research is to answer the formulation of the problem in the study so that the research conclusions can be obtained. The indicators used for each research variable are:

Table 1 – Research Variables and Indicators

Number	Variable	Indicators	Measurement Scale	Reference
1	Application of Good Governance (X1)	<ul style="list-style-type: none"> <li>• Public Participation</li> <li>• Rule of law</li> <li>• Transparency</li> <li>• Responsiveness</li> <li>• Consensus-oriented</li> <li>• Equality</li> <li>• Effectiveness and Efficiency</li> <li>• Accountability</li> <li>• Strategic Vision</li> </ul>	Likert Scale 1-5	Dany (2015)
2	Application of SAP (X2)	PSAP Government Regulation Number 71 2010	Likert Scale 1-5	Irwan (2011) Sudiaranti (2015)
3	Quality of Aparatures (X3)	<ul style="list-style-type: none"> <li>• Quality and quantity</li> <li>• Roles and Responsibilities</li> <li>• Understanding</li> </ul>	Likert Scale 1-5	Fadila Ariesta (2013) Suwandi (2016)
4	Quality of Financial Statement (Y)	<ul style="list-style-type: none"> <li>• Relevant</li> <li>• Reliably</li> <li>• Can be compared</li> <li>• Understandable</li> </ul>	Likert Scale 1-5	Irwan (2011) Sudiaranti (2015)

## RESULTS AND DISCUSSION

The descriptive statistics are shown to obtain information about the characteristics of research variables obtained based on respondents' answers to each indicator. Information on the characteristics of variables in this study is presented in the descriptive statistics table shown in Table 2.

The results of multiple linear regressions testing in this study can be seen in the table. In the table can be seen the influence of the implementation of good governance, the application of SAP and the quality of apparatus on the quality of financial reports.

Table 2 – Descriptive Statistics Test Results

Variable	Mean	Actual Range		Standard Deviation
		Min	Max	
Application of Good Governance	47,35	18,40	60,51	13,90
Application of SAP	47,58	17,00	60,90	15,67
Quality of apparatuses	22,78	8,00	30,18	7,16
Quality of Financial Statement	45,63	16,00	58,98	13,98

Table 3 – Regression Analysis Results

n/n	Models	Unstandardized Coefficient		Standardized Coefficient	t	Sig
		B	Std. Error	Beta		
1	(Constant)	-4,710	4,985		0,945	0,351
	X1	0,309	0,093	0,307	3,310	0,002
	X2	0,446	0,082	0,500	5,435	0,000
	X3	0,636	0,177	0,325	3,591	0,001
2	F.count	37,425				
	Sig.count	0,000				
3	R <sup>2</sup>	0,757				
	Adjusted R	0,737				

Interaction of the test results shown in the table to get moderation regression model in this research:

$$Y = -4,710 + 0,309 X1 + 0,446 X2 + 0,636 X3 \quad (1)$$

The results of the analysis shown in the table can be interpreted among others. The first hypothesis (H1) states the implementation of good governance has a positive effect on the quality of financial reports. Regression analysis results in Table 5.6 shows the coefficient  $\beta$  is 0.309 with a significance level of 0.002 < 0.05 which means that the implementation of good governance has a positive and significant impact on the quality of financial reports.

Positive influence shows that if the government agency has applied the principles of Good Governance, then the quality of financial reports will continue to increase. This positive result shows that if the government in performing its functions and duties has applied the principles of Good Governance optimally, it will cause the government will run better including the quality of local financial management and financial information as a form of public accountability to the public. The results of this study are similar to the research conducted by (Oktarina Raharjo et al., 2016) that the implementation of good governance has a positive effect on the quality of financial statements. Research (Yusniyar1, Darwanis2, 2016) suggests that governance has a positive effect on the quality of financial statements. Tucker research (2015) states the implementation of good governance affects the quality of financial statements.

Based on the agency theory, there is a conflict of interest between the government (agent) and the principal (community) there is the issue of information inequality / asymmetry between the government and the community. The practice of financial reporting in public sector organizations is a concept that is based on agency theory. Governments acting as agents have an obligation to provide useful information to users of government finance information that acts as a principal in assessing accountability and making decisions.

The second hypothesis (H2) states the application of SAP has a positive effect on the quality of financial statements. Regression analysis results in Table 5.6 describes the coefficient of  $\beta$  is 0.446 with a significance level amount 0,000 < 0.05 which means that the application of SAP has a positive and significant impact on the quality of financial statements. SAP is the accounting principles adopted in preparing and presenting government financial statements. If the government prepares financial reports based on SAP principles then the quality of financial reports will get better. The results of this study are in accordance with research conducted by (Oktarina Raharjo et al., 2016) which concluded that the application of SAP has a positive effect on the quality of financial reports. The results of the study

(Sudiaranti et al., 2015) concluded that SAP has a positive effect on the quality of financial reports.

Based on the goal setting theory explains that goal setting will be able to improve work performance. Accountability demands for public institutions; local governments must be state the accountability of success or failure experienced by the agency should be published through transparent and accountable financial statements. With goal setting theory approach, local government financial report is assumed as local government goal, while SAP variable is a determinant factor, if SAP is applied well in institution then local government goal will be achieved. The third hypothesis (H3) proves the quality of the apparatus has a positive effect on the quality of financial reports. Regression analysis results in Table 5.6 shows the coefficient of  $\beta$  is 0.636 with a significance level of  $0.001 < 0.05$ . This means that the quality of the apparatus has a positive and significant effect on the quality of the financial reports. This is supported by the competence of the apparatus in the field of accounting, often following technical guidance and training, and has experience in the field of finance as an effort to improve the quality of self. Human resources or government apparatus quality can certainly produce quality financial reports. This research is in accordance with research conducted by Suwandi (2016) which concluded the quality of human resources take effect positive on the quality of local government financial statements. The results of this study are also the same or in line with research Nugraheni (2008) which states there is a positive relationship between the quality of human resources on the quality of financial reports.

Steward theory has a relationship between principal and steward in this case people and government because of human nature that can be trusted, able to act with full responsibility, have integrity, and honesty to other party. The government as a party who has a lot of information and is responsible for the trust that has been given the people have awareness in order to continue to realize and create transparency and accountability through the disclosure of good financial statements.

## **CONCLUSION AND SUGGESTIONS**

Based on the results of the analysis and discussion results, this study then the conclusion is the implementation of governance positive effect on the quality of financial reports mean that if good governance applied properly and consistent then the quality of financial reports will increase. The application of SAP has a positive effect on the quality of financial reports, meaning that if the application of SAP has been applied properly and consistently then the quality of financial statements will increase. The quality of the apparatus has a positive effect on the quality of financial reports, meaning that if the government apparatus has good competence and experience then the quality of the financial statements will increase. Based on the results of the research, some suggestions can be submitted, among others 1) The results show that efforts are made to improve the implementation of good governance based on respondent's data focused on legal aspects, responsiveness and strategic vision. Therefore, the researchers suggest the need for evaluation such as forming public service information, held a socialization related vision of the government's mission in order to improve the quality of financial statements. 2) The results showed the efforts made for the application of SAP more increased based on the data of respondents should be focused on aspects of inventory recording. So, it is recommended that the inventory recording should be carried out based on the results of physical inventory per quarter. 3) The results showed the efforts made to improve the quality of apparatus based on the data respondents' answers focused to the competence, understanding the role and responsibility of the apparatus. So, it is recommended to hold training or technical guidance in accordance with the standards of competence demanded from each field of government apparatus in order to further improve the understanding of the apparatus to improve the quality of financial statements. 4) Based on the result from R-square still found other variables outside the model that can affect the quality of financial statements in addition to variables in this study. This opens the opportunity for those who will examine after this to trace and reflect other variables that could be used as factors that affect the quality of financial statements such as

Government Internal Control System (SPIP) and utilization of information technology. 5) Limitations of this study are the sample used only in the OPD in Badung regency then the findings cannot be generalized in other areas. The sample used in this research is relatively small is 40 respondents. It is recommended for further research to try to use a wider sample with a larger number of respondents in order to describe the financial management in OPD.

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## **EFFECT OF INVESTMENT IN INFORMATION TECHNOLOGY AND FIRM SIZE ON FINANCIAL PERFORMANCE**

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### **ABSTRACT**

The purpose of this study is to determine the effect of IT investment and firm size on the performance of the company either simultaneously or partially. This study uses 68 samples of manufacturing companies listed on the Indonesia Stock Exchange period 2013-2016 obtained from purposive sampling technique. The analysis method used is multiple linear regression analysis. Result of research indicate that IT investment influence to financial performance while firm size have no effect.

### **KEY WORDS**

Financial performance, return on equity, IT investment, information system, firm size.

Financial statement is a basic measurement of company performance that we can get from BEI periodically especially for company go public. Financial statement analysis will obtain complete and accurate information about the company's performance. For stockholders, the financial statements are useful to see earnings from the investment returns. In addition, the financial statements can also be compared with other companies to see the performance of companies in the same industry.

The performance of a company can be measured by financial ratios such as liquidity, activity, profitability, solvency, and market ratios. Financial ratios that reflect the ability of the firm's performance in generating profits are called profitability ratios. Return on equity (ROE) is used to measure the company's effectiveness in generating profit by utilizing its own equity. ROE also means size to assess how much the rate of return of own capital invested in the business concerned. ROE is an important measure of corporate profitability that measures returns for shareholders (Jones et al., 2009). ROE can be a measure of the efficiency of own capital use that is operationalized within the company. The greater the ROE, the greater the company's ability to generate profits for shareholders.

Firm size also has a relationship with the company's financial structure. Wright et al. (2009) found that firm size had a positive effect on performance. This suggests that large enterprise performance firms tend to be better than small firms. Calisir et al. (2010) also found a positive effect of firm size on the performance of firms in the information and communication technology sector in Turkey. Huang (2002) finds that there is no effect of firm size on the performance of Taiwanese companies residing in China. Similarly, Talebnia et al. (2010) did not find the effect of firm size on firm performance listed on *Tehran Stock Exchange*.

For manufacturing companies, information technology has become a necessity to support the production process. Information technology support provided one of them with the use of company assets related to the production process or manufacturing-based information technology. Utilization of information technology in all phases of product making from design phase, production process, up to distribution, fundamentally change the process of product making, and information system used by management in managing factory. In other words, what is going on in production can be known in an instant. The problem phenomenon that occurs in manufacturing companies in Indonesia is the ability to respond to changes in the business world. Competition between manufacturing companies can reduce the level of profitability of each company. If the level of profitability is low it will lead to significant losses and financial performance of the entity may decrease.

Research Poston and Grabski (2001) found that IT negatively affect the profitability of the company. While research Davis et al. (2003) support that IT investment provides a more competitive advantage, in this case IT is not always associated with short-term profit but rather refers to how IT maturity level so as to improve the performance of the company. In addition, the existence of firm size also affects the performance of a company, Wright et al. (2009) and Calisir et al. (2010) concludes that firm size has a positive effect on firm performance, while Huang (2002) and Talebnia et al. (2010) states that firm size has no effect on financial performance.

## LITERATURE REVIEW

Investment in information technology is a segment that is costly and labor intensive. Costs incurred by the company to adopt information technology is not small, ranging from information technology procurement to operational costs which periodically must be removed for these investments is used. Information technology asset management company can do by performing portfolio. With the portfolio, the company can determine how much investment the company to determine the right business strategy in achieving the objectives or expected performance. Manufacturing information technology assets in this study with more emphasis on information technology assets related to the production process, such as a combination of tools (machines) and production systems (computers) and other automated manufacturing equipment.

The size of the company is divided into three categories: large companies (large firm), medium (medium-size), and small companies (small firm). The size of the company is a large-scale to small companies classified according to various ways sepertitotal assets, log size, the value of the stock market, and others. Weston and Brigham (1985) stated that in selecting the means of financing, large companies are owned by a lot of people will choose additional common stock sales because these sales will not have much affect control of the company. Instead of small companies may prefer to avoid the issuance of common shares in an attempt to keep control of the company entirely.

A company's performance is a measure of the manager's success in running the company. Information on the company's performance required by the parties with an interest in the company, such as shareholders, creditors, government and society, in particular the shareholders. The information is used to determine the suitability of corporate objectives with the management of the company by the manager. The company's financial performance is measured by using Return on Equity (ROE). Return on equity ( ROE) was used to measure the effectiveness of the company in generating profits by exploiting its equity. ROE means also measure to assess how much the rate of return ( percentage) from its own capital invested in the business in question

Bryson and Ko (2004) examine the relationship of IT investment with firm performance. Investment in IT has a statistically significant effect on productivity, or that there is a paradox of 'productivity'. This suggests that the relationship between IT investment and organizational performance is much more complex than that found in some other studies. These results can also provide guidance to managers who are responsible for determining the allocation of organizational resources.

Dandago and Farouk (2012) examine the impact of investment in information technology on the return of selected bank assets in Nigeria for the period 2000-2010. This study uses secondary data generated from annual reports and selected bank statements cited on the Nigerian Stock Exchange (NSE). Data were analyzed by using multivariate regression analysis. The results show that IT investment has a significant effect on the financial performance of banks in Nigeria as measured by ROA.

The results of Farouk and Dandago's (2015) research on the effect of IT investment on banks in Nigeria suggest that increased IT spending causes a decline in the financial performance of Nigerian banks, which means heavy IT investment does not increase bank profitability.

Research of Wu et al. (2017) conducted in China shows that during the period of financial crisis, Chinese firms with superior IT capability tended to outperform control company samples with average earnings ratio but not on cost ratio, even after adjusting for previous performance. The study also found that the performance effects of profits from IT capabilities can be sustained over long periods of economic downturn.

### HYPOTHESIS DEVELOPMENT

The use of machines and equipment digitally obviously different effects on the company's operational activities than using machinery and equipment manual. Automated manufacturing implementation has features such as Just-in-Time (JIT) and responds to improved quality requirements and shorter response times. If more firms automate, competitive pressure will force other companies to take similar action. For manufacturing companies, automation equals the struggle to stay alive (Hansen and Mowen, 2000). The effect of the use of machines and equipment that will automatically produce a much more optimal performance than using a machine and equipment manual. This of course affects the profitability that will be obtained by the company.

Based on the above theory it can be concluded that information technology investment has an influence on financial performance measured by ROE, where if the company increases and develops intellectual capital owned by the company then the financial performance of the company will increase, and vice versa if the company does not increase intellectual capital financial performance the company will decrease. Based on the description, the hypothesis in this study:

H<sub>1</sub>: Investment in Information Technology has an effect on financial performance.

Wright et al. (2009) found that firm size had a positive effect on performance which meant that larger companies promised better performance than small enterprises. Calisir et al. (2010) also found a positive effect of firm size on the performance of the information and communications technology sector in Turkey, but Huang (2002) found that there was no effect of firm size on the performance of Taiwanese firms in China. Similarly, Talebnia et al. (2010) did not find the effect of firm size on firm performance listed on Tehran Stock Exchange.

The capital structure and size of the firm may also affect the firm's performance through agency cost as an intervening variable, which means that higher levels of debt and firm size may affect the firm's performance if it is associated with the agency cost proxied by the discretionary expense ratio on net sales. That is if the debt increases the interest burden the discretionary expense can increase and consequently decrease the performance. But if the interest expense saves taxes then performance may increase. Debt may also increase productivity so sales increase. Thus the ratio of discretionary expense to net sales that is the proxy of agency cost is reduced. Reduced ratios lead to increased profits, and consequently increased performance. Likewise, if the size of the firm increases the economies of scale then the likelihood of performance will increase through discretionary expense reduction. Conversely, if a large size causes an increase in load, then performance will decrease. Based on the description, the hypothesis in this study:

H<sub>2</sub>: Firm size has an effect on financial performance

The linkage of investment in information technology and firm size to the financial performance of the manufacturing sector can be seen in the research model as shown below

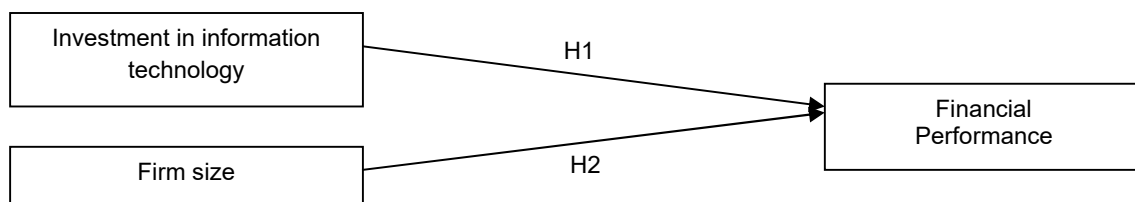


Figure 1 – The Research Model

## METHODS OF RESEARCH

*Population and Sample.* The type of data used in this study is quantitative data. Sources of data in the study are secondary data in the form of financial statements of all manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2013 to 2016 and can be downloaded at [www.idx.co.id](http://www.idx.co.id) and company website. This research belongs to causal research that is causal relationship. The purpose of causal research to obtain evidence of causal relationships so it can be known which variables affect and which variables are affected.

The population of this study are companies in the manufacturing sector listed on the Indonesia Stock Exchange (IDX). The sample used in this research is a manufacturing company listed on the Indonesia Stock Exchange (IDX) in 2013-2016. Sampling technique using purposive sampling technique that is determination of the sample on the basis of the suitability of certain characteristics and criteria (Sugiyono, 2012: 78). The criteria used in this sampling are: companies that publish annual financial statements on the company website or BEI website during the period 2013-2016; disclose data relating to research variables and disclose information technology assets in annual reports.

*Variables, Operational Definitions, and Technical Analysis.* In this research, there are three operational variables that will be measured. The dependent variable (Y) is financial performance, independent variable (X) is investment in information technology (X1), and firm size (X2).

The measurement model of Hitt and Brynjolfsson (1996) was chosen to be adopted as an instrument of measuring the variable portfolio of information technology assets manufacturing. The selection of this measurement model is due to the researchers wanting to replicate the measurement model of the asset portfolio of information technology from an internal process perspective from (Chwelos et al. 2010; Hitt and Brynjolfsson 1996) to examine its effect on operational efficiency. The measurement model is as follows:

$$\text{Investment in information technology} = \frac{\text{IT Asset}}{\text{Total Asset}}$$

Weston and Brigham (1985) says that in the selection of financing ways, large companies whose stocks are owned by many will opt for additional common stock sales because these sales will not affect much of the company's control. Conversely, small companies may be more likely to avoid issuing common shares in their business to keep control of the company completely. Firm size in this study is guided by the stock market price as a determinant indicator of firm size.

$$\text{Firm size} = \text{Ln}(\text{Total Asset})$$

Dependent variable in this research is financial performance which proxy with ROE. Return on equity (ROE) is used to measure the company's effectiveness in generating profit by utilizing its own equity. ROE also means size to assess how much the rate of return (percentage) of own capital invested in the business concerned.

$$\text{ROE} = \alpha + \beta_1 \text{ITINVESTMENT} + \beta_2 \text{FIRMSIZE} + e$$

## RESULTS AND DISCUSSION

In analyzing existing data, this study has fulfilled the classical assumption requirements and yielded the Best Linear Unbiased Estimator (BLUE) estimation value. The test results indicate that the data has met the assumption of normality and free from problems of heterokedastisitas and autocorrelation. Based on the above table, obtained the regression equation as follows:

$$\text{ROE} = -0.348 + 30,841 \text{ IT Invest} + 0,013 \text{ Firmsize} + e$$

Table 1 – Results of Multiple Linear Regression Analysis

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,348	,396		-,879	,394
	IT_INVES	30,841	5,592	,818	5,515	,000
	FIRMSIZE	,013	,014	,138	,930	,368

a. Dependent Variable: ROE

Based on regression test results obtained results that investment in information technology have significance value of 0.000 and firm size of 0.368. The value  $<0.05$  indicates that the hypothesis is accepted and if  $> 0.05$  indicates that the hypothesis is rejected, so it can be interpreted that investment in information technology has an effect on the financial performance while firm size has no effect on financial performance.

Table 2 – Result of F Test

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,932	2	,466	15,738	,000 <sup>a</sup>
	Residual	,415	14	,030		
	Total	1,347	16			

a. Predictors: (Constant), FIRMSIZE, IT\_INVES

b. Dependent Variable: ROE

From the above data analysis can be known that the next regression model test done by comparing the significance of F with a significance level of 0.05. If the significance value  $F < 0.05$  means that the independent variable can explain the variation of the dependent variable.

The result show that investment in information technology has an effect on financial performance. Investment behavior can increase the alignment between business strategy with the objectives to be achieved through the company's IT asset portfolio (Aral and Will, 2007). The portfolio relates to investor estimation of risk and return expectation, measured statistically to make investment portfolio. The results of this study are in line with Wu et al. (2017). However, the results of this study contradict with Farouk and Dandago's research (2015).

## CONCLUSION

Based on the findings in the research, it can be stated that the results of this study are as follows:

Simultaneously, investment in information technology and firm size on financial performance. Partially, investment in information technology has an effect on financial performance, while firm size variable has no partial effect on financial performance

The suggestions that can be put forward are management should be more careful in managing the capital structure, because the capital structure for the company is very important, especially for large companies. The better the company manages its capital structure, the easier it will be to meet its obligations (debt-equity ratio), which will ultimately affect the share price (share price) and earnings per share

For investors, in investing should be more cautious, because the negative ratio of financial structure indicates the company is in ilikuid condition, meaning that the company is unable to fulfill its financial obligation to conduct the production process.

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## ANALYSIS OF «ON-FARM» LEVEL EFFICIENCY ON BROILER CHICKEN COMMODITY IN WEST JAVA

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### ABSTRACT

The rapid downstream industry with poultry consumption which is so large makes the upstream industries such as animal feed, breeding, and medicine in the country has a promising business opportunity for companies engaged in animal husbandry. However, in fact, people's breeding which is more numerous than large manufacturers are now starting to get rid of because they do not use modern technology and investment constraints. The purpose of this research is to analyze the technical efficiency of the broiler business and to identify the factors that influence the technical efficiency of broiler business in West Java province. To answer these problems, the researcher conducts a direct survey to the location of breeders and uses stochastic frontier analysis for data processing. The result of analysis by using Stochastic Frontier Cobb-Douglass regression method with decreasing of MLE function shows that some inputs which have real effects to broiler production are seed, feed, and also husk. Moreover, it is also seen that average mean efficiency of farmers in West Java is about 0.64 which means it is not efficient yet. It is also the impact of technical inefficiency factors such as age, education level, and breeding experience.

### KEY WORDS

Technical efficiency, breeding, poultry, broiler, stochastic frontier.

The condition of the world economy is getting better from year to year in which it absolutely affects the pattern of public consumption. In addition, related to the matter of food, the parties concerned especially the government continues to strive to improve and to maximize in order that the food needs of the people are fulfilled.

The food field itself has different types and functions. As cited from one of Poultry Indonesia magazine article, the current world poultry consumption is expected to continue to grow in the future, and Asia, particularly Indonesia plays a big role in it, despite the weak economy will limit its growth. If broiler production is predicted to rise in most countries due to the increase of business in agriculture, weak economic growth in developed and developing countries could have an impact on limiting consumption increases. Factors that influence the growth of total poultry consumption are population change, household income growth; chicken prices are relatively cheaper than other meat, and changes in community lifestyle.

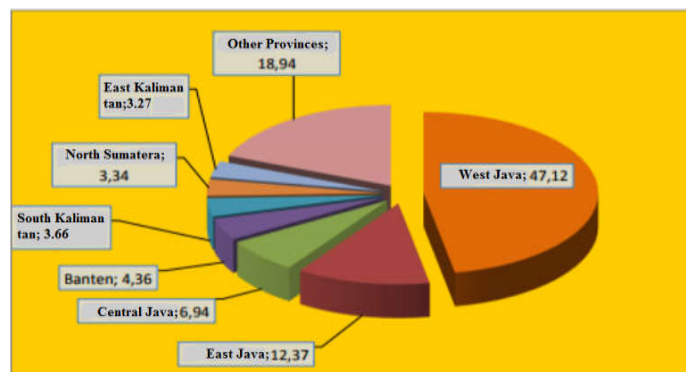


Figure 1 – Population Center of Broiler Chicken in Indonesia in 2011-2015 (Data Source: Center for Data and Information of Agriculture General Secretary of Ministry of Agriculture 2015)

In Indonesia itself, according to the Center for Agricultural Data and Information System based on the average broiler population in the last five years (2011-2015) per province, the current national broiler population is dominated by seven central provinces among 34 provinces in Indonesia. The role of the seven provincial centers reaches 81.06% (1.09 billion of the national population) of the national broiler population, and is dominated by four provinces in Java contributing 70.78%. The fourth covers the provinces of West Java, East Java, Central Java, and Banten with the contribution of respectively 47.12%, 12.37%, 6.94%, and 4.36%. The next three provinces are from outside Java and its contribution, namely South Kalimantan (3.66%), North Sumatra (3.34%) and East Kalimantan (3.27%).

Regarding to this matter, hence this research have some purposes that are (1) to describe performance and use of production input of broiler business in West Java province. (2) to analyze the technical efficiency of broiler business in West Java province. (3) to identify factors influencing technical efficiency of broiler business in West Java province. Hopefully, this research can also be useful especially (1) for the government to formulate policy materials in the development of broiler industry, especially by involving small-scale farmers. (2) for the livestock business community, this report can be used as a reference to optimize the performance of their business in order to achieve maximum results. (3) for students related to this activity, it can be used as a reference for doing further research and fostering entrepreneur interest especially for broiler commodity.

## METHODS OF RESEARCH

*Time and Place.* This research is conducted in West Java Province by taking 3 points as sample so that this research is in accordance with the scope of the area that will be studied in Subang Regency, Tasikmalaya Regency, and Cimahi Regency. The study takes time for less than 11 months, beginning from April 2017 to May 2018.

*Research Approach.* The method used in this research is descriptive and analytical method with case study approach, (Crowe et al., 2011). Descriptive method is used to explain the interpretation of the results of the optimal technical efficiency calculation of livestock business on broiler commodities. The analytical method is used to analyze the efficiency calculation of broiler breeding business.

*Data Collection Technique.* This research uses primary and secondary data and information. Primary data are collected through survey method, recording, and direct interviews to respondents, companies involved as the core of small-scale chicken breeders, broiler breeders both members of the partnership (*risk sharing* and *non-risk sharing*) or independent. The data and information are collected using questionnaire instruments. Secondary data are collected through various documents from relevant agencies either collected directly or through internet network such as BPS, Directorate General of Animal Husbandry and Health, West Java Provincial Animal Husbandry Office, and relevant literatures on this research topic.

*Data Analysis and Processing Technique.* The problem in this research is how to measure the level of efficiency of broiler commodity supply chain in West Java. Meanwhile, to measure and make it efficient, it uses SFA or *Stochastic Frontier Analysis* method that employs the assumption of functional form for frontier (parametric), is stochastic and uses econometric methods, (Cullinane et al., 2006). Generally, the measurement of the efficiency level is done by dividing the total number of outputs by the total number of inputs. The calculation can be formulated as follows (Cullinane et al., 2006).

$$\text{Efficiency} = \frac{\text{Output}}{\text{Input}}$$

Specifically, statistical analysis used to test the model of the production function and efficiency in this research uses *stochastic frontier Cobb-Douglass* production function, Zhuo et al (2015) are collected through structured questionnaires aiming to gather information



about the input-output, prices of input-output, and socio-economic conditions of breeding businesses especially West Java.

The value of output is the value obtained from the production of broiler breeding. While the input consists of six input variables, namely: chicken seed (DOC), feed, vaccine, medicines and vitamins, gas and other heating devices, husk or other materials used as a cage base, (Castellini, 2002). The socio-economic conditions of some variables, including the age of the breeder, the length of the breeding experience, the period of production, the participation in partnership, and so forth.

*Stochastic Frontier Production Function Analysis.* The *stochastic frontier Cobb-Douglas* production function is used in the analysis of the production of broiler breeding in this study. The selection of the *Cobb-Douglas* production function as an approach is based on consideration that the form of the *Cobb-Douglas* production function can reduce the occurrence of multicollinearity, is homogeneous so that it can be used to decrease the dual cost function of the production function, its calculation is simple, can be made in the form of linear functions and most widely used in research, especially in agriculture, (Antras, 2004). The general form of the *Cobb-Douglas* production function model is as follows:

$$Y = \beta_0 X_1^{\beta_1} X_2^{\beta_2} X_3^{\beta_3} \dots X_n^{\beta_n} e_u$$

Where:

Y = estimated quantity of production;

$\beta_0$  = intercept;

$\beta_n$  = predictor parameter of i-th variable and is elasticity;

$X_i$  = production factor used ( $i = 1, 2, 3, \dots, n$ );

e = natural number (2,718);

u = error (*disturbance term*).

The estimation of the equation will be easier to do if the equation is converted to multiple linear form by renegotiating the equation. The logarithm of the above equation:

$$\text{Log } Y = \log \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \dots + \beta_n \log X_n + u$$

or

$$\ln Y = \ln \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \dots + \beta_n \ln X_n + u$$

Value of  $\beta_1, \beta_2, \beta_3, \dots, \beta_n$  the *Cobb-Douglas* production function also shows the elasticity of X to Y. *The frontier* production function is derived by connecting the maximum output points for each level of input use so that the production function represents the most efficient input-output combination and any point on the *frontier* production curve represents the condition for achieving technical efficiency in a breeding. Based on the concept, in the *frontier* production function, *negative gap* or no observation under the production function *frontier* is not permitted to occur.

At the same time, breeding that produces along the average production curve is not necessarily the most efficient because there is a possibility of a breeding business capable of producing above the curve or greater than the average production. If a breeding is at a point in the *frontier* production function, it means that it is technically efficient. If the production function of the *frontier* is known, then it can be estimated inefficiently by the actual position relative to the *frontier*, (Dolton et al., 2003).

*Stochastic frontier* production function produces two conditions simultaneously namely the factors that affect the efficiency and at the same time the inefficiency of breeders. The efficiency concepts of the input and output curves to be discussed in the integrated *stochastic frontier* production function require a function that is homogeneous (Greene, 2005). The production function that meets the criteria of homogeneity is the *Cobb-Douglas* production function because in *Cobb-Douglas*, the assumption *constant return to scale* is applied. In addition, this form of production function reduces the occurrence of

heteroscedasticity and forms of *Cobb-Douglas* function is most widely used in research, especially field research of agriculture.

According to Kumbhakar and Lovell, (2003) The *stochastic frontier* production function is also called *composed error model* because it has two component *error terms*, which is caused by random effects ( $v_i$ ) and technical inefficiency ( $u_i$ ), where  $\varepsilon_i = v_i - u_i$ .

The form of *stochastic frontier* Cobb Douglas production function in poultry breeder and independent breeder is using the same model as following:

$$\ln Y = \ln \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \beta_6 \ln X_6 + \ln (v_i - u_i)$$

Where:

Y = Number of broiler production (kg);

X1 = Chicken seeds;

X2 = Feed (kg);

X3 = Medicines and vitamins (ml);

X4 = Gas (tube);

X5 = Husk (sack);

X6 = Labor (HOK);

$\beta_0$  = intercept or constant;

$\beta_i$  = production factor regression coefficient / parameter estimator, where ( $i = 1, 2, \dots, 6$ );

$v_i - u_i$  = *error term* ( $v_i$  is *noise effect*,  $u_i$  is the technical inefficiency effect of the model).

Coefficient values expected are:  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  and  $\beta_6 > 0$ , which means that the results of *stochastic frontier* production function estimation provide positive estimation value. The coefficient of positive estimation value means to increase input in the form of poultry, feed, medicines and vitamins, gas, chaff, and labor, then it will increase the amount of production of broilers.

Another advantage of the *Cobb-Douglas* production function is the amount of elasticity of each factor of production that is considered being a business scale estimate or *return to scale* ( $\beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6$ ). If  $\sum \beta_j = 1$  means production activity in a *constant return to scale* (in a fixed business scale). If  $\sum \beta_j > 1$  means the production activity in a state of *increasing returns to scale* (scale effort to *increase*). If  $\sum \beta_j < 1$  means production activity in a state of *decreasing return to scale* (business scale is declining).

*Research Hypothesis:*

- It is assumed that broiler breeding business by contract partnership system is more technically efficient when compared to broiler breeder business partnership pattern system for results.
- Allegedly socio-economic factors that affect technical efficiency in the business of broiler farms are: age of farmers, education, and breeding experience.

*Technical Efficiency Analysis and Technical Inefficiency Effect.* The stochastic frontier approach will result in two simultaneous combinations of factors influencing efficiency and also the inefficiency of breeders. The technical efficiency of each  $i$ -th breeders from the output side will be obtained from the observed output of the stochastic frontier output, (Greene, 2005). Analysis of technical efficiency for independent breeders and their respective partners can be measured using the following formula:

$$TE = \frac{E(Y^* | U_i, X_1, X_2, X_3, X_4, X_5, X_6)}{E(Y^* | U_i = 0, X_1, X_2, X_3, X_4, X_5, X_6)}$$

The value of technical efficiency is between  $0 \leq TE \leq 1$ . The value of technical efficiency is inversely related to the value of the technical inefficiency effect and is only used for functions that have a certain number of outputs and inputs (cross section data). The technical efficiency value of breeders is categorized as efficient enough if it is  $\geq 0.7$  and categorized as inefficient if it is  $< 0.7$ . The  $u_i$  variable is a random variable that describes the technical inefficiency in production and is related to internal factor; the bigger the value of  $u_i$ , the greater the breeding inefficiency done by the breeders. Random  $u_i$  variable should not be

negative and the distribution is half normal with the distribution value of  $N(\mu, \sigma)$ . To determine the value of distribution parameter ( $u_i$ ), the effect of technical inefficiency of broiler breeding in this study uses the following formula :

$$u_i = \delta_0 + \delta_1 Z_1 + \delta_2 Z_2 + \delta_3 Z_3$$

Where:

- $u_i$  = effect of technical inefficiency;
- $\delta_0$  = intercept or constant;
- $Z_1$  = age of breeder (year);
- $Z_2$  = formal education of breeder (year);
- $Z_3$  = breeding business experience (year).

The coefficient value of the predictive inefficiency parameter ( $\delta$ ) is expected  $\delta_1 > 0$ , whereas  $\delta_2, \delta_3, \delta_4 < 0$ . If the inefficiency predictive parameter is positive then the variable has an effect on the increase of business inefficiency. However, if the inefficiency predictive parameter is negative then the variable decreases the inefficiency of the business or increases the efficiency of the undergone business. In order to be consistent then the estimation of production function parameters and technical inefficiency function are done simultaneously with *frontier* program 4.1. The *stochastic frontier* parameter test and technical inefficiency effect are performed in two stages. The first stage is the estimation of  $\beta_j$  parameter by using *Ordinary Least Squares* (OLS) method. The second stage is the estimation of all the  $\beta_j, \beta_0, u_i$  and  $v_i$  variation parameters by using *Maximum Likelihood*.

## RESULTS AND DISCUSSION

**Summary of Broiler Production Function Variable.** The function of broiler production using Stochastic Frontier Cobb-Douglass production model in this research is built based on six dependent variables and one independent variable. The independent variables used in the production function of broiler include poultry / DOC ( $X_1$ ), feed ( $X_2$ ), medicines and vaccines ( $X_3$ ), gas / heating ( $X_4$ ), bran ( $X_5$ ), and labor ( $X_6$ ).

Table 1 – Summary of broiler production function estimation data

Variables	Mean	Standard Deviation	Coefficient of Variation
Production (kg)	2.925	2.928	100.08
X1 (DOC)	2.891	1.861	64.36
X2 (feed / kg)	5.401	5.141	35.20
X3 (Vaccine / ml)	3.979	2.855	71.75
X4 (gas / tube)	24.10	15.39	63.87
X5 (husk / sack)	71.2	59.7	83.93
X6 (labor / HOK)	37.71	28.93	76.72

**Broiler Production Function Estimation.** The estimation of production function with Cobb-Douglass stochastic model is done through two stages. The first stage is done by using *Ordinary Least Square* (OLS) method and the second stage using *Maximum Likelihood Estimation* (MLE) method, (Craven and Islam, 2011; Levina and Bickel, 2005). Regression analysis using LS method is intended to obtain the average performance picture of broiler production by breeders at existing technology level, that is, by estimating  $\beta$  value. In addition, through the OLS method, the assumption of normality data from the term / error term can be tested using Kolmogorov Smirnov test, multicollinearity test using VIF test, and heteroscedasticity test using graph method. If the three tests are already qualified, the data spread normally, there is no multicollinearity between independent variables and no heteroscedasticity, then it is followed by MLE method.

Estimation result summary of production function parameter with OLS method is presented in table 2. From table 2, it can be explained that not all parameter estimates is positive. It means that any increase in input production will not always have an effect on

increasing the production of broiler. Table 2 illustrates that there are several variables that significantly affect the production of chicken broiler.

Table 2 – Broiler production function estimation by using OLS method.

n/n	Coefficient	Standard error	t-Ratio
Intercept	2.039	1.117	1,743
X1 (DOC)	0.458	0.237	1.929
X2 (feed / kg)	0.323	0.117	2.741
X3 (Vaccine / ml)	• 0.218	0.125	• 1.744
X4 (gas / tube)	0.040	0.157	0.258
X5 (husk / sack)	0.526	0.226	2.326
X6 (labor / HOK)	• 0.302	0.139	• 2,159

**Data Normality Assumption Test.** The number of samples used in regression analysis of broiler production is 26 samples. To ensure good results analysis, it is required to test the normality of data. Based on the test results, Kolmogorov-Smirnov test on broiler production function of 0.136. The value of p-value obtained in broiler production function is greater than  $\alpha = 0,05$ , so it can be concluded that the research data has fulfilled normal spread assumption.

**Multicollinearity Test.** Multicollinearity test in this research is conducted by employing VIF (Variance Inflation Factor) test method. If the VIF value exceeds 10, it indicates a multicollinearity problem. The test results show that the VIF value in broiler production function is much greater than 10, hence it indicates a problem.

Table 3 – Result of multicollinearity test of broiler farm data

No	Free Variables	VIF value
1	X1 (DOC)	9.3
2	X2 (feed / kg)	4.2
3	X3 (Vaccine / ml)	7.4
4	X4 (gas / tube)	2.8
5	X5 (husk / sack)	9.7
6.	X6 (labor / HOK)	2.8

**Heterocedasticity Test.** In this research, heteroscedasticity test is done by scatter plot approach between standardized predicted value and standardized residual value. From the figure below, it can be seen spots spread with patterns that tend to cluster.

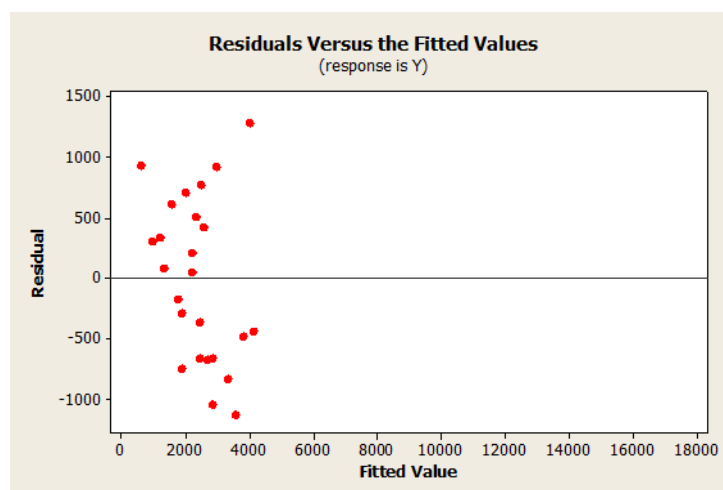


Figure 2 – Result of heteroscedasticity test of broiler breeding

The results of the analysis show that the influence of each factor of production is same as on the OLS method. It can be seen from the t test, in which the most influential factor is

not the production of poultry ( $X_1$ ), but it is the husk ( $X_5$ ) with each positive coefficient  $\alpha$  1 percent significance level. While feed ( $X_2$ ), medicines and vitamins ( $X_3$ ), gas ( $X_4$ ), husk ( $X_5$ ) and labor ( $X_6$ ), significantly influence at 5 percent and 10 percent. However, the variable also has a coefficient of positive value. This result is different from research on broiler breeding done by Akhter and Rashid (2008), Ohajianya *et al.* (2013), and Ezeh *et al.* (2012) where chicken seed (DOC), feed, medicines and vitamins, as well as labor are influential production factors.

In this study, the results reveal that each factor of production has the same level of elasticity and influence with each other. However, there are two factors, namely medicines, vitamins, and vaccines, and labor are actually inversely proportional. In other words, the addition of these factors actually reduces productivity and decreases the efficiency that will actually reduce production.

Yunus (2009) analyzes the efficiency of the broiler breeding business production in the city of Palu showing variable of feed and poultry production are the factors that most significantly to the positive direction of the production. The value of coefficient of chicken seed variable (DOC) is 0.56 which means every 10 percent of chicken seeds (DOC), it will be followed by a production increase of 5.6 percent, *ceteris paribus*. Furthermore, Todsadee *et al.* (2012) finds that the number of chicken seeds or DOC have significant effect on  $\alpha$  5 percent with elasticity value of 0.63 on the broiler breeding business in Thailand indicating that every increase of chicken seed or DOC by 10 percent will increase production by 6.3 percent, *ceteris paribus*.

Based on the result of parameter estimation, feed significantly influences at level of  $\alpha$  10 percent with positive coefficient to production with elasticity value of 0.326, in which every addition feed of 10 percent, it will increase the number of broiler production by 3.26 percent, *ceteris paribus*. It is in accordance with research on the factors that affect the production of broiler previously. Burhani (2014) mentions in his research that the feed has a significant effect on the level of a 10 percent with a positive coefficient to the production with a value of elasticity of 0.056 which means that each addition of feed by 10 percent will increase the number of broiler production by 0.56 percent. Prabuwisudawan (2013) in his research explains that the use of feed significantly affects on the production of livestock business with the real level of  $\alpha$  5 percent with the value of elasticity of 0.89, *ceteris paribus*. Yunus (2009) in his research also mentions that the feed variable has a real and positive effect on the production with the value of elasticity of 0.41 at the real level of  $\alpha$  1 percent, which means that every increase of feed use by 10 percent will increase the production of 4.1 percent, *ceteris paribus*. The growth of livestock is determined by the quantity and quality of feed. Growth or weight gain is also an interaction between genetic potential and environmental factor (Mulyantini 2010). If all interact well, then the growth of the livestock keeps going optimal.

Prevention of viruses and diseases should be done by breeders as a form of effort in maintaining the stability of livestock production. When the broiler is attacked or infected with disease, chicken growth will decrease, mortality will increase, which will result in low production. Medicines and vitamins variables are known to negatively related to the number of broiler production in West Java, where the addition of 10 percent of medicines and vitamins will reduce it of 2,85 percent. It is in line with the research conducted by Yunus (2009) stating that the medicines and vitamins correlate negatively and significantly affect broiler production in Palu. It indicates that empirically the use of medicines and vitamins in the business of broiler breeding in the city of Palu has exceeded the dose. However, in the research conducted by Burhani (2014) variables of medicines and vitamins are known to be positively related and have a significant effect on the level of a 20 percent to the production of broiler in Bogor Regency, where the addition of 10 percent of medicines and vitamins will increase production by 0.37 percent.

The next factor that also has an influence on broiler production is gas as a heater. Although in the field, many breeders use other media as heating cages found such as coal and firewood. However, in this study, all breeders are assumed to use gas in order to facilitate the calculation results. Regression results indicate that the gas variable

significantly influences at  $\alpha$  5 percent with positive signified coefficient of 0.288. Gas is a heating fuel that is indispensable for the growth of broiler in the cage. Heater with fuel that is generally in the form of gas functions as a temperature regulator of the cage environment. In addition to warming, heating also serves to stimulate the functions of chicken organs, including body temperature control function. The results of this study are in line with Yunus (2009) which states that the use of fuel has a positive effect with the value of elasticity of 0.04 and significant at 5 percent real level. It means that an increase in fuel use by 10 percent will increase production by 0.4 percent, *ceteris paribus*. The broiler is a warm-blooded animal that still includes animals transitioning from cold-blooded animals to true warm-blooded animals such as mammals. *Gasolec* with 50 kg gas fuel can be used up to 16 days old of DOC under normal weather conditions (Christopher and Harianto 2011). The research conducted by Burhani (2014) also mentions that gas variable has a significant effect on the real level of a 15 percent, with positive signified coefficient of 0, 066.

The factor that is also very influential on the production of broiler is husk. It works from the beginning of chicken care as a bed, as a guard of the temperature stability of the cage, and also as a media of chicken manure absorber. In this study, even the husk holds the highest number as a factor that affects the number of broiler production. Regression results show that the husk variable has a significant effect on the level of  $\alpha$  15 percent, with the coefficient signified positive of 0.703, which means the addition of husk per 10 percent will increase production by 7.03 percent. It is probably because during the research period, the area of West Java, especially for broiler breeders, is suffering from viruses and diseases. There is even one breeder who lost more than half of his chicken due to the outbreak of the virus. It is absolutely a special concern for all concerned parties. For that reason, the husk is one factor that is very influential to the level of the broiler success. According to Fadilah (2004), Mulyantini (2010), Suharno (2012) and Suprijatna et al (2015) the husk that meets the standard is stocked with a thickness of 8-10 cm. Damp husks will increase the level of ammonia coming from chicken manure, which will interfere with health and inhibit the growth of broiler itself. The research of Hapsari (2013) mentions that the husk variable in partner breeders is found to have a positive and tangible effect, while the independent breeder of the husk variable has positive effect but no real effect. It is caused by the use of husks by independent breeders who have not met the existing thickness of husk as a base cage.

The use of labor is important in the production process in any fields. Production works well if it uses enough labor, no shortage or excess, and has sufficient expertise. Based on the results of the analysis, the use of labor in broiler breeding in West Java has not run efficiently. It is found with the result of the number that actually negatively affect the amount of production, with the value of elasticity of -0.257, which means that every additional labor by 10 percent, it will reduce the amount of broiler production by 2.57 percent, *ceteris paribus*. The results of this study are not in line with the research done by Prabuwisudawan (2013) and Yunus (2009), which actually provide results that the labor significantly influences the production of broiler. The research conducted by Burhani (2014) also mentions the use of labor in the production process of poultry breeding have a positive effect on the amount of production with a value of elasticity of 0.027 percent that is a 10 percent increase in labor will increase production by 0.27 percent.

The results of the MLE method in Table 4 also illustrate the variance or *sigma-squared* ( $\Sigma^2$ ) and *gamma* ( $\gamma$ ) parameters of the technical inefficiency effect model of *stochastic frontier* production function of broiler breeders and independent breeders. The value of  $\Sigma^2$  represents the distribution of technical inefficiency *error* ( $u_i$ ), where the value is 0.105. The value is small or close to zero so it is normally distributed. Meanwhile, the obtained value is close to one, that is 0.999. Therefore, the value indicates that the *term error* is largely from inefficiency ( $u_i$ ) and only a small amount comes from *noise* ( $v_i$ ). Whereas if the value of  $\gamma$  is near to zero, then most of the *error term* is as a result of *noise* ( $v_i$ ), such as weather, climate, pests and diseases, etc., and not the result of inefficiency. If that happens, the inefficiency of coefficient parameter becomes meaningless. This value means that the number of broiler

production in West Java is influenced by efficiency factor and technical inefficiency of respondent broiler.

Table 4 – Broiler business Stochastic Frontier production function estimation by using MLE method

Variables	Coefficient	t-Ratio
Intercept	572.2	1.66
Chicken Seeds/DOC (X1)	0.2624	1.04
Feed (X2)	0.30593	4.98
Medicines and vitamins (X3)	- 0.2041	- 1.39
Gas (X4)	- 9.60	- 0.58
Chaff (X5)	37,254	4.65
Labor (X6)	- 44.237	- 5.00
R	0.947	-
Adj-R2	0.931	-

*Technical Efficiency Distribution.* Based on the calculation of technical efficiency in table 5, it shows that in general broiler breeder is only partially efficient in doing business. It is shown from the technical efficiency value which is greater than 0.7.

Table 5 – Distribution of technical efficiency value of broiler breeding in West Java

Free Variables	Number of Respondents	%
0.00 - 0.10	0	0.00
0.11 - 0.20	0	0.00
0.21 - 0.30	0	0.00
0.31 - 0.40	2	7.69
0.41 - 0.50	6	23.08
0.51 - 0.60	4	15.38
0.61 - 0.70	4	15.38
0.71 - 0.80	4	15.38
0.81 - 0.90	4	15.38
0.91 - 1.00	2	7.69
TOTAL	26	100
Average Efficiency	0.64823464	-
Minimum Efficiency	0.37596114	-
Maximum Efficiency	0.99989819	-

To increase the productivity of broiler in West Java province, if analyzed through the average value of technical efficiency value, the broiler breeder almost comes into minimum phase efficiency that is at number 0.7. Absolutely, this way can be done by raising awareness of technology and skills in business.

*Technical Inefficiency Source.* Based on table 6, it is explained that there are two variables from three broiler breeding variables in West Java which have a negative sign. It indicates that it does not significantly affect the production of broiler breeding.

Table 6 – Estimation of the technical inefficiency effect of broiler breeding in West Java

Free Variables	Estimation Parameter	Standard Error	t-ratio
Age of Breeders	-0.017	0.009	-0.019
Education of Breeders	0.020	0.013	0.015
Experience of Breeders	0.007	0.012	0.545

## CONCLUSION

The result of analysis by using Stochastic Frontier Cobb-Douglass regression method with the decrease of MLE function shows that some inputs which have real effect to broiler production are seed, feed, and also husk. Moreover, it is also seen that in average, efficiency weight of breeders in West Java is about 0.64 which means it is not efficient yet. It is also the impact of technical inefficiency factor such as age, education level, and breeding experience.

Based on this research, it still opens big possibility for small breeders to increase the scale of their business in order to get maximum results. One of the ways that can be suggested is to establish a cooperative unit where small-scale breeders can get input with prices that tend to be stable, gain market trust, and increase knowledge and technology about broiler breeding.

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## **DYNAMICS OF DEGREE OF BEEF CATTLE MARKET CONCENTRATION IN KUPANG OF EAST NUSA TENGGARA, INDONESIA**

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### **ABSTRACT**

Beef cattle is a strategic commodity, economically, socially and culturally for the people of Nusa Tenggara Timur and Indonesia. This the study aims to measure the dynamics of the degree of market concentration of beef cattle sales in Kupang, Nusa Tenggara Timur for 2014-2017. The results show the dynamics of the concentration of beef cattle market is relatively moderate, shown by the consignment (CR4 and HHI) that fluctuate in 2014-2017. Fluctuating trends of market concentration indicates horizontal business integration between firms and have implications for price regulation by oligopoly, consequently an inefficient market. This research contributes to market participants and stakeholders, so the government's role in managing the marketing system of beef cattle is more efficient.

### **KEY WORDS**

Beef cattle, market concentration, CR4, HHI, oligopoly.

The Indonesian government continues to encourage the acceleration of national beef cattle production by various programs, one of which is a program that is the mainstay is the Mandatory Bantu Special Cattle Efforts, which is proclaimed since 2017. The main objective to overcome the lack of consumption of beef in the country that continues to increase from year on year, and now its shortcomings are overcome by the way of imports. Meanwhile, domestic beef production continues to decrease compared to the increase of meat requirement. Domestic beef production the system is still relying on people's livestock business. One of the regions with the fifth largest population of livestock population are East Nusa Tenggara, which is 5.76% and 4th shipment of beef cattle out of Nusa Tenggara Timur province (Direktorat Jenderal Peternakan dan Kesehatan Hewan Kementan, 2017).

Nusa Tenggara Timur Livestock Service Data for the last 5 years, Nusa Tenggara Timur has sent beef cattle to be sold outside of Nusa Tenggara Timur between 50,000 and 70,000 heads each year with the main objective of Java and Kalimantan (the Livestock Service Office of Nusa Tenggara Timur, 2017). In 2017 the number of cattle that sent as many as 60,360 tail, as much as 82.49% comes from the island of Timor and Kupang regency.

Sales of cattle outside Nusa Tenggara Timur are often constrained by relatively high price fluctuations following price fluctuations in Java Island as a center for meat production and consumption. A quota policy per year that can send cattles out of Nusa Tenggara Timur is also a constraint. In addition, the distance of long cattle delivery (sea transport transports traveled 5-6 days journey), as well as the cattle trading system that has not been efficient. Another obstacle is the traditional cattle business system (loose system), as well as the pattern of sales by farmers according to the economic needs of the family.

The cattle marketing system above leads to sales volume and pricing being difficult to manage, by all market participants (breeders, traders, and consumers). Every market participant, especially a cattle delivery company, will use the profit-making strategy of the cucumber by improving its performance. One way to improve the company's performance is

to try to gain market share to increase the degree of market concentration. But the market that high degree of concentration because entrepreneurs use all means to reap the benefits so that there will be market inequality (inefficient market). The weakest position in the face of the high degree of market concentration is the producers of the breeders in Kupang is very large. Because the main livelihood of the population of Kupang Regency is raising cattle other than farming dating. It is important to know the dynamics of the degree of change in the concentration of the beef cattle market.

The purpose of this study is to measure the dynamics of the concentration of beef cattle market from 2014-2017. The results of this study are expected to be a consideration for market participants and governments in dealing with inefficient and volatile market mechanisms.

## METHODS OF RESEARCH

The market concentration is the distribution of the number of different intercompany product sales. The market concentration shows how much of the total sales in the market for a commodity is distributed to certain companies. To measure the concentration of industrial markets, the number of firms and firm size needs to be taken into account (Kazemzadeh and Sheikh, 2015).

The concentration of the market does not happen by chance but because there are parliamentary forces that occur around it that do not change over time, Therefore, in order to measure market concentration it is necessary to calculate the market share of each company. Market share is one indicator in determining the market power of a company. To measure market share should be done by census all companies (Anindita and Baladina, 2017) involved in product sales. Market share is measured by the ratio of the volume of sales by one company to the overall volume of product sales in the market. Market share is higher the market power is higher. This gives effect to the level of competition in the market. The market share is formulated:

$$Si = \sum_{i=1}^n ni / N \times 100\%$$

$Si$  = market share of the firm to  $i$

$ni$  = the sales volume of the firm to  $i$

$N$  = overall sales volume in the market

Measure the degree of market concentration of beef cattle sales using two approaches, namely Concentration Ratio for Biggest Four (CR4) and Hirschman-Herfindahl Index (HHI). Many measuring tools can be done to measure the level of market concentration. All of these measuring tools are not guaranteed to be the most perfect gauge. However, the most commonly used widely and more reliably is CRN and HHI. This is in line with Naldi and Flamini, (2014) that the concentration index that is often used to measure the level of competition in the industry are HHI and CR4 because it is considered the most established Special for HHI for example often used by the US Department of Justice and Federal Reserve (Rhoades, (1993 ) and is also used by the Indonesian Commission for Business Supervision and Competition (KPPU). Measurement of the degree of the market, concentration to be observed is the dynamics of CR4 and HHI changes in beef cattle sales market from 2014 - 2017 in Kupang regency of Nusa Tenggara Timur.

*Measurement Concentration Ratio for Biggest Four (CR4)*. The concentration of ration for a given number of firms (RCn) will give an idea of the role of  $n$  companies in the industry. The highest concentration ratio of 4 firms (CR4) is most often used in measurement (Gwin, 2001), although there is no standard provision as to how much should be included in CRn calculations (Lipczynski, et al 2005).

Concentration The ratio for Biggest Four (CR4) is an analytical tool to determine the degree of concentration of the four largest market shares of a market area (Anindita and Baladina, 2017). If the available data is limited then simply know the four CR4 companies

that have the largest market share only. After gaining the largest market share of 4 companies, then add them up. The formula for measuring CR4 in this study:

$$CR4 = \sum_{i=1}^4 S_i \text{ whether } CR4 = S1 + S2 + S3 + S4$$

$S_i = \text{Market Share}$

The main disadvantage of this index is that differences in market structure may not emerge: a market in which each of the four largest firms exist with the same percentage of share (Naldi and Flamini, 2014a) although the level of competition is very different for the four firms of size the same than four companies of different sizes. In addition CR4 does not consider the entire market, but only a limited number of companies. The CR4 classification is associated with the market structure then by Gwin, (2001) concentrations categorized:

- Minim if CR4 = 0, perfect competition market, monopolistic competition
- Low if  $0 < CR4 < 40\%$ , effective or monopolistic competition
- Medium to lower if  $40\% \leq CR4 < 60\%$ , monopolistic competition or loose oligopoly
- Upper medium if  $60\% \leq CR4 < 90\%$ , tight oligopoly competition
- High if  $CR4 \geq 90\%$ , effective nomopoly
- Maximum Concentration CR4 = 100%, perfect monopier

*The Hirschman - Herfindahl Index (HHI)*. The measurement of HHI is a refinement of CRn measurements, as it provides a more outward view of the market structure. Therefore it should be in the know and measured all market share of existing companies in the industry. HHI calculations require full knowledge of the overall market share, (Naldi and Flamini, 2014b), also mentioned that HHI is an indicator of the degree of competition in the market. The HHI analysis tool aims to determine the degree of sales / sales concentration from a market area, so that it can know the general picture of the balance of strength of bargaining position between the seller to the buyer (Anindita and Baladina, 2017). How to calculate HHI is the sum of quadratic market share of each shipping company of existing beef cattle. Formulated as follows:

$$HHI = \sum_{i=1}^n S_i^2 \text{ whether } HHI = S_1^2 + S_2^2 + S_3^2 + \dots + S_n^2$$

$S_i = \text{Market Share}$

- The HHI criteria by Anindita and Baladina (2017) categorize in concentration:
- High if the HHI between 1,800 - 10,000, the monopoly market;
- Medium if the HHI between 1000 - 1800, oligopoly market;
- Low if HHI between 0 - 1000, perfect competition market.

## RESULTS AND DISCUSSION

The results based on official data on the Livestock Service Office of Nusa Tenggara Timur, which obtained a cattle shipment permit, there are 89 companies, but the reality is not all companies directly involved in the delivery/sale of inter-island livestock. So the calculation result of the market concentration of CR4 <0,15 and HHI <500 or very low concentration, can be classified as perfect competition market. However, this issue is only a pseudo concentration, not significantly happening in the field. Findings and observations in the field there are inter-company transactional practices in seizing cattle delivery quota. Some companies do business integration to seize market share. On the other hand of the 89 companies, there are several subsidiaries of several dominant companies.

The result of observation through an in-depth interview in some companies and data search company found that the real company that sends cattle from Kupang out of the province of Nusa Tenggara Timur 2014 there are 8 companies total sales of cattle out of Nusa Tenggara Timur 13,038 tail, in 2015 there are 11 companies with total sales 15. 626 tails and 2016 there are 11 companies total cattle sales 15,850 cattles and in 2017 there are 12 companies with total sales of 19,510 cattles. The transaction of beef cattle sales is conducted between inter-island traders in Kupang with big traders in Jakarta and other

islands. The amount of transactions for cattle delivery outside Nusa Tenggara Timur occurs after there is a price agreement and the amount requested and the limit of cattle quota allowed to be delivered also in that year. Every year the Local Government issues a policy on the number of cattle quota concessions that the island escapes to Nusa Tenggara Timur. The purpose of the policy is to protect the cattle population to continue to grow while maintaining the sustainability of production.

Table 1 – Dynamics of Degree of Market Concentration of Beef Cattle Sales Year 2014-2017

Year	Number of companies	CR4	$S_i$	HHI	Market Structure
2014	0,708	0,708	70,854	1.621,381	Strict oligopoly
2015	0,616	0,616	61,596	1.223,217	Strict oligopoly
2016	0,509	0,509	50,946	1.209,834	Monopolistic or loose Oligopoly
2017	0,601	0,601	60,140	1.193,901	Strict oligopoly

Source: Secondary Data Processed, 2018.

In table 1 shows that there is a dynamics of changes in market concentration is quite volatile from 2014-2017. In terms of CR4 value, market share and HHI are highest in 2014, then decline in 2015 but still categorized in the Oligopoly market structure. Then in 2016 the value of concentration (CR4) decreases again to 0.509 and is classified in monopolistic market structure or loose oligopoly. While in 2017 the market concentration of CR4 and HHI again increased. The dynamics of the density of the cattle market concentration occurs along with the change in the number of cattles that are delivered and the difference in the number of companies that sell livestock out of Nusa Tenggara Timur. But the change remains at the level of concentration that can provide opportunities for some companies with dominant market share to dominate the sales market.

The market conditions in oligopoly competition are loose to tight then it can easily dominant companies regulate price and product quality. The results of observation on the purchase of cattle by traders and traders between islands in the breeders do not use scales to measure the weight of the cattle by way of assessing by looking at the physical appearance of cattles. This method is very detrimental to the breeder because the estimate is usually under the actual weight of the cattle. While inter-island traders and traders use scales to measure weight in transactions. Thus the quality of the product is determined by the trader not the farmer. The same is pointed out by Kazemzadeh and Sheikh, (2015); Bosen (2011), that on a strong oligopolistic market the company can easily determine the price and quality of the product. The price in the concentrated market (monopoly / duopoly) is found to be approximately 30% higher than the competitive market with seven or eight companies (Singh and Zhu, (2008) ).Therefore the company is always trying to shrink market share by increasing the degree of market concentration in order to increase the profit or performance of the company. The effort to seize market concentration is closely related to creating market structure and improving company performance Mohamed, et al (2015), market structure through CR4 gives effect to market performance and market behavior. et al. (2017) in Regional State, Ethiopia, found that the market concentration ratio indicates a strong oligopoly beef market structure in the study area, indicating that few traders share the majority market share and companies earn more profit than producer.

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The existence of the dynamics of changes in the degree of market concentration indicates that the sales market of cattle is very dependent on the amount of distribution of quota delivery by the government. Every company is always looking for a strategy in seizing the quota or market share set by the government. The a strategy that the company does in seizing market share is by doing transactional cooperation between companies or by means of business integration horizontally.

Dynamics market concentration is getting more dynamic because most companies have a sales license and get the shipping quote, but do not have cattle stock for sale. While there are entrepreneurs who have a large stock of cattle but get a quota or limited shipping quotas from the local government. To overcome this, companies with large stocks of cattle are forced to buy their quota in companies that do not own cattle at varying quote prices, between 25,000 - 100,000 IDR/tail, while still using their company name. Conditions like this are a very burdensome company, and the additional cost is often charged to farmers by pressing the price of cattle at the level of breeders. As a result, the margin received by farmers is getting smaller.

## CONCLUSION AND RECOMMENDATIONS

The degree of concentration of beef cattle market shows a fluctuating movement from 2014-2017, but its movement is still on the market structure of moderate to strict oligopoly competition with a CR4 value between 0,50,9 -70,8 and HHI between 1,193,901 - 1,621,381. These findings indicate that the concentration of beef cattle market suggests market share satisfaction by some firms, leading to price regulation. The fluctuating trend in market concentration levels indicates a transactional horizontal transition to cattle delivery quotas out of Nusa Tenggara Timur that imply price regulation by oligopolists and can harm producers, consequently the market becomes inefficient.

This research gives a huge contribution to the business actors both producers (breeders), traders between the island and entrepreneurs, consumers in conducting buying and selling transactions. Similarly, the government in order to regulate the system and marketing mechanism so that more efficient through the regulation and supervision more stringent on all links of the beef cattle trading system. The weakness of this study is the limited time series of data in related parties, so the researchers present in the period of 4 years. But still gives a real picture of the dynamics of the degree of market concentration. Further research is needed by adding Gini Ratio, Rosenbluth Index and Entropy Index for comparison.

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## DEVELOPMENT POLICY OF SEAWEED FARMING IN KUPANG DISTRICT OF EAST NUSA TENGGARA PROVINCE, INDONESIA

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### ABSTRACT

This research aimed at analyzing policy alternative that can be conducted to increase seaweed farmer's income. The method practiced in this research was a survey method; while the population was a household whose livelihoods were a seaweed farmer. Data analysis applied to answer the objectives of the research was policy simulation. The research result revealed that policy alternative that can be carried out as a priority of business development and to increase seaweed farmer's household income includes : labor wage increase by 15%, one-year experience addition and thallus length addition by 15%; one-year experience addition, one-year education addition, and thallus length addition by 15%; labor wage increase by 15%, one-year-experience addition, one-year-experience addition and one-year-study addition; labor wage increase by 15%, one-year experience addition; one-year experience addition, one-year educational addition, and cleanliness rate addition by 5%.

### KEY WORDS

Simulation, seaweed, farming, policy, development.

Fisheries resource is a renewable resource, thus the number of fish stock in the sea will constantly grow until the limit of environmental carrying capacity. However, the additional rate of total fish population truly depends on the internal factor of the fish and external environmental factor. In addition to those two factors, human as an actor taking benefits from fisheries resource will truly influence. Human behavior in exploiting fisheries resource will contribute to influence the number of fish stock in the sea. Population growth rate will continuously increase and will decrease after reaching the optimum point of its growth, while the human behavior in extracting fisheries will constantly increase as long the business player still sees the advantage from the activity of catching fish. At the end of the time there will be an economic inefficiency since the business player does not get an optimum advantage from the activity of fisheries resources extraction (Suhana, 2009). Taking into account the condition of capture fisheries above so that the alternative to illustrate fisheries sector is through the way of sustainable capture fisheries management, and the development of aquaculture.

Seaweed is one of strategic commodities in the program of fisheries revitalization excludes shrimp and salmon. Indonesia's area for seaweed farming activity was 1,110,900 ha, but seaweed farming development just utilized it for only 222,180 ha (20% from potential area). The most favorite seaweed is *Euchema spinosum*, *Euchema cottonii* and *Gracilaria* sp. In addition to be food sources, according to the research result, seaweed also can be utilized as a source of energy, namely as biofuel material. That was what delivered by the Minister of Maritime Affairs and Fisheries Freddy Numbery during the opening of Seaweed International Business Forum and Exhibition in Makassar, South Sulawesi (28/10/08). The existence of seaweed as an energy alternative source is a new thing that must be supported and developed. Micro algae as a biodiesel are considered more competitive than another commodity. In which, 1-ha micro algae land can produce 58,700 liters (30% oil) per year or higher than corn (172 liters/year) and palm oil (5,900 liters/year) (Directorate General of Aquaculture)

Kupang district is an island area having coastal length by 26 Km, in which having a big potential for fisheries development such as for seaweed farming development. According to the data from East Nusa Tenggara Maritime Affairs and Fisheries Service in 2016, potential

and production rate of seaweed was in the first rank compared to other Districts/Cities in East Nusa Tenggara Province, in which the potential for seaweed farming was 8,890.5, while those have been utilized was by 1,259.3 ha (13.9) with the total dried seaweed production by 860,307 ton (DKP NTT, 2017).

Seaweed farming business in Kupang district is conducted by household, in which all family members both husband, wife and children are actively getting involved in every stage of business activities, started from preparing farming area until taking the result, the average total of working hours (Tot Jk) for woman is 210.47 and for man is 218.77, while children is surely shorter by only 68.13 (Sunadji et.al. 2012).

The regulation of Kupang Government through Kupang Maritime Affairs and Fisheries service has been executed includes the policy capital assistance, training on seaweed farming business, post-harvest management, but all of them are still partial in nature. In respect of the explanation above so it needs to conduct a research on the policy simulation of seaweed farming development in Kupang district, East Nusa Tenggara province with Household economics approach. The problem of this research is what policy alternative is which can be practiced to increase seaweed farmer's income. While the objective of this research was analyzing policy alternative which can be conducted to increase seaweed farmer's income.

## METHODS OF RESEARCH

This research was undertaken on March until July 2017. It took Kupang District of east Nusa Tenggara Province as the location under the consideration that Kupang District was the biggest seaweed producer in East Nusa Tenggara Province. Population of this research was a seaweed farmer as a breadwinner running seaweed farming business in the waters (not a pond), managing his own business and domiciled in the coastal zone of Kupang District. The number of seaweed farmer was about 1,073 Head of Households (KK) spread in 4 sub-districts. The number of the sample, according to Slovin's formulation, amounted to 136.4 or rounded off to 136 farmers. According that calculation, it was designated at least 136 farmers and determined 140 farmers, and to decide the number of sample in each sub-district (sub-population) was used 'sample fraction' by taking into account the number of sample and the number of population using a formulation proposed by Nazir, 1988.

Data collected in this research included primary and secondary data. Primary data was collected through survey technique to get a clear and detailed description. This survey was conducted by doing interview with respondents using an interview guideline so that it can be more directed. Secondary data was collected from related institution like village hall, sub-district, Maritime Affairs and Fisheries Service, regency BAPPEDA, BPS, or other institutions having similarity with this research. Policy simulation analysis was used to analyze policy alternative functions to increase seaweed farmer's income.

## RESULTS AND DISCUSSION

*Decision-Making Involvement Model Estimation Result of Seaweed Farmer Household.* Simultaneous equation model of this research involves 17 endogenous variables consisted of 11 structural equations and 6 identity equations. Parameter estimation of these equations was conducted using Two Stage Least Square Methods (2SLS Method) and its result ii presented in the following table 1.

*Model Validation.* Model validation aimed at determining the power of model prediction. The result of model validation illustrates how close prediction value to the actual value from endogenous variable observed which was showed in the following table 2.

Statistic test being the criteria of model prediction capacity is UM, US, and UC, according to table 2 above; UM value tends to approach 0 so the model does not experience systematic bias. In addition, US value also seems to approach 0 which means prediction value is able to follow fluctuation of actual value. On the other hand, model validation shows that UC value approaches 1. It means, model mistake does not mean and is not patterned,



but spreading at all observation data. This model validation can show that the set model is valid to be acted as simulation tools.

Table 1 – Estimation result of simultaneous equation

Q	=-7521.55 + 0.3244LH + 41.134CTKK + 7.16 JBNH + 0.000012KRED + 1464.473 PENG + 291.1175PEND + 409.3217PJAL - 415.513JARTAN + 4.3488FREKON + 26.86175 KEDTAN + 34.6534LPHRAN
LH	= -40.1904 + 0.000036MOD + 0.096JBNH + 264.32TL
JBNH	= -1164.24 + 0.11593Q + 0.0886P
CTKK	= 33.181 + 0.002922LH + 6.6806JART + 0.8637PEND + 0.8303PENG
P	= 5805.414 - 0.00086Q - 123.968RWPAP + 12.499TKBER - 7.63KDAR + 91.171JPDG - 13.189LPENYIM
BT	= 35968.09 + 147.49JPLP + 0.910BTL + 735.85JPK + 1260.91JPBRT + 0.942 BPRH
BTT	= 118716+ 248.831JBNH + 62399.56JTLR
KP	= 2829178 + 357464.9JART + 0.136IRT + 628611.2PEND
KNP	= 743765.9 + 100563.5JART + 1.0691BPEND + 0.9477BKES + 0.0205SURT
INBRL	= 2121133 - 0.1374IBRL + 0.2209SURT + 697.8117UMR + 264735PEND + 245632.5JART
INP	= -8939332 - 0.0574IBRL + 25095.79UMR + 321180.4PEND + 218.8345UPH
PNBRL	=Q*P/8;
IBRL	=PNBRL-BTRL;
BTRL	=BT+BTT;
IRT	=IBRL+INBRL+INP;
TPRT	=KP+KNP;
SURT	=IRT-TPRT;

Source: analysis result of primary data, 2017.

Note:

Q = Production (kg/yr) KNP = Non-food consumption (idr/yr);  
 LH = Land area (M<sup>2</sup>) P = seaweed cost (idr/kg);  
 JBNH = total seed (kg/yr) INP = non-fishery income;  
 CTKK = family labor allocation (HOK) PNBRL = seaweed acceptance (idr/yr);  
 INBRL = non-seaweed income (idr/yr) IBRL = seaweed income (idr/yr);  
 BT = fixed cost (idr/yr) BTRL = total cost of seaweed (idr/yr);  
 BTT = non-fixed cost (idr/yr) IRT = total household income (idr/yr);  
 KP = food consumption (idr/yr) TPRT = total household expenditure (idr/yr);  
 SURT = household surplus (idr/yr).

Table 2 – Statistic test result of model prediction capacity

Variable	Label	Actual Mean	Predicted Mean	UM	US	UC
Seaweed Production	Q	31645,10	25490,30	0,28	0,01	0,71
Land Area	LH	5511,10	5453,50	0,03	0,00	0,96
Total seed	JBNH	3107,30	2373,00	0,27	0,01	0,73
Family labor allocation	CTKK	81,68	60,93	0,32	0,30	0,38
Seaweed acceptance	IBRL	26671464,0	21256342,00	0,30	0,01	0,69
Seaweed cost	P	6803,60	6721,10	0,34	0,05	0,60
Fixed cost	BT	1654461,00	1638598,00	0,02	0,00	0,97
Non-fixed cost	BTT	11737004,0	9910219,00	0,27	0,02	0,71
Total cost	BTRL	13391464,0	11548816,00	0,28	0,02	0,70
Seaweed acceptance	IBRL	13280000,0	9707525,00	0,26	0,01	0,73
Non-seaweed acceptance	INBRL	4384286,00	4496911,00	0,00	0,41	0,59
Non-fisheries income	INP	2337964,00	2542984,00	0,01	0,21	0,78
Total household income	IRT	20002250,0	16747421,00	0,18	0,00	0,82
Total household expenditure	TPRT	1358540,0	13085614,00	0,03	0,06	0,91
Food expenditure	KP	11130900,0	10686814,00	0,03	0,08	0,89
Non-food expenditure	KNP	2454507,00	2398800,00	0,02	0,01	0,97
Household surplus	SURT	6416843,00	3661807,00	0,14	0,03	0,83

Source: Primary data analysis result, 2017.

Note:

UM = bias proportion;  
 US = variant proportion;  
 UC = covariant proportion.

*Household Policy Alternative in the Household Economics Development of Seaweed Farming.* To decide household policy alternative in the economic development of seaweed farmer, it was conducted policy simulation in the forms of single and double simulation.

*Single Simulation.* Single simulation was grouped into four parts:

- Input changes of seaweed farming business towards household economics of seaweed farmer include: land reclamation by 15%, one-person labor increase, credit assistance increase by government for 15%, seaweed seed increase by 15%, labor wage increase by 15%, one-year farmer's experience addition, and one-year farmer's education addition.
- Process changes of seaweed farming business towards household economics of seaweed farmer include : planting distance addition among the cluster by 15 %, thallus length addition by 15%, control frequency addition once a week, deep of planting addition by 15%, one-day crop husbandry addition.
- Output management changes of seaweed farming business towards household economics of seaweed farmer include : one-day harvest time slot and firil curing initial addition, seaweed cleanliness rate addition by 5%, water content decrease by 5%, one-person trader addition, seaweed storage times additions by one day.
- Consumption changes/expenditure towards household economics of seaweed farmer, consisted of the increase of total family members by one person, tuition fee increase by 15%, health cost increase by 15%.

One of the examples of that single simulation result is single simulation in the forms of land reclamation by 15 % presented in the following table 3.

Table 3 – Simulation of land reclamation by 15%

Variable	Basic Simulation	Simulation Scenario	Changes
Dried seaweed production (kg)	25490,3	25599,1	0.43%
Land Area (M <sup>2</sup> )	5453,5	5454,7	0.02%
Total seed (kg)	2373	2385,6	0.53%
Family labor allocation (HOK)	60,925	60,9285	0.01%
Seaweed cultivation acceptance (IDR/yr)	21256342	21344749	0.42%
Dried seaweed price (IDR/yr)	6721.1	6721	0.00%
Fixed cost (IDR/yr)	1638598	1638598	0.00%
Non-fixed cost (IDR/yr)	9910219	9941594	0.32%
Total seaweed cost (IDR/yr)	11548816	11580192	0.27%
Seaweed cultivation income (IDR/yr)	9707525	9764558	0.59%
Non-seaweed income (IDR/yr)	4496911	4501301	0.10%
Non-fisheries income (IDR/yr)	2542984	2539710	-0.13%
Household income (IDR/yr)	16747421	16805569	0.35%
Food expenditure (IDR/yr)	10686814	10694748	0.07%
Non-food expenditure (IDR/yr)	2398800	2399809	0.04%
Total household expenditure (IDR/yr)	13085614	13094556	0.07%
Household surplus (IDR/yr)	3661807	3711013	1.34%

Source: Primary data analysis result, 2017.

Table above indicates that input changes in the form of land reclamation will increase seaweed production by 0.43%, total seed by 0.53% and income from seaweed cultivation by 0.59% as well as increasing household surplus by 1.34%. While another variable has a relative small changes in spite of being increase, excluding non-fisheries income, this is caused by the increase of land reclamation will make the farmer more concentrate to the seaweed farming business than a business out of fisheries sector. However, in general, the increase of land reclamation by 15% has a relative small influence by less than 1% excluding household surplus.

While for the entire result of that single simulation and connected to the household economics subsystem of seaweed farmer in the forms of production, family labor allocation, income, and expenditure as well as added by one component namely household surplus presented in the following table 4.

*Double Simulation.* According to the above single simulation result, it is obtained 11 single simulations giving a big enough influence both positive and negative (greater 10 %) on the development of seaweed farmer's household. Furthermore was conducted double simulation by combining those eleven variables so received 45 double simulations. From

those 45 double simulation results was chosen 17 double simulation giving positive influence on the household economics of the seaweed farmer. Recapitulation of double simulations result that having positive influence if related to the production changes, family labor allocation, income, expenditure, and household surplus can be presented in the following Table 5.

Table 4 – Single simulation result recapitulation is associated with household subsystem. Seaweed cultivation farmer

No	Policy Simulation	Changes Percentage					Total
		Q	CTKK	IRT	TPRT	SURT	
	Land reclamation by 15 %	0.43	0.01	0.35	0.07	1.34	2.2
2.	Total labor increase by one person	21.04	0.28	17.95	3.53	69.48	112.48
3.	Credit increase by 15%	0.06	0.00	0.05	0.01	0.20	0.32
4.	Total seaweed seed increase by 15%	20.75	0.34	15.45	3.04	59.80	99.38
5.	Labor wage increase by 15%	0.00	0.00	9.53	1.88	36.89	48.3
6.	One-year farmer's experience addition	35.51	1.84	30.21	5.95	116.91	190.42
7.	One-year farmer's education addition	7.74	1.52	9.90	6.66	21.48	47.3
8.	15%-planting distance among the cluster addition	-27.27	-0.37	-23.13	-4.55	-89.53	-144.85
9.	Thallus length additions by 15%	16.29	0.22	13.84	2.72	53.55	86.62
10.	Additional control frequency once a week	0.07	0.00	0.06	0.01	0.22	0.36
11.	Additional plant depth by 15 %	3.25	0.04	2.77	0.54	10.71	17.31
12.	One-day maintenance period addition	6.42	0.09	5.47	1.08	21.15	34.21
13.	Additional period one-day harvest and initial fir curling	-0.42	-0.01	-0.88	-0.17	-3.41	-4.89
14.	Cleanliness rate addition by 5 %	2.17	0.04	4.53	0.89	17.55	25.18
15.	Water content reduction by 5 %	0.16	0.00	-0.13	0.07	1.33	1.43
16.	One-person trader addition	1.35	0.02	2.82	0.56	10.92	15.67
17.	One-day maintenance period addition	-0.19	0.00	-0.40	-0.08	-1.56	-2.23
18.	One-person family labor addition	0.66	1.13	1.64	3.75	-5.91	1.27
19.	Tuition fee increase by 15 %.	0.00	0.00	-0.22	1.01	-4.64	-4.18
20.	Health cost increase by 15 %	0.00	0.00	-0.08	0.35	-1.63	-1.36

Source: Primary data analysis result, 2012.

Note:

Q = seaweed production (kg/yr);  
 CTKK = Family Labor Allocation (HOK);  
 IRT = Household Income (idr/yr);  
 TPRT = Total Household Expenditure (idr/yr);  
 SURT = Household Surplus (idr/yr).

Table 5 – Recapitulation of double simulation result as policy alternative associated with household subsystem of seaweed farmer

n/n	Policy Simulation	Changes Percentage					Total
		Q	CTKK	IRT	TPRT	SURT	
	1	2	3	4	5	6	7
1	an increase in labor by one person, 15%- seed increase and one-year experience increase	35.51	1.84	30.21	5.95	116.91	190.42
2.	one-person labor increase, 15%-seed increase and 15%-thallus length increase	16.29	0.22	13.84	2.72	53.55	86.62
3.	15%-total seed increase and one year-experience increase	35.51	1.84	39.74	7.82	153	237.91
4.	15%-wage labor Increase, one-year experience increase and one-year educational increase	43.25	3.37	49.61	14.47	175.18	285.88
5.	15% labor wage increase, one-year experience increase and 15 thallus length increase	51.80	2.06	53.53	10.54	207.16	325.09
6.	15% labor wage increase, one-year experience addition and one-day maintenance period addition	36.54	1.86	40.62	7.99	157.19	244.2
7.	15%-labor wage increase, additional one-year experience and cleanliness increase by 5%	37.67	1.88	45.28	8.91	175.22	268.96
8.	15% labor wage increase, one-year experience addition and one-person trader addition	36.86	1.86	43.18	8.50	167.13	257.53
9.	labor wage increase by 15%, one-year experience additions and family member addition by one-person	36.17	2.97	41.38	11.57	147.88	239.97

n/n	1	2	3	4	5	6	7
10.	one-year experience addition, one-year educational addition, and thallus length addition by 15%	59.53	3.59	53.86	15.31	191.62	321.91
11.	one-year experience addition, one-year educational addition, and one-day maintenance period addition	44.28	3.38	40.96	12.77	141.69	243.08
12.	one-year experience addition, one-year educational addition, and cleanliness rate addition by 5%	45.41	3.40	45.84	13.73	160.57	268.95
13.	one-year experience addition, one-year educational addition, and one-person trader addition	44.59	3.39	43.66	13.30	152.15	257.09
14.	one-year experience addition, one-year educational addition, and one-person family member addition.	43.91	4.49	41.72	16.35	132.38	238.85
15.	thallus length addition by 15%, one-day maintenance period addition, and cleanliness increase by 5%	19.49	0.27	19.74	3.89	76.40	119.79
16.	thallus length increase by 15%, one-day maintenance period addition, and one-person trader addition	18.67	0.26	17.84	3,51	69.05	109.33
17.	Thallus length increase by 15%, one-day maintenance period addition, and one-person family member addition	17.99	1.36	16.36	6.65	51.05	93.41

Source: Primary data analysis result, 2017.

According to the double simulation result above so it can be determined policy alternative priority in increasing household welfare of seaweed farmer by considering total percentage of the existing subsystem changes: 1). labor wage increase by 15%, one-year experience addition and thallus length addition by 15% with total percentage of 325.09; 2). one-year experience addition, one-year educational addition, and thallus length increase by 15% with change percentage of 321.91; 3). labor wage increase by 15%, one-year educational addition and one-year educational increase with total percentage of 285.88; 4). labor wage increase by 15%, one-year experience addition and cleanliness increase by 5% with changes percentage of 268.96; and 5). one-year educational additions, and cleanliness rate additions by 5% with change percentage by 268.95.

### CONCLUSION AND SUGGESTIONS

According to the above research result and discussion, it can be concluded that policy alternatives that can be conducted as a priority in developing business and increasing household income of seaweed farmer include:

- labor wage increase by 15%, one-year experience addition and thallus length addition by 15%;
- one-year experience addition, one-year educational addition, and thallus length addition by 15%;
- labor wage increase by 15%, one-year experience additions and one-year educational addition;
- Labor wage increase by 15%, one-year experience addition and cleanliness rate increase by 5%;
- one-year experience addition, one-year educational addition, and cleanliness rate addition by 5 %.

According to the research results, it is suggested to develop seaweed farming business is suggested to perform the policy by increasing labor wage by 15 %, one-year experience addition, and thallus length addition by 5% jointly. However, before suggested policy alternative being applied to the seaweed farmer it needs to be tested in advance to know the level of success from that policy alternative.

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**ROLE STAKEHOLDERS' SOCIETY EMPOWERMENT IN CORAL REEFS  
CONSERVATION THROUGH CORAL REEF REHABILITATION AND MANAGEMENT  
PROGRAM IN BAHARI VILLAGE OF SOUTH BUTON REGENCY, INDONESIA**

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**ABSTRACT**

Role of stakeholders is very important in society empowerment process especially in coral reef conservation. This research studied role of stakeholder in society empowerment through coral reef rehabilitation and management program. Role of society in empowerment to conserve coral reef was more to participate in planning process however in implementation process the participation of people were still low and apathies. Role of laborers in society empowerment for coral reef conservation as facilitator, trainer and educator was maximal.

**KEY WORDS**

Stakeholders, community empowerment, coral reef rehabilitation, policy.

Role of stakeholders were very important in Community empowerment process especially in coral reef conservation. As stated by Mathur, Price & Ali in Salum, Gakure & Othiambo (2017:295) that "stakeholder are very crucial in the strategic management process". As the functionaries who had strategy management ability so by the involvement of functionaries could influenced empowerment program. Donalso & Peters (1995:229) said "stakeholders do influence implementation of strategic plans in public sector". Later, "involving stakeholders expands firm's ability to develop collaborative relationship with a wide variety of economic and non-economic partners to find solutions, Sharma & Starik in Salum, Gakure & Othiambo (2017:295). Besides, "stake holders are ver important and influential for the organization success; whether for past, present or future operations of the firm or the environment surrounding the organization", Pearce & Robinson in Salum, Gakure & Othiambo (2017:296).

Theoretically stakeholders concept were complex enough, "stakeholders are any group or individual that has a 'stake' in a decision-making process because they are somehow affected by or interested in an activity" Reed in Mease, Lindley A., at all (2018:248). Stakeholder is an individual or group who can affect or can be affected by the achievement of the firm's objectives, Friedman (1995). Hence, stakeholder management is the central theme of at least one important recent business and society text, Carrol in Donaldson & Preston (1995:66).

In community empowerment context to conserve coral reef, stakeholders involvement were very important because functionaries, in this case community get involved in exploited coral reef and other ecosystem aroun conservation area of Coral Reef Rehabilitation and management program (COREMAP). This explanation as stated by Zaelany in Nagib (2006:2) that "The main cause sea ecosystem damaged because of human factors:. Later, Burke, L.Selig, E and Spalding, M (2002:8) said that "Human activities now threaten an estimated 88 percent of Southeast Asia's coral reefs, jeopardizing their biological and economic value to society. For 50 percent of these reefs, the level of threat is "high" or "very high." Only 12 percent of reefs are at low risk. The Reefs at Risk project estimates that about 64 percent of the region's reefs are threatened by overfishing, and 56 percent are threatened by destructive fishing techniques". (2002:8) mengatakan bahwa bahwa "Human activities now threaten an estimated 88 percent of Southeast Asia's coral reefs, jeopardizing their biological and economic value to society. For 50 percent of these reefs, the level of threat is "high" or "very high." Only 12 percent of reefs are at low risk. The Reefs at Risk project estimates that about 64 percent of the region's reefs are threatened by overfishing, and 56 percent are



threatened by destructive fishing techniques". If we let this condition free, so the coral reef would get worse in the future. According World Resources Institute (WRI) in Nikijuluw (2013:6) that "if there is no systemic effort to keep and protect coral reef resources, so in year 2030 globally that more than 90% coral reefs would be in danger and in Indonesia there would be about 95% coral reef damaged from 39.500 km<sup>2</sup>".

According to Central Oceanology Development (P2O) LIPI in Setiawan (2016:10) discovered that "coral condition in Indonesia 41.78% is in damage, 28.30% in medium condition, 23.72% is in a good condition and only 6.20% in a very good condition. However in South Buton regency condition of "coral reef closing in medium category, that is 39%, Nagib, L. (2006;2). In south Buton Regency, the damaged of coral reef is responsibility of community as the stakeholders of coral reefs conservation. Community as stakeholders conducted "coral fish catching bombed by fishers", Nagip, L. (2006:16). So that in empowerment needed other stakeholders. According to Mikalsen and Jentoft in Wiryawan (2013:321-322) stakeholders divided into 3 "definitive stakeholder, expectant stakeholders and latent stakeholders. Definitive stakeholders is stakeholder which having legitimation attribute, power and interest, such as fisher, researcher and legal institution. Stakeholder expectant is stakeholder which have 2 stakeholder attributes from 3, that is custom society, society and environment loving society. Latent stakeholder is stakeholder which have 1 attribute, like bank, media, consumer etc".

Need of stakeholder involvement based on assumption that they would give positive contribution in coral reef environment conservation better for today or in the future. As stated by Pearce and Robinson (2009) stakeholders are considered as influential groups or individuals who have key interest in the actions of the firm by revisiting the past, present and future operations as well as environment surrounding the firm.

That's why needed observation for how role of stakeholder society empowerment in coral reef conservation. The purpose is that process society empowerment in environment conservation needed to maximize role of stakeholder.

## **METHODS OF RESEARCH**

This research study used descriptive qualitative method. The reason is problems or issues that need to explore, the need to understand detail and complete about stakeholder involvement in society empowerment to conserve coral reef environment, the need to empower people ability in explaining the recent condition, the need to understand stakeholder involvement to conserve coral reef environment, and research problem possibly using this qualitative research.

In order to collect the data structurally so there were 3 technique, they are: interview, observation and documentation, Creswell (2014:251). There are 7 informant for the interview technique by using purposing sampling. Informant were the ex-chief of manager unit program COREMAP II Buton Regency, Bahari head village, 2 persons of village motivator (MD), Pokmas, a village functionary, a local village man. The interview activities were: taking notes, write down interview result, recording interview result, listening to the informants information. The researcher conducted direct observation by pay attention every recent issues and documenting it. In observation process "the researcher is as participant and observer" Creswell (2014:251). Besides, documentation is a process to collect datas from COREMAP II documents, journal or diary along the research, public document (notulen, report, archives, etc). After obtained the data, it continued by data analysis process.

There 3 ways to analyze the data, such as: first, text data like manuscript or pictures) second, redraw data is data selection that needed and unneeded.

## **RESULTS OF STUDY**

*Role of society coral reef conservation through Coral Reef Rehabilitation and Management.* Role of society is a form of society empowerment to participate in coral reef

conservation through coral reef conservation and management. Role of society in coral reef conservation through COREMAP as described by MD HM that:

"Society get involved in determining village motivator, community of environment conservation and socialization activity of COREMAP program. Besides, role of society in environment conservation through COREMAP program directed to keep, rehab and manage the ecosystem in DPL COREMAP area. However, the role was not running as well as expected. Society was still exploit the sea ecosystem in COREMAP area, such as: arrow fishing, throw fish, put a fish trap, interviewed 26 September 2017. This situation also stated by the community (Pokmas) that:

Role of society in conserve coral reef was still low and apathies. Besides, many people found bombing fish, caught fish by using net and trap. This activity has damaged coral reef. Many people reported it to the government but there were more people let they exploit COREMAP area. Interviewed with BHR, 2 October 2017.

BHR story above described that society involvement to empower society was not running as good as expected. There many people exploit coral reef and other ecosystem in DPL COREMAP area to fulfill their daily life by arrow fishing, throw fish, put a fish trap.

This situation is similar as BW stated that:

"in the beginning of COREMAP activity society get involved in meeting, keep and protect COREMAP area, but the activity was no longer happened. They back exploited sea ecosystem in COREMAP area, such as: many people found bombing fish, caught fish by using net and trap." Interviewed 2 October 2017.

Whereas in coral reef conservation based empowerment, society have important role as stated by the ex-chief unit of manager program COREMAP II, that is NS that:

"in fact, core of society empowerment by COREMAP was society involvement starting from planning until evaluate activity. So, society became a backbone of empowerment activity, they just didn't know and realize that this coral reef conservation program was for them and done by them also. So, we need them to realize to succeed the COREMAP program, interviewed 6 January 2017.

According to Villager named Cely that:

"Society is better to get involve to keep coral conservation through COREMAP program, but they didn't do that way. I observed that in a week they caught fish 2 until 4 times by bombing fish, caught fish by using net and trap." Interviewed, 21 November 2017.

The result study showed that society was still caught fish improperly. Many people found bombing fish, caught fish by using net and trap around COREMAP area which caused the ecosystem getting damaged. Besides, there still no alternative way to distract society to not exploit sea ecosystem redundantly. It hoped that role of society empowerment in coral reef conservation through COREMAP program be more participate in planning process however in reality people's participation were low and apathies. They were not active in conservation of coral reef on the contrary conversely many people found bombing fish, caught fish by using net and trap which caused the ecosystem were getting damaged.

*Role of government in society empowerment.* Role of government of Bahari village in South Buton Regency in society empowerment process in environment conservation through COREMAP program was unity with other stakeholder involvement such as LSM/counterpart and society. The role above was not to compete but to share the role and duty each other.

This stated by ex-chief unit of COREMAP II program, NF that:

"in fact, role of government in making policy and giving help or mediation if needed. In the implementation of COREMAP activity, the consultant, the senior of training facilitator and counseling, society facilitator, village motivator and society community were support each other. There are Maritime and fishery department followed SETO and FM but there're not represent the government." Interviewed 6 January 2017.

Interview result with NF above showed that role of government in Bahari village to empower society in coral reef conservation through COREMAP program as the mediator and facilitator. The similar opinion also stated by AL as COREMAP consultant:

“COREMAP II program is society empowerment activity. In this level, society expected to get involved in every activities related to coral reef conservation program. Government is as mediator.” Interviewed 9 January 2017.

As stated by DPL COREMAP Bahari, BHR that:

“All this time, we are as COREMAP manager in this village give more attention in keeping and managing coral reef rehabilitation program. The government has never been shown here probably because there is a consultant for this socialization program, unless village government is always together in every events. However, the most active people in following this program are village motivator and village community.” Interviewed 2 October 2017.

Based on the observation, role of local government was still rarely coming to see this coral reef conservation program. By the end of COREMAP II program, so role of government to conserve coral reef conservation program was over. According to this condition showed that role of government in society empowerment in Bahari village of Sampolawa regency – south Buton regency both channeling of funds and managing DPL COREMAP area was still low. Role of government was more to formulate and define regulation however they were still rarely monitoring, evaluating and doing mediation in the implementation of the program. Role of government of Bahari village was giving sanction to people who exploit coral reef better than giving solution to the people to not damage the coral reef.

*Role of society empowerment counterpart in coral reef environment conservation.* Role of counterparts in empowering is as facilitator and catalyst, trainer and educators supporting funds and project executor.

As NS stated:

“In fact, in empowerment program, society facilitator, village motivator, society community and the villagers itself were the most active part in empowerment program. They interacted directly to society, gave socialization and found solution for any problems related to COREMAP program. Role of counterpart accompanied management of channeling funds and looked after coral reef ecosystem in COREMAP sea restricted area.” Interviewed 2 October 2017.

The similar opinion stated by Mad:

“We have done serious effort to succeed COREMAP program, such as we accompanied custom institution and village government to decide any violations problems done by Bahari villagers. We also gave socialization to the villagers who disagreed about coral reef conservation area.” Interviewed 3 January 2017.

According to Cely that; “COREMAP managers in Bahari village has been giving a lot of socialization to villagers through COREMAP program about the important to conserve coral reef, but now there is no such activity anymore.” Interviewed 21 November 2017.

Later, result study showed that counterparts activity in protecting coral reef conservation area through COREMAP program is over and not continuing anymore. Other evidence showed that there are many people still exploit COREMAP conservation area by bombing fish, caught fish by using net or trap and festival event “Pindokoa”. Pindokoa is classic tradition in village to catch fish and that is massively damage coral reef.”

So, it described that role of society empowerment counterparts in coral reef conservation was not maximally implemented. Counterparts’ role as facilitator and catalyst, trainer and educator were not succeeding to facilitate and support people to not exploit and damage the coral reef.

## **DISCUSSION OF RESULTS**

*Role of society in empowerment.* Role of society in empowerment is important to do because society is an empowerment subject. Role of society in empowerment to conserve coral reef through COREMAP program still focus on planning process however in the implementation the society participation were low and apathies. Besides, the people were not active in coral reef conservation conversely they bombing fish, caught fish by using net or trap in coral reef conservation area which damage the ecosystem.

Role of society in Bahari village – Sampolawa regency – South Buton regency in coral reef conservation were very low, this is similarly as happen in Kenya according to the previous study Gyan and Baffoe (2014) found that non-involvement most of functionaries in society empowerment because of the low sources in taking decision even they got the way to participate society empowerment initiation.

Role of society in coral reef conservation should participate since created the formula, implementation, monitored and evaluated. Society participation means that society involvement in decision making about the use of public resources and public problem solver for their local development, Sumarto (2003). Besides, role of society is suggestion, input, critic and recommendation, support in policy formulation, policy implementation and policy evaluation facilitated by educated and exercised people. (counterparts/LSM), Sulistiani (2017).

As stated in the previous research by Elmenofi.Gehan, at.all (2014) that there was less coordination in most big organization, financial sources and society participation were low. Around 48% from functionary organization assumed that Rural Development (RD) program and the project were only partly which reflected society need, there's no participation in planning and implementing of this program and tend to centralistic. There's significant discrepancy between the plan and the implementation. Besides, some problems occurred in planning, implementation, monitoring and evaluating (M&E) were not as well as expected. Whereas, role of stakeholders gave important effect the implementation of environment conservation as Kismartini and Yusuf (2015) found that role of functionary policy management in coastal area in Rembang Regency both the main actor or supporter have strong effect in observing management of coastal area and coordinating with actors were running appropriate with the authority.

The result study of Gehan at.all and Kismartini & Yusuf based on some points agreed with this research study that coordination between society empowerment actors in coral reef conservation were still low. Role of society in participating of planning, implementation, and evaluation were low too. Whereas, participation was the society ability to influence activities so it can develop their prosperity, Paul in lfe&Teosiero (2008). In fact, participation was very important for society prosperity, but there was some reasons why society participation were still low. As Glaser, Marion. At.all (2015) stated that society participation in maritime resources were still obstructed by less of information and domination management process based community by influential individuals. That's why, other stakeholders need to realize that society would actively participate in every empowerment program.

Besides, role of society in empowerment is monitoring and evaluation, Sulistiyani (2017). Role of society in monitoring empowerment implementation purposed to make society know about any obstacles and development an empowerment program both revolving funds and coral reef conservation program. From monitoring result, society empowerment activity would conduct any correction things based on reality happened in the area. Here, society empowerment program were good which the society became both actors and monitor the activity. Monitoring was an activity to train people in assessing their activity objectively.

Whereas, role of society as evaluator is that people assessed the empowerment program has been done, whether the program were running well or not. Evaluation was very important because evaluation result would become a recommendation whether society empowerment program were still continued or stopped. In evaluation process paid attention to various problems and found solution of it. Related to coral reef program, whatever the result it should be continued. The consideration is that program has been long happen and if they let the environment / coral reef ecosystem damage, while the main purpose of COREMAP program is to conserve coral reef for society and independent prosperity. To let society empowerment program stop means to let coral reef damage and society prosperity would be in danger.

*Role of government in empowerment.* As we know that role of government in empowering coastal society in Bahari village – Sampolawa district – South Buton regency whether revolving funds distribution or management DPL COREMAP area were still low.

Role of government is to formulate and define policy however role of implementation policy, monitoring, evaluation and mediation rarely happened. Role of Bahari village government was in giving sanction to people who exploit coral reef better than giving solution for people to not damage the coral reef.

Less of government involvement in society empowerment in Bahari village – Sampolawa District – South Buton regency as finding of Gyant and Bafoe (2014) that non-involvement of most functionaries because the lack of sources in taking decision although they got ways to initiate social development. Gyan and Bafoe (2014) showed that role of stakeholders were still very low in society empowerment, this happened because the lack of human resources, this study is very important to understand because there has been so many theories about role of stakeholders to run the program well, but they didn't pay attention to how developing human resources. In the context of city society human resources probably were not the barrier factor, but in villager environment the lack of human resources was the barrier factor of village government in society empowerment to conserve coral reef environment.

This human resources restrictiveness finally would influence formulated policy made by village government, while village government have an important role in formulating policy and defining policy in the village level to conserve coral reef environment. That's why, it needed other involvement so the policy has been made become need and solution for society empowerment problems. When a policy has been made, so role of government is to implement it. Stakeholder together with other stakeholders conducted policy implementation process balance with each authority. Implementation of balancing policy means that stakeholders responsibility to succeed a policy and give a chance to other stakeholder like LSM/counterparts and society and society about policy implementation.

Role of government in society empowerment in coral reef conservation were very important because government authority determined legality a program through policies. Role of government directed to society developing process, Hasim & Rewiswai (2009). Besides, role of stakeholder was "hand over social problem and its effect mainly in public side, social problem about daily needs through social insurance and protected society from market domination. Soetomo (2013).

Sutomo point of view above is relevant with condition of coastal society environment in Bahari village – South Buton regency, while role of government is as problem solver of public issues and protect the society. Government should become a motivator in empowerment process, because society not always have ability to solve problems, moreover by the lack of human resources so the role of society wouldn't well implemented. For that reason need government involvement to balance weak society in implementing society empowerment policy.

In society environment who have lack of human resources, role of government prohibit people to solve problems they are facing. Interaction between stakeholders should be developed in together. "each actors are interacting and influencing each other to achieve the goal together.", Madani (2011). Because "empowerment just one governance element is not enough if there is no similar changes in other elements too." Dwiyantri (2014).

It can be described that government involvement in society empowerment better not only policy decision, policy implementation, evaluation but also the role as mediator and motivator need to arise, so it could minimize failure of coral reef conservation program which supported by COREMAP.

*Role of counterparts in society empowerment in coral reef conservation.* As we know that role of counterparts in society empowerment to conserve coral reef in Bahari village Sampolawa district South Buton regency was not running well. This can be seen from the low counterpart role as facilitator and catalyst, trainer and educators and as stakeholders. As happened in Kenya as the previous researcher Gyant and Bafoe (2014) stated that non-involvement of functionaries happened because of lack of sources in decision making although they got ways to participate in initiating society development. Conversely by the previous research Abernethy, et.al (2014) that LSM/counterparts were active in supporting information access supply related to maritime resources management but still be aware with

information asymmetric by power. It means that LSM/counterpart took part but full of awareness.

Normatively, role of counterpart is, firstly, as facilitator and catalyst, through leaders who lived in the middle of the community following society development process, found out solution and take part in determining alternative problem solving. Secondly, trainer and educator, were looking for and distributing information and experiences from outside to inside community through various teaching learning technique. Thirdly, collecting funds such as by pushing of saving efforts, productive trade and marketing, Ismawan in Priyono & Pranaka (1996).

Those third counterparts role when implementing well, so empowerment process would be well implemented and conversely, if those worse implemented so society empowerment would be failed. That's why it needed other stakeholder support in society empowerment, it purposed that stakeholders were coordinating and building a relationship. Stakeholders are government and society. Society was as empowerment subject and government as to formulate and define policy is also having related role with involvement of empowerment counterparts.

In other words, in society empowerment process role of empowerment actors should be clear. A good counterpart should know the way to empower society and able to open access other empowerment factors. A counterpart should have an ability in developing basic ability that society need, such as problems identification, problem solving, decision taking and other social problems. A counterpart should have intellectual and sensibility because he would meet heterogeneity problems in social life. Anwas (2014) stated that counterpart in empowerment having ability to interact or build relationship with every family in social life.

Anwas opinion above demand professionalism of society empowerment counterpart. A counterpart is not only accompany society in implementing a program but also giving motivation and teaching the society. So that, professionalism of a counterpart is very important in order to give answers for society needs and solution for empowerment problem especially coastal society.

Besides, LSM/counterpart have role as trainer and educator. As a trainer and educator, a counterpart should maximize the society potential and capacity to make them independent and prosperous. This role should be conducted consistently and continue. This stated by Ite & Tesoriero (2008) that society development is a learning continuity process, constantly workers learn new various skills, various ways of thinking, new way to see the world and various ways to interact with other people.

However, a counterpart educators' role could involve other stakeholder such as high institution or competent organization. Other institution involvement should build a good coordination to work as their own authority. Lavy (2007) stated that coordination between actors were much related one to another and each of it should responsible appropriate with given authority.

Later, stakeholder of society empowerment in implementing empowerment program should have duties and not dominated each other. In governance perspective, role of stakeholder in society empowerment is related one another. Artut Mass in Muluk (2009:49) stated that in governance power, non-government is on two feet, they are private institution and society institution. Non-government power basically have ability to reach the government purposes optimally, it also has power to influence the authority. Besides, stakeholder authority should be balance as Madani (2011) stated that governance emphasize on the action. Each actors would interact and giving influences to achieve purposes. It means that stakeholder involvement happened to achieve purposes.

## **CONCLUSION AND RECOMMENDATIONS**

Role of stakeholder in society empowerment to conserve coral reef environment were still not maximal. Role of society in empowerment to conserve coral reef is more focus on the planning process, however in the implementation, the society participation was very low and apathies. Later, role of local government is more focus on formulating and defining policy,

however role of policy implementation, monitoring, evaluation and mediation still rarely happen. Government of Bahari village get involve in implementing, monitoring, and giving sanction to people who exploit coral reef than giving solution in order to avoid society damage coral reef. Whereas, role of counterpart in society empowerment and coral reef conservation as facilitator and catalyst, trainer and educators is still not running well.

Therefore, they should recommend the need to optimize role of empowerment stakeholder by asked other stakeholders like university and empowerment auditor institution. Besides, there need good management to implement the coral reef conservation program and need economic activity movement from maritime dominant sector to micro economic sector.

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## SOME BIOLOGY ASPECTS OF OXEYE SCAD, SELAR BOOPS CAUGHT FROM BITUNG WATERS WITHIN MOLLUCCAS SEA OF INDONESIA

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### ABSTRACT

Trevally species of oxeye scad, *Selar boops* is one of small pelagic species which an economic values. The species was exploited throughout the year by small-scale fishermen in Bitung waters using handline. The aim of this study was to determine some biological aspects of *S. boops* in Bitung waters area through measuring their lengths and weights, sex ratios, stages of oocyte, gonadosomatic index and type of spawning. Samples of fish were randomly collected each month at Bitung Oceanic Fishing Port during February 2016 to January 2017. Total samples of fish were used in this study 1659 consisting 841 male, 754 female, and unidentified 64. Length at first maturity ( $L_m$ ) was 16,3 cm (FL) and asymptotic length ( $L_\infty$ ) was 26,4 cm (FL). The overall length-weight relationships were  $W=0,01136 * L^{3,1640}$  ( $R^2=0,988$ ) with a positive allometric growth. The sex ratios were balanced between males and females. The average of gonadosomatic index was 1.02 while the lowest and highest values was 0.03 and 6.96 with partial spawning type. Identification and genetic confirmation of *S. boops* using DNA-COI analysis.

### KEY WORDS

Biology aspects, DNA-COI, Selar boops, marine species.

Carangidae is estimated to have 25 total of genera and about 140 species in the world (Randal et al 1990). There are 3 genus of travellies in the world that has been declared valid namely *Selar crumenophthalmus*, *Selar boops* and *Selaroides leptolepis*. Trevally is a genus of the Carangidae which classified as small pelagic fish species that live in groups (Carpenter & Niem 2001) and migratory surrounding coastal waters at depths of 30-100 m (Froese & Pauly 2014) and distributed in the Indo-Pacific waters (Smith-Vaniz 1995). *S. boops* is species co-occurs with *Selar crumenophthalmus* on continental shelf waters where common between 20 and 100 m and it is most often found over soft bottom or seagrass bed areas (Gomelyuk 2009; Smith-Vaniz & Williams 2016), but it is also known to sometimes frequent coral and rocky reefs (Paxton et al 1989). This species forms large diurnal aggregations, dispersing at night to feed on planktonic and benthic invertebrates (crabs and shrimps) and small fishes (Smith-Vaniz 1986, Paxton et al 1989). The maximum size for this species is about 26 cm TL (Allen & Erdmann 2012).

Oxeye scad, *S. boops* locally name known as Tude Batu. This spesies is one of small pelagic resources in Bitung waters area and is one of the commercially important fishes in Indonesia. Yet, biological aspects data concerning the *S. boops* are lacking in Indonesian waters even in other countries. The research information about *S. boops* has been done by Hutubessy (2011), Isa et al (1996), and Gumanao et al (2016). There are virtually no data concerning the stages of maturity, spawning or other life history traits for this species and according the International Union for Conservation of Nature and Natural Resources (IUCN), this spesies was categorized red list of threatened species (Smith-Vaniz & Williams 2016). The purpose of the present study was to determine some aspects of the biology of *S. boops* in Bitung waters area, within Mallucas Sea of Indonesia. The results of this study as initial information related to some biologi aspects of *S. boops* and will provide valuable information to all stakeholders.

## MATERIALS AND METHODS OF RESEARCH

**Study site and sampling procedure.** A total of 1659 oxeye scads (841 males, 754 females and 65 un-identification individuals) was randomly sampled from the commercial catch in the local fish in Bitung city, from February 2016 to January 2017. The samples were caught from Bitung waters area within Mollucas Sea of Indonesia. The samples were fresh captured fish. Measurements and dissections were quickly performed to prevent measurement bias and sample decay.

**Research location.** This research was conducted in Bitung Oceanic Fishing Port (BOFP), Bitung City, North Sulawesi Province, Indonesia. Geographically of BOFP located at 01°26'42"N - 125°12'24"E (Figure 1).

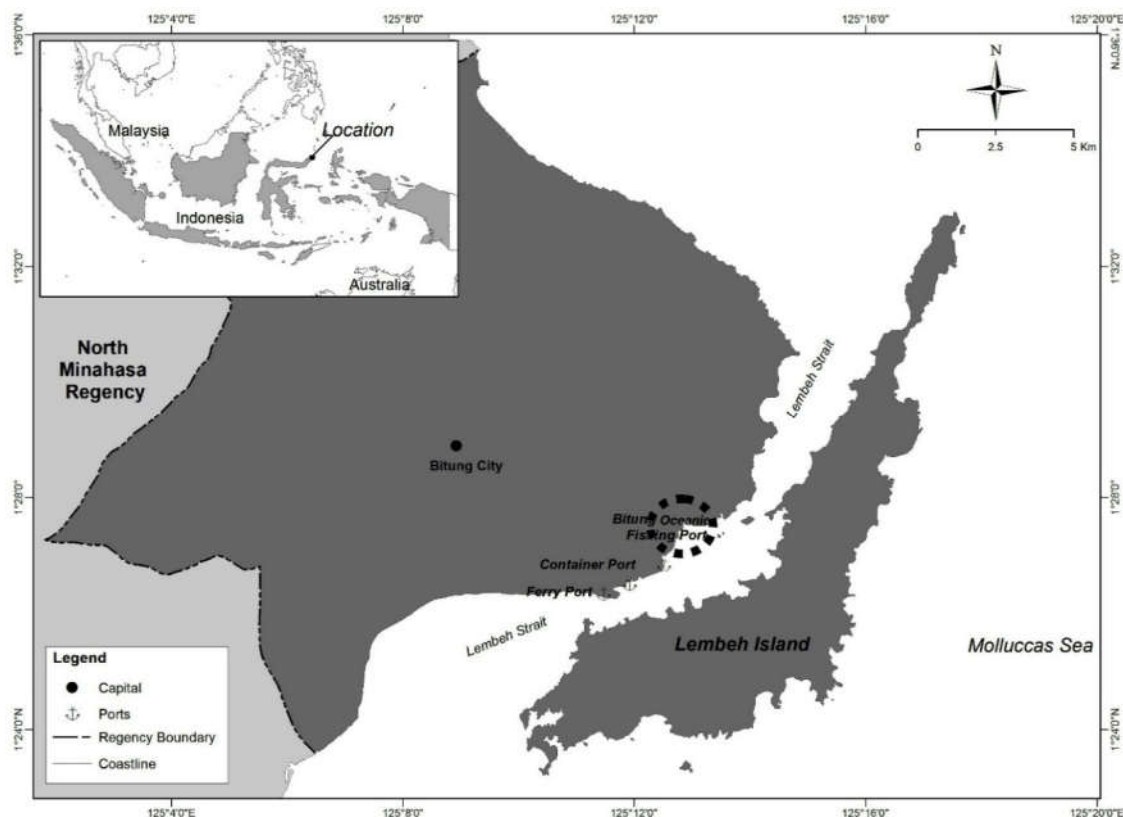


Figure 1 – Location sampling of Bitung Oceanic Fishing Port (01°26'42"N, 125°12'24"E)

**Measurements.** Each individual fish was measured for the fork length (FL) to the nearest 0.1 cm and body weight was measured using portable and battery power weighing scale of max. 500 g (0.1 g). The fish were later dissected from the abdominal region and their sexes were determined by visual examination of the gonads. The gonads were then removed carefully and their weights taken to the nearest 0.01 g with the portable electronic compact scale.

**Species identification.** The identification of *S. boops* was confirmed by DNA molecular analysis. DNA genome was collected from dorso-lateral tissue of the fish, preserved in acetone, and stored at -50°C prior to laboratory procedure. DNA extraction (Asahida et al 1996) was performed in 1.5 ml volume containing 600 µl TNESU 8 buffer extract (TNESU-Urea: 8 M urea; 10 mM Tris-HCl, pH 7.5; 125 mM NaCl; 10 mM EDTA; 1% SDS), and 300 µl Cl. The mix solution was incubated at 65°C for 2 h. The DNA was extracted with Phenol-Chloroform (1:1), 2 ethanol, 0.3 M NaCl, and TE Buffer (10 mM Tris-HCl, pH 8.0; 1 mM EDTA). Partial DNA region COI was amplified using PCR with primer (Ward et al 2005):

- FF2D: 5'-TTCTCCACCAACCACAARGAYATYGG-3'
- FR1D: 5'-CACCTCAGGGTGTCCGAARAAYCARAA-3'

PCR was performed at 10 µl volume containing dd H<sub>2</sub>O 5.65 µl, 10X Fast Buffer 1 µl, dNTP mix 1 µl, each primer of 0.5 µl, SpeedSTAR *taq* polymerase 0,05 µl, and DNA template 0,5 µl based on protocol in Takara Inc., adjusted for Taq Enzyme SpeedSTAR HS DNA polymerase. PCR were carried out over 35 cycles with program setting: denaturation at 95°C for 30s, annealing at 55°C for 30s, and extension at 72°C for 30s. PCR product, after visualized in 1% agarose gel, was purified following Kit protocol of GE ExoSAP-IT. Sequencing was done by Firstbase Malaysia. The sequence was aligned (reverse complement, pairwise alignment, and consensus) using BioEdit (Hall 1999). Phylogenetic reconstruction of sequences DNA region COI were based on maximum-likelihood method with MEGA6 (Tamura et al 2013), bootstrap method with 1000 replicates and all parameters were set at default (Ikejima et al 2004).

*Sex ratio.* The sex of each specimen was identified by physical examination of the gonads. The proportion of the two sexes relative to one another was used to calculate the sex ratio. Based on gonad identification, Chi-square ( $\chi^2$ ) test was carried out on the observed male and female specimens to show the level or proportion of differentiation from the expected 1:1 ratio, if  $\chi^2_{\text{test}} > \chi^2_{\text{table}}$ ,  $H_0$  is accepted (Ayo-Olalusu 2014).

*Oocyte development and maturity classification.* To examine oocyte development and microscopically verify the precision of the macroscopic maturity scale, a subsample of 19 ovaries were fixed in 10% buffered formalin for histological analyses. Once fixed, a 4-mm thick transverse section was taken from the middle of each gonad, dehydrated through a series of alcohol and solvent solutions and infiltrated with paraffin wax on an automatic tissue processor (Sakura, Japan). A rotary microtome (HM 310, Thermo Fischer Scientific Inc., Germany) was used to cut 5-µm thick sections, which were stained with haematoxylin and eosin, cover-slipped with a mounting medium, and examined under a Nikon SMZ1000 light microscope with a Nikon DXM1200F digital camera.

*Gonad stages identification.* Macroscopic identification of female gonads was done based on five point maturity scales for partial spawners (Holden & Raitt 1974). The gonad developmental stages are categorised as immature (ovaries about 1/3 length of the body cavity), maturing (ovary about ½ length of the body cavity and ovary are pinkish without visible ova to the naked eyes), ripening (ovary takes about 2/3 length of the body cavity and ovary with granular appearance), ripe (ovary from 2/3 to the full length of the body cavity; ovary with conspicuous superficial blood vessels) and last stage as spent (ovary shrunken to about half-length of the body cavity and loose walls). Fresh gonads were usually removed from the fish within a few hours of capture, and their sex and stage of reproductive maturity determined using a macroscopic staging system. Gonads obtained from coastal fishers could usually be weighed fresh (0.01 g). Two or three transverse cuts were then made through each gonad to ensure proper fixation before placing them into a perforated cellophane bag and then into plastic drums containing 10% formalin in seawater.

*Gonadosomatic index.* The gonadosomatic index was calculated as a percentage of body mass. It is represented by the formula:  $GSI = [\text{Gonad Weight} / \text{Total Tissue Weight (weight of fish)}] \times 100$ . This was calculated for each individual and a monthly average for each sex was established. The GSI calculation were pooled based on the sex of fish regardless of the gonad maturity stage.

*Isometric growth dimension.* Isometric growth dimension was estimated using length-weight relationship (LWR). Cube law of length-weight relationship was transferred into log-liner following the quation (Froese 2006):

$$W = a * L^b$$

Where: 'W' stands for weight (g), 'L' stands for fork length (cm), 'a' is constant, and 'b' is isometric growth dimension. The constant 'a' and 'b' were derived by the method of linier least squares. To test 'b' values against the value of '3', Student's t-test was employed to predict any significant deviation (Snedecor & Cochran 1967).

The t-statistic was calculated as follows:

$$t = (b-3)/SEb$$

Where: SEb = standard error of 'b' =  $SEb = \sqrt{(1/(n)) \times [(Sy/Sx)^2 - b^2]}$ , Sx and Sy are the standard deviations of x and y, respectively. The t-value was compared with t-table value (n =1659) for degrees of freedom at 5% significance level.

*Length at first capture (Lc) and Length at first maturity (Lm).* We using spawning potential ratio (SPR) analysis provides an overview of the length distribution of fish, Lc and Lm of fish and the condition of *S. boops* in Bitung waters. In species where the males and females have distinct and different growth characteristics, the SPR Analysis focuses on the size structure and size of maturity of the females (Prince 2014). SPR is the proportion of spawning fish that are not caught in fishing policy (Walters & Martell 2004). SPR analysis was carried out by using assessment which is web-based in [www.barefootecologist.com](http://www.barefootecologist.com).

## RESULTS AND DISCUSSION

*Species identification.* Only one sequence *S. boops* was used in phylogenetic analysis caught from Bitung waters area. Alignment of this sequence (690 bp) and based on estimates of evolutionary divergence identification resulted in 99% similarity to *S. boops* voucher ARO37 and *S. boops* voucher DBMF-M12 sequences from genBank (Table 1). The visualization of the morphology of *S. boops* from Bitung waters and phylogenetic are given in Figure 2 and 3.

Table 1 – Estimates of evolutionary divergence between sequence *S. boops* from Bitung with sequences from genBank (<https://blast.ncbi.nlm.nih.gov>)

Local name sequence	Description	Total score	Query cover	Query length	E value	Ident.	Accession
Tude Batu	<i>S. boops</i> voucher ARO 37	1188	95%	690	0.0	99%	KF009659.1
	<i>S. boops</i> voucher DBMF-M12	1171	94%	690	0.0	99%	HQ560953.1



Figure 2 – *S. boops* collected from Bitung waters area that used for species identification

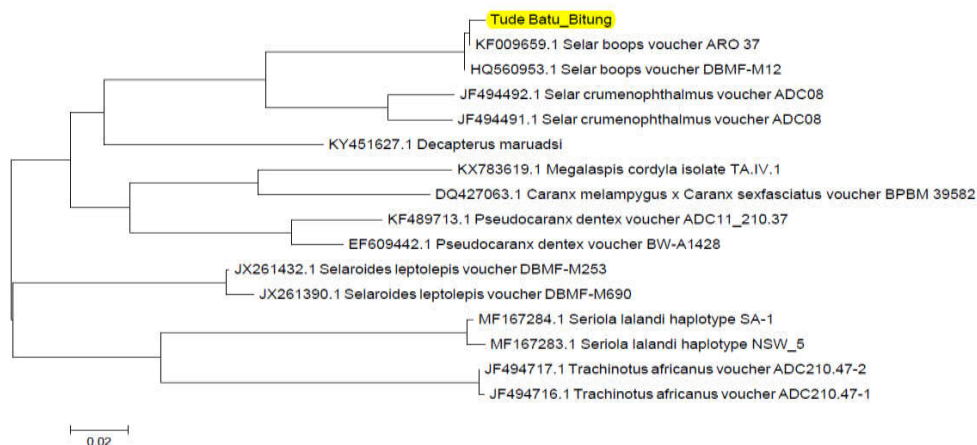


Figure 3 – Phylogenetic reconstruction (maximum likelihood-joining method) of sequences mt DNA region COI of sekuen sample from Bitung (Tude Batu\_Bitung)

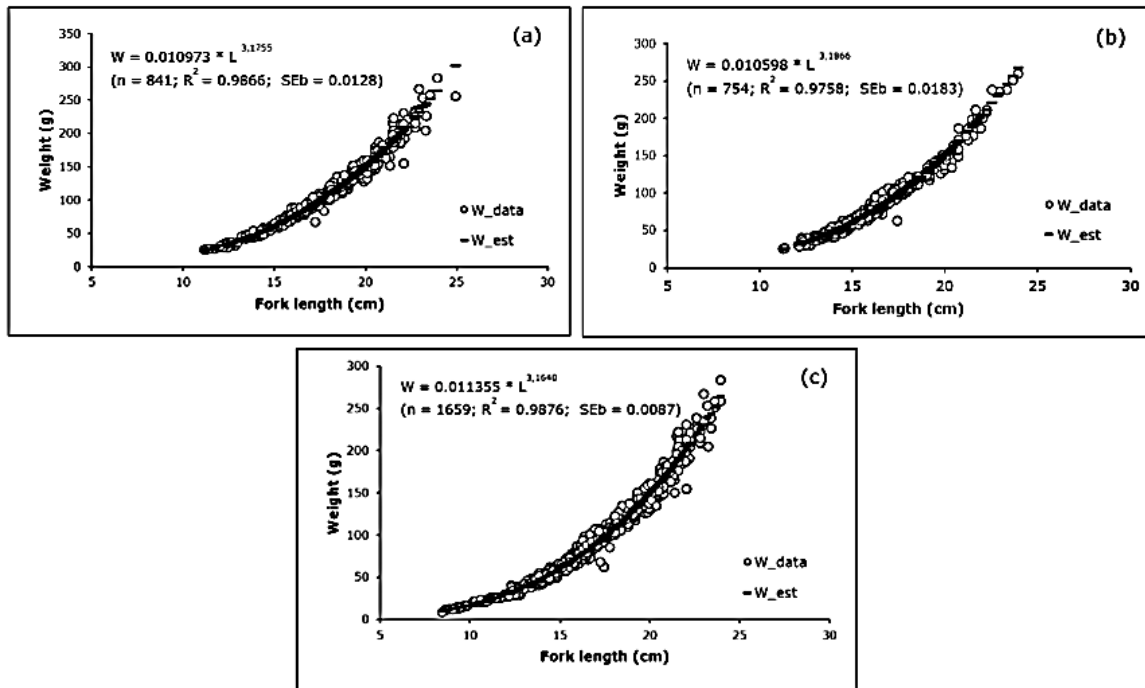


Figure 3 – Isometric growth dimension derived from length-weight equation of *S. boops*: (a) male; (b) female; (c) overall

**Isometric growth dimension.** A total of 841 and 754 randomly selected specimens of males and females were collected, with fork length and weight ranging from 11.2–25.0 cm and 25.0–282.0 g for males and 11.3–24.0 cm and 25.0–258.5 g for females. The scatter diagram showing the allometric relationship for male and female is given in Figure 4a and 4b. The LWR for male and female were established as  $W = 0.010973 * L^{3.1755}$  ( $R^2 = 0.9866$ ;  $SEb = 0.0128$ ) and  $W = 0.010598 * L^{3.1886}$  ( $R^2 = 0.9758$ ;  $SEb = 0.0183$ ), respectively. An overall LWR was established for all sample as  $W = 0.011355 * L^{3.1640}$  ( $R^2 = 0.9876$ ;  $SEb = 0.0087$ ) (Figure 4c). The student's t-test of slope with  $b = 3$  revealed the existence of positive allometric growth for both sexes (T-test > T-table) with confidence interval 'b' was  $3.1504 < b < 3.2006$  for male and  $3.1526 < b < 3.2254$  for female (Table 2).

Table 2 – Values for t-test for the slopes of regression equations with theoretical  $b = 3$  of *S. boops* from landings at BOFP during the study

Sex	b (slope)	Interval of b	SEb	T-test	T-table
Male	3.1878	3.1504-3.2006	0.0128	13.74	1.96
Female	3.1886	3.1526-3.2245	0.0183	10.29	1.96
Overall	3.1640	3.1470-3.1810	0.0087	18.95	1.96

**Sex ratio.** Sex for *S. boops* with  $N = 1659$  showed males dominated by 50.69% ( $n = 841$ ) while females only 45.450% ( $n = 754$ ) and not identified 3.86% ( $n=64$ ). Chi square ( $\chi^2$ ) test revealed that the sex ratio was not significantly different deviate from the normal proportion ratio 1:1 (Tables 3) and number of male and female samples during the study is presented in Figure 4.

Table 3 – Chi square test for sex ratios of *S. boops* collected from BOFP during the study

Sex	Observation (O)	Expected (E)	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Male	841	797.5	43.5	1,892.25	2.373
Female	754	797.5	-43.5	1,892.25	2.373
Total	1595				4.756

The Chi-square test was used to determine if a population contains equal proportion of males and females and it is a test of how well a model fits the observed data. Hypotesis: Ho = Male: Female is 1:1, Hi = Male: Female is not 1: 1. If n = 2, degree of freedom (df) = 2–1 = 1. From the critical values of the Chi-square distribution table at df = 1,  $\chi^2_{0.05,1} = 3.841$ . The calculated value 4.746 is more than table value, the null hypotesis Ho is accepted meaning proportion stable.

Table 4 – The estimated sex ratio values for *S. boops* collected from BOFP during this study

Month of observation	Male	Female	Un-identified	Proportion	
				Male	Female
February 2016	29	71	19	0.41	1
March 2016	82	42	40	1	0.51
April 2016	106	51	-	1	0.48
May 2016	76	80	-	0.95	1
June 2016	66	52	-	1	0.79
July 2016	71	61	-	1	0.86
August 2016	58	63	-	0.92	1
September 2016	98	78	-	1	0.80
October 2016	49	67	-	0.73	1
November 2016	53	72	1	0.74	1
December 2016	59	68	-	0.87	1
January 2017	94	49	4	1	0.52
Total	841	754	64		

**Macroscopic identification at the gonad maturity stage:** Macroscopic identification of the gonads was carried out for six months, from February 2016 to July 2016, to obtain an overview of gonadal development. The ovaries were orange in color, thin and ova were not visible to the naked eye during gonad stage one. Color, size and ova visibility gradually increased as the ovaries matured. Ovaries of gonad stage four appeared bright orange in color with conspicuous superficial blood vessels and ripe ova were visible to the naked eye and occupied almost the entire body cavity (Figure 5). The ranges of gonad weight in this study each stages was obtained that stage I total samples 324 range 0.02 – 0.19 g (mean value =  $0.09 \pm 0.04$ ) and the maximum length was 16.9 cm, stage II total samples 128 ranges of gonad weight 0.09 – 0.43 g (mean value =  $0.18 \pm 0.07$ ) and the maximum length was 17.4 cm, stage III total samples 167 ranges 0.18 – 1.99 g (mean value =  $0.79 \pm 0.46$ ) and the maximum length was 20.1 cm, stage IV total samples 67 ranges 1.09 – 3.97 g (mean value =  $2.64 \pm 0.79$ ) and the maximum length was 21.6 cm, and stage V total samples 68 ranges 3.00 – 15.81 g (means value =  $6.30 \pm 2.91$ ) and the maximum length was 24.0 cm. Total sample of immature were 452 and matures were 302.



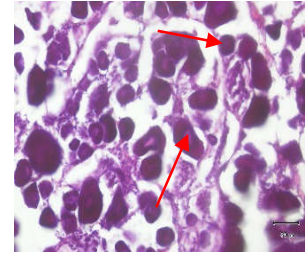
Figure 5 – Ovary size variation in *S. boops*: from right to the left, as the ovaries matured their size and development increased

**Gonad stages identification.** According to microscopic identification we obtained 5 stages variation size of oocytes development and this result explain that *S. boops* catch in Bitung waters is partial spawning type (Figure 6).



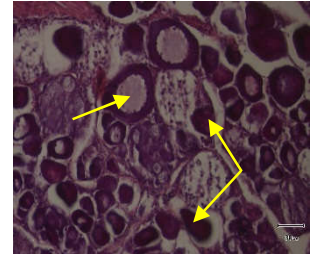
Stage I

Only oogonia (og) and primary growth oocytes (po) with large pink nuclei are present. Ovary wall is thin. Atresia may occur in the present and all of the following classes. Oocyte diameter ranges 10.56–37.84  $\mu\text{m}$  (average 20.77  $\mu\text{m}$ ). Scale bar (Sb): 100  $\mu\text{m}$ .



Stage II

Secondary growth oocyte, primary growth oocytes and oogonia are present. Ovary wall is thin in first time spawner, thick in repeat spawners. The ratio nucleus (nu) to oocyte area has decreased. Oocyte diameter ranges 25.52–58.08  $\mu\text{m}$  (average 34.06  $\mu\text{m}$ ). Sb: 100  $\mu\text{m}$ .



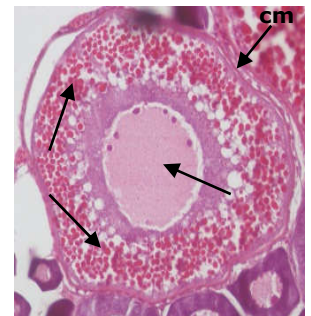
Stage III

Secondary growth oocytes containing yolk granules (yg), primary growth oocytes and oogonia are present. The oocyte diameter increases dramatically during III. By the end of class III the cytoplasm is half filled with yolk granules. Oocyte diameter ranges 27.28–132.90  $\mu\text{m}$  (average 76.12  $\mu\text{m}$ ). Sb: 200  $\mu\text{m}$ .



Stage IV

Secondary growth oocytes in the nuclear migration stage, primary growth oocytes and oogonia are present. By end of class IV oocytes are completely filled with yolk, cortical alveoli are pressed against cell membrane (cm) and nucleus begins migration towards micropyle. Oocyte diameter ranges 75.68–192.30  $\mu\text{m}$  (average 117.66  $\mu\text{m}$ ). Sb: 200  $\mu\text{m}$ .



Stage V

Final growth oocytes with hydrolyzed yolk granules (hyg), primary growth oocytes and oogonia are present. The nucleus has disintegrated and is no longer visible. Oocyte diameter ranges 177.80–239.40  $\mu\text{m}$  (average 208.22  $\mu\text{m}$ ). Sb: 200  $\mu\text{m}$ .



Figure 6 – Histological identification female gonads of *S. boops*

**Gonadosomatic index.** GSI value was fluctuated with range 0.46 – 1.89 and the highest and the lowest mean GSI value in October 2016 and September 2016. The average of GSI increased 1.05 on May 2016 from 0.63 on April 2016 and become decreased 0.70 on June 2016. After that, peak of GSI average increased 1.89 on October 2016 and become decreased 1.19 on November 2016 (Figure 7).

**Length at first capture (Lc) and Length at first maturity (Lm).** Based on SPR analysis, we can see the distribution values of *S. boops* caught during the research and most of the fish caught have a fork length of 16 cm (Figure 8). Length at first capture was 14.26 cm and length at first maturity was 16.30 cm. The comparison of length at first capture (Lc) and

length at first maturity ( $L_m$ ) of *S. boops* shows in Figure 9. The value of SPR fishing rate relative to mortality ( $F/M$ ) was 2.23 and asymptotic length ( $L_\infty$ ) was 26.40 cm.

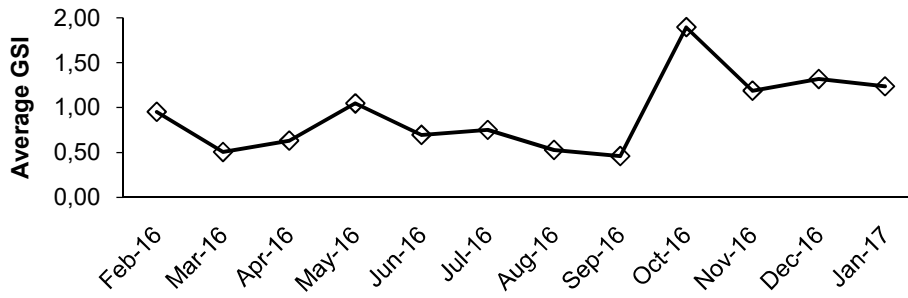


Figure 7 – Monthly average GSI of female *S. boops*

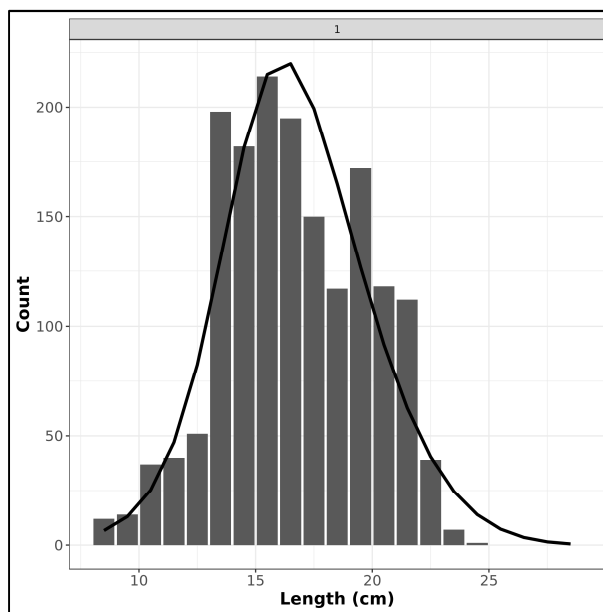


Figure 8 – Length distribution diagram of *S. boops*

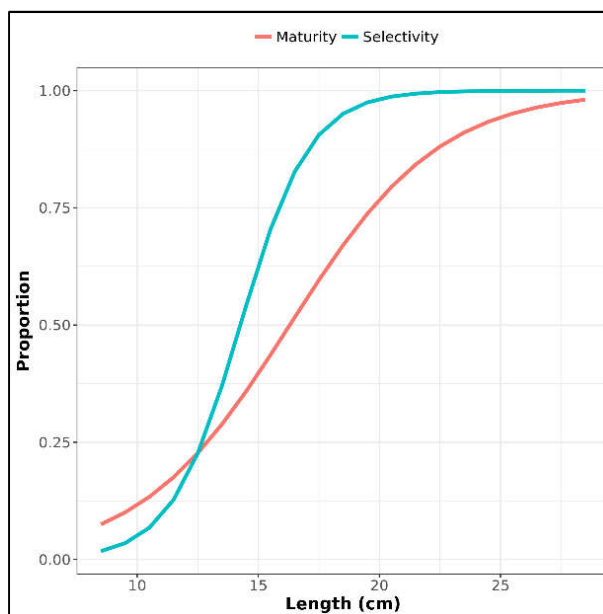


Figure 9 – Comparison of length at first capture ( $L_c$ ) and Length at first maturity ( $L_m$ ) of *S. boops*



Figure 9 above shows trends in which  $L_c < L_m$ , which means that the caught fishes are still immature. This condition was not good based on the fish biology aspect, because the generally fish were caught immature and suspected have not reproduced. If this condition is allowed to occur continuously it can be dangerous for *S. boops* stock in Bitung waters. One of indication that the utilization of fish resources doing well based on biologically if the average size of the caught fish is greater than the size of the first maturity ( $L_c > L_m$ ), otherwise if  $L_c < L_m$  can disturb the stability of the stock indeed cause over fishing of *S. boops* in Bitung waters. The value of F/M from the analysis shows that *S. boops* has F/M values of  $> 1$  which means that the number of fishing mortality is higher than natural mortality due to fishing activity. Uncontrolled fishing can lead to a decrease in the average age and size of fish (Trippel 1995; Hutchings 2004; Allan & Castillo 2007). Walters & Martell (2004) state that fishing exploitation should be selective to the size of the fish, it's intended to avoid the occurrence of recruitment overfishing and growth overfishing.

This species is restricted to the Indo-West Pacific except for one confirmed record from Sesimbra Bay, Portugal. Elsewhere, this species has been recorded from the Andaman Islands to Vanuatu (Smith-Vaniz 1984), north to the Philippines, south to northern Australia (Paxton *et al* 1989), including Palau, New Caledonia and the Solomon Islands (Smith-Vaniz 1984). The result of genetic confirmation by phylogenetic tree (Figure 3), explains that the local type of trevallies namely Tude Batu which captured in waters around Bitung within Molluccas Sea is *S. boops*. Confirmation species using genetically is very important in the management of fish resources based on stock especially in Bitung waters area. By knowing valid species, sustainable management strategy can be developed. Phylogenetic trees have several uses such as summarizing the phylogeny of organisms by combining it with other data source analysis, studying co-speciation, calibrating the rate of molecular evolution, determining the age of estimate or genealogy, gene duplication analysis, estimating diversification rates, extinction, polymorphism, recombination, and population dynamics (Holder & Lewis 2003).

The findings of the overall growth this study  $b = 3.164$  (FL) was similarly demonstrated by Isa *et al* (1996) and Gumanao *et al* (2016) which also it showed a positive allometry  $b = 3.174$  (TL) and  $b = 3.234$  (SL) respectively. Our result suggests that the *S. boops* in Bitung waters area grows faster in weight than length and the slope (b) value male slightly higher than female. This variation may be due to the difference in body forms, nutritional condition, and/or number of samples. Pauly (1984) suggested that "b" value less than 3 indicated that fish becomes more slender as it increases in length and with a value greater than 3 denotes stoutness indicating allometric growth. Differences in the value of b can give a picture of the differences in morphological characters of fish. The greater the value b the fish body is plumper. For example in this study the body shapes female of *S. boops* is plumper compared to male. LWR can be used as a character for taxonomic unit differentiation and changes in relationships with life events in life such as metamorphosis, growth and maturity (Thomas *et al* 2003), and as an important tool in exploiting appropriate fishing practices, as well as managing fish populations (Ahmed *et al* 2011; Valeria *et al* 2014).

Based on sex ratio this study was found that proportion of male slightly higher than female (1.12:1) and Chi-square analysis shown that balance proportion between male and female. The sex ratio male to female was high in six months: March (1:0.51), April (1:0.48), June (1:0.79), July (1:0.86), September (1:0.80) and January (1:0.52) while female to male ratio was high in six months too: February (0.41:1), May (0.95:1), August (0.92:1), October (0.73:1), November (0.74:1) and December (0.87:1). This conveys that sex ratio during this study was fluctuated, however males were observed to be dominant than females. Although the sex ratio in nature often occur deviations from ideal conditions, at least proportion of females should be more than males (2:1) for schooling fish to keep population conditions stable for sustainability resources (Ball & Rao 1984; Rahman *et al* 2013).

Gonadosomatic index (GSI) analysis for females of *S. boops* showed the lowest values in the beginning in February 2016 to September 2016 and progressively increased in October 2016 to January 2017 with the highest GSI recorded in October 2016. This indicated that the spawning periods of *S. boops* in Bitung waters area occurs throughout in October

2016 to January 2017 with peak season in October 2016. Based on GSI analysis it can be concluded that spawning season of *S. boops* in Bitung waters area occurs once in a year. This conveys that fishing exploitation have to attention the spawning season of *S. boops* for recruitment to keep stocks stable. Based on macroscopic and microscopic identification at the gonad maturity stage, the percentage between immature and mature were 59.95% and 40.05%, these result indicate that fish were caught generally immature. Sparre & Venema (1998) state that if there are too few old fish the stock is overfished and the fishing pressure on the stock should be reduced and if the fish are caught too young there is growth overfishing of the stock.

## CONCLUSION

This study provides the first description of *S. boops* in Bitung water area in Indonesia. There were strong relationships between the lengths and weights of *S. boops* where there is high dependency of weight on length. Both of sexes were experiencing positive allometry growth. Spawning periods of *S. boops* throughout in October to January with peak season in October. Gonad development during spawning season is one factor that affects gonadosomatic index of fish which is also evident in this study. Sex ratios for *S. boops* were balanced with partial spawning type. The length at first caught ( $L_c$ ) is smaller than the length at first maturity ( $L_m$ ), therefore the some aspects of biology of *S. boops* related to legal-size are needed in fisheries management.

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## **NORMATIVE ANALYSIS ON INVESTMENT IN MARINE SECTOR OF INDONESIA**

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### **ABSTRACT**

As a maritime country, Indonesia has great potential for future energy interests. However, the natural resources of the marine sector have not been properly managed so that the existing potential becomes dormant. The government needs investors to support the development of marine sector. Indonesia's marine potential value is estimated to reach Rp 3,000 trillion, but only Rp 300 trillion can be cultivated. This imbalance requires cooperation between the parties in order to build the welfare of the nation. In the implementation, investment in Indonesia still leaves the problem of the surrounding community. Like a rejection of a company that does business. In certain cases, this conflict led to the cancellation of investment business from investors. The main support from community figures such as religious and cultural figures are important considering the ethnic, cultural and religious diversity of Indonesians. This study examines the normative analysis to see the opinion of both figures in investing in marine sector. Using a qualitative approach to get more in-depth results. The results show, there is no impact either culture or religion with investment. Cultural and religious figures actually advocated the importance of investment to support the realization of the welfare of society. However, investments carried out should not violate customary law and local beliefs.

### **KEY WORDS**

Investment policy, marine sector, normative analysis, society, welfare.

Indonesia as a developing country need resources to promote development in all fields. All available resources including natural resources, human resources and energy must be found and utilized for development purposes. Indonesia is the largest archipelago in the world with the total number reaching 13 466 islands. Consists of five major islands and 30 smaller islands group. Archipelago is formed of mountains stretching from west to east, passed the Equator and located between the continents, the continent of Asia and Australia, and is surrounded by the Indian Ocean and the Pacific Ocean so that puts it in a strategic region of the world.

With thousands of islands that stretches 5,120 km, the area of Indonesia comprises 30%, while the remaining 70% is ocean. Indonesia's land area alone amounts to 1.91 million km<sup>2</sup> and oceans are 6.279 million km<sup>2</sup>. Famous islands in Indonesia are Sumatra, Java, Bali, Kalimantan, Sulawesi, Maluku and Papua, then the rest are small islands. Each island has a unique culture, customs, beliefs, food, historical stories, as well as the beauty of the landscape. Indonesia has a population of more than 235 million people or fourth most populous in the world. Comprised of approximately 350 to 483 ethnic languages and cultures.

Saiful (2015) mention that together with the three big countries, namely China, India and Australia, Indonesia is considered as a major player in the region surrounding the Indian Ocean. Even many people assume that Indonesia is a determinant of progress in the region along with India. China, although not directly bordering the Indian Ocean, already see the location and the strategic role of this region. In fact, for the geopolitical interests of China has begun to build strategic interaction with the countries in the Indian Ocean. Myanmar near China politically can provide direct access from mainland China to the Indian Ocean.

In Indonesia, there are 13 provinces and 70 regencies / cities bordering the Indian Ocean, including Aceh. In contrast to other provinces in the southern part of Sumatra were faced with vast expanse of ocean, Aceh is the ocean gateway to countries, peoples, cultures and civilizations in the Indian Ocean region.

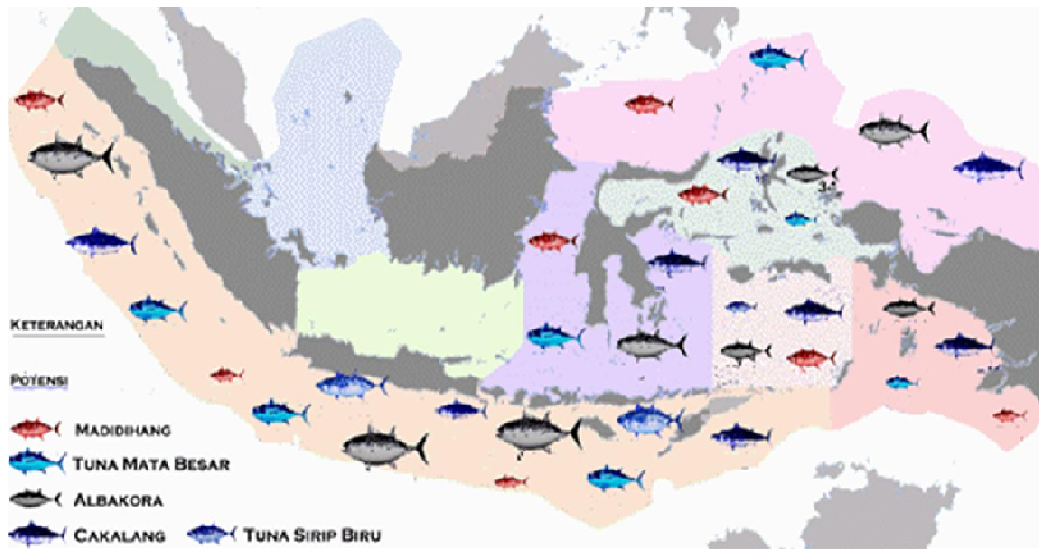


Figure 1 – Map of marine and fishery potential of Indonesia

The formation of the Ministry of Marine and Fisheries was basically a challenge, and an opportunity for the development of marine and fisheries sector in Indonesia. That is, how the ministry is putting marine and fisheries sector as one of the leading sectors that can deliver the Indonesian nation out of the prolonged economic crisis. At least there are some basic reasons underlying it. (<http://kkp.go.id/sejarah> (2016).

First, Indonesia is an archipelago with 17,508 islands and a number of 81,000 km coastline not only as the largest archipelago in the world but also save natural resources wealth of marine and large have not been used optimally.

Second, for decades, the development orientation of the country has been towards more land use, resulting in land resources depleted. It is therefore natural that marine resources and fishery should be developed for future.

Thirdly, linked to population growth and increased human awareness of the importance of fisheries and marine products for the health and human intelligence, it is believed to still be able to improve fisheries and marine products in the future. Fourth, coastal areas and oceans are dynamic not only have the resource potential, but also has the potential for development of a variety of development activities that are extraction such as industrial, residential, conservation, etc.

The economic potential of Indonesian marine and marine-related activities, such as fisheries, sea transport, maritime industry and marine tourism has increased significantly. In Indonesia, the new sea-based industries have been growing rapidly and will continue to grow in the future. It offers enormous economic opportunities, especially for investors and banks. The potential value of marine economy is estimated to reach Rp 3,000 trillion per year, where the value of economic activity in 2013 only around Rp 291.8 trillion. These values reflect that marine economic potential of Indonesia as a maritime state has not been optimally, even almost untouched investors and banks

The economic opportunities derived marine potential of seabed mineral that is currently entering the initial exploration stage. A series of studies have been conducted to explore the mineral and sea water. Where seventy percent of the 60 potential sites for oil and gas deposits located in the sea world. In addition, new energy and renewable energy such as offshore wind, tides and waves, and marine biotechnology are also plentiful and still need to be explored and developed in the future.

In addition, the marine transportation sector provides huge investment opportunities in infrastructure, shipping and shipbuilding, ports, docking, and other activities, such as logistics and trade. Since 2006, Indonesia has become one of the leading ship of 22 countries in the world, which has built 126 ships, or about 586.00 Gross Tons and investment opportunities

are still open. Among the investment opportunities related marine sector is a marine tourism. Indonesia with 104,000 km coastline and thousands of islands have marine tourism potential is very large.

There are eleven sectors of the marine economy can be optimized, namely: capture fisheries, aquaculture, fishery product processing industry, industrial bio-technology marine, mining and energy, marine tourism, mangrove forests, sea transportation, resource area small islands, industry and maritime services, as well as the natural resources of non-conventional.

The total economic value of the eleven sectors of the marine economy is estimated to reach more than Rp. 3.000 trillion / year and can provide employment to over 40 million people. From all this potential, only Rp. 291.8 trillion alone, or less than 10 percent that has been well explored. If it is managed properly, many people believe that this potential can make a major contribution to the welfare and prosperity of the people of Indonesia.

The reality today is really ironic. Coastal communities that are dependent on the maritime sector is precisely the poorest people. Based on data from the Central Statistics Agency (BPS) in 2008 stated that the poor people in Indonesia reached 34.96 million people and 63.47 percent of them are people who live in coastal areas and rural areas.

Table 1 – The export volume of Indonesia fisheries product by country of destination 2010-2014

Destination	Year					Increasing average (%)	
	2010	2011	2012	2013	2014	2010-2014	2013-2014
Total (unit; ton)	1.103.576	1.159.349	1.229.114	1.258.180	1.274.982	3,69	1,34
PRC	213.055	242.397	295.486	336.648	344.374	12,97	2,29
Thailand	193.723	160.471	216.407	227.947	198.871	2,57	-12,76
USA	127.792	126.931	133.476	136.847	168.017	7,45	22,78
Japan	126.514	123.830	118.732	115.594	108.847	-3,68	-5,84
Malaysia	53.353	54.885	53.187	55.059	58.057	2,19	5,45
Singapore	44.751	65.926	42.840	42.332	39.388	1,04	-6,96
Rep. Of Korea	31.543	32.662	30.527	26.016	28.166	-2,38	8,26
Italy	11.734	15.365	11.318	13.236	18.565	15,45	40,27
United kingdom	11.401	11.454	13.334	16.986	17.329	11,57	2,02
Others	250.522	294.284	276.082	256.363	259.778	1,37	1,33

Source: *Marine and fisheries in figures, 2015*.

"Axis of World Maritime" This is a serious challenge Jokowi government now. Moving into a maritime continental orientation is not an easy issue because it requires development in various sectors and scales. In reconstructing the Indonesian maritime country includes not only economic, but also the environment, defense and security, science and technology, socio-cultural, and institutional. In the economic sector alone, according to some circles, the government should at least have to immediately develop maritime connectivity, revitalizing marine economic sectors that have so far, in addition to develop other sectors of the marine economy's new.

People's demand for the fulfillment of public facilities continued to increase both in quantity and quality. The government will be difficult to compensate if only using traditional methods because the provision would be constrained by financial resources, technology and

even managerial. One alternative to overcome the obstacles is investment policy for marine sector. This concept has been applied in various countries and regions with different benefits and drawbacks that exist in it. For the area, this is an alternative to accelerate infrastructure development and optimization of asset management / wealth of the area as well as potential sources of local revenue. Commitment of policy makers and various technical considerations will determine the success of its implementation in the area.

Supriatna (2008), revealed that since autonomy is rolling, there is overlapping authority and regulation between the Central Government and the regions, between one sector and other sectors, between certain public and community needs in one location. A wealth of resources utilization context in Indonesia, is still often give rise to differences of interest between Government, the public sector, and private sector. The cases often occur and can not be avoided, when in the area found the quarry material (such as oil, coal, etc.) that are very profitable. The conflict between the Central Government with local Government can arise due to different interests.

This study aimed to regulatory evaluation and normative analysis of investment in marine sector in Indonesia.

*Maritime Affairs And Fisheries Policy Forward.* Sutardjo (2014) reported the development of a national marine policy has the objective to strengthen the sovereignty and unity of the Republic of Indonesia as an archipelagic country. Developing a sustainable marine management systems to governance and the space utilization of marine resources integrated with the concept of the island nation. Develop a system of marine resource management and marine services to boost economic growth and equity towards more robust maritime nation. Improving the welfare of the community.

National marine policy needs to be based on some principles, namely base Islands and Welfare State: Development based sea island nation and welfare. Most of the area in the form of sea which brings together thousands of islands as a whole territory of the Republic of Indonesia. Sustainability, balance the economic, social, cultural and environmental conservation to meet the needs of today and the future. One Unity Ecosystem, An archipelago of Indonesia should be seen as a whole marine ecosystems, land, and atmosphere.

Multi Use Marine and Integrated Management, Utilization of marine diversity of natural resources grow the diversity of economic activity, trade, social, cultural, environmental, defense and security in the marine and coastal management system requires Seafood. Good Ocean Governance, sustainability, based knowledge, accountability, participation, coordination, decentralization, justice, the interests of national and international attention to the relationship.

Implementation of these policies include 3 approaches consist of:

- a. Application of the principles Seafood Good Governance (good ocean governance): ie towards sustainable development of marine resources through the development of integrated marine utilization system (integrated sea use management),
- b. Development of Economic Zone Blue: the economic region as a center for environmentally friendly economic growth,
- c. Development of Investment and Business Model Blue Economy: the system of investment and businesses that use the principles of sustainability, resource efficiency, do not leave any form of waste, and social concern, which is to increase income and employment more widely.

The growth of construction and industrial projects in international public works agreements has significantly increased in recent decades, particularly in Asean and Indonesian. The phenomenon of public –private partnership (PPP), though far from being novel, is still being actively developed, with many conceptual issues remaining subject to discussion

So is the case with Indonesia, as a developing country in need of a big budget to build infrastructure in various fields. These budgets needs can not be met by the government. (Zapratina, Zveverev, Rodina, 2015). In cooperation must of course be done with the understanding that is protected by law. The model law defines PPP as “mutually beneficial

cooperation of public and private partners which is legally documented for a specified period of time, based on their pooling of resources (including monetary funds and other property, professional and other knowledge, expertise, and skill) and allocation of risk among them (including financing and construction risks, risks associated with ensuring of accessibility of demand for a public-private partnership object or respective public services as well as other related risks) in order to achieve governmental, municipal or other public interest goals within the area public interests and control”.

In practise, these ideas were mainly supported by the public-sector reform movement known as New Public Management (NPM). That intensively supported the decentralisation of government and the privatisation of public service which should be handed over to private companies. (Kitsos, 2015). The NPM strongly favors basing public administrative decisions on market criteria. In general, NPM embraces entrepreneurial organizations, considers customers satisfaction of key importance, and seeks to set up performance based organizations to mirror private corporations in performing government operation.

According to Rosenbloom (2013), New public management (NPM) is a public management concepts that apply to the private sector working practices of the public sector to create efficiency and effectiveness of government performance that will create welfare society (public welfare). One of the important theoretical source of New Public Management is humanism organization. Over the last thirty years, the theory of public administration have joined in the other disciplines in showing the traditional hierarchical approach to social organization that strict in their view of human behavior, and they have joined in the criticism of bureaucracy and seek alternative approaches to management and organization. Collectively, these approaches have attempted to fashion a public organization less dominated by issues of power and control as well as more attention to the needs and concerns of internal and external constituents.

Ismail (2011) argues that the great influence of cultural and legal globalisation played a fundamental role in the liberalisation, modernisation and internationalisation of the administrative contracts theory. Globalisation, after all, represent not only the flow of capital, commodities, individuals and other tangibles, but also intangible values, such as cultural and legal influence.

Dwiyanto (2006) state that the success of the development efforts of Government and private partnership in public services is determined by many factors, including: (1) a partnership that emphasizes on coproduction and co-provision will only be effective if followed by a change in attitude and orientation of bureaucratic government officials; (2) the Government needs to continue to develop and provide facilities for the development of the private sector; (3) the Government needs to reduce his involvement in public service operations if the private sector organizations volunteer and business companies can already do it; (4) the transfer to the private sector the role of Government should be done in transparent and open; and (5) the grant of power to the private sector need to be followed by improvements to the effectiveness of the political and bureaucratic with control.

## **METHODS OF RESEARCH**

This research used the qualitative approach, since, first, the study rests on the power of narrative or explanation regarding the verbal description of the investment policy, second, researchers tried to do some research for what it is. That is, element manipulation be avoided wherever possible. Third, inductive analysis used because the method of data retrieval done through in-depth interviews and questions submitted to its open, where the interviewee is free to answer questions submitted in accordance with the definition which he saw. The third reason above is reinforced by an explanation by Patton (1990) that the ideal method, a strategy that is typical of qualitative consists of three parts: (1) the qualitative data, (2) investigation of naturalistic and (3) analysis of the content of the inductive basis or based on the case.



The expectations of researchers through the research approach, information can be obtained about existing phenomena and facts about the implementation process of the implementation of Government and private partnerships in maritime sector.

Neuman (2013) says that for qualitative research, the selection of the sample (informants) is more appropriately done deliberately (purposive sampling).

To obtain accurate information in this study then the researchers using the technique of sampling aims (purposive sampling) because the informant taken knowing and experienced in private-Government partnership program marine sector of Indonesia.

In this study, the informants were selected based on criteria that have been established, including: a) individual who understands and is directly involved on investment policy in marine Indonesia., b) individuals who understand, coupled and involved indirectly on investment policy in marine Indonesia

Based on these criteria then the selected distinguished informant over two large categories, which are: a) groups directly involved, Government (decision maker and official), investor b) groups that are involved indirectly, including from NGOs, local custom actor and fishers as well as the community.

In-depth interviews is a way used by the researcher/interviewer for the purpose of getting information establishment orally a face-to-face interviews with respondents. (Malo & Trisnoningias, 1992:124-125). The purpose of the interview is to obtain primary data obtained directly from the informant by asking questions that aim to dig in and get information relating to the research issues.

## RESULTS AND DISCUSSION

Raihanah (2016) said that there are four important things to note, in order to attract and bring in Indonesian fishery investors. First, the availability of fish resources is very important in building the fishery industry, because fish is the main raw material that must be available continuously.

Second, facilities and infrastructure. Ocean fishery ports serve large capacity ships, so the fish are landed fish for industrial raw materials for export purposes. If this facility is adequate, fish resources are still maintained and sustainable then investors will come to invest. Fisheries commodity is a promising business opportunity, world market demand is very high for the fishery sector. Moreover, some areas of fisheries management in the country have shown excessive catch.

Third, clear and easy regulation of fisheries and eliminate permit requirements that hamper the investment climate, but it is necessary to create quick and easy services in line with central government policies. Cooperation between agencies should also be in line so as not to make the impression difficult.

Fourth, security. The security guarantee for investors in investing is highly deserved and should be realized in any situation. In the discussion of this research, security assurance is related to the context of a plural Indonesian society. As a large country with diverse ethnicities, different cultures and local wisdom it is very important to pay attention and maintain a harmonious relationship between the investment actors and the surrounding community.

Table 2 – The potency of aquaculture area and usage level in indonesia, 2014

No	Type of aquaculture	Potency	Usage	Developing opportunity	Percentage of usage aquaculture area
1	Brackishwater pond	2.964.331	667.083	2.297.248	22,50
2	Freshwater pond	541.100	161.387	379.713	29.83
3	Inland operator	158.125	1.707	156.418	1,08
4	Rice fish	1.536.289	142.122	1.394.167	9,25
5	Mariculture	12.123.383	281.474	11.841.909	2,32

Source: *Marine and fisheries in figures, 2015.*

The Indonesian government recognizes and places adat law as one of the sources of formal law. The custom of the local people is called an unwritten law. Likewise the people, called indigenous peoples because they still run these habits so that the norms in every line of life. Mansur, T. M. (2016) defines adat as a rule or rule made by man who has been practiced in the past in the form of deeds, behavior and speech to regulate the order of community members. The emphasis on the dimension has always been a sign that the practice is still practiced until it is repeatedly practiced by the people.

Furthermore, Mansur, T. M. (2016) states that adat is a custom, tradition, human behavior that is consistently followed by society in order to regulate their order to order and orderly lives. This order encompasses all aspects of people's lives, including jobs and professions. Farmers, fishermen, traders are the professions of society that become the sphere of customary order.

In practice, the existence of adat law is very inherent with religious teachings, especially Islamic religion. Customary law and religious law do not touch each other because some customary law is absorbed from religious teachings. If there is a difference, then religious law is adhered to and adhered to by the people. In practice, adat leaders and religious leaders are people who understand the customs and at the same time a strong religious understanding so as to explain and foster society based on custom and religion.

Customary law and religion that develops in Indonesian society also alludes to modern problems, such as investment, corporations and macroeconomics for the benefit of the state and nation. The economic growth of the country is very important for the sustainability of its people, therefore the indigenous people and religion support the existence of investment, both foreign investment and domestic investment. For the record, the presence of investors and businesses does not undermine and disrupt the rights of communities protected by the state and local customs.

So far, if the existence of the investors actually have an impact on the addition of local people's income, job opportunities and economic wheels berputaranya. In this context, traditional and religious leaders strongly support every effort undertaken by the entrepreneur. Based on an interview with Rahman Kaoy (2017), one of Aceh's religious and cultural figures said that the migrant community needs to adjust its situation with the people of Aceh, the prayer should not be disturbed. See what conditions are there. Not the aceh people do not accept foreigners. The assumption of the aceh people is that all human beings are siblings of the offspring of the prophet adam. The people of Aceh believe in the truth of the Qur'an, coming for brothers are allowed. Not interrupting, helping each other, doing good, brainstorming. Accepted as long as it does not interfere with religion, the state of society, although different religion is not the problem of origin does not disturb.

Capital Status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Foreign investment	16	16	7	8	10	6	4	7	7	10	9	10	9	11	13	13	11
Domestic investment	52	52	18	17	22	10	3	4	11	17	21	24	32	40	24	50	65
other	75	74	9	9	19	15	20	22	25	22	25	28	33	33	40	23	19
total	143	142	34	34	51	31	27	33	43	49	55	62	74	84	77	86	95

Figure 2 – number of fishing companies by capital status, 2000-2016

Investors are allowed to establish companies and run their business in various places in the territory of the Republic of Indonesia as long as they comply with the rules set by the government. The rules are not only related to the business sector, but also the rules of custom and religion that apply in the business area.

Alyasa (2017) also gave a similar answer, that between religious teachings are not contrary to business actors. Instead, it advocates for adherents to invest. I think there is no contradiction between Islamic teachings and investment. Because Islam itself teaches to prosper the earth. To be the Caliph on earth. Then, in the history of the Islamic Ummah itself called investment and trade it is advisable. But there are things that must be taken care of,

not violating some principle of prohibition. Like not doing the practice of usury, not exploitative. No monopoly, that's all.

Islamic syariat does not hamper investment, If there is any incident that happened it is not because of Shari'a. There are other factors, things that could be poor communication, can be exploitative with the surrounding community. It is possible to relate to social and economic, not religious.

Syahrizal (2017) states that the Government can guarantee the existence of investors. There is a presumption of people as if there are obstacles from the side of sharia, there is no it. The most important thing is to communicate well, with the government and society. Not only is he aceh, everywhere is like that. The prejudice is not grounded. Indeed there is a lack of us that, the lack of building communication about the existence of sharia in aceh.

There was no effort from the people who came exclusively to discourage the existence of investment. Precisely the main problem of our society today is the economic problem. There is no certainty what the community is working for. So many wild issues are growing in the community. It is as if there is a society that inhibits the existence of investment in aceh.

Investment in Indonesia is very large potential, but must consider the social, cultural and environmental awareness of the community. So important in a company's feasibility study, in the study should also be able to map the existence of environmental factors both social and other.

The government strongly supports the existence of investment, as disclosed by Zulkarnaen (2017) The principle of government is very open with investors, from wherever please come. But what needs to be maintained is the existence of local culture. Administration is facilitated by, if necessary initiated business forums with various countries. Including china and other countries in the world.

Allows to make a direct connection between the government and China, although managed by the region and the country. The potential in aceh is enormous, all we have to do is build communication with the outside world, especially with the international market.

Governor of Aceh is very focused with the presence of investors, which must be considered is the action after the visit. Do not just visit and build cooperation. If there is a follow-up action, directly processed with principle permission.

In carrying out investment in the marine sector is very important to pay attention to the existence of fishermen, especially fishermen adjacent to the investment location. Muttaqin (2017) states that Panglima laot protects the existence of fishermen, coordinates with the government by providing input to government policy. The presence of investors should not hurt the small fishermen. The principle, please investors profit, small fishermen also have to benefit. In some cases, violations committed by large investors, such as those related to catch areas. In the rule, boats that have 30 GT engine capacity should not catch fish below 4 miles. They should go to 12 miles. It is arranged in fisheries.

Local wisdom is to save the existence of nature, investment is allowed but note the environmental, social, natural and other environmental. Syahrizal (2017) also revealed the same thing that there should be no aggrieved parties, budgeting out of contract if the Shari'a runs. Investment must pay attention to the existence of environment, CSR. Treat the environment as it should. If you really do invest, go ahead.

The government will help and protest and encourage to help your investment. The government will also assist the existence of entrepreneurs, whether the community gets the benefits of employment, the government gets revenue and business actors also gain profit. Now that must be considered is comfort and stability. Actually, there should be no fear. Society also need not be feared. Unless we discriminate, treat people according to their qualifications.

The religion of Islam adopted by the majority of Indonesian people and the culture of the local community is not at all contrary to the investment efforts, be it domestic or foreign investment. The presence of investors is actually able to increase the economic turn around the community. Abizal (2017) mentions, in Islamic teachings, investment is encouraged. The wealth is the most from the source of trade, including the investment. Investments are fine. Someone is giving capital to a place / country. For example, in a plantation there are those

who provide land and some give their services. But in the corridor that does not deviate from the provisions of God, for example investment related to usury.

Rusmilyansari (2010) says that there are five conflict-causing indicators that significantly contribute to conflict-causing factors. These indicators are: (i) competence in resource utilization (ii) the presence of opposing parties (iii) economic conditions of the community (iv) many of the parties involved and (v) cultural and customary backgrounds. So the factor that causes the conflict to be considered is the interaction of the five indicators.

The existence of investors allows the emergence of conflicts between groups in society if not regulated as possible. Law Number 25 Year 2007 on Capital Investment states one article governing CSR. Article 15 letter b reads as follows: "Every investor shall be obliged: to carry out corporate social responsibility." Elucidation of Article 15 letters adds that what is meant by "corporate social responsibility" is the responsibility attached to each investment company to keep creating a harmonious relationship, balanced, and in accordance with the environment, values, norms, and culture of local communities.

While Law Number 13 Year 2011 on the Handling of Poor states, there are at least two articles that pertain to CSR in Law no. 13 Year 2011. First, Article 36 paragraph (1) letter c which states that one of the funding sources in handling the poor, is the funds set aside from the company. This provision is affirmed by Article 36 paragraph (2) which reads, "The funds set aside from the company company as referred to in paragraph (1) letter c shall be used as much as possible for the handling of the poor."

In addition, there is also Article 41 which uses the term community development. Article 41 paragraph (3) explains that business actors participate in providing community development funds as a manifestation of social responsibility for the handling of the poor.

Both of these rules firmly state the investors to carry out the obligation to maintain the relationship between the company and the community and the environment. Religious groups, cultures and companies alike carry out the task of maintaining diversity and effort. This obligation applies to domestic and foreign capital investors, if not done can be subject to administrative sanctions in the form of: written warning, restrictions on business activities, freezing of business activities and / or investment facilities; or revocation of business activities and / or investment facilities.

## **CONCLUSION**

Maritime potential is an investment opportunity for the future of the Indonesian nation. To manage it, it takes a lot of capital both coming from local and foreign investors. The existence of investors should not damage the culture, social, religion and environment of the surrounding community. In the view of religious and cultural figures there is no persolan between investment and socio cultural life of society. If there is any turmoil between the company and the surrounding community is triggered due to unfulfilled licensing and rights issues.

On this basis, it is important for governments, investors to delve deeper into the rules that apply to run businesses in Indonesia. After that, it needs a joint supervision involving the community that the rules are run by the government itself and the investors.

## **CONFILICT OF INTERESTS**

Author celarly declare that they have no competing interests.

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**ASSESSMENT OF SMALL-SCALE FISHERIES MANAGEMENT  
USING ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT INDICATORS  
IN SAWU SEA MARINE NATIONAL PARK, INDONESIA**

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**ABSTRACT**

Ecosystem approaches to fisheries management are considered as an effective alternative at managing sustainable small-scale fisheries and supporting conservation program in Sawu Sea Marine National Park (Sawu Sea MNP); therefore, implementation of EAFM in Sawu Sea MNP requires a strategic way. This present work aimed to evaluate current status of small-scale fisheries management using EAFM indicators. The evaluation results are then used for establishing the development strategies of sustainable small-scale fisheries using ecosystem approach in Sawu Sea MNP. The study was conducted in Rote Ndao, which is a sub region of Tiroso-Batek, Sawu Sea MNP. Data collection and analysis was performed according to EAFM assessment covering 30 indicators grouped into 6 domains. Based on evaluation of EAFM indicators, the composite value of small-scale fisheries management in Sawu Sea MNP ranged from 30.0 to 63.6 with the average value of 52.4. The value indicated that the state of small-scale fisheries management in Sawu Sea MNP was observed at medium level. Based on assessment of each domain, the economical domain was at bad level, while other domains (fish resource, habitat and ecosystem, fishing technology, social and institutional) were found at medium level. These our findings suggested that small-scale fisheries management in Sawu Sea MNP has not been managed optimally based on sustainable principles in EAFM indicators. Further improvement is addressed to economical domain in order to develop the small-scale fisheries management in Sawu Sea MNP.

**KEY WORDS**

Sawu Sea Marine National Park, small-scale fisheries, development, economy.

Small-scale fisheries have played important role in supplying food and employment for coastal communities that rely on fish as a single natural commodity (Alfaro-Shigueto et al 2010), as well as providing major employment and protein source for most population worldwide (Hauzer et al 2013). On the other hand, the small-scale fisheries have faced problematic facts related to reduced catch and environmental degradation (Hauzer et al 2013), as well as over capacity (Pomeroy 2012). Therefore, small-scale fisheries need to be managed properly which aims to achieve sustainable development (Hauzer et al 2013). Pomeroy (2012) stated that overcapacity in small-scale fisheries in Southeast Asia requires integrated approaches including resource restoration and conservation.

Currently, a fisheries management approach is developed to enhance the sustainability of fisheries resource utilization considering the effectiveness and precautionary. Since 2001, Food and Agriculture Organization (FAO) has introduced Ecosystem Approach to Fisheries Management (EAFM) (FAO 2003), which is an alternative approach to fisheries management that addresses fisheries as an ecosystem; thus, its management needs to cover all relevant

aspects (Cristie et al 2007). Specifically, EAFM is defined as fisheries management that considers knowledge and uncertainties about components of ecosystem including living marine resources, habitats, human, and strives to balance various societal objectives (Pomeroy et al 2010). EAFM aims to balance economical-social and ecological objectives in which both is included in EAFM indicators divided into two major aspects: ecology (fisheries resource, habitat, fishing technology) and social (institution, social, and economical activities) (Adrianto et al 2012; KKP RI 2013; NWG EAFM 2014). In the EAFM perspective, marine protected area is regarded as the most suitable instrument to overcome various emerging fisheries problems, i.e. conserving exploited fish stock and biodiversity as well as improving fish catch and other societal objectives (Batista et al 2011).

Managing fisheries based on ecosystem approach is considered as the right option in order to achieve small-scale fisheries management goals and strengthen Sawu Sea MNP comprehensively. EAFM implementation in this site requires adaptive and precautionary approach to obtain effectiveness and successfulness; thus, strategies to implement EAFM in Sawu Sea MNP are necessary. The strategy is established using specific and measurable indicators that can describe the performance of fishery management, which in turn, they serve as reference to create sustainable fisheries management using ecosystem approach.

This article aimed to assess the state of Sawu Sea MNP using EAFM indicators in which they were then used as basis to determine further strategies to achieve sustainable small-scale fisheries management using ecosystem approach.

### METHODS OF RESEARCH

This study was performed in sub region Rote Ndao, Sawu Sea MNP, Province of East Nusa Tenggara. The study site is selected for a major reason, that the location showed the highest fishing activity as indicated by the highest number of fishers and fishing boats compared to other sub regions. Sampling location (villages) was determined based on the highest fishing activity including: Oenggai, Nggodimedda, Metina, Oelua, Nemberala, Oeseli, Batutua, Daiama and Nuse (Figure 1).

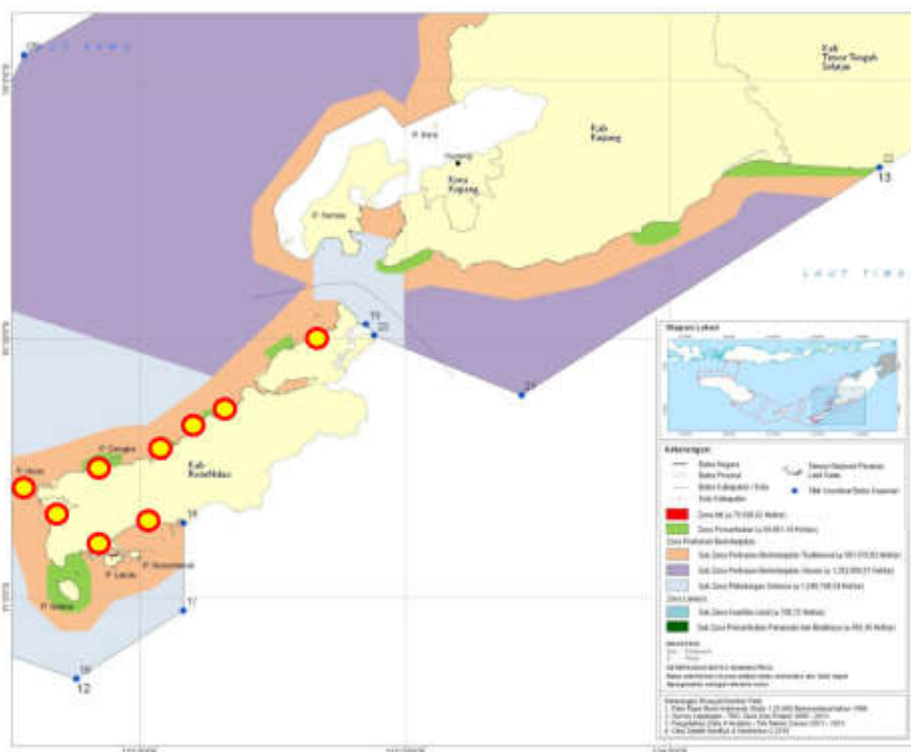


Figure 1 – Map of the chosen fishing community in the sub region Rote Ndao, Sawu Sea MNP (Taken and modified from KKP RI 2013)

Data were collected according to EAFM indicators of KKP RI (2013) using survey (interview, sampling, catch measurement) and observation method. The observation was held on small-scale fisheries activities while interviewing. In addition, incidental participative observation was also performed through observing fishing activities.

The state of small-scale fisheries in Sawu Sea MNP was analyzed using EAFM method (Adrianto et al 2012; KKP RI 2013; NWG EAFM 2014). In this study, 30 indicators divided into 6 domains (fish resources, habitat and ecosystem, fishing technology, economy, social, and institutional) were assessed. Each indicator may have different weight and criteria (KKP RI 2013; NWG EAFM) and is evaluated using flag model. The flag model technique is used using multi-criteria analysis (MCA) where a set of criteria was established as base for the performance analysis of the fishery management area through development of composite index (Adrianto et al 2012). The stages are described as follows:

- Selecting criteria for each indicator of EAFM aspects (habitat, fish resource, fishing technology, social, economy, and institutional) as described in Table 1;
- Assessing the performance of each indicator tested;
- Scoring each indicator performance (Likert score based ordinal 1, 2, 3);
- Determining the weight of each indicator;
- Determining composite index for each aspect using following function:

$$CA_i = f(CA_{n_i}, \dots, n=1,2,3, \dots, m)$$

- Determining composite index for entire EAFM performance using following function:

$$C-WPP = f(CA_i, \dots, i = 1,2,3, \dots, j; j = 6)$$

Table 1 – Domain, indicator and criteria for assessment of small-scale fisheries using EAFM analysis

Domain	Indicator	Criteria
Fish resource	1. Raw CPUE	1 = decrease sharply (average decrease > 25% per year); 2 = decrease slightly (average decrease < 25% per year); 3 = stable or increase
	2. Fish size trend	1 = average caught fish size is getting smaller; 2 = average caught fish size is stable; 3 = average caught fish size is getting bigger.
	3. Proportion of juvenile fish	1 = an awful lot of (> 60%); 2 = a lot (30 - 60%); 3 = few (<30%).
	4. Composition of caught species	1 = proportion of target species is lower (< 15% of total volume); 2 = proportion of target and non-target species is equal (16-30% of total); 3 = proportion of target species is higher (> 31 % of total volume).
	5. "Range Collapse"	1 = more difficult, depending on target species 2 = relatively constant, depending on target species 3 = easier, depending on target species
		1 = fishing ground is too far, depending on target species; 2 = fishing ground is far, depending on target species; 3 = fishing ground is fixed, depending on target species.
6. Species of ETP (Endangered, Threatened and Protected)	1 = caught but not released; 2 = caught, but released; 3 = no ETP species caught.	
Habitat and ecosystem	1. Quality of waters	1 = upper of environmental quality standard; 2 = same with environmental quality standard; 3 = under of environmental quality standard.
	2. Status of seagrass	1 = seagrass cover is lower, ≤ 30% 2 = seagrass cover is medium, >30% - <60% 3 = seagrass cover is high, >60% 1 = Biodiversity index is low (H'<3,2 or H'<1) 2 = Biodiversity index is medium (3,2 <H'<9,97 or 1<H'<3) 3 = Biodiversity index is high (H'>9,97 or H'>3)
	3. Status of mangrove	1 = mangrove vegetation cover is low, < 50% 2 = mangrove vegetation cover is medium, >50% - <75% 3 = mangrove vegetation cover is high, >75% 1 = density is low (<1000 tree/ha) 2 = density is medium (1000-1500 tree/ha) 3 = density is high (>1500 tree/ha)
	4. Status of coral reef	1 = live coral cover is low, <25%



		2 = live coral cover is medium, >25% - <50% 3 = live coral cover is high, >50% 1 = Biodiversity index is low ( $H' < 3,2$ or $H' < 1$ ) 2 = Biodiversity index is medium ( $3,2 < H' < 9,97$ or $1 < H' < 3$ ) 3 = Biodiversity index is high ( $H' > 9,97$ or $H' > 3$ )
	5. Specific/unique habitat	1 = unknown; 2 = known but not properly managed; 3 = known and properly managed.
	6. Climate changes on condition of waters and habitat	State of knowledge level: 1 = no study on the impact of climate change; 2 = the impact was identified, but not accompanied by adaptation and mitigation; 3 = the impact was identified and accompanied by adaptation and mitigation.
Fishing technology	1. Destructive fishing technology	1 = frequency of violations > 10 cases per year; 2 = frequency of violations 5-10 cases per year; 3 = frequency of violations <5 cases per year.
	2. Modification of fishing tools and FADs	1 = more than 50% size of target species < Lm; 2 = 25-50% size of target species < Lm; 3 = <25% size of target species < Lm.
	3. Fishing capacity and effort	1 = Ratio of fishing capacity < 1; 2 = Ratio of fishing capacity = 1; 3 = Ratio of fishing capacity > 1.
	4. Fishing selectivity	1 = low (> 75%); 2 = medium (50-75%); 3 = high (less than 50%).
	5. The compliance function and the size of vessel with legal documents	1 = low compliance (> 50% sample not match with legal documents); 2 = medium compliance (30-50% sample not match with legal documents); 3 = high compliance (< 30% sample not match with legal documents).
	6. Certification of crew according to regulation	1 = certified < 50%; 2 = certified 50-75%; 3 = certified > 75%.
Institutional	1. Pursuance to sustainable fisheries principles in formal and non formal fisheries management plan	1 = > 5 violation; 2 = 2-4 violation; 3 = < 2 violation. Non formal 1 = > 5 violation information; 2 = > 3 violation information; 3 = no violation information.
	2. Availability of rules in fishery management	1 = no available rules covering 2 domains; 2 = rules available for 3-5 domains; 3 = rules available for 6 domains.
	3. Decision rule mechanism	1 = no decision rule mechanism; 2 = mechanism available but not effectively applied; 3 = mechanism available and effective.
	4. Fisheries management plan	1 = no fisheries management plan; 2 = fisheries management plan available, but not entirely applied; 3 = fisheries management plan available and fully applied.
	5. Fisheries management policy and institutional synergetic level	1 = conflict between institutional; 2 = inter-institutional communication not effective; 3 = well inter-institutional synergy.
	6. Stakeholder capacity	1 = no increasing; 2 = increasing but notfunctional; 3 = available and functional.
Social	1. Stakeholder participation (% participation of stakeholder on fishery management)	1 = < 50%; 2 = 50-100%; 3 = 100 %.
	2. Fisheries conflict	1 = > 5 times per year; 2 = 2-5 times per year; 3 = < 2 times per year.
	3. Local knowledge utilization (including traditional ecological knowledge)	1 = not exist; 2 = exist but not effective; 3 = exist and effectively implemented.
Economy	1. Asset ownership	1 = decreased asset value (> 50%); 2 = constant asset value (< 50%); 3 = increased asset value (up to 50%).
	2. Household fishery	1 = less than take home pay regional; 2 = equal to take home pay regional; 3 = greater than take home pay regional.
	3. Saving ratio	1 = less than credit interest loan; 2 = equal to credit interest loan; 3 = greater than credit interest loan.

Source: KKP RI 2013.

After assessing the state of small-scale fisheries in Sawu Sea MNP, the result was used as base for Kobe like Plot analysis to establish the required strategies for improvement of fisheries management.

## RESULTS AND DISCUSSION

*Domain of fish resource.* The result indicates that total composite value of fish resource in small-scale fisheries of Sawu Sea MNP is 4351 with corrected composite value of 53.3 and average score of 1.83, which is classified as medium level (yellow). Assessment on each indicator shows that composition of caught species is at good category, while other indicators, i.e. raw CPUE, proportion of juvenile, and range collapse are in medium level. However, two remain indicators (fish size trend, species of ETP) are in bad category (Table 2). This indicates that the size of caught fish in this area tends to be smaller, and if this continues to happen, the fish stock in future will be reduced. Hence, a better management needs to conduct in order to increase the fish size. Additionally, the caught ETP species (Endangered Species, Threatened Species, and Protected) which is not released to its habitat indicates low awareness of fishers to the importance of ETP species protection for ecosystem and fish resource. The commonly captured ETP species includes green turtles, shark, and dolphin. The improvement in this domain is focused on the fish size trend and species of ETP.

Table 2 – Assessment of fish resource domain

Fish resource	1*	2*	3*	4*	5*	6*	Total
Results	Decrease < 25%/year	Getting smaller	30-60%	>30%	Relatively constant	Captured and not released	
Score	2	1	2	3	2	1	2
Weight	40	20	15	10	10	5	100
Density score	29	29	29	29	29	29	
Value	2320	1	870	580	580	1	4351

Note: \* 1) Raw CPUE, 2) fish size trend, 3) proportion of juvenile, 4) species composition, 5) range collapse, 6) species of ETP.

*Domain of habitat and ecosystem.* The assessment of EAFM indicators for domain of habitat and ecosystem in small-scale fisheries of Sawu Sea MNP shows that total composite value for this domain reaches 4351 with corrected composite value of 62.2 and average score of 2.0. The domain is classified as medium level (yellow). For indicator analysis, we found that quality of waters was at good condition, while ecosystem status of coral reefs, unique habitat, and climate change was at medium level. Unfortunately, ecosystem status of mangrove was recorded as bad level (Table 3). This result indicates that the main target for future improvement in this domain is addressed to mangrove ecosystem through rehabilitation program contributing to increase density of mangrove vegetation as well as enhancement of local awareness and supervision. The existence of mangrove ecosystem provides a fundamental role in providing habitats for various juvenils, crabs, shrimps, and mollusks.

Table 3 – Assessment of habitat and ecosystem domain

Habitat and ecosystem	1*	2*	3*	4*	5*	6*	Total
Results	Under environmental quality standard	VegetationCover < 60%	Low cover and density	Cover and diversity at medium level	Known and not well managed	Known and not accompanied by adaptation strategies	
Score	3	2	1	2	2	2	2
Weight	25	15	15	15	20	10	100
Density score	29	29	29	29	29	29	
Value	1933	870	1	870	1160	580	5414

Note: \* 1) quality of waters, 2) status of seagrass ecosystem, 3) status of mangrove ecosystem, 4) status of coral reef ecosystem, 5) unique habitat, 6) climate change.

**Domain of Fishing Technology.** The results of EAFM assessment shows that total composite value for this domain is 4641 with corrected composite value of 53.3 and average score of 1.67. This domain is categorized as medium (yellow). For domain of fishing technology, no one of indicators is recored at good level, but all indicators are at medium and bad level (Table 4). The both indicators (fishing capacity and effort, crew certification) are at bad level; thus, they become the further target for improvement. There is clearly a need to overcome the weaknesses in this domain in order to escalate the ratio of fishing capacity and effort to be 1 or > 1. Furthermore, the certification of fishing crew is also important to increase in order to enhance human resource capacity through training program and competency certification. Other efforts are required to alleviate the use of destructive fishing method, modification of fishing gears and unselective of fishing technology.

Table 4 – Assessment of fishing technology domain

Fishing Technology	1*	2*	3*	4*	5*	6*	Total
Results	5-10 cases per year	25-50% < Lm	Ratio of fishing capacity < 1	Medium (50-75%)	Compliance 30-50%	Certificate ownership < 50%	
Score	2	2	1	2	2	1	2
Weight	30	25	15	15	10	5	100
Density score	29	29	29	29	29	29	
Value	1740	1450	1	870	580	0	4641

Note: \* 1) destructive fishing, 2) modification of fishing gears, 3) fishing capacity and effort, 4) selectivity, 5) accomplishment of boat function and size, 6) crew certification

**Domain of Social.** The results of EAFM assessment for social domain show that the total composite value is 4496 with corrected composite value of 51.7 and average score of 2.00, which is classified as medium level (yellow). The indicator of fisheries conflict is observed at good level, but remaining indicators (local knowledge utilization, stakeholder participation) are at bad level (Table 5). This is clear that further improvement for social domain will be addressed mainly to stakeholder participation in fisheries management. The participation of stakeholder is highly influential in achieving better fisheries management.

Table 5 – Assessment of social domain

Social	1*	2*	3*	Total
Results	< 50%	< 2 times/year	Exist but not effective	
Score	1	3	2	2
Weight	40	35	25	100
Density score	29	29	29	
Value	1	3045	1450	4496

Note: \* 1) participation of stakeholder, 2) fisheries conflict, 3) local knowledge utilization.

**Domain of Economy.** The assessment on EAFM indicators for economy domain in small-scale fisheries of Sawu Sea MNP results in total composite value of 2612 with corrected composite value of 30.0 and average score of 1.33. Based on aggregate value, the domain is classified as bad level (red). Furthermore, no one of indicators tested is at good level. The indicator of asset ownership is found at medium level, while remaining indicators (saving ratio, household fishery income) are at bad level (Table 6). The further improvement is focused mostly on the escalation of income (equal to take home pay regional) and financial management of fishers that enable to increase their saving ratio.

Table 6 – Assessment of economy domain

Economy	1*	2*	3*	Total
Results	Fix asset value	Less than take home pay regional	Less than credit interest loan	
Score	2	1	1	1
Weight	45	30	25	100
Density score	29	29	29	
Value	2610	1	1	2612

Note: \* 1) asset ownership, 2) household income, 3) saving ratio.

*Domain of Institutional.* The assessment of EAFM indicators for institutional domain results in total composite value of 5534 with corrected composite value of 63.6 and average score of 2.23 ( $\approx$  2.00). The domain is categorized as medium level (yellow). The rule availability and fisheries management plan are indicators that possess bad level, while other indicators are at medium level (Table 7). The future improvement is majorly allocated for fishery management plan and other indicators which are at medium category. The fishery management plant must be present as operational standard for responsible fishery operation. In Sawu Sea MNP, document for management plan of the area has been composed, which also provides a general description of capture fisheries in Sawu Sea MNP, but the document that specifically regulates capture fisheries in the area has not been made.

Table 7 – Assessment of institutional domain

Institutional	1*	2*	3*	4*	5*	6*	Total
Results	2-4 times	Regulation available for 6 domains	Mechanism available, but ineffective	No management plan available	Ineffective communication	Available but not functional	
Score	2	3	2	1	2	2	2
Weight	25	26	18	15	11	5	100
Density score	29	29	29	29	29	29	
Value	1450	2111	1044	1	638	290	5534

Note: \* 1) pursuance to sustainable fisheries principles, 2) availability of rules in fishery management, 3) decision rule mechanism, 4) fisheries management plan, 5) Fisheries management policy and institutional synergetic level, 6) stakeholder capacity.

*Aggregate Composite Value of EAFM.* The result shows that total composite value for EAFM domains ranges from 2612 to 5534 with aggregate value of 4580. The maximum composite value of EAFM domains is 8700, assuming that all indicators have maximum score (3.00). The domain composite value is converted to build flag model, resulting in converted composite value of 30.0-63.6 with aggregate composite value of 52.4. The indicator score from each domain ranges from 1.33 to 2.23 with average score of 1.87 for all EAFM domains. Based on aggregate composite value and average indicator value for all EAFM domains (Table 8), we found that small-scale fisheries management in Sawu Sea MNP was categorized at medium level.

Table 8 – The aggregate composite value of EAFM assessment in small-scale fisheries in Sawu Sea MNP

Domain	Value		Composite value	Indicator score	Status
	Score obtained	Maximum score			
Fishery resource	4351	8700	53,3	2,00	Medium
Habitat and ecosystem	5414	8700	62,2	2,00	Medium
Fishing technology	4641	8700	53,3	1,67	Medium
Social	4496	8700	51,7	2,00	Medium
Economy	2612	8700	30,0	1,33	Bad
Institutional	5534	8700	63,6	2,23	Medium
Aggregate	4580	8700	52,4	1,87	Medium

The results indicate that economy domain shows a weak contribution in the small-scale fisheries management in Sawu Sea MNP. The major reason is that most indicators in economy domain are under reference point. To achieve better small-scale fisheries management in this study site, further improvement is focused primarily on the economy domain. Habitat and ecosystem as well as institutional domain are at good level in comparison with others, which means that both has already met the expectation but still requires further improvement, as also observed for fishery resource, fishing technology, and social.

*Strategies for improving fisheries management.* EAFM implementation considers other aspects including policy planning, strategic planning, and operational management planning (Gracia and Cochrane 2005). In case of policy planning, base and ultimate objectives of EAFM implementation should be stated through integration of social-economy objectives with

regarding environmental aspect and fishery resource. The decision in EAFM implementation consists of strategic and tactical decision (Gavaris 2009).

Fishery management aims to obtain optimum and sustainable utilization, as well as to ensure the conservation of fishery resource. The main objective of sustainable fisheries management is to create welfare for fishers and associated fishery enterprises while considering the availability of resource. The sustainable fisheries management includes two major dimensions: ecology (fishery resource and habitat domain) and social-economy (fishing, social, economy, and institutional). The key point to accomplish sustainable fisheries management is a well-established governance since it enables to balance both ecology and social-economy dimension. To achieve this, the government must create fishery management plan that includes short, medium and long term action plans.

Figure 2 constitutes a Kobe Plot for improvement plan of small-scale fisheries in Sawu Sea MNP, which covers three stages of improvement plans: short term (0-5 years), mid term (5-10 years) and long term (10-15 years). This represents the strategies for achieving better small-scale fisheries management in Sawu Sea MNP. The short term strategy include restoration strategy. Meanwhile, conservation management strategy and sustaining strategy are planned for mid term while conserving the existing condition. In mid term, the state of fishery management is targeted to achieve medium level (yellow) from bad level (red), and in turn achieving the highest level (green). In long term, the sustaining strategy is set while maintaining the existing condition. In this phase, the fisheries management is targeted at good condition (green).

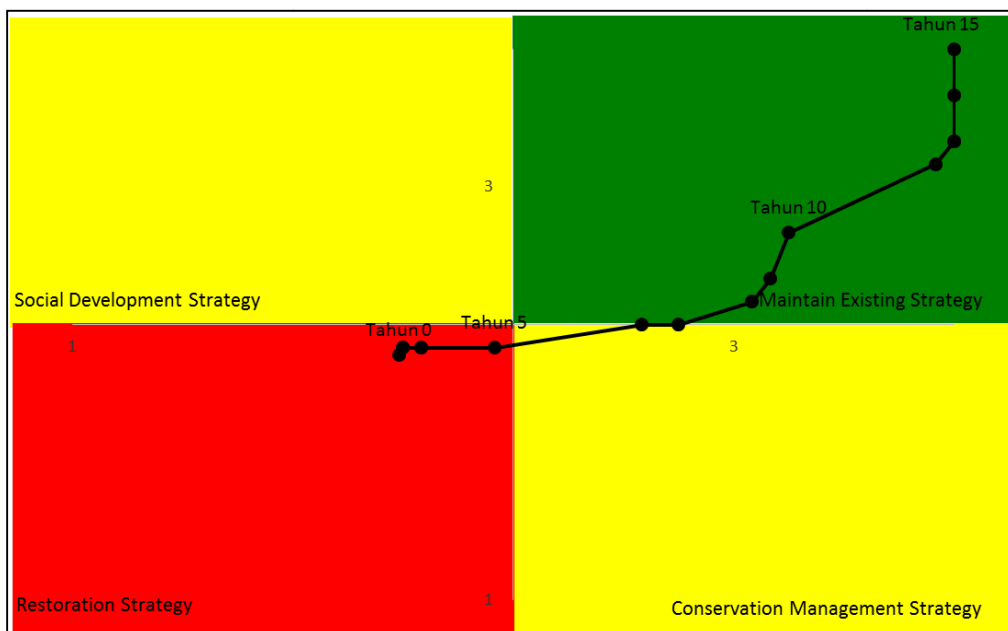


Figure 2 – Improvement plan of small-scale fisheries management using ecosystem approach

## CONCLUSION

Performance of small-scale fisheries management in Sawu Sea MNP was evaluated, resulting that the management is at medium level. Economy domain, which is a part of ecosystem dimension, is categorized at bad level, while others are at medium level. There is a need to gradually improve small-scale fisheries management in Sawu Sea MNP, dividing into 3 steps: short term (0-5 years), mid term (5-10 years), and long term (10-15 years). The short term plan is implemented through restoration strategy, while conservation management strategy and sustaining strategy are prepared for mid term. The long term improvement strategy is prepared through sustaining strategy while conserving the existing condition.

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## IDENTIFICATION OF GORGONIAN ISIS HIPPURIS (LINNAEUS 1758) POTENTIAL IN WATERS CONSERVATION AREA OF DAMPIER STRAIT RAJA AMPAT REGENCY OF INDONESIA

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### ABSTRACT

Gorgonacea is a group of soft corals spread in Indo-Pacific waters and some other places, especially tropical areas. Soft corals are the second biggest component after hard corals. Sea Bamboo or Isis hippuris are one of the types of soft corals set as limited protected biota. Waters Conservation Area of Dampier Strait is 1 out of 8 conservation areas in the Raja Ampat regency. The purpose of this study is to know the distribution of sea bamboo in the Waters Conservation Area of Dampier Strait Raja Ampat Regency, Indonesia. The result of identification shows that from 67 points there are 24 observation stations of coral reefs and only 13 stations are found for sea bamboo. Based on the results analysis, it is obtained a coverage percentage value of live coral is 43.47%. This value is included in the medium category. Sea bamboo is recorded with the total colony as many as 581 colonies with the density value of 0.096 colony/m<sup>2</sup> or 968.33 colony/Ha. The distribution of discovered sea bamboo ranges in the depth of 3-7 meters.

### KEY WORDS

Isis hippuris, waters conservation, rapid resources inventory, point intercept transects, belt transect.

The collection of live corals for marine aquarium trade has increased significantly in the past few years. This has raised the concern over the ecological implication of coral biological resources (Ferse et al., 2012). Morphotypes Isis hippuris is an ecological divergence and acts as the anthropogenic indicator that thrives on the mechanism of biodiversity and coral health in the Coral Triangle (Rowley, 2018).

Isis hippuris contains various compounds that can be used by the pharmaceutical and biochemical industries. The isolation of Isis hippuris produces hippuristanol which is a specific anti-viral substance with the ability to slow down and possibly prevent the process of viral replication (Manuputty, 2008). Isis hippuris contains a group of fatty acids, phenylacetone, 1,2 benzenedicarboxylic, naphthalene and xylene, phenol-derived compound, hydrocarbon compound (Trianto et al., 2004), containing alkaloid, phenol, flavonoid and steroid compounds (Sayuti, Putri and Yuniarta, 2016), containing Hippuristerone A compound, polyoxygenated steroids (Sheu et al., 2000), containing polyoxygenated steroids, J-L hippuristerones, E-F hippuristerones and gorgosteroids, 1 $\alpha$ , 3 $\beta$ , 5 $\beta$ , 11 $\alpha$ -tetrahydrogorgostan-6-one (Chao et al., 2005). The extract has characteristics of cytotoxicity to carcinoma cells (Liang et al., 2010), the hippuris contains 2-butoxyethanol, hexanedioic acid (Sayuti, Putri, and Yuniarta, 2017) containing Five novels (22R, 23S, 24S)-steroids, hippuristerones EI (Sheu et al., 2003)

Due to high market demand, the exploitation of Isis hippuris in some places is rather excessive and has damaged the ecosystem. In addition, Isis hippuris can be classified as endangered (Edrus and Suman, 2013). Limited protection will be carried across Indonesian waters within a period of 5 (five) years, with the exception of research and development (Kepmen KP Nomor 46/KEPMEN-KP/2014). The purpose of this research is to know the distribution of sea bamboo in Waters Conservation Area of Dampier Strait Raja Ampat Regency, Indonesia which is one of the habitats of Isis hippuris.

## MATERIALS AND METHODS OF RESEARCH

The research was conducted on October to November 2016 in the Waters Conservation Area of Dampier Strait Raja Ampat Regency, Indonesia. The research identified the potential of sea bamboo in the Waters Conservation Area of Dampier Strait Raja Ampat Regency. There were 67 observation points consisting of 43 observation points with RRI method and 24 observation stations of coral and sea bamboo.

One of the methods to identify the existence of *Isis hippuris* is using Rapid Resources Inventory namely snorkeling on the surface at a certain interval to determine the existence of *Isis hippuris*. The amount of discovered *Isis hippuris* is recorded based on its type (Wilkinson et al., 2003).

Point intercept transects (PIT) is used to determine the bottom waters coverage (English et al., 1997) to measure the object of bottom waters at the 50 cm interval under the 50 meters belt transect (100 points). Using the sufficient point they can give information comparable with LIT (Hill and Wilkinson, 2004).

Belt transect is similar to line transect but broader and often used to survey the specific impact on benthos such as bleaching or disease, or calculating the invertebrate (Hill and Wilkinson, 2004). Belt transect is used to calculate the number of the colony and measure the height as well as the width of the *Isis hippuris* colony with the transect length of 50 meters and the observation area of 5 meters (2.5 meters to the left and 2.5 to the right). For the analysis, comparison of the number of colonies is used to the area of belt transect observation.

## RESULTS AND DISCUSSION

Based on the 24 observation stations of corals and sea bamboo, only 13 stations are discovered to have sea bamboo colony with a total colony of 581 colonies in the depth range of 3 – 7 meters. The division of the observations stations based on the area is as follows:

Table 1 – Distribution of observation stations by location

No	Location	Station
1	Waters of Salawati Island	1 – 6
2	Waters of Batanta Island	7 – 13
3	Waters of Mansuar Island	14 – 16
4	Waters of Gam Island	17 – 24

The dominant substrate type is discovered between *Acropora* (AC) amounted to 24%, Non-*Acropora* (NA) amounted to 19%, the soft coral (SC) amounted to 10%, and coral fragment (RB) amounted to 18%. As for the algae species, Sponge (SP), dead coral (DC), dead corals with overgrown algae (DCA), and sand (Sand) and other species (OT) are also found but in small quantity. More details of information can be seen in Figure 2.

Based on the data of bottom waters coverage, it is obtained a percentage value of live corals coverage amounted to 43.47%. This value is categorized as a medium. On some stations, it is discovered a low coral coverage, especially in the Salawati area. The highest coral coverage is discovered in the northern Salawati area, south of Batanta, Northern Batanta, and Northern Mansuar. This is supported by relatively protected waters condition and good current circulation. Thus, nutrient sources are abundant. For more details see Figure 3.

The lowest live coral coverage is discovered in station 4 namely waters of Jefman Island amounted to 8%, and the highest is discovered in the station 8 namely waters around the Kasuari Island of South Batanta amounted to 87%.

Sea bamboo is only discovered in 13 observation stations with the total colony amounted to 581 colonies with the density value of 0.096 colony/m<sup>2</sup> or 968.33 colony /Ha. The distribution of sea bamboo is discovered around the depth of 3-7 meters. The waters condition where sea bamboo was discovered tend to be an area with low speed of current



and protected waters such as in the Wamega, North Batanta, Northern Mansuar, and South Gam areas.

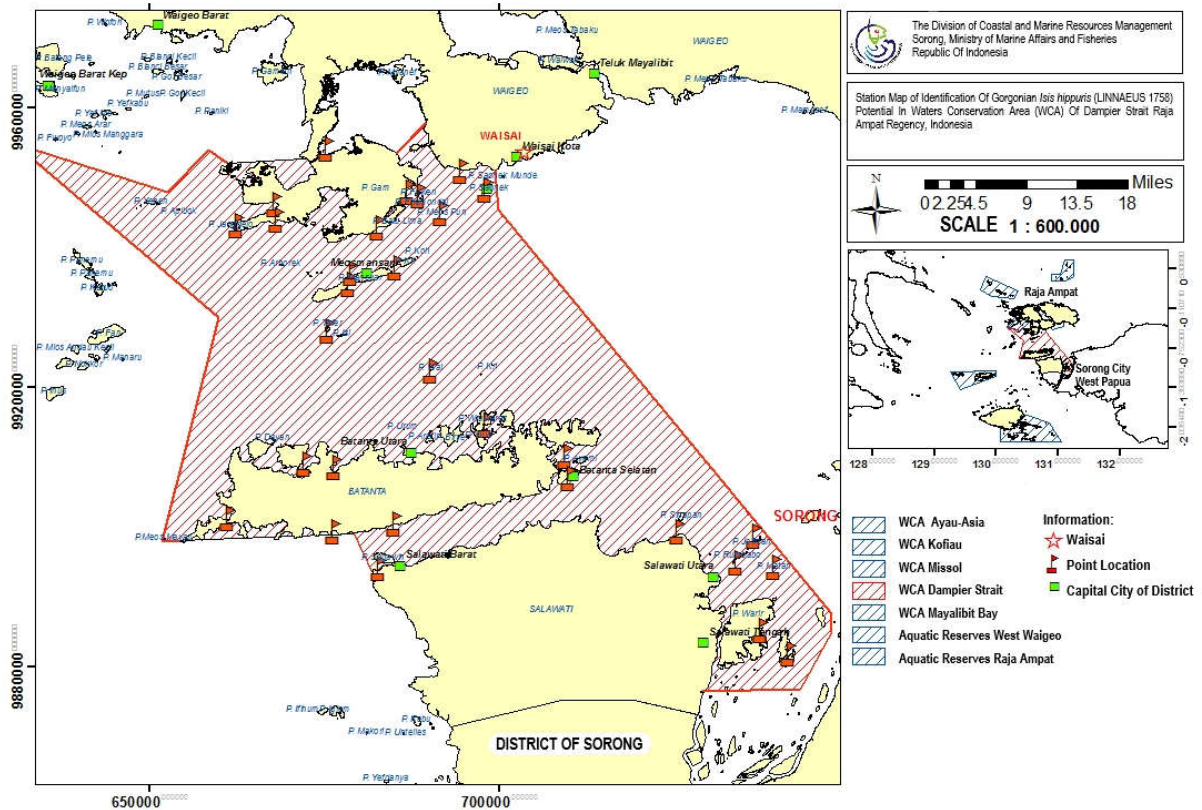
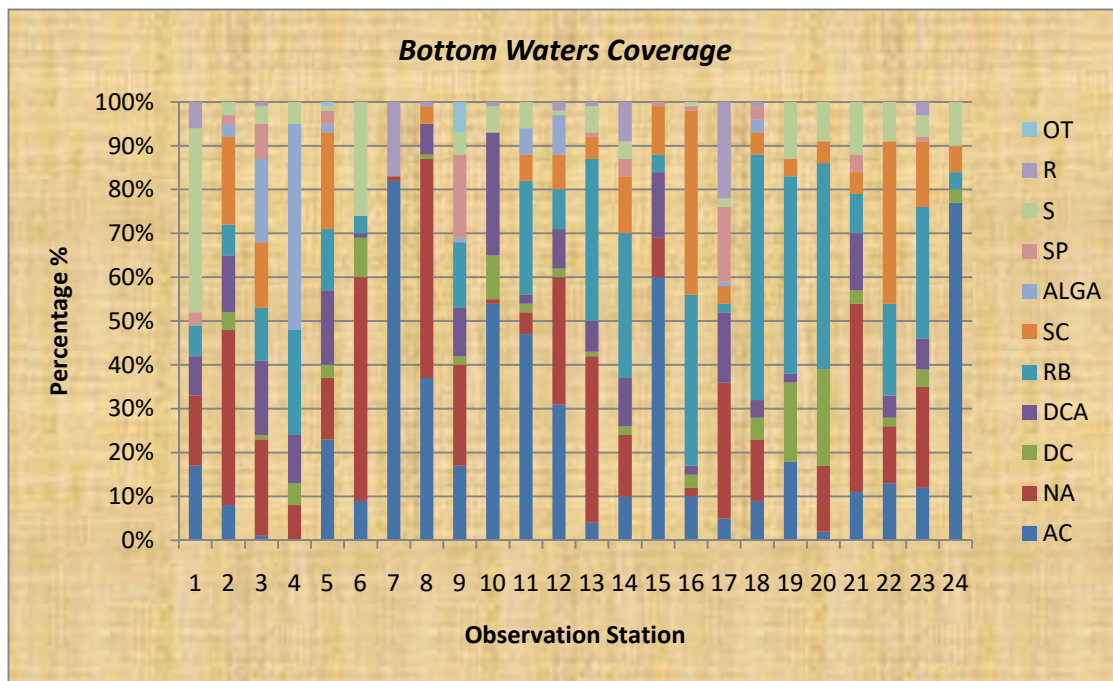


Figure 1 – Monitoring Station Map of Potency of Isis hippuris



AC	NA	DC	DCA	RB	SC	ALGA	SP	S	R	OT
24.22	19.25	4.25	8.63	18.54	10.32	3.79	2.79	7.08	2.78	0.33

\*in percents.

Figure 2 – Bottom Waters Coverage

The largest number of sea bamboo colony is discovered in the Wamega and Warir Sapo area in the North Salwati district with the total of 263 colonies. Then, the second largest is in the Northern Mansuar area namely Yenbuba and Kurkapa with the total of 207 colonies. Meanwhile, the least number is discovered in North Batanta Area amounted to 16 colonies. For North Salawati and South Batanta areas, no colony of sea bamboo is found (Figure 4). This is possibly due to the very strong and famous current condition in this Sagawin Strait area. Based on the data of current velocity measurement results, Sawagin Strait has the current velocity of 0.327 m/s. Based on the distribution of sea bamboo, it is found pattern criteria of grouping distribution (Mardianto, Nur, and Ramli, 2016).

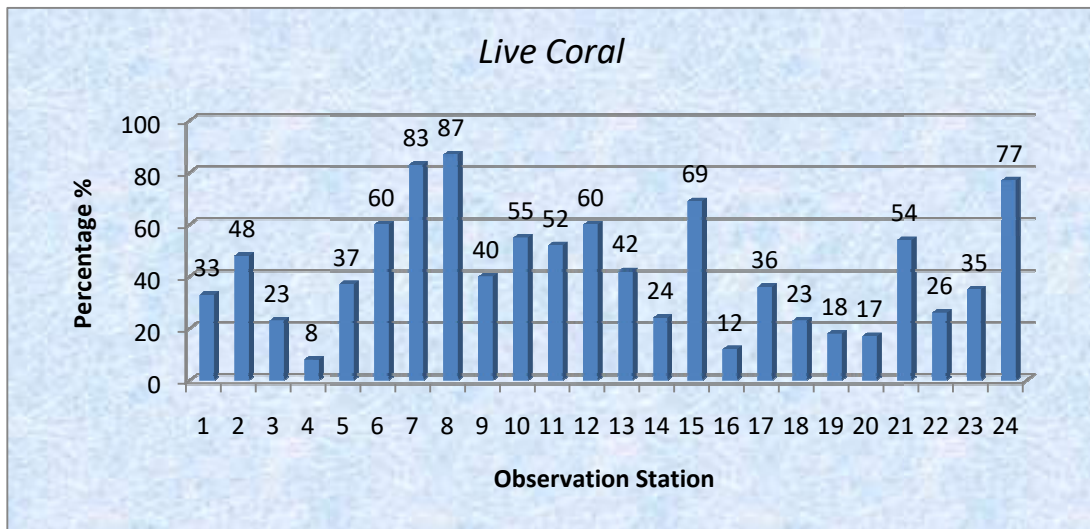


Figure 3 – Percentage of live corals by station

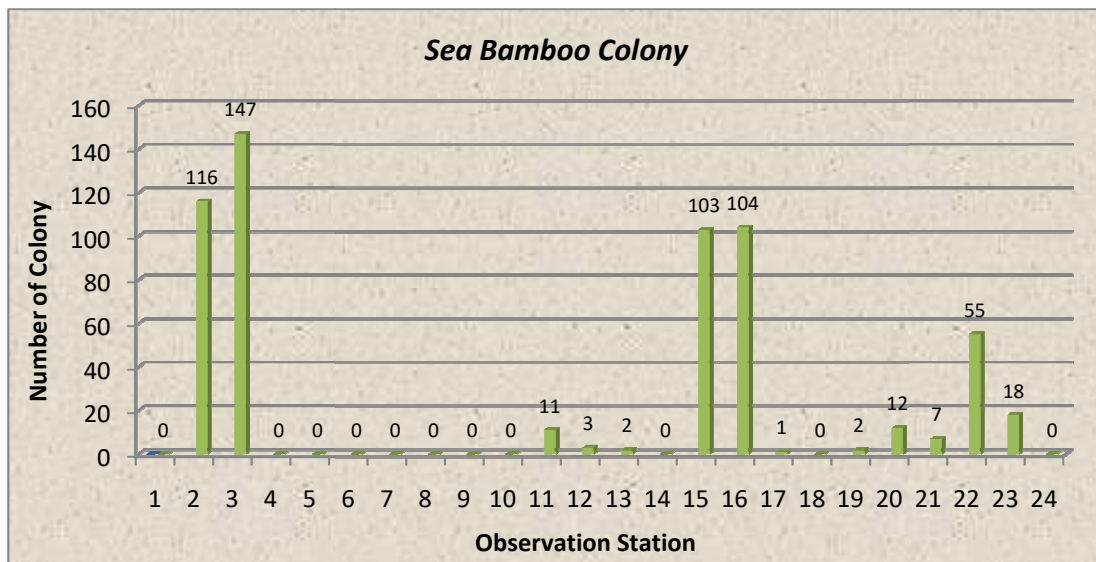


Figure 4 – The Number of Sea Bamboo Colony

The sea bamboo colony is measured by the height and width of the colony. The height of sea bamboo discovered in the Waters Conservation Area of Dampier Strait ranges from 5 – 104 cm, while the width ranges from 2 – 110 cm. The amount of distribution based on the height and width is presented in Figure 5.

The number of sea bamboo colony with height size range of 31-40 cm is discovered to be at most 139 colonies, whereas at least only 2 colonies in the 101 - 110 cm height range. The highest size found is discovered in waters of Warir Sapo, while the shortest is found in waters Wamega.

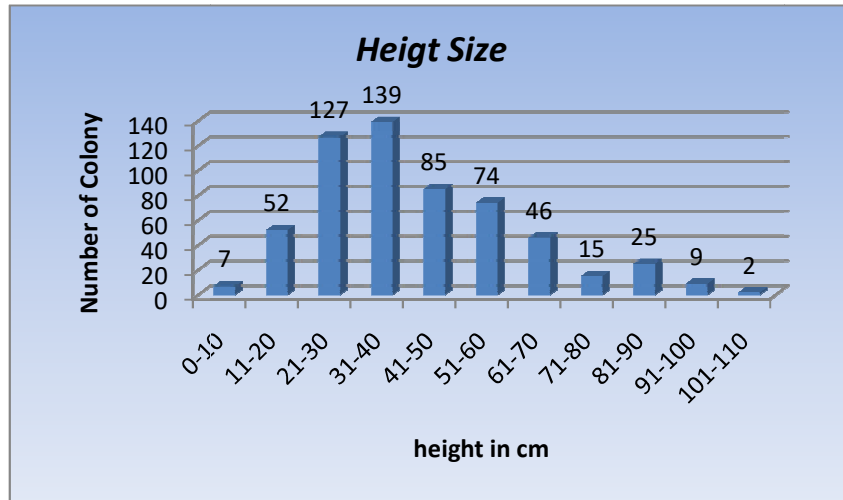


Figure 5 – Number of Sea bamboo Colony Based on Height Size

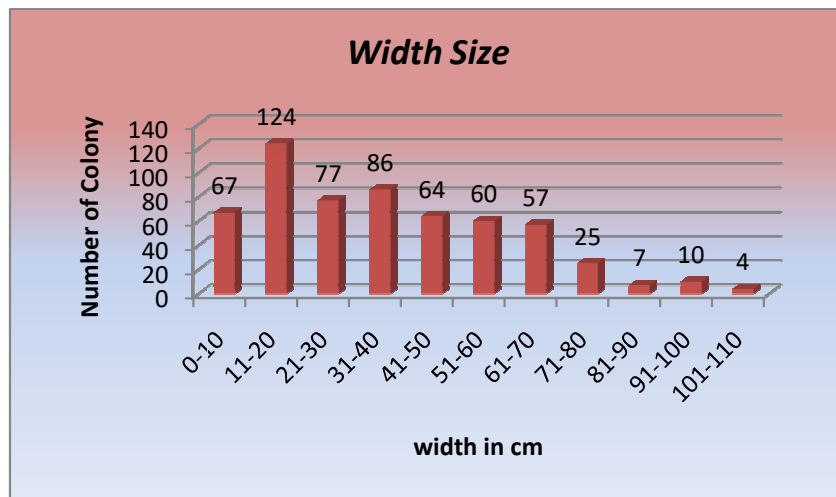


Figure 6 – The Number of Sea Bamboo Colony Based on Height and width

While based on the width, the largest number of sea bamboo colony is found in the range of 11 - 20 cm with the number of 124 colonies and the least is only 4 colonies in the width range of 101 to 110 cm. The widest colony size is found in waters of Arevi, North Batanta, while the narrowest width is found in Wamega waters.

### CONCLUSION

The condition of bottom waters coverage of Waters Conservation Area of Dampier Strait Raja Ampat is included in the medium category with the percentage of live coral coverage of 43.47%. Meanwhile, the population density of sea bamboo is 0.096 colony/m<sup>2</sup> or 968.33 colony/Ha. The distribution of sea bamboo in the Waters Conservation Area of Dampier Strait does not spread evenly, which is only found in certain areas.

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## INFLUENCE OF FISH FEED AND DIFFERENT SALINITY LEVEL TOWARDS GROWTH OF STADIA GLASS EEL (*ANGUILLA BICOLOR*)

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### ABSTRACT

Eel (*Anguilla* sp.) is a type of fish that has high price point. It has been cultivated using both intensive and extensive cultivation system more particularly in Asia. However, mortality of the fish seed, more particularly during early cultivation stage, is still high. Objective of this study was to describe fish feed and salinity in order to optimize the fish growth. The size of the fish seed was between 3 and 5 centimeters. The seeds were kept in controlled container for 15 days. The density was 5 fish/liter and the salinity levels were 0 ppt, 5 ppt, 10 ppt and 15 ppt. The fish was fed with 5% of the total biomass of silkworm and paste twice a day. The observed parameters were quality of water consisting of pH, temperature, DO, ammonia, nitrate and nitrite. The finding showed that amylase enzyme activities reached the highest level when the salinity level was 5 ppt and the fish was fed with silkworm (natural fish feed).

### KEY WORDS

*Anguilla* sp., salinity, fish feed, growth, glass eel.

Eel is a type of catadromous fish that requires certain level of salinity to survive. In addition, salinity is one of the factors that affect metabolism and enzyme activity in fish. Boeuf and Payan (2001) stated that salinity can affect activity of enzymes responsible for digesting food. Suitable salinity level will increase enzyme activity and at the opposite, inappropriate salinity level will decrease the enzyme activity. Effective metabolism and enzyme activity will produce energy fish needs to grow.

Growth is an important parameter of cultivation while survival is the parameter used to determine level of production. Growth is closely related to food because nutritious food will accelerate growth. Availability of natural fish feed has significant role in seed stadia. On the other hand, intensive cultivation requires artificial fish feed. Artificial fish feed can be manipulated as needed and in order to improve its quality. Artificial fish feed may consist of ingredients from plant and animals. Artificial fish feed producers should pay attention to nutrient content and size of fish that will consume the fish feed. Other parameters beside fish feed that affect eel growth are temperature, pH, dissolved oxygen, alkalinity and salinity (Anabela, *et al.*, 2016).

The environment affects physiology, growth and survival condition of fish. In this context, the environment refers to salinity in which salinity influences physiology and biochemistry in fish growth. Salinity and temperature have complex interaction in controlling osmoregulation and growth. This process is also controlled by some active hormones and digestive enzymes. Osmotic balance is an external factor in aquatic biota growth (Liu, 2013).

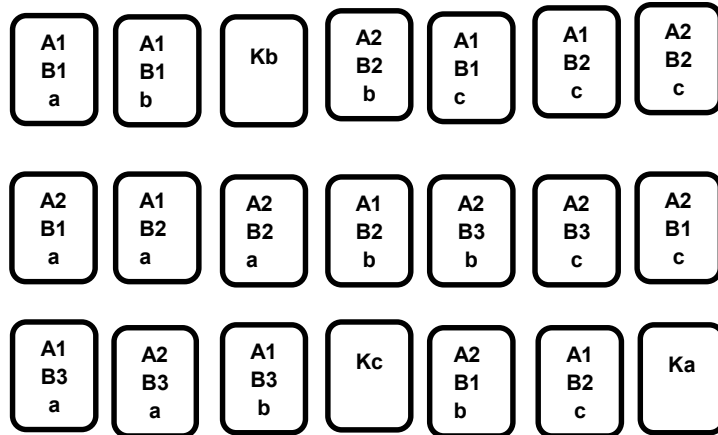
Biomass is an element fish farmer should take into account in selecting fish feed. Suitable percentage of fish feed will accelerate fish growth. In this study, it can be concluded that type of fish feed has significant influence towards fish growth. Suitable type of fish feed will optimize the growth of eel seeds (Fekri, *et al.*, 2014).

### METHODS OF RESEARCH

Experimental study is type of research in which researchers manipulate one or more variables using particular methods; this method will influence the manipulated variables and also other variables. The manipulated variable is called independent variables while

dependent variable is a variable that depends on the independent variables (Setyanto, 2005).

Factorial design is a design in which one or two treatments are simultaneously tested. Factors commonly found in this design are genotype factors and site factors. The advantage is to describe influence of each factor and its combined effect (Zaki, et.al, 2014).



Code K: control (0 ppt and natural fish feed)  
 Code A: type of fish feed  
 Code B: salinity  
 Codes 1, 2, 3: different type of fish feed and salinity  
 Codes a, b, c: replication

Figure 1 – Research plan used in this study

Observations towards size (weight and length) of the samples were conducted every three days and the results were accumulated at the end of the observations to measure Sustainable Growth Rate (SGR). Quality of water is observed every day. Proximate test was conducted to describe nutrient content in the fish feed. The water is changed periodically in order to maintain its quality and provide suitable medium for the fish to grow.

## RESULTS AND DISCUSSION

Growth of fish can be improved through selection, hybridization and genetic engineering. Among the three, genetic engineering is the most difficult method to improve fish growth due to the lack of gonad ripening, larval maintenance and spawning techniques researchers have (Tanaka, 2006).

Alatise and Effiong, 2013 stated that Specific Growth Rate (SGR) is daily growth rate of which formula is as follows:

$$SGR = \frac{(\ln W_f - \ln W_i) \times 100}{\text{Time}}$$

Where: SGR = daily growth rate (gram/ day); W<sub>f</sub> = average weight during treatment (gram); i = average weight in the beginning of the treatment (gram); Time = duration of treatment (day).

Based on the analysis towards the Sustainable Growth Rate (SGR), the most suitable salinity was 5 ppt and the most suitable fish feed was silk worm (*Tubifex* sp.). It happened because the other salinity levels or fish feed did not support the fish metabolism. As the result, the fish could not digest their food well and spent most of their energy to adjust to their environment.

Based on the proximate analysis, natural fish feed (*Tubifex* sp.) had better protein, fiber and fat content than the artificial one (paste). It showed that natural fish feed works more effectively to accelerate the fish growth.



Table 1 – Result of SGR Statistical Analysis

Code	Salinity	Fish Feed	Result
K	0 ppt	Silk worm	0.21±0.050 <sup>bc</sup>
A1B1	5 ppt	Silk worm	0.33±0.042 <sup>c</sup>
A1B2	10 ppt	Silk worm	0.32±0.035 <sup>b</sup>
A1B3	15 ppt	Silk worm	0.21±0.036 <sup>a</sup>
A2B1	5 ppt	Paste	0.17±0.006 <sup>c</sup>
A2B2	10 ppt	Paste	0.05±0.010 <sup>b</sup>
A2B3	15 ppt	Paste	0.05±0.000 <sup>a</sup>

The result showed significant difference ( $P>0.05$ ); average  $\pm$  STDEV.

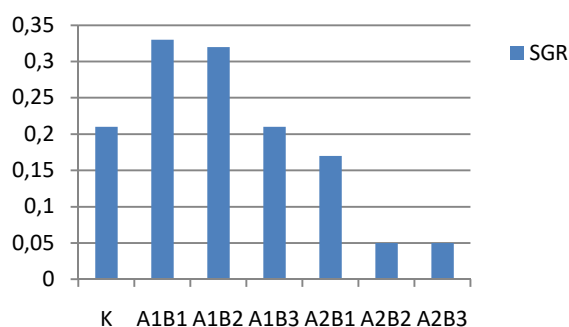


Figure 1 – Comparison of Growth Rate Percentage

Table 1 – Results of Proximate Analysis on the Fish Feed

Fish Feed	Nutrient Content				
	Dry Ingredient (%)	Ash (%)	Crude Protein (%)	Crude Fiber (%)	Crude Fat (%)
Paste	97.61	19.43	41.77	0.51	8.77
Silk Worm	10.99	7.96	56.80	0.65	15.71

\*) per 100 milligrams of sample.

Table 2 – Quality of Water and the Standardized Scores

Parameter	Observation	Standardized Score
DO	5.01 - 7.73 mg/l	>4.5 mg/l
Temperature	27 - 30°C	23-30°C
pH	7.5 - 8.5	7.0-8.5
Ammonia	0.50 - 1.0 mg/l	<1.0 mg/l
Nitrite	0.1 - 0.2 mg/l	<0.2 mg/l
Nitrate	0.5 - 2.0 mg/l	<2.0 mg/l
Salinity	5, 10, 15 ppt	5, 10, 15 ppt

During the treatment, the quality of water was observed periodically. The observations showed that the water was safe for aquatic organism. Table 2 described the observation results towards the water quality.

## CONCLUSION

Based on the findings, it can be concluded that the most suitable level of salinity for eel (*Anguilla bicolor*) is 5 ppt and the most suitable natural fish feed for the fish is silk worm (*Tubifex* sp.).

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## **WATERS SUITABILITY FOR TILAPIA (*Oreochromis niloticus*) CULTIVATION IN CAGE CULTURE IN LAKE RANAU, LAMPUNG**

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### **ABSTRACT**

Water suitability is an effort to see the water potential to support the aquaculture development. Cultivation area study is the first step to know the water suitability level for established cage units of tilapia. Some of key factors for cultivation effort are area selection for the right water quality. This study aims to determine water suitability level for tilapia cultivation in cage culture based on water quality factor. The main parameters measured in this study were water temperature, pH, dissolved oxygen, water clarity, current velocity, total ammonia nitrogen, nitrate, phosphate and chlorophyll-a. The research was conducted in the Lake Ranau ten areas of sampling location. The results of in-situ measurements and the laboratory analysis results (ex situ) were analyzed descriptively to determine water suitability level by scoring and weighting based on literature sources. The suitability class obtained in all stations shows the general waters of Lake Ranau in Lumbok Seminung highly suitable to establish tilapia farming through cage culture.

### **KEY WORDS**

Suitability, water quality, lake, cage culture, Tilapia.

Lake Ranau is administratively located in Lampung Province and South Sumatra Province. Its geographical position is between 4<sup>0</sup>51'59" – 4<sup>0</sup>58'42"S and between 103<sup>0</sup> 55' 07" – 104<sup>0</sup>01'37" E. The size of entire lake surface is 125.9 km<sup>2</sup>, with 84.23 km<sup>2</sup> located in South Sumatra and 41.67 km<sup>2</sup> located in Lampung Province. This lake belongs to volcanic type. The maximum depth of approximately 229 m and the average depth of 78.0 m (Aisha *et al.*, 2015).

Lake Ranau is located in Lampung Province covering 41.67 km<sup>2</sup> into the administrative area of District Lumbok Seminung, West Lampung Regency. Until now, the location has the potential to be utilized in the field of fisheries. One factor is due to the location that is easily accessible by vehicle.

Cage Culture (KJA) is a series of floating framework to place cultivated container nets. KJA consists of cage (net) and frame (raft and iron) with same size. Some of the determinants of the successful KJA cultivation business are choosing the right location and considering the water quality factor.

The water quality of a region is determined by the physical, chemical, and biological characteristics of the waters. The interaction between these three traits determines water's ability to support organism life in it. Physical and chemical characteristics of water are very influential on aquatic life. Characteristics encompassing temperature, clarity, depth, pH, dissolved oxygen, total ammonia nitrogen (TAN), nitrate, phosphate and chlorophyll-a are the factors that need to be observed in determining the waters suitability for aquaculture (Venturoti *et al.*, 2015). The purpose of this study is to determine water suitability level based on water quality parameters in the waters of Lumbok Seminung, Lake Ranau for the tilapia cultivation in cage culture.

### **MATERIALS AND METHODS OF RESEARCH**

This research was conducted in Lumbok Seminung, Lake Ranau, Lampung Barat District of Lampung Province, implemented in April 2018 with 10 sampling stations (Fig. 1).

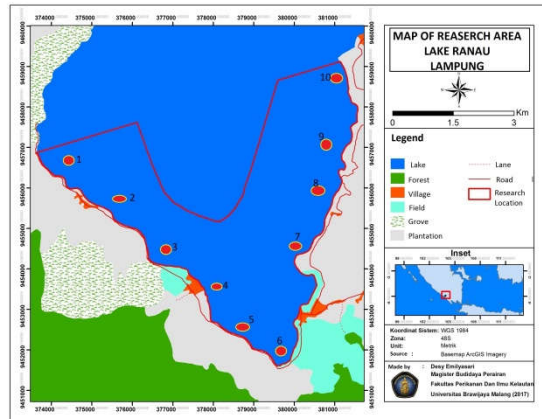


Figure 1 – Research Location Map

Parameters measured directly (in situ) include: temperature, pH, DO, brightness and current velocity. Parameters measured in the laboratory (ex situ) include: TAN, nitrate, phosphate and chlorophyll-a.

Chlorophyll-a analysis was performed by taking 1 liter of water samples at the site and then inserted in dark bottles, and stored in a cool box with low temperature, then analyzed in a laboratory by a formula (Parsons et al. 1984):

$$\text{Chlorophyll - a} \left( \frac{\text{mg}}{\text{l}} \right) = \left( \frac{\text{Ca} \times \text{Va}}{\text{V} \times \text{d}} \right)$$

Where:

Va = Aseton volume (10 ml);

V = Filtered water sampel volume (ml);

d = cuvet diameter (1 mm);

Ca =  $(11,6 \times E665) - (1,31 \times E645) - (0,14 \times E630)$ ;

E = Absorbance at different wavelengths (corrected with 750 nm wavelengths).

**Weighting and Scoring.** Suitability class is determined by compiling a matrix of conformity which contains parameters that become the requirement of tilapia growth and development, and then determine the value limits for each parameter that meets the requirements of tilapia farming.

Weighting on each parameter is determined based on the dominance of these factors on a feasibility designation of tilapia farming land. The water suitability class interval is obtained based on the equal interval method, ie the interval of each class is obtained from the multiplication of the maximum value of each weight and the score minus the total multiplication of its minimum value which is then divided by the number of classes (Prahasta, 2013). The suitability class is divided into three classes, which are highly suitable (S1), suitable (S2) and less suitable (N) (Perez et al., 2005).

**Suitability Class.** The following formula is used to determine the total score:

$$N = \frac{\text{Bi} \times \text{Si}}{\text{Total Weight}}$$

Where:

N = Total score;

Bi = Weight on each criterion;

Si = Score on each criterion.

To determine the suitability class is used the following formula:

$$\text{Class Interval} = \frac{\sum N. \text{max} - \sum N. \text{min}}{\text{Number of class}}$$

Operationally this research is divided into two stages. The first stage is collecting data from the water quality parameters of constituent land suitability analysis for the tilapia cultivation by measuring in situ and ex situ. The second stage is the weight calculation and determination of each criterion by Analytical Hierarchy Process (AHP) method as a decision support system (Saaty, 1980). In this study, the importance of each criterion is based on interviews with experts.

## RESULTS AND DISCUSSION

The result of temperature measurement on all stations has relatively the same result, the average is 29.11 °C (Table 1). Based on the calculation of weight with AHP known temperature has a weight of 13.4% (Table 2) and is in the 4th rank in relation to determination of water suitability. Based on the land suitability criteria for tilapia farming, the value of the incoming category temperature is very suitable for tilapia farming.

Table 1 – Water Quality Measurement Result

Station	Parameter									
	Temp. (°C)	pH	DO (mg/l)	Water clarity (m)	Current (cm/det)	Depth (m)	TAN (mg/l)	Nitrate (mg/l)	Phosphate (mg/l)	Chlor.-a (mg/l)
1	29.8	8.1	8.32	6.5	0.01	75	0.031	0.074	0.075	4.32
2	28.6	7.5	7.22	5.5	0.01	75	0.034	0.067	0.056	5.86
3	29.5	8.5	7.85	6	0	50	0.092	0.063	0.031	4.31
4	28.3	7.8	8.15	5.5	0	75	0.038	0.094	0.033	5.97
5	29.3	8.2	8.69	5.5	0.02	30	0.041	0.168	0.097	4.83
6	30.2	8.5	7.75	5	0.01	25	0.042	0.161	0.102	5.94
7	29.4	8.3	8.48	6.5	0	30	0.014	0.078	0.056	4.41
8	27.5	8.5	7.53	5	0.01	30	0.035	0.132	0.045	5.04
9	28.3	8.2	8.13	6	0	50	0.042	0.512	0.166	5.44
10	30.2	8.3	7.84	5.5	0.03	75	0.022	0.071	0.065	4.41

The pH measurements at each station show values ranging from 7.5 to 8.5 (Table 1). Several factors that influence the pH value are photosynthesis activity, temperature, and the presence of anions and cations. However, the pH value range is still within the optimal range for tilapia farming (Cahyono, 2000).

The availability of dissolved oxygen is important for the fish health and survival in cages. The DO measurement results vary across stations, ranging from 7.22 to 8.69. High DO is at station 5. The DO range on stations 2 and 4 falls into very suitable categories and other stations are categorized accordingly. Tilapia requires a concentration of 4 mg/l dissolved oxygen or greater to maintain good fish health and feed conversion (Masser, 1997). Based on the calculation of weight with AHP, is known the DO has the highest weight of 16.4% in relation to determination of water suitability.

Table 2 – The result of Scoring and Weighting (1)

Station	Criteria														
	DO (mg/l)			Current (cm/sec)			TAN (mg/l)			Temp.			pH		
	N	B	S	N	B	S	N	B	S	N	B	S	N	B	S
1	5	16.4	82	5	14.7	73.5	3	13.6	40.8	5	13.4	67	3	10.9	32.7
2	5	16.4	82	5	14.7	73.5	3	13.6	40.8	5	13.4	67	5	10.9	54.5
3	5	16.4	82	5	14.7	73.5	3	13.6	40.8	5	13.4	67	3	10.9	32.7
4	5	16.4	82	5	14.7	73.5	3	13.6	40.8	5	13.4	67	5	10.9	54.5
5	5	16.4	82	5	14.7	73.5	3	13.6	40.8	5	13.4	67	3	10.9	32.7
6	5	16.4	82	5	14.7	73.5	3	13.6	40.8	5	13.4	67	3	10.9	32.7
7	5	16.4	82	5	14.7	73.5	5	13.6	68	5	13.4	67	3	10.9	32.7
8	5	16.4	82	5	14.7	73.5	3	13.6	40.8	3	13.4	40.2	3	10.9	32.7
9	5	16.4	82	5	14.7	73.5	3	13.6	40.8	5	13.4	67	3	10.9	32.7
10	5	16.4	82	5	14.7	73.5	3	13.6	40.8	5	13.4	67	3	10.9	32.7

The water clarity of the Lake Ranau is in a very suitable condition to support the tilapia cultivation. The whole station has an almost equal clarity between 5-6 meters. In comparison, Sudarmadji et al., (2012), measured water quality in Lake Tondano waters with a clarity level of about 2-3 meters which means that solar radiation can reach a depth of 3 meters and is supported by the availability of nutrients (Nitrogen) causing photosynthesis to take place so the growth of phytoplankton increases at a depth of 3 meters. Clarity has the weight of the assessment of the waters suitability by 6.9%, where clarity is one important factor to support the establishment cage culture cultivation.

Current velocity measurements at all observation stations are in the same relative condition, which does not have current. Research conducted by Harsono et al. (2002) at Ranau Lake states that the current pattern is not affected by inlet flow discharge. Surface current pattern is more influenced by coriolis factor. Selection of location for cultivation of KJA must have current condition which is not very strong but still there is current so that water change still happened well and dissolved oxygen content in fish cultivation contained enough, the current can also wash away the remnants of feed and droppings of fish that fall in base waters (Beveridge, 1987).

Water depth relating to the placement and installation of cages. The measurement results show depth ranges from 25-75 m. Based on the suitability class for tilapia farming in cage culture, the depth is categorized as appropriate and less suitable. Where at a depth of more than 30 m will complicate the installation of cage culture and will increase the cost for installation of cage culture. This is a limiting factor for cage culture development (Subandar et al., 2005).

Ammonia is present in two forms: NH<sub>4</sub> (ionized ammonia, since it has a positive ion) and NH<sub>3</sub> (unionized, because it has no ions), which is a total of Ammonia Nitrogen (TAN). The proportions vary depending on the pH and temperature. If the pH and temperature increase then the amount of NH<sub>3</sub> increases. It is important to know because NH<sub>3</sub> is a form of toxic ammonia (Sumoharjo, 2009). Ammonia measurements show values between 0.014 - 0.092 mg / l. Based on the criteria of conformity of tilapia cultivation, the range 0-0.02 mg / l is the most suitable for tilapia farming. The highest TAN value is at station 3 with a value of 0.092 mg / l but the value is still tolerable tilapia that is not more than 0.2 mg / l (Swayer and McCarty, 1978).

Table 3 – The result of Scoring and Weighting (2)

Station	Criteria															Total
	Depth (m)			Clarity (m)			Chlor. (mg/l)			PO <sub>4</sub> (mg/l)			NO <sub>3</sub> (mg/l)			
	N	B	S	N	B	S	N	B	S	N	B	S	N	B	S	
1	1	9.9	9.9	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	412
2	1	9.9	9.9	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	434
3	1	9.9	9.9	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	412
4	1	9.9	9.9	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	434
5	5	9.9	49.5	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	452
6	5	9.9	49.5	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	452
7	5	9.9	49.5	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	479
8	5	9.9	49.5	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	425
9	1	9.9	9.9	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	412
10	1	9.9	9.9	5	6.9	34.5	5	6.5	32.5	5	4.4	22	5	3.4	17	412

The nitrate content in all stations is at a low value, between 0.06 - 0.512 mg / l. Based on the suitability class according to Government Regulation No. 82/2001 on water quality standards for aquaculture is less than 5 mg / l. The value goes in very suitable condition. Nitrate (NO<sub>3</sub>) is a major nutrient for phytoplankton growth. In tilapia cultivation, the presence of phytoplankton is also an important thing as a natural food for fish. According to Wardoyo (1982), the optimum nitrate content for phytoplankton growth ranges from 0.9 to 3.5 mg / l. Nitrate is a parameter of the trophic status in a waters, nitrates have an effect on nutrients that play a role in the formation of biomass of aquatic organisms (Hasim et al., 2015). The average nitrate value measurement of 0.142 mg / l indicates that the trophic status water is oligotrophic (Wetzel, 1975).

Phosphates are a major source of nutrients for the growth of plankton, algae and other bio-vegetable microorganisms (Tatangindatu et al., 2013). Government Regulation No. 82/2001 on Water Quality Management and Water Pollution Control, phosphate content for water body class II is 0.2 mg/l. The highest phosphate values at stations 6 and 9 reached 0.166 mg / l. Based on the trophic status level, these values indicate waters with eutrophic waters category (Wetzel, 1975). While at other stations the phosphate value range of 0.031-0.037 mg / l, also indicates the level of eutrophic throphic status. In relation to the suitability of tilapia cultivation, the value is suitable for cultivation.

Chlorophyll-a is one method that can be used to predict the ability photosynthesis of phytoplankton in waters. the higher a-chlorophyll in a waters, the higher productivity of waters so that the carrying capacity of the inhabitant community is also higher (Riyono et al., 2006). The value of chlorophyll-a in all stations ranged from 4.3 to 5.9 mg / l with an average grade of 5.05 mg / l. Based on the grade of conformity value is very suitable to support the cultivation of tilapia.

Based on the multiplication of weights and scores obtained the results of all stations classified in the class is very appropriate. Total score between 368-500 (Table 3) is S1 category or very suitable for established cage culture fish cultivation, but there are factors that become limiting for established cage culture that is from depth parameter. The deep waters can be overcome with slightly higher installation costs.

## CONCLUSION

Based on the results of research that has been done around Lumbok Seminung Lake Ranau waters, it can be concluded the suitability level of water quality parameters for the cultivation of tilapia in general is very suitable (S1) to established cage culture cultivation of tilapia. The factor that can be a barrier is the depth of the waters.

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## **STUDY OF POLICY IMPACT ON THE INDONESIAN FRESH TUNA EXPORT: AN ECONOMETRIC APPROACH**

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### **ABSTRACT**

This study analyzes the impact of government policies to increase Indonesia's tuna exports in the international market. This study uses time series data 2000-2016. The econometric model used in this study was a simultaneous equation by including government policy variables. Analysis of the impact of Indonesia's fresh tuna trade policy on domestic and international markets were done with ex ante simulation and historical simulation using time series data 2000-2016. Results of analysis can be abstracted as follows: the policy of increasing the number of trips 25 percent impacts on the increase of tuna production by three percent; the depreciation of the rupiah exchange rate by 30 percent has an impact on the increase of fresh tuna exports to Japan by 13 percent; decrease the price of domestic fresh tuna by 10 percent resulted in an increase in domestic fresh tuna demand by 3.42 percent; decrease the interest rate of 2.5 percent could induce increasing the fresh tuna production by 13.99 percent; removal of the import tariffs could increase export of fresh tuna; use of appropriate technology could increase fresh tuna production. The production and export of Indonesian tunas were also influenced by the policies of the Indonesian government and policies of the importing countries.

### **KEY WORDS**

Export, policies, fresh tunas fisheries, international market.

Fishery is one of the important sectors for the livelihood of the people and is one of Indonesia's core competences which have 17,504 islands (KKP, 2010; KKP, 2014a). This fishery sector becomes the prime mover of the national economy (Parris,; Sunoko and Huang, 2014). Tuna is one of the leading commodities in the program of industrialization of fisheries in Indonesia (Kusumastanto, 2008; KKP, 2011). This is because tuna is a type of fish with high economic value and is the second foreign exchange earning commodity after shrimps (Onolawe and Fitri, 2011). In 2011, tuna commodities contributed US \$ 498,591,000 or 14 percent of the total value of Indonesian fishery exports. During the period of 2009-2011, the potential of tuna production in Indonesia reached 1.2 million tons per year, with export value of more than 3.5 billion US Dollars (Spare and Venema, 1999; Reid et al., 2003; Sularso, 2009; Darmadi, 2011).

Indonesia's tuna export over the last 25 years has a positive average growth with an average growth rate of export volume is 6.03 percent and the growth rate of export-value is 11.79 percent. The largest tuna markets in the world today are Japan, United States (USA) and European Union (EU) (Koestranti, 1993). Tuna exports to Japan accounted for 27 percent, and to the United States is 17 percent; while exports to the EU amounted to 12 percent (FAO, 2006; 2012). Export of fresh fish and processed products in 2008 reached 2.47 billion US dollars and ranked 10th in terms of its contribution to GDP. In 2009 the export value of fresh fish and its processed products decreased to 2.25 billion US dollars and ranked 11th. Tuna is exported in fresh, frozen and processed forms. The main target of Indonesian tuna export is Japan and US. Export of fresh and frozen tuna to Japan in 2010 amounted to 32.45 percent (KKP, 2011).

Opportunities to increase the export volume of tuna are still very open. Some of the supporting factors to these opportunities are followed. First, the demand for tuna tends to increase every year (Goenarsyah, 1990; BPEN, 1998). This can be seen from the growing volume of Indonesian tuna exports in the period 2006-2011. The increase of human

awareness on the fishery products as a healthy food and high nutritional value, low cholesterol, and omega-3 fatty acids, encouraging the interest of consumers, especially foreign consumers of tuna. Tuna has all of these advantages. Secondly, Indonesia is a country with great potential as a producer of tuna. The position of Indonesian sea located between the Indian Ocean and the Pacific Ocean provides advantages, because this position is a tuna crossing areas. The sustainable potential of tuna and skipjack is estimated to reach 886,600 tons / year or about 20 percent of the total potential of tuna and skipjack of the world (FAO, 2012). Thirdly, Indonesia has tuna with various species that have high economics value (DKP, 2005; KKP, 2011). Efforts to increase tuna exports should be supported by an increase in the quantity, quality, and value added of tuna, so it needs an integrated effort so that tuna export business can continue to grow in the face of existing challenges (Yuniarta et al., 2017). The role of government and related business actors should be more optimized (Purnomo and Suryawati, 2007; Yeeting et al., 2016).

Efforts to utilize fisheries resources optimally throughout the Indonesian regions are directed to increase foreign exchange and improve the welfare of fishermen and fish farmers. This can be done by expanding the business in the upstream sector related to the downstream business (agro-industry). These efforts are closely linked to governmental policies to integrate the linkages of upstream sectors (industry of input production), fishing business, downstream (agro-industry), to the tuna exporters (Sumaila, Dyck and Baske, 2014). Therefore, the internal problems of fishermen such as education, experience, technology and venture capital; and international-oriented of marketing should be prioritized (Havice and Reed, 2012). On the other hand, the process of capital accumulation, the development of tuna fishery agroindustry, the state of infrastructure, and the regulation to preserve the fishery resources are the key to success (Christian, Labaro and Telleng, 2012).

Based on the things described above, the government's policy is needed to encourage tuna fishery subsector to become a source of national economic growth. Specifically, the policies deemed relevant are increased non-oil exports, increased fishermen's income, expansion of employment opportunities, and increased GDP of the fisheries sector. The export value of fresh tuna can still be improved by increasing the productivity of Indonesian tuna, especially fresh tuna. To increase the export value of Indonesian fresh tuna in the international market, it is necessary political will of government to support tuna industrialization that can improve tuna competitiveness in international market (Djima, 2000; Tolentino-Zondervan et al., 2016).

To answer the above problems, it is necessary to research about the economic model of Indonesian tuna fishery; analysis of policy simulations in the era of trade liberalization. With these economic models, it is expected to formulate appropriate policies to foster fisheries subsector, especially in the case of: (1) providing food, (2) generating foreign exchange, (3) providing employment, (4) a potential market for capital and advanced technology, and (5) as an equalization agent of Indonesia's economic development.

Purposes of this study are to analyze the development of Indonesia fresh tuna exports in the international market during 2000-2016, and to know the factors that affect Indonesia's fresh tuna exports in the international market.

## **METHODS OF RESEARCH**

This research applies a quantitative approach that discusses the relationship between variables. This study was conducted in the period 2000-2016 to analyse factors that may affect the export of fresh tuna in the international market in that period. The data used is the annual time series data. Data analysis model used in this research is econometric model of simultaneous equation system. This econometric model is a special pattern of the algebraic model, a stochastic element that includes one or more variables (Intriligator, 1978). The data analysis in this study includes the following steps.

*Model Specification.* Model specifications in this study using the system of simultaneous equations as follows:

Domestic demand of the fresh tuna:

$$DQTS = e_{10} + e_{21} * PITS + e_{22} * PDIL + e_{23} * GNPriil + e_{14} * POP + e_{15} * TREN$$

Domestic price of the fresh tuna:

$$PITS = f_{10} + d_{11} * E + f_{12} * PXTSW + f_{13} * DQTS + f_{14} * QTT + f_{15} * POP + f_{16} * GDP$$

Export of the fresh tuna to Japan:

$$VXTSJ = g_{10} + g_{11} * PXTSIKJ + g_{12} * E + g_{13} * GDPJ + g_{14} * POPJ + g_{15} * QTT$$

Export of the fresh tuna to USA:

$$VXTSUS = h_{10} + h_{11} * PXTSIKUS + h_{12} * E + h_{13} * GDPUS + h_{14} * POPJ + h_{15} * QTT$$

Where:

DQTS: Fresh Tuna domestic demand;  
 PITS: Fresh Tuna domestic price;  
 PDIL: Domestic price of other fishes;  
 GNPRIIL: Income of any countries;  
 QTT: Production of Tuna;  
 POP: Population;  
 VXTSJ: Fresh tuna export to Japan;  
 PXTSIKJ: Price of the fresh tuna exported to Japan;  
 PXTSIKUS: Price of the fresh tuna exported to USA;  
 GDPJ: National income of Japan;  
 PXTSTH: Price of the fresh tuna exported to Thailand;  
 VXTSUS: Export of fresh tuna to USA;  
 PXTSIKSI: Price of the fresh tuna exported to Singapura;  
 GDPUS: National income of USA;  
 QTT: Production of Tuna.

*Model Validation.* Prior to use in the simulation analysis, a predictive power test of the model was performed. In this research, validation is done by using comparison of actual value and prediction value (Root Mean Square Percentage Error - RMSPE- and U-Theil). The model's ability to predict the better, if the RMSPE and U-Theil values are getting smaller. RMSPE values below 30 percent and U-Theil below 0.2 are expected values (Theil and Zellner, 1962; Pindyck and Rubinfeld, 1991).

*Simulation Procedure.* In this study a policy simulation analysis was conducted to see the impact of policy changes on the economic performance of fresh tuna trade. To answer the research objectives, then simulation for the period 2000-2016. Before the forecasting simulation is done, firstly forecasting all exogenous variables, using time series data.

## RESULTS AND DISCUSSION

*Results of Estimation.* Once the model parameters are repeatedly estimated, the results are obtained that all explanatory variables in the behavioral equation have values that correspond to expectations (economic criteria) and are statistically feasible. Three of the six equations used have the coefficient of determination (R<sup>2</sup>) greater than 80%. In general, the explanatory variables included in the behavioral equations in this study are able to explain well the performance of each endogenous variable. While in testing the parameters based on the t-test has been attempted to obtain the best results (the lowest error), after the economic criteria are met; in this study the level of significance used is tolerant to 0.20. This research describes the economic behavior related to fresh tuna fishery sub-sector, namely: (1) Domestic demand for fresh tuna is influenced by the domestic price of fresh tuna, other tuna prices, national income and population; (2) Output price is influenced and suggest a negative relation with production level, otherwise it is positively related to consumption, export price and rupiah exchange rate; (3) Export prices, domestic prices and rupiah exchange rate, have a significant effect on national fresh tuna export. The behavior of the



tuna fishing sector like this is in line with the results of research conducted by previous fisheries researchers (ITPC, 1991; FAO/GLOBEFISH, 2006; Pianet, Nordstrom and Dewals, 2009; Langley et al., 2004; Hidaka and Torii, 2005; Allen, 2010; Pons, Melnychuk and Hilborn, 2018).

*Estimation of Export Model of the Fresh Tuna in International Market.* The estimation of factors affecting export of fresh tuna in the international market in 2000-2016 is influenced by the following variables (Tables 1-4).

Table 1 – Results of Parameter Estimation of the Fresh Tuna Demand Equation

Estimation of fresh tuna demand				
Variabel	Parameter Estimation	Standar Error	T Value	p-value
Intercept	67943910	41451095	1,64	0,1322
PITS	3,883695	1,897812	-2,05	0,0679
PDIL	31,2848	30,94973	1,01	0,3359
GNPRiil	0,028628	0,023878	1,20	0,0582
POP	-0,32501	0,198400	-1,64	0,1324
TREN	959781,6	571670,2	1,68	0,1241
R <sup>2</sup> = 0,84173 F = 10,64				

Source: Data analysis, 2018.

Table 2 – Results of Parameter Estimation of the Fresh Tuna Domestic Price Equation

Domestic price of fresh tuna				
Variable	Parameter Estimation	Standar Error	T Value	p-value
Intercept	-5970,65	9168,347	-0,65	0,5283
E	1,725429	1,183992	1,46	0,1230
PXTSW	0,280059	0,164540	1,70	0,1168
DQTS	0,023555	0,042367	0,56	0,1194
QTT	-0,02533	0,016725	-1,51	0,1581
R <sup>2</sup> = 0,64742 F = 51,674				

Source: Data analysis. 2018.

Table 3 – Results of Parameter Estimation of the Fresh Tuna Demand in the Japan market

Export Demand of fresh tuna to Japan				
Variabel	Parameter Estimation	Standar Error	T Value	p-value
Intercep	21558815	4045368	5,33	0,0003
PXTSIKJ	-27,0867	62,26923	-0,43	0,0728
E	6,221759	16,12868	0,39	0,1078
GDPJ	-234,423	190,6259	-1,23	0,2470
POPJ	71,06974	55,18982	1,29	0,1268
TRJ	-0,88453	12,69847	-0,78	0,0544
R <sup>2</sup> = 0,75940 F = 56,31				

Source: Data Analysis, 2018.

Table 4 – Results of Parameter Estimation of the Fresh Tuna Demand in the USA market

Export Demand of fresh tuna to USA				
Variable	Parameter Estimation	Standar Error	T Value	p-value
Intercept	911524,3	401826,8	2,27	0,0467
PXTSIKUS	-9,49151	2,618052	-3,63	0,0046
E	9,291016	8,694664	1,07	0,3104
GDPUS	-4,60528	6,481488	-0,71	0,4936
POPUSA	5,84455	5,147232	1,14	0,2827
TRUS	-4985,73	4,940	-6,44	0,4593
QTT	9,9983	3,985	3,8774	0,0076
R <sup>2</sup> = 0,76461 F = 75,50				

Source: Data analysis, 2018.

Based on the results of data analysis (Tables 1-4), it can be seen the factors that affect the export of fresh tuna as follows.

*Domestic Demand for Fresh Tuna.* Results indicate that domestic price of fresh tuna negatively affects domestic demand for fresh tuna. If the price of fresh tuna rises, it will decrease domestic demand, if the price of other fishes rises has a positive effect on the domestic demand for fresh tuna. The pattern of consumption of Indonesian society is still dependent on the price of food commodities. National income (real GNP) and population are parameters that positively affect domestic demand for fresh tuna and the increase in population will also increase consumption and increase domestic demand for fresh tuna. Based on the results of data analysis (Table 1 to 4), it can be seen the factors that affect the export of fresh tuna as follows.

*Domestic demand for Fresh Tuna.* The result shows that the price of fresh domestic tuna has negatively effect on domestic fresh tuna demand. If the price of fresh tuna is domestic, it will decrease domestic demand, on the other hand if the price of other fish has a positive effect on the demand of fresh domestic tuna. The pattern of consumption of Indonesian society is still dependent on the price of food commodities. National income (real GNP) and population are parameters that positively affect domestic demand for fresh tuna, and the increase in population will also increase consumption and increase demand for domestic tuna.

*Domestic price of the fresh tuna.* Results showed that fresh tuna production had a negative effect on fresh tuna price in the domestic market of -1.51. If fresh tuna production rises, it will reduce the price of tuna in the domestic market. The price of fresh tuna in the international market positively affects the domestic price of tuna. Domestic prices of tuna will rise if the price of tuna in the international market increases, and the domestic proce of tuna will decrease if the price of tuna in the international market decreases. Domestic demand of tuna positively affects the domestic proce of tuna. As domestic demand increases, it will increase the price of tuna according to the law of demand which says that prices will increase as demand increases. On the contrary decline in domestic demand will reduce the price of tuna (Stanislaus, 1985). All results of this analysis apply with the assumption that other factors meet the assumption of *ceteris paribus*.

*Export demand of Indonesian fresh tuna to the Japanese market.* Results of analysis show that the price of Indonesian tuna in Japanese market negatively affects the demand of Indonesian tuna in Japan. The price of Salmon fish is positively related to the demand for Indonesian tuna. Japan's domestic income has a positive effect on demand for Indonesian tuna in the Japanese market.

The demand for domestic tuna has a positive effect on the domestic price of tuna. As domestic demand increases, it will increase domestic prices, according to the law of demand in which the prices will increase following the demand increases. On the contrary the decline in domestic demand will reduce domestic prices of tuna.

*Export demand of Indonesian fresh tuna to the US Market*

The result of parameter estimation shows that Indonesian tuna price in USA has negative effect to export demand of tuna in USA of -3.63. The increase in tuna prices will reduce the demand for tuna exports in USA. The price of salmon (as a substitute of tuna) in USA positively related (1.07) to the demand for Indonesian tuna. The increase in salmon prices will raise demand for Indonesian tuna; consumers in the USA will choose tuna instead of salmon.

*Simulation of the export policy of fresh tuna to the international market.* To see the impacts of current policy changes and current phenomena on the endogenous variables in the simultaneous equation system, several simulations of exogenous variables are made. Changes in these variables can have a positive impact, negative impact, or no impact on the endogen variables at all.

Impacts of the policy to increase export of Indonesian fresh tuna in the international market in 2000-2016 can be seen in Table 2. Based on indicators of fresh tuna export performance, policy scenarios that can improve performance of Indonesian fresh tuna exports are: (1). Increase in the number of tuna fishing boats by 25%, (2) Depreciation of the

rupiah at 30%, (3) Decrease in the domestic price of tuna by 10%, (4) Decrease in interest rate of 2.5%, (5) Removal of import tariff, (6) Implementation of appropriate technology of 10%. These are in line with the results of research conducted by other researchers (Ananda, 2002; Angra, 2007; Havice, 2009; Amandè, et al., 2010; Havice, and Campling, 2010; Miyake et al., 2010; Campling, 2012; Bailey et al., 2016).

Table 5 – Impacts of the fresh tuna export policies

No.	Performance indicator	Simulation value	Impact of change (%)					
			SIM 1	SIM 2	SIM 3	SIM 4	SIM 5	SIM 6
1	Domestic demand for fresh tuna	389066,9	0,88	0,09	0,25	0,07	0,78	0,28
2	Proce of fresh tuna	25618,72	0,36	18,39	0,20	0,41	2,50	1,62
3	Export demand of Japan market	490641,86	5,35	0,13	0,04	0,04	-0,62	1,01
4	Export demand of USA market	488243,67	-7,79	0,01	0,01	-0,93	-0,55	0,56
5	Export demand of EU market	290471,54	-0,46	0,15	0,21	-0,311	-0,77	1,65
6	Export demand of Singapore market	199641,18	-22,45	0,26	0,56	-0,12	-0,55	1,26

Source: Data analysis, 2018.

Notes:

SIM1 = Increase of tuna fishing boats by 25%;

SIM2= Depreciation of rupiah exchange rate by 30%;

SIM3= Decrease of tuna price by 10%;

SIM4= Decrease of interest rate by 2,5%;

SIM5= Removal of import tariff;

SIM6= Implementation of appropriate technology by 10%.

Government policies to encourage increased tuna fishing yields are simulated with an increase in the number of fishing boats (10%) provided by the government and channeled through fishermen cooperatives. The simulation is considered to be relevant enough to reflect the government's efforts to encourage progress of tuna fishing business, so it can be seen how it impacts on Indonesian fresh tuna exports in the international market. Increase in the number of tuna fishing boats by 1000 units or 25% of the average number of boats can increase fish production by 3%. However, this increase in tuna production caused a decrease in domestic proce of tuna by 0.36%, and this price reduction will increase tuna demand by 1.02. It is in line with the results of research conducted by other researchers (Floyd and Pauly, 1984; Fonteneau et al., 2000; Lennert-Cody, Roberts and Stephenson, 2008; Amandè et al., 2017.).

Depreciation policy of the rupiah against US \$ is very favorable for the fresh tuna trade. Because it can encourage the increase of fresh tuna exports. The rupiah depreciation of 25% can increase the export of fresh tuna, thus having a role in increasing national income. The production of fresh tuna fishery needs to be improved to meet domestic consumption. Depreciation of the rupiah exchange rate against the US dollar is expected to increase national income. The 2.5% reduction in the interest rate has not been able to improve performance of fishery sub sector. This indicates that the prevailing interest rate is still high for fishery business, so the interest rate decline has not been able to encourage investors to invest their capital in fisheries, especially tuna fisheries. It is in line with the results of research conducted by other researchers (Anderson, 1977; Kumar, 1997; Havice, 2013; Kuldilok, Dawson and Lingard, 2013).

Decline of the price of Indonesian tuna in the USA market by 10% has an effect on domestic price decline (0.43%); this domestic price always follows the price dynamics of tuna in international market. The fall in domestic prices led to a decrease in tuna production by 5.35%; this occurs because of negative expectations of the actors of tuna fishing effort against declining in fish prices in market.

Tariff removal (simulated) applied by Japan and USA can increase the demand for Indonesian tuna export in Japan by 14%, this amount is considered very important for the development of Indonesian tuna exports. Increased demand for exports in Japan, it is considered that there is a decrease in export demand in the USA by 0.55%; and in aggregates the Indonesian tuna exports increased by 15.87%. This increase in exports gives positive expectation for the fresh tuna fishing business, so it can be simulated to increase

fresh tuna production by 13.99%. This is in line with the results of research conducted by other researchers (Sunorita and Tjarsono, 2014; Widya, 2015; Digal, Placencia and Balgos, 2017).

## CONCLUSION

Factors affecting domestic demand for fresh tuna are national income and population. The price of domestic tuna affects the demand for domestic fresh tuna negatively (non significant). The price of shrimp affects the demand of domestic tuna positively (non significant).

The analysis of factors affecting the demand for Indonesian fresh tuna exports in international markets is attributed to the demand characteristics of the largest importing countries, namely the United States and Japan. Factors that significantly influence the price of Indonesian tuna in the country, the price of salmon, the price of Thai tuna, the exchange rate of the rupiah against the currency of the importing country, the importing country GNP, the number of people and the tariff applied to the Indonesian tuna.

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## **ABBREVIATION OF SCALES ON APPLE PLANT IN JUNGGO (TULUNGREJO VILLAGE OF BATU CITY, INDONESIA)**

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### **ABSTRACT**

Scales have attacked 9 hectares of apple land spread in 8 villages of Bumiaji sub-district such as Giripurno village, Tulungrejo village, Pandanrejo village, Sumbergondo village, Bulukerto village, Punten village, Gunungsari village, and Bumiaji village. This pest is a perennial pest on apple crops and difficult to control. The current way of control has not been able to overcome this pest problem. This research was conducted to find out abbreviation of scales on apple plant at Junggo, Tulungrejo Village, Bumiaji Sub-district, Batu City. Number of duct tape observed as many as 18 units of experiment and trap color as much as 30 unit experiment. The results showed that the total population of scales that can occur in one year is 1322 individu with a generation of 7.20 months and the rate of breeding speeds of 3.21 in one parent. Decrease of scales occurs in March to May and September to November. In March to May it is suspected to be caused more by natural enemies, whereas in September to November it is caused more by rainfall factor.

### **KEY WORDS**

Abbreviation, apple, scales, pests, control.

Apple plants are horticultural commodities that quite important, because it has a high economic value. Apple production in East Java is Batu City and Poncokusumo district Malang Regency. Increased production of apple crops has made the city of Batu as a center of East Java apple crop. Agro-climate conditions that are generally dry highland is very suitable for apple farming business. Apple plants have tolerance to the height of the place make the identity of Batu City (Sunarjono, 2013).

Batu Town is an apple producing center in Indonesia which has an apple land area of 2,993.89 Ha which is centered in Bumiaji District. Tulungrejo village in Bumiaji district is at an altitude of 700-800 meters above sea level (mdpl) (Fahriyah et al. 2011). Apples area in Tulungrejo village is 400 Ha with total production of apple 11.000 ton per harvest season with productivity 27.5 ton / Ha / year (Indahwati et al, 2012).

Based on information that has been circulating that the scales have attacked 9 hectares of apple land spread in 8 villages Bumiaji District such as Giripurno village, Tulungrejo village, Pandanrejo village, Sumbergondo village, Bulukerto village, Punten village, Gunungsari village and Bumiaji village (Scale attack 9 hectares of apple orchard, Radar Batu Jawa Pos, Saturday 20 August 2015 p. 37-38).

Apples are an annual fruit plant originating from the West Asian region with a sub-tropical climate. Apples were first introduced by Europeans during the colonial era, and today can be said to have naturalized to be a tropical apple plant. Not much research to discuss about apples in the tropics, especially the scales as pests of these plants (Triwiratno, 2008). Considering that the controlling of scale done by farmers has not been successful, it is necessary to study the pests of scales in tropical area of apple plant by taking the research location at Pedukuan Junggo, Tulungrejo Village, Bumiaji Sub-District, Batu Town from abundance.

## METHODS OF RESEARCH

**Duct tape trap.** The duct tape aims to get an active crawler on the surface of an apple plant. The number of samples observed as many as 18 plants and will produce 18 units of experiments.

The duct tape is made by using duct tape with double tip on the plant part which has been estimated to be attacked by pests of scales and adjusted to variation of research height that is 1 m and 1.5 m. The data obtained is tabulated and calculated the average of the population in apple crops with the formula:

$$\mu = \frac{\sum xi}{n} \quad (1)$$

Where:

- μ is the average population per type of insect;
- xi is the number of insects found per type of insect;
- n is the number of replications.

At each observation in the field will be installed 18 traps of duct tape and trap taking will be done 3 days after installation. The trapping duct tape interval will be held every 2 weeks. It aims to give time for the identification as well as naturalization of the field (return of the environment under normal conditions). The identification of insects is by using the following guidebook: (1) Identification of scales using Arthropods of economic importance: Diaspididae of the world (Watson, 2002) and (2) Identification of natural enemies using A Pictorial Guide to the species of *Encarsia* (Hymenoptera: Aphelinidae) parasitic on whiteflies (Homoptera: Aleyrodidae) in North America (Schauff, 2014). Observed with a light microscope on a red ribbon (40x magnification) and with a yellow ribbon (100x magnification).



Figure 1 – Duct tape trap

**Visual traps / color traps.** Visual traps aim to get insects attracted by color and produce 30 experimental units. The visual trap is a colored board measuring 10 cm x 10 cm with a square shape that has been coated with double-sided tape and hung with wire on the branch of the plant that has been estimated to be attacked by pests of scales and adjusted to variations of research height that is 1 m and 1.5 m. The data obtained is tabulated and calculated the average of the population in apple crops with the formula (1).



At each observation in the field will be installed 30 visual traps and trap taking will be done 3 days after installation. The visual trap mounting interval will be held every 2 weeks. It aims to give time for the identification as well as naturalization of the field (return of the environment under normal conditions). The identification of insects is by using the following guidebook: (1) Identification of scales using Arthropods of economic importance: Diaspididae of the world (Watson, 2002) and (2) Identification of natural enemies using A Pictorial Guide to the species of *Encarsia* (Hymenoptera: Aphelinidae) parasitic on whiteflies (Homoptera: Aleyrodidae) in North America (Schauff, 2014). Observed with a light microscope on a red ribbon (40x magnification) and with a yellow ribbon (100x magnification).



Figure 2 – Visual trap

Data from these two traps are combined to find the total abundance of the scales in the Junggo, Tulungrejo Village, Bumiaji District, Batu City.

## RESULTS AND DISCUSSION

*Species of scales on apple plant in Junggo, Tulungrejo Village, Bumiaji District, Batu City.* Species of scales found in apple plants in Junggo, Tulungrejo Village, District Bumiaji, Batu City is *Diaspidiotus perniciosus* (Comstock). *Diaspidiotus perniciosus* is characterized by the adult female body is transparent, pear-shaped, has no perivulvar pore and the addition of a pair of dorsal setae in the second segment and also ovovivipar.



Figure 3 – Setae dorsal (arrow) and ovovivipar of *D. perniciosus* (Magnification 1:100)

Adult female morphology and adult males on the scales are different. Adult females lack wings and limbs as in males (Figure 4). The division of adult female bodies is unclear whereas adult males have developed well where there are wings, antennae, legs and can move freely.



Figure 4 – Adult males *D. Perniciosus* (Magnification 1:100)

Adult male *D. perniciosus* is a small winged insect with a size of 1 mm and colored golden brown. This flying males are looking for adult females and mate. The crawler produced by the females is bright yellow and measuring between 0.1-0.24 mm (Figure 5). Once out of the female imago, the crawler will walk or drift because of the wind to a new spot that is infesting babbling, fruit, leaves and also entering the shield. And from the observation, the crawler has been able to create a shield in 1 day. This is contrary to Miller (2005) which states that *D. perniciosus* can make a shield within 3 days. Differences are sub tropical and tropical.



Figure 5 – Crawler *D. Perniciosus* (magnification 1:100)

After going through several stages of development that begins by the crawler, it can be seen the difference between males and females. The shield of the male scales is elongated and the female scales shield is a circle and both of two called nymph (Figure 6).

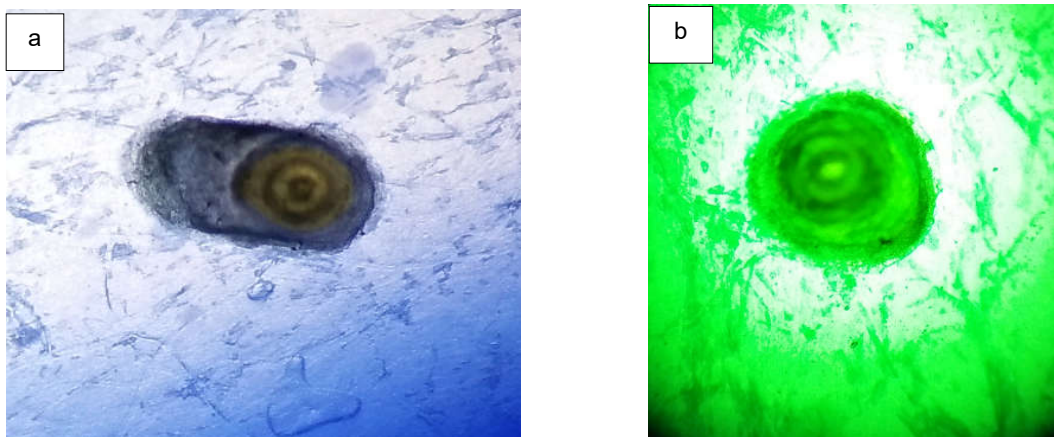


Figure 6 – (a) Male Nymph (b) Female Nymph (Magnification 1:100)

Based on data, it was found that adult female and crawler decreases were in 2 months to 4 months after defoliation (Figure 7). So it can be concluded the decline occurred in March to May and September to November. In March to May it is suspected to be more caused by natural enemies, whereas in September to November it is caused more by rainfall factor (Figure 8).

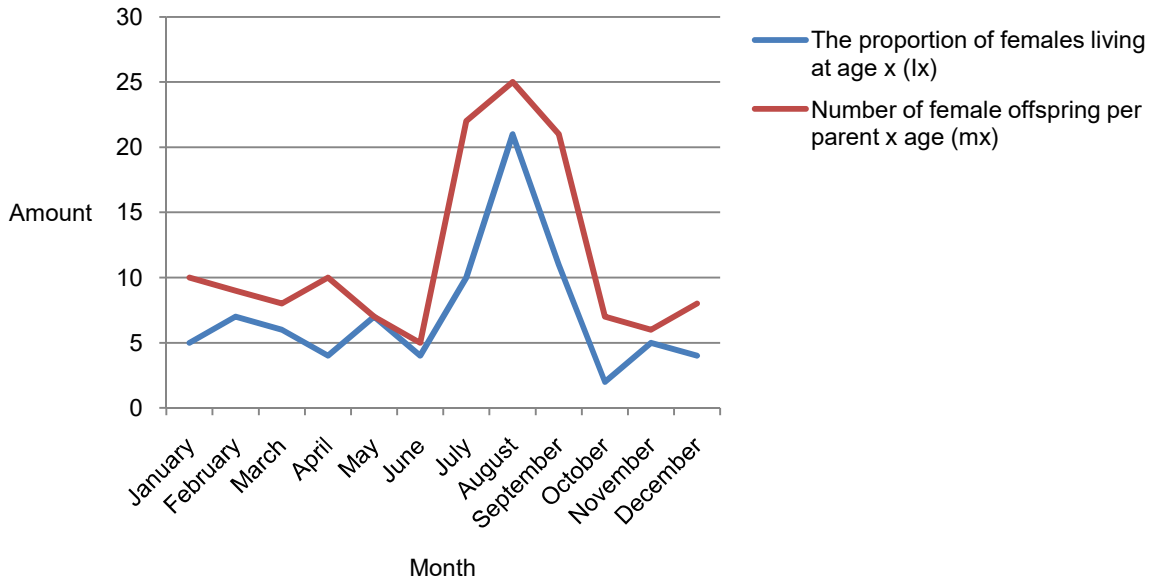


Figure 7 – The number of adult female offspring (crawler) and the proportion of adult females begin to defoliation to harvest

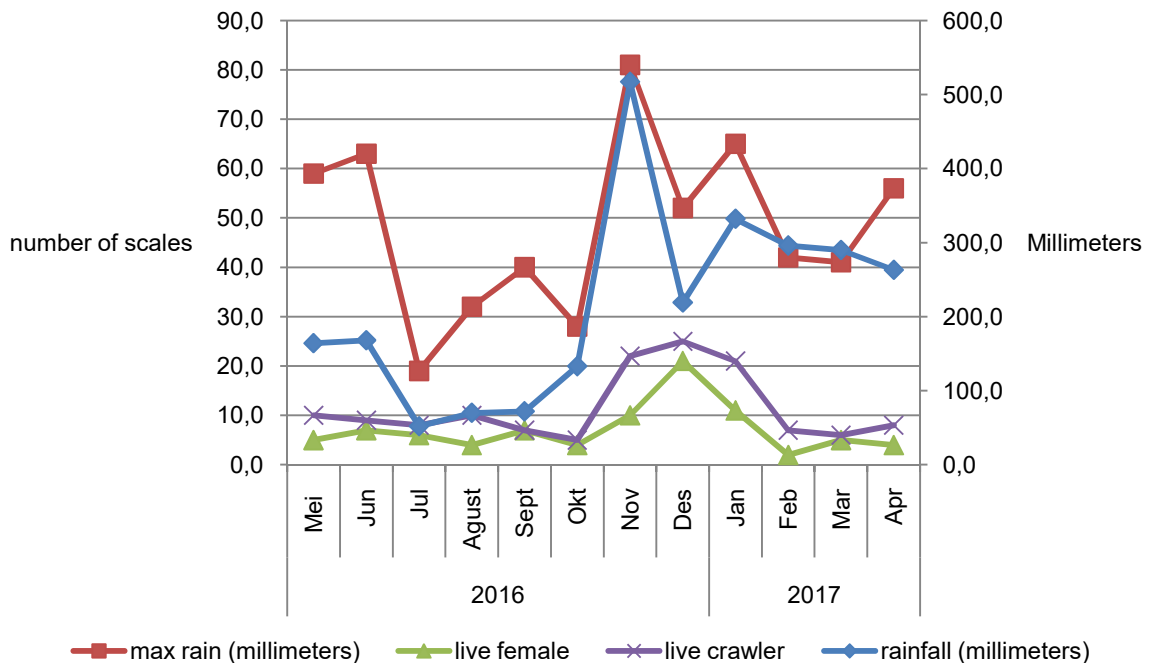


Figure 8 – Rainfall of apple plants and the scale insect

The result of significance test in Figure 9. states that abiotic factor has correlation to the number of scales in the apple plantation area of Tulungrejo village, Bumiaji sub-district, Batu city. The relationship had a significance value of  $R^2 = 0.0042$  at the time of the 12 month study.  $R^2$  is the value of determination which means that the sampling time factor has

a contribution of 0.4% to the highest number of individuals and 99.6% is contributed by other factors so it is very difficult for if by considering only abiotic factors.

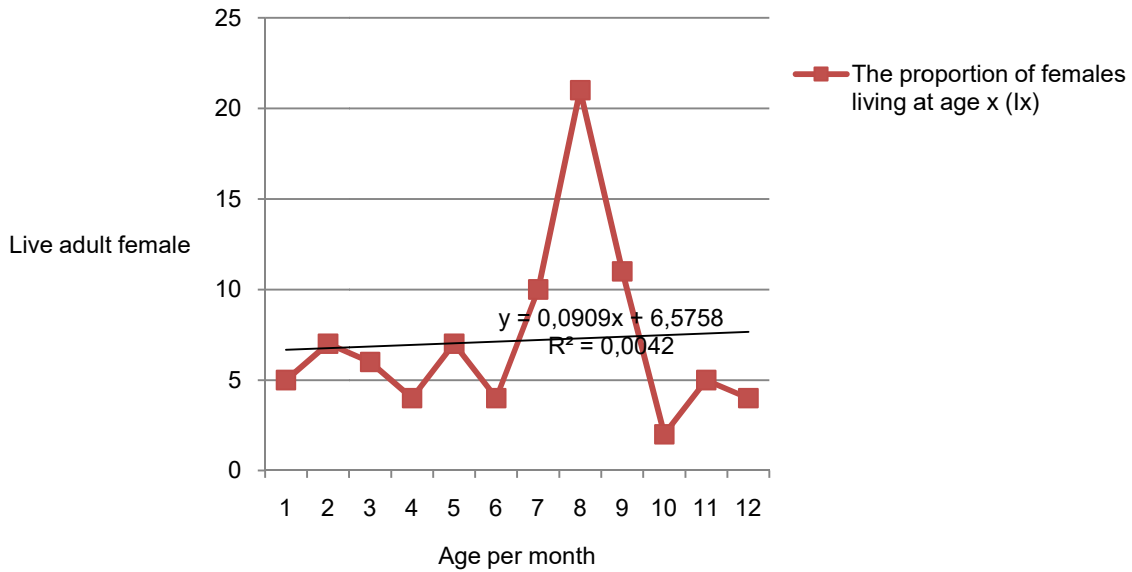


Figure 9 – Females live at a certain age

According to Koteja, (1990), the advantages possessed by scales is from the beginning of the beginning of the formation of the gray border of the females want to accept the males. In this stadium, if not married, the female remains a virgin and does not turn into an adult female during the absence of marriage.

The third instar of the unelected females releases pheromones to attract the male. Pheromone expenditure begins with the formation of a gray layer and can last up to 84 days for no marriage. When married, the pygidium is extended to the edge of the gray layer. After marriage, the pygidium is pulled through the ventral lobe and no more marriage can occur. The stadium is called the adult female (Koteja, 1990).

Table 1 – Clean Reproduction Rate, Old Generation, and Increased Intrinsic Rate

Age per month (x)	The proportion of females living at age x (lx)	Number of female offspring per parent x age (mx)	$qx = (lx - lx+1)/lx$
1	5	10	0,200
2	7	9	0,143
3	6	8	0,167
4	4	10	0,250
5	7	7	0,143
6	4	5	0,250
7	10	22	0,100
8	21	25	0,048
9	11	21	0,091
10	2	7	0,500
11	5	6	0,200
12	4	8	0,250
Total	86	138	0,012

Net Production rate (R0):

$$R_0 = \sum_{x=0}^n l_x m_x = 1322 \text{ (average population)}$$

Average generation time ( $T$ ):

$$T = \left( \sum_{i=0}^n x_i \cdot l_i \cdot m_i \right) / R_0 = 7,20 \text{ month}$$

Value intrinsic rate ( $r$ ):

$$N_T = N_0 \cdot \exp(r \cdot T) = 3,21$$

Total scales of adult female were found to amount to 86 head and the number of offspring in one year amounted to 138 heads with an intrinsic increase rate of generation of 0.012. The highest speed is in October. But this month, the scales are controlled by high rainfall. The total population of scales that can occur in one year is 1322 individu with a generation of 7.20 months and the rate of breeding speed of 3.21 individu in one sibling.

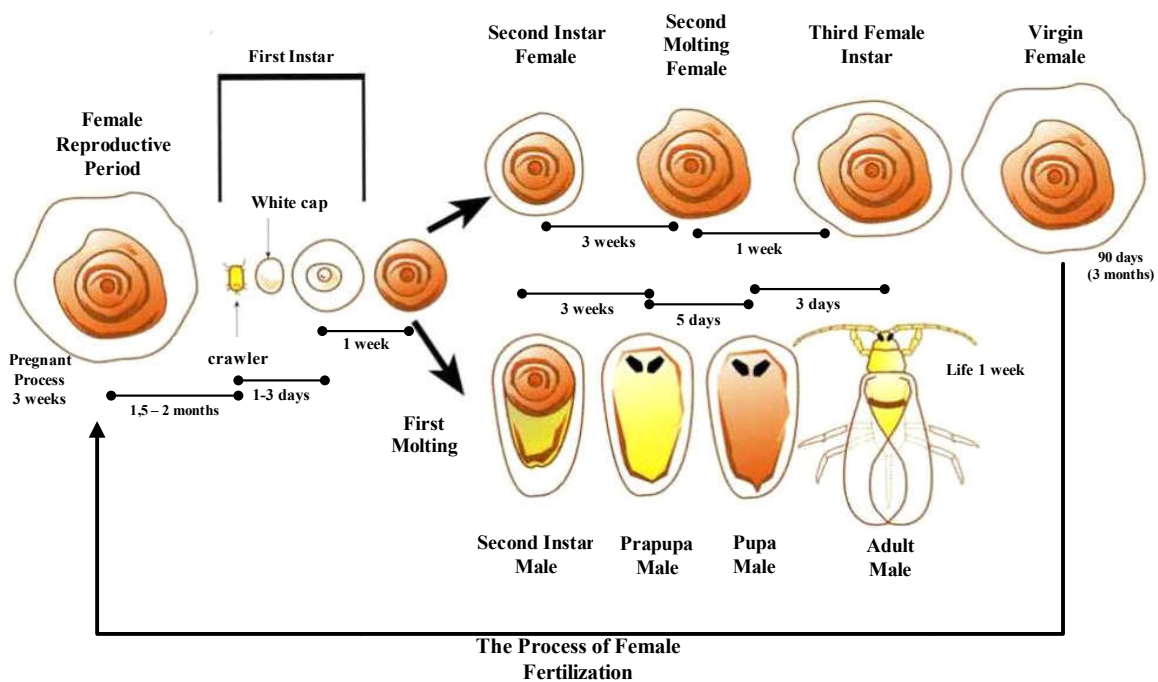


Figure 10 – Life cycle *D. Perniciosus* (Modification of Rothwell, 2014)

The female reproductive period runs when the female has been successfully fertilized by the male. The female pregnancy process for 3 weeks continued with a crawler income of 1.5 to 2 months. The outgoing crawler will search for a feeding location and stay for 1-3 days and turn into a white hat and stage of the nipple that will magnify his shield. Black hat occurs perfect one week after experiencing stage of white hat nipple.

Black hat will experience first molting directly and distinguish themselves between males and females so that the stage that is often found is the second instar of females and male second instar. Both male instars and male instars take two weeks to get to the next stage. The second instar of the female enters the second molting by releasing its shield for a moment while the male instars enter the preposition phase.

The male preliminary phase takes 5 days to enter the pupa phase. In this case there will be a bright shield color change becomes darker. After 3 days experience the pupa phase will be produced imago male complete with wings, antenna and reproduction tool, but the age of male imago only one week.

For females, when entering the second molting takes one week to reach the third instar of the female. The third instar of the female is a mature female. This third instar enters virginity where at this time the female is able to live waiting to be fertilized for up to 3 months.

Table 2 – The Process of Death *D. Perniciosus*

The process of death	Number of detected scales	The number of dead scales	Death rate (d)	Endurance Level (s)	K value [-ln(s)]
Parasitoid	224	32	0,14	0,86	0,15
Mushrooms	192	8	0,04	0,96	0,04
Natural	184	12	0,07	0,93	0,07
Total	230	52	0,23	0,77	0,26

The table above shows that the process of scales death is caused by parasitoids, fungi and death naturally. Death by parasitoids is caused by *Encarsia* sp. whereas death is naturally caused by microclimate conditions such as rainfall. The highest mortality rate is caused by the parasitoid of 0.14 and for the highest scaling resistance level is in the mushroom of 0.96. The precision value of the scales is 0.15 for the parasitoid and the total of all these controls is 0.26. The highest accuracy result in this test is 100% with  $k = 1$ .

Table 3 – Sex Ratio *D. Perniciosus*

Stage Development	Number of Living	Death Factor	Number of dead	Percent of Death (%)
Crawler	89	Natural	12	13
Nymph	77	Parasite	40	52
Adult	37			

(Sex Ratio 1:1,5, 12,33 male & 24,67 female)

Some of the decline caused by several factors, among others, natural and parasite. Natural can be interpreted as the death of scaly lice caused by environmental factors such as rainfall, humidity and temperature while parasite interpreted as the death of scales due to the influence of natural enemies in this case is parasitoid and entomopathogenic fungi. The total number of parasites is 52%, which indicates that both agents are compatible so that the hope is that pest control will work optimally in the future by increasing the potential of the two natural enemies.

The development of stadia experienced in 3 major groups namely crawler, nymph and adult. And it is known that the sex ratio of male and female is 1: 1.5. This indicates dominance is found in females while the dominant subtropical region is present in males. If the environment supports sex dominance will be present in males and vice versa if conditions are less supportive then the sex dominance will be present in females. Given that apples are not native to Indonesia in the tropics.

For information, in the New Zealand region red marks caused by the crawler that turned into nymph. At harvest time, it was found that 62% produced a red mark effect and 41% did not. And after it was identified that the cause of the red mark was 173 males and 94 females with a 2: 1 sex ratio and that did not result in red marks were 198 males and 184 females with a sex ratio of 1: 1. In this case it can be concluded that the resulting red marks are dominant in males (Crop Protection Compendium, 2014)

At an average temperature of 22.4 ° C in Tulungrejo Village, the crawler will experience a long life cycle of between 42-60 days (Table 4). This is supported by Luck (1995), that due to an increasingly long life cycle resulted in less number of generations of scales per year in areas with low temperatures.

Minimum temperature ranges from 19 ° C in Tulungrejo village so this will depress the number of crawler scavengers. The mortality rate of scales in natural conditions is 13% under these conditions (Table 3). Huba (1962) emphasized that when the temperature reached 14 ° C then all crawlers began to die to 73%.

The first, second and third instars are the ones that are most resistant to low temperatures while the females with crawlers are resistant to medium temperature. The first molting both male and female, molting both females, male prapupa and male pupae are very



susceptible to low temperatures. Thus, low temperatures are the most decisive factor for scaling abundance and spread (Smith et al., 1997).

Table 4 – Lifecycle *D. perniciosus* at a certain temperature (CABI, 2009)

Temperature	Perfect life cycle (days)
20-21°C	60
25-26°C	42
31-32°C	30

Air temperatures are predicted to determine behavioral trends. Hot temperatures are believed to be a driving factor in the emergence of aggressiveness. On the other hand a very cold temperature is estimated to reduce aggressiveness. This is evident in the shielding of the scalps within a period of just 1 day indicating that the scooter scales does not take long to choose and settle due to the heat-induced air in the maximum temperature seen in Figure 11 given that the shield function is also to protect the scales of the surrounding environment circumstances are less conducive.

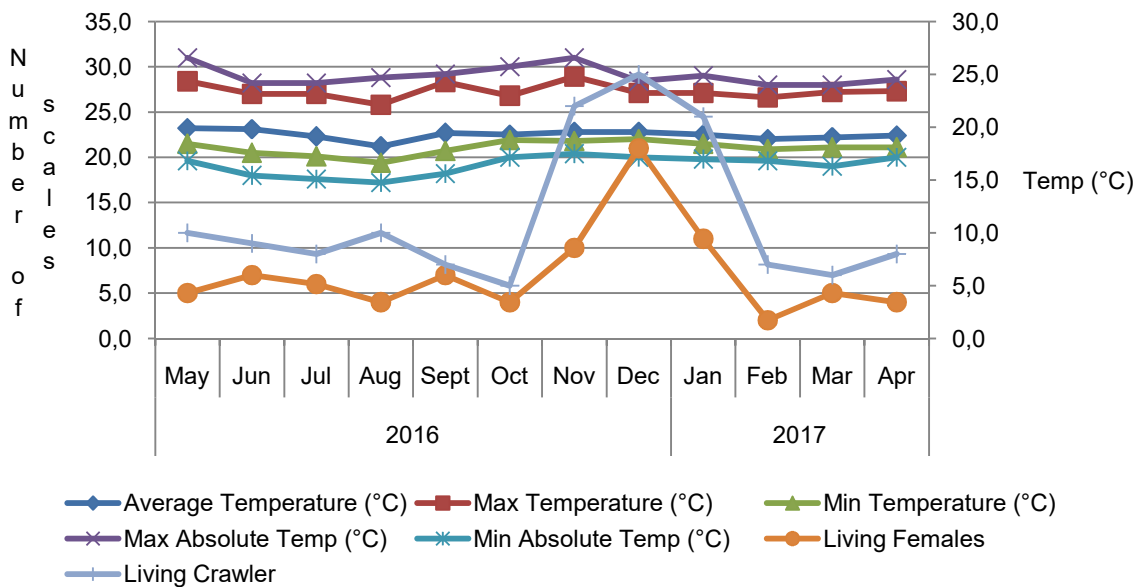


Figure 11 – Relation of temperature and the scale insect

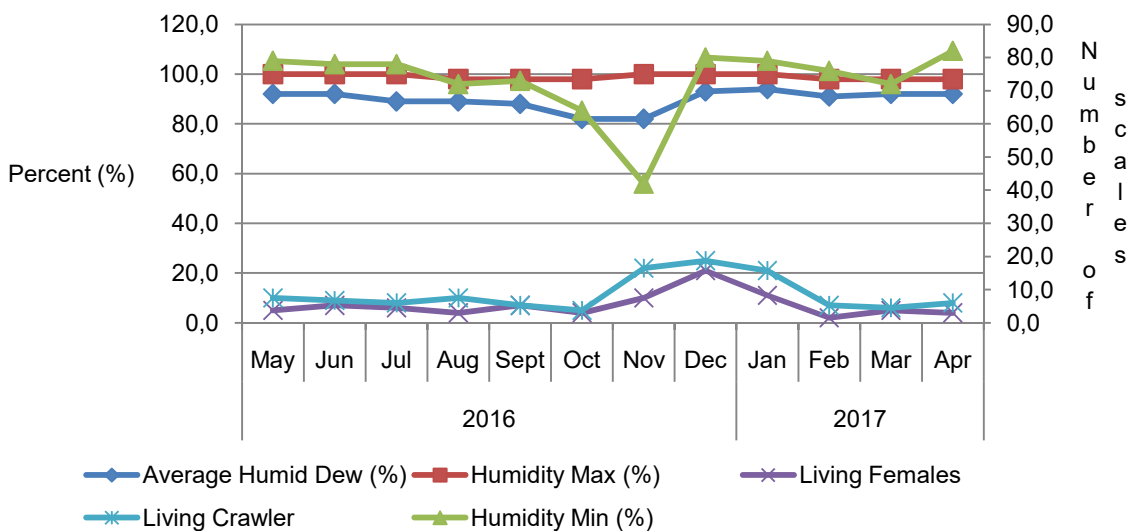


Figure 12 – Relation of humidity and the scales insect

The required air humidity of apple plants is about 75-85% and the actual condition at observation is higher that is 89.8% (Figure 12). High humidity can stimulate the growth of microbes that can harm plants. But in certain aspects it can also support the entomopathogenic fungi that can help control the scale insect. In this study it was found that when the minimum relative humidity reaches 47%, the scaling condition of the scales increases. Luck (1995) states that the generation of scales per year is lower in areas with high humidity. But to achieve the best way out, it prevents high moisture around the plant by pruning unproductive branches.

### CONCLUSION AND RECOMMENDATIONS

The total population of scales that can occur in one year is 1322 individu with a generation of 7.20 months and the rate of breeding speed of 3.21 individu in one sibling. Decrease of scales occurs in March to May and September to November. In March to May it is suspected to be caused more by natural enemies, whereas in September to November it is caused more by rainfall factor.

*Suggestion.* The abundance of scales should be seen in depth both in relation to abiotic and biotic factors so that the results will be obtained more leverage.

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**EFFECT OF VARIETY AND STICK INCLINATION ANGLE ON THE GROWTH, YIELD AND PHOTOSYNTHETIC EFFICIENCY OF SWEET POTATO (IPOMOEA BATATAS L.) IN THE PAPUA HIGHLANDS**

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**ABSTRACT**

Abiotic stress due to high levels of vulnerability in the Papua highlands is a deleterious limiting factor for the growth and development of sweet potato affecting yields. This study examined the effect of three varieties of sweet potato: Siate (narrow-leaves), Papua Sollosa (medium-leaves) and Cangkuang (broad-leaves) combined with four supporting stick angles – no stick and angles of 45°, 60° and 90° – on the growth, yield and photosynthetic efficiency of sweet potato grown under field conditions. The results show that to optimize plant use of solar radiation in the highlands of Papua, it is advisable to use Cangkuang variety (broad leaves) combined with sticks angles of 60° and 90°.

**KEY WORDS**

Sweet potato, variety, stick angles, Papua highlands, photosynthetic efficiency.

The island of Papua has a unique biodiversity and one example is in the Baliem valley, in the Papua highlands with sweet potato and pandanus sp. plants as the two main commodities that are best known to the wider community. Sweet potato plants known to local communities as “mother” plants or in local languages *hipere*, have special features because they are handed down through generations according to local agroecological conditions as well as unique cultivation techniques because they are intended not only as a source of food and fodder, but also for traditional ceremonies (Wydiastuti, 1994). Thus the existence of the local people known as *Dani* people is very dependent on the existence and availability of their sweet potato. La Achmady and Schneider (1993); Rauf and Lestari (2009) reported that local residents practice the cultivation of sweet potato in particular by separating varieties based on their designation. Varieties designated as foodstuffs usually have high starch content, an a dry and sweet taste while varieties with less palatable or tasty tubers, high or low water content and high fiber content are intended as pig feed.

From generation to generation, local people have adapted the way of cultivating sweet potato in response to local climatic conditions. To overcome the limitation of sun radiation intensity, the *Dani* people have adopted local knowledge according to which they grow long-vine cultivars which are wined around sticks of 120-150 cm in height aiming to prevent leaves from shading each other, while short-vine cultivars are grown on the edges of gardens (Widyastuti, 1994). This practice aims to enable plant leaves to get enough sunlight for photosynthetic and the crops to produce big tubers. The solar radiation in the Baliem valley generally starts at 10 am. Before this sunlight is blocked by fog caused by high levels of resistance, and at times the weather changes because suddenly the sun is blocked by clouds.

Soenarto (1997) and Saraswati *et al.* (2013) report that sun radiation intensity in the Baliem valley is only 1.38 kJ cm<sup>-2</sup> day<sup>-1</sup> with an average duration of sunlight of around 4 hours day<sup>-1</sup> because the weather is mostly cloudy. Sweet potato is a tropical plant that is intolerant to shade, both biotic and abiotic shade. As reported by Biswas *et al.* (1990) and

Swadija *et al.* (2016) increasing the shade presentation from 0% - 25% and increasing to 50% - 75% can decrease the weight of fresh bulbs from 256.5 g to 110.2 g and the harvest index from 51.3 to 42.6. Shading of sweet potato can decrease the initiation of tuber formation, tuber number and tuber size (Osvald *et al.* (1995). Hozyo (1986) reported that to achieve maximum photosynthetic, all leaf strands should ideally receive normal sun exposure for 10 hours per day .




There has been much research on the practice of sweet potato cultivation in the highlands of Papua by various university researchers in Indonesia such as Widyastuti, 1994; Soenarto 1997; and Saraswati *et al.*, 2013. However, the research is mostly focused on socio-cultural aspects and some agronomic and nutritional aspects of sweet potato, while agronomic and physiological responses of sweet potato plants to local climatic conditions, especially abiotic stress due to high level of resistance have never been investigated. For sweet potato to photosynthesize optimally and perform more efficiently in utilizing relatively low levels of solar radiation, cultivation improvements are needed to manipulate the plant environment by modifying the leaf angle so that more low level of solar radiation is intercepted by the plant canopy. One potential improvement is to combine the varieties with stick inclination angles of the right depth so as to increase the capture of solar radiation by plant leaves.

This study examines the ability of varieties with different leaf morphologies combined with sticks at different inclination angles to increase the efficiency of sweetpotato utilizing sun radiation. The increase in the rate of efficiency in utilizing sun radiation by crops during their growing period can be measured through leaf number and dry weight characteristics, yield, and photosynthetic efficiency rates.

## MATERIALS AND METHODS OF RESEARCH

Fieldwork was conducted at Wesakin, Wouma District, Jayawijaya Regency, Papua, Indonesia (138° 57' BT, 04° 04' LS, 1.550 m asl) during the planting season from April to September 2016. Trial sweet potato crops were grown on dryland with alluvial soil which has a sandy loam texture and soil pH of 5.2. This trial used three sweet potato varieties: Siate (narrow-leaves), Papua Sollosa (medium-leaves) and Cangkuang (broad-leaves).

Table 1 – Sweet potato varieties used in the present study

Variety	Stem length (cm)	Leaf color	Leaf form
Siate (narrow leaves)	150-250	Green	 Triangular
Papua Sollosa (medium leaves)	120-150	Green	 Hastate
Cangkuang (broad leaves)	120-150	Green	 Cordate

The treatments were laid out in a randomized block design in three replications. The three varieties were combined with four different sticks inclination angles: no stick and stick inclination angles of 45°, 60°, and 90°, so that there were 12 combinations of treatments. Soil processing was done by means of shovels to cultivate the soil. The plot was divided into three groups and each group was divided into 5.25 m x 6.50 m plots. The distance between the groups was 100 cm and the distance between plots was 50 cm, spacing 75 x 50 cm, one cutting planted per hole with single ridges. Weeding was done 15, 45 and 80 days after planting (DAP). Neither chemical fertilizer nor control of pests and diseases were applied in this experiment in accordance with the local government prohibitions. Observation were conducted using a destructive method by taking 2 non-edge plants as samples 40, 70, 100 and 130 DAP. These samples were taken using a local wooden stick called a *sege* in the local language. Sun radiation interception was also measured using a lux meter (LX 1330 B).

Measurement were done three times on and under the leaf canopy, and also three times on the surface of the soil at 11.00 AM when the weather was bright. Sun radiation data was also collected from a local meteorological station (Class III Wamena).

The observation variables included Leaf number, Total dry weight, Tuber number per plant, Marketable tubers, Tuber yield, and Photosynthetic Efficiency ( $E_{\mu}$ ). Leaf number was all completely opened leaves on the two plant sample. Total sweet potato were counted for every plot and divided by the total number of plants during the harvesting season and Photosynthetic Efficiency ( $E_{\mu}$ ) was measured using the Yoshida (1981) method. Plants were separated into root, stem, leaf and tuber, and then dried in an oven 80° until reached constant weight. Total yield per hectare was calculated using the equation: Yield ( $t\ ha^{-1}$ ) = [(10000/scale of sampling plot)×yield of sampling plot] Finally, the Photosynthetic efficiency ( $E_{\mu}$ ) was measured based on the total dry weight ( $g\ m^{-2}$ ) divided by solar radiation accumulative ( $cal^{-2}\ cm^{-2}\ days^{-1}$ ) after harvesting.

Analyses of variance were carried out using GenStat 18 statistical software. The difference between treatments was tested using the least significant differences (LSDs) test at 5% probability level.

## RESULTS AND DISCUSSION

**Leaf Number.** The number of leaves increased in all treatment combinations following the development of the plant and reached maximum in the treatment combining Siate variety with with no stick at 100 DAP. Leaf number of this combination then decreased at 130 DAP until the harvest. The lowest leaf count was obtained in the combination of Siate variety and 90° angle, this was because some leaves became dry and this was not offset by the appearance of new shoots. Leaf position perpendicular to the leaf morphology is relatively small, allowing all leaves to be exposed to solar radiation resulting in a sharp increase in temperature around the leaves beyond the tolerance limit, consequently many leaves dried out. This is in accordance with the report on green leaf duration in wheat plants (Naruoke *et al.*, 2012), which concludes that elevated temperature conditions above the threshold tolerance limit accelerate leaf aging.

Table 2 – Effect of combinations of varieties and stick angles on the leaf number at four times of observation (means of three replications)

Combination variety and stick angles	Average leaf number at days after planting (DAP)			
	40	70	100	130
P1 (Siate without stick)	25.7 def	180.0 d	213.5 f	182.5 g
P2 (Siate + stick angle of 45°)	34.7 g	115.3 a	157.5 abc	153.5 ef
P3 (Siate + stick angle of 60°)	28.0 ef	179.8 d	200.7 ef	151.7 ef
P4 (Siate + stick angle of 90°)	31.7 fg	138.5 abc	181.7 cde	89.3 a
P5 (P.Sollosa without stick)	22.2 cde	132.5 abc	170.7 cd	167.0 fg
P6 (P.Sollosa + stick angle of 45°)	12.7 a	158.0 cd	205.0 ef	132.7 cd
P7 (P.Sollosa + stick angle of 60°)	13.5 a	134.7 abc	180.0 cde	128.2 bc
P8 (P.Sollosa + stick angle of 90°)	15.7 ab	131.7 abc	165.5 bc	140.2 cde
P9 (Cangkuang without stick)	14.0 a	148.8 abc	194.7 def	212.2 h
P10 (Cangkuang + stick angle of 45°)	20.5 bcd	139.3 abc	155.7 abc	124.5 bc
P11 (Cangkuang + stick angle of 60°)	16.7 abc	123.3 ab	132.8 a	113.2 b
P12 (Cangkuang + stick angle of 90°)	11.0 a	113.0 a	144.3 ab	150.2 def
LSD 5%	6.1	29.4	28.2	18.4

Notes: numbers with different letters in the same column shows significant difference in LSD test ( $P < 0.05$ ).

**Plant dry weight.** Treatments combining varieties and stick angles showed significant differences total plant dry weight in all growth phases except the vegetative phase at 40 DAP (Table 3). The highest total dry weights were obtained with the combination of Cangkuang variety and the inclination angles of 90°, 60° and 45° at 130 DAP of 326.9, 283.5 and 261.1  $g\ plant^{-1}$  respectively (Table 3). The morphology of the leaves of the Cangkuang variety, which are relatively larger combined with the increasing stick inclination angle, greatly affected the ability of each leaf to capture incoming solar radiation. These results may suggest that the

intensity of solar radiation is a dominant factor in increasing the production of biomass and affecting the activity of metabolic and plant genetic properties. Gifford *et al.* (1984) and Adeboye *et al.* (2016) states that under field conditions, plant development depends on the capacity of the canopy to capture the incident radiation and turn it into new biomass. The amount of intercepted radiation depends on leaf area index (LAI) and canopy orientation. Plenet *et al.* (2000) concluded that the photosynthetically active radiation (PAR) absorbed by the canopy depends on the LAI and the arrangement of plant leaves.

Table 3 – The average dry weight of the plants for various combinations of varieties and stick angles at the four times of observations (means of three replications)

Combination of variety and stick angles	Total dry weight (g plants <sup>-1</sup> ) at days after planting (DAP)			
	40	70	100	130
P1 (Siate without stick)	6.5	19.6 a	52.5 a	79.9 a
P2 (Siate + stick angle of 45°)	7.6	78.9 c	108.3 cd	137.2 b
P3 (Siate + stick angle of 60°)	5.9	79.2 c	118.7 cde	174.7 cd
P4 (Siate + stick angle of 90°)	5.6	55.3 b	91.3 b	102.9 a
P5 (P.Sollosa without stick)	5.6	47.6 b	105.7 c	147.8 bc
P6 (P.Sollosa + stick angle of 45°)	5.4	56.2 b	121.4 de	221.1 e
P7 (P.Sollosa + stick angle of 60°)	6.0	60.1 b	129.7 e	227.3 ef
P8 (P.Sollosa + stick angle of 90°)	6.0	47.1 b	89.3 b	151.7 bc
P9 (Cangkuang without stick)	5.0	48.9 b	117.1 cde	202.5 de
P10 (Cangkuang + stick angle of 45°)	5.9	94.5 d	177.6 f	261.1 fg
P11 (Cangkuang + stick angle of 60°)	5.4	101.9 d	184.4 f	283.5 g
P12 (Cangkuang + stick angle of 90°)	4.9	105.1 d	229.5 g	326.9 h
LSD 5 %	Ns	6.4	13.6	33.8

Notes: numbers with different letters in the same column show significant difference in LSD test ( $P < 0.05$ ); DAP = days after planting; ns=Not significant.

**Tuber yield.** Parameters used to present the results are number of tubers, proportion of marketable tubers, and tuber yield (Table 4 and Figure 1a). Low irradiation conditions in the Baliem Valley of the highlands of Papua mean that combinations of varieties with a more efficient stratum for capturing solar radiation produce better, as shown by the greater number of tubers for plants grown with sticks than for varieties without the use of sticks (Table 4). Similarly, the proportion of marketable tubers tended to be higher in combination of varieties using stick angles. This result is in accordance with the opinion of Maryasa (1990) that the use of artificial plants supports can capture sunlight more efficiently. Furthermore, Alkaumper and Midmore (1995) states that the shading of sweet potato reduces the initiation of tuber formation, the number of tubers and the size of the tubers.

Table 4 – Average tuber number and percentage of marketable tubers of harvested plants for various combinations of varieties and stick angles (means of three replications)

Combination variety and stick angles	Average tuber number per plant at harvest time	
	Tuber number (plant <sup>-1</sup> )	Marketable tuber (%)
P1 (Siate without stick)	2.36 ab	33.53 a
P2 (Siate + stick angle of 45°)	3.83 d	48.83 bcd
P3 (Siate + stick angle of 60°)	2.70 abc	53.67 cd
P4 (Siate + stick angle of 90°)	2.00 a	35.07 a
P5 (P.Sollosa without stick)	2.16 a	34.07 a
P6 (P.Sollosa + stick angle of 45°)	3.36 cd	42.10 ab
P7 (P.Sollosa + stick angle of 60°)	3.53 cd	48.27 bc
P8 (P.Sollosa + stick angle of 90°)	3.26 bcd	33.57 a
P9 (Cangkuang without stick)	3.16 bcd	41.97ab
P10 (Cangkuang + stick angle of 45°)	3.90 d	59.33 d
P11 (Cangkuang + stick angle of 60°)	3.60 cd	51.30 bcd
P12 (Cangkuang + stick angle of 90°)	4.67 d	56.40 cd
LSD 5 %	0.9	10.7

Notes: numbers with different letters in the same column shows significant difference in LSD test ( $P < 0.05$ ).

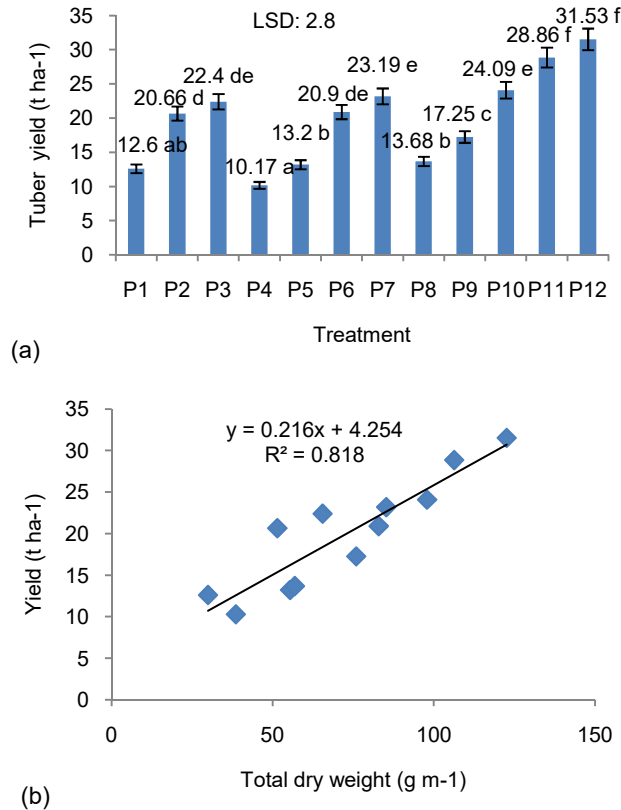


Figure 1 – The effect of combination of varieties and sticks angles on tuber yield ha<sup>-1</sup> (a) and the relationship between total dry weight and tuber yields per hectare, with linear equation  $y = 0.216x + 4.254$ ,  $R^2 = 0.818$  (b)

Combination of varieties and stick angles affected the yield of tubers. The highest yield of tuber was obtained for the combination of Cangkuang variety with a 90° stick angle (P12), followed by the same variety and an angle of 60° (P11) with yields of 31.53 t ha<sup>-1</sup> and 28.86 t ha<sup>-1</sup> respectively, while the lowest tuber yields were obtained for the combinations of Siate without a stick and stick angle of 90° (Fig. 1a). It is seen that the combination of varieties of sweet potato especially broad-leaved varieties with increasingly increased stick angles leads to more vertical leaf position and in low sunlight conditions allows most leaf sheets to capture light for photosynthetic. The treatments comprising varieties without the use of sticks caused the position of the leaves to overlap so that the effect was of mutual shade between the leaves and only the upper layer of leaf sheets can receive maximum light. The leaves on the bottom layer experienced lack of light because of shade and this had an impact on the low photosynthetic results. The low yield for the sweet potato on the combinations of Siate and Papua Sollosa cultivars with 90° stick angles was caused because some of the leaves became the agent of photosynthetic aging which was not compensated by the emergence of new shoots. The result of a regression analysis showed that when the total dry weight of plants (x) was higher the yield of tubers (y) also increased. This is shown in the following linear equation:  $y = 0.216x + 4.254$ , ( $R^2 = 0.895$ ), which shows that 90% of tuber yield can be explained by this equation model (Figure 1b). This means that the total dry weight of the plant plays an important role in increasing tuber yield of sweet potato.

*Interception of solar radiation (E<sub>i</sub>) and photosynthetic efficiency (E<sub>μ</sub>)*. The sweet potato planted in the highlands of Papua experiencing an average intensity over 130 days of 137.98 cal cm<sup>-2</sup> days<sup>-1</sup> (data not shown) resulted in photosynthetic efficiencies (E<sub>μ</sub>) of 0.57 - 2.06%. The highest E<sub>μ</sub> values of 2.06% and 1.89% were obtained for a combination of Cangkuang and stick angles of 90° and 60° respectively. The lowest E<sub>μ</sub> of by 0.57% value was obtained in the treatment a combination of Siate variety with an angle of 90° (P4) (Fig. 2a). The results for the highest E<sub>μ</sub> calculations in this study are similar to and even slightly higher than the

findings of photosynthetic efficiency for tuber crops by Rana and Rana (2014) of 1.6 - 1.9%. The results showed that the value of photosynthetic efficiency was increased in all treatment combinations except the combination of Slate and Papua Sollosa varieties with an angle of 90°.

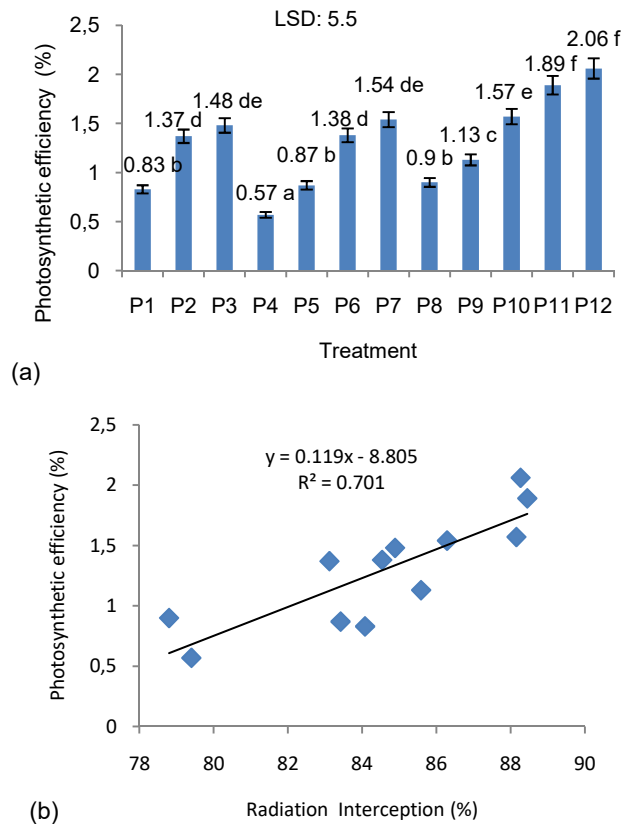


Figure 2 – The effect of combination of varieties and sticks angles on photosynthetic efficiency (a) and the relationship between Radiation Interception and photosynthetic efficiency, with linear equation  $y = 0.119x + 8.805$ ,  $R^2 = 0.701$  (b).

This results could indicate that the combination of wide-leaved varieties with increasingly vertical angle orientation increases  $E_{\mu}$  value, and PAR intercepted by individual leaves in each canopy layer. This is evidenced by the result of a regression analysis between solar radiation interception and photosynthetic efficiency which shows a linear relationship  $y = 0.119x - 8.805$   $R^2 = 0.701$  (Figure 2b), indicating that sun radiation interception plays an important role in increasing  $E_{\mu}$  value. Thus it can be concluded that the interception and use of solar radiation is influenced by genetic factors and plant environment as well as both affecting each other. Goudriaan (2016) states that the distribution of plant leaf corners plays an important role in determining the interception of light. Where there is no shortage of water and nutrients, the efficiency of solar radiation is determined by the interception of light, especially PAR by the canopy and the pattern of light distribution in the plant canopy (Monteith, 1977; Sitaniapessy, 1985; Russell *et al.*, 1989; Tesfaye *et al.*, 2006). Further Monsi and Saeki (1953) and Govindjee and Sharkey (2016) concluded that the leaf area index of the photosynthetic canopy will be maximized if the leaf is vertical.

## CONCLUSION

Dry matter production increase is influenced by leaf number increase and the extent of the leaf area. Leaf morphology and the inclination angle interact with each other in increasing plant dry matter, tuber yield and photosynthetic efficiency of sweet potato. The morphological

form of the leaf, i.e. varieties characterized by broad leaves truly influences the high efficiency of radiation interception causing enhancement of number of tubers and marketable tuber proportion. Separately, stick inclination angle influences the number of tubers per plant and marketable tuber proportion. Due to the low level of solar radiation intensity in the Papua highlands, varieties with broader leaves together with more vertical stick inclination angles interact with each other to increase the value of photosynthetic efficiency of solar radiation. Cangkuang variety with a wide leaf morphology achieved the highest production when it was combined with stick inclination angles of 90° and 60° (31.53 t ha<sup>-1</sup> and 28.86 t ha<sup>-1</sup> respectively). The combination of Cangkuang variety and a stick angle of 90° resulted in the highest E<sub>p</sub> (2.06%) in contrast with 0.57% for the combination of Siate variety without a stick.

### ACKNOWLEDGEMENTS

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## THE POTENCIAL OF INTERSTOCK USE TO REDUCE DIPLODIA DISEASE (BOTRYODIPLODIA THEOBROMAE PATH.) ON CITRUS PLANT

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### ABSTRACT

Botryodiplodia theobromae Path. has caused a damage to stems and death of citrus plants in 22 production centers in Indonesia. The purpose of this research is to determine the potential use of rootstock and interstock in inhibiting the diplodia disease. The research was conducted at the screen house of Indonesian Citrus and Subtropical Fruits Research Institute from July to December 2016. There are 24 treatment combinations consisting of 8 interstocks on 3 commercial citrus varieties. The results showed that the scion of sweet-lime combined with the interstock of Volkameriana, Troyer citrange, and Kanci have the smallest area of disease exposure (0 cm<sup>2</sup>). Therefore, this combination has the highest potential to inhibit the rot of orange B theobromae stem (there is no symptom = tolerant). The scion of Keprok Batu 55 with the interstock of Carrizo citrange, Swingle citrumello, Poncirus trifoliata, and the scion of sweet lime on Carrizo citrange, Poncirus trifoliata have the least potential to inhibit the rot of the stem compared to other interstock treatments (moderate = slightly resistant). The plants combined with Volkameriana interstock are taller than the other while the plants combined with Citromello and P.trifoliata interstock have the shortest size (stunted).

### KEY WORDS

Botryodiplodia theobromae, citrus, diplodia, interstock.

Extreme climate change has changed the disease status of citrus crops in Indonesia. The facts in the field show that, currently, not the Citrus Vein Phloem Degeneration (CVPD) that attacks the citrus plantation but diplodia disease. The cause of this disease is Botryodiplodia theobromae Path. which is synonymous to Lasiodiplodia theobromae (Griff. & Maubl (Juan et al., 2013). Diplodia disease is very substantial because it can kill plants even in the form of seeds or already in the form of mature plants.

The symptoms of the disease are marked with wet spots on the stems, branches, and twigs, followed by broken skin plants secreting a gum like golden-brown glue. Diplodia is not a new disease in citrus crops, its attack has been detected years ago. However, at that time, diplodia is considered not as harmful as CVPD. In 2000, Semangun reported that diplodia disease had attacked citrus crops in Java, Sumatra, Kalimantan, and East Nusa Tenggara. Allegedly, it is due to the climate change in 2009 that tend to be wet until now causing the disease becomes worse.

The geographical distribution of these diseases is very wide. Today, the diseases can be found in all Indonesian citrus centers of more than 22 provinces, districts, and cities. From the report of the Directorate of Plant Protection in 2010 to 2013, there were 577,678,00 citrus trees in Indonesia attacked by diplodia (processed from diplodia attack data source per year by the Directorate of Horticultural Protection 2014). This can be said that the average rate of the attack is 144,419 trees per year. Salamiah (2009) mentioned that the disease tends to attack citrus plants aged >10 years than the plants aged >4 years and 4 to 10 years. In Magetan, East Java, 85% trees from 500 ha of orange crops (Citrus grandis L) have been attacked by diplodia disease. The attack is known to be on the rate of mild to moderate attack (22-37%). It is assumed that the transmission of this disease is through the splash of the water from the ground. Therefore, a high rainfall will accelerate the transmission of this disease. Weed-free citrus plantation will be quickly exposed to this disease as they directly struck by the rain. In contrast, a plantation that is covered with grass is relatively safer from

the attack of the disease. The use of immature manure can also accelerate the transmission of this disease. *B. theobromae* fungus has a variety of host (CABI, 2007) such as citrus, chocolate, rubber, mangosteen, banana, mango, pineapple, avocado, melon, coconut, and eggplant. This fungus is also reported to attack papaya (Nishijima, 2003), jackfruit, mango, mangosteen, beans (Haggag, 2006), banana, lychee, cashew (Alam et al., 2001), coconut (Warwick et al., 1991), apple (Letham, 1989), cocoa (Mbenoun et al., 2008), and guava (Masilamani & Muthumary, 1996).

Currently, more than 95% of citrus crops in Indonesia use the rootstock of *Citrus limonia* Osbeck or often called as *Japansche citroen* (JC) (Balitjestro 2006). JC is more preferred because it has high adaptability and compatibility with all types of oranges in Indonesia as well as resistant to drought and salinity. However, JC is susceptible to diseases such as CVPD, CTV, CEV, root rot, and diplodia (Supriyanto & Setiono, 2006 in Sugiyatno & Palupi 2017). To overcome the growth and resistance to disease, scientists have introduced other rootstocks such as *Poncirus Trifoliata*, Troyer Citrange, Carizzo Citrange, Cleopatra Mandarin, Volkameriana, Citrumello, and Flying Dragon (Hardiyanto et al. 2010 in Sugiyatno & Palupi 2017).

Interstock is a third plant that serves to prevent the incompatibility in plants characterized by death in young plants, inhibition of plant growth, yellowing and falling leaves, as well as asymmetrical growth in rootstock and stem (Ashari, 2006). The use of interstock is expected to become a bridge connecting the rootstock and stem so that the plant will grow normally (Sugiyatno, 2013).

The research in concern to the use of interstock has been documented. The interstock of Citrumello has the potential to encourage the growth of vegetative crops. Meanwhile, Rangpur Lime, Flying Dragon, and Troyer have the potential to control plant growth. The interstock of Flying Dragon is also known to potentially stimulate the efflorescence and fertilization of Pamelo Nambangan (Susanto et al., 2010). On the rootstock of Catania 2 Volkamer Lemon, the Flying Dragon interstock will decrease the size of the plant, while on the rootstock of Davis A Trifoliata, the Flying Dragon interstock will increase the size of the plant (Nunez et al., 2011). Moreover, the use of Flying Dragon interstock on different rootstock of Star Ruby grapefruit, tangerine Mikhal, and Nova, will lead to the differences in vegetative growth (Ashkenazi et al., 1992 in Nunez et al., 2011). Izquierdo et al. (2004) stated that the use of Lemon interstock could increase the age of the plant, production, and fruit quality as well as reduce the thickness of the stem skin on the connected parts. In Malaysia, the use of interstock may inhibit the progression rate of HLB disease in citrus plants (Shokrollah et al, 2011).

The effect of interstock on the resistance of infectious diseases through plant propagation has not been studied although there are some indications that certain rootstocks such as the *Trifoliata* group are resistant to CTV and *Phytophthora*. The use of citrus seeds with interstock has several benefits such as increasing productivity and increasing resistance to certain diseases especially for stem disease (Kresdorn 1978). It is also believed to be beneficial for a high-density spacing planting system (SITARA = **Sistem tanam rapat**). The citrus tolerance to abiotic and biotic factors depends on many factors including the types of the rootstock, N fertilization, soil, and climatic conditions (Garcia-Sanchez & Syvetisen 2009; Gimeno et al. 2009a; Saleh et al. 2008), as well as the interstock grafting between rootstock and stem because it can increase the growth of the plant, productive age, fruits, and quality (Gillzquierdo et al., 2004). In addition to that, it can also increase the tolerance to salinity including citrus disease that is susceptible to salinity. (Gimeno et al., 2009b). The disease that is sensitive to salinity is rotten stem disease (*Phytophthora* spp.) and diplodia (*B. theobromae*). The purpose of this research is to know the influence of seven (7) types of interstock in 3 commercial citrus varieties towards the disease of diplodia.

## METHODS AND MATERIALS

The research was conducted at the screen house of Indonesian Citrus and Subtropical Fruits Research (ICISFRI) from July to December 2016. In the observation, the researchers

used plants aged >1 year. The preparation of the interstock took place one year beforehand by connecting the type of interstock based on the treatment requirements (15 cm from the base of the stem with a grafting incision of 1.5 cm followed by connecting it with the scion in accordance to the treatment that is approximately 10 cm above the interstock joint in the same grafting model). Then, the grafted eye is inserted and tied with an elastic plastic strap starting from below rotating upwards. After 2-3 weeks, when the grafted eye is still fresh, the plastic strap is opened.

The test plants were grown on 3-liter polybags with mixed soil and compost (1:1 v/v). In the dry season, watering is carried out twice per week in a field capacity condition. Basic fertilizer is given in the form of NPK (15-15-15) with a dose of 20 g/tree plus ZA 10 g/tree. Then, every 2 months, ZA will be added by 15 g/tree. Pest or disease control is done in accordance with the condition of the plant to prevent the attack of the destructive pest on leaves. Weeding the weeds is performed every once a week and at the time of fertilization. The weeding will be done more intensively in rainy season by retracting it directly.

Twenty four combinations of interstock (*Japanese citroen*, *Rough lemon*, *Carrizo citrange*, *citrumello*, *Poncirus trifoliata*, *volkameriana*, *Troyer citrange* and *Kanci*) on 3 commercial citrus varieties (*C. reticulata* (Blanko) vr *Keprok Batu 55*, *C. nobilis* vr *Siam Pontianak* and *Citrus kumquat* vr *Kanci*) (table 1) were used. Each treatment was repeated for 2 times and each replication consists of 1 test plant. The *B. theobromae* isolate used for the source of inoculum test was derived from the collection of Magetan Phytopathology Laboratory.

The source of inoculum used is in the form of a pathogen-infected stem that is then transmitted to the treatment plant by inserting it into a healthy stem and fastened with plastic. The outside part is sprayed with sterile aquades once in every three days to keep the moisture of the plants. The stems infected are known from the Pamelo types. The manufacture of the inoculum source is infected by the modification of method from Putra *et al.*, (2013) by taking a healthy 1 cm citrus stem and then sterilized by using 70% alcohol for 1 minute, chlorox for 1 minute, and sterile aquades for 1 minute. Each of that treatment is repeated twice. The inoculum source was incubated in PDA (*Potato Dextrose Agar*) which had a full colony of *B. theobromae*. The incubation was performed for a week until the stem showed such infected symptoms that are browned and covered with mycelium pathogen and issued a yellow liquid exudate (Figure 1).

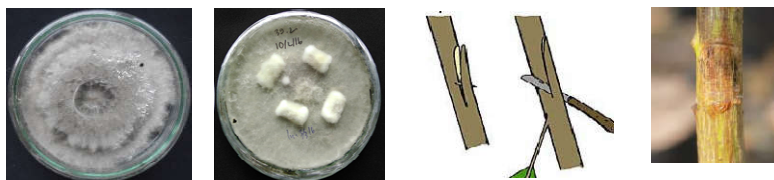


Figure 1 – The stages of *B. theobromae* inoculation process in the test plant:

- Isolate purification Mg 39.2 from pamelo
- healthy twigs isolation in pure culture of fungal isolates
- infected twigs insertion on test plant
- successful inoculation indicator marked by the occurrence of diplodia symptoms

The observation parameters are:

(a) The percentage of successful inoculation and incubation period. The percentage of successful *B.theobromae* inoculation is observed based on the emergence of disease symptoms in the inoculated plant such as wet decay and gum secretion. The period of the pathogen incubation is the time between inoculation of the pathogen to the initial appearance of symptoms in citrus plant stems. The observations were performed on the infected plant stems. The monitoring of the symptoms is based on Putra *et al.*, (2013) that there is a skin peeling on the stem, a discoloration to brown, a moisture on the surface of wounds, and a discharge of thick-brown liquid from the source of infection (gum or *blendok*). The average incubation data shows the time span between the inoculation process until the occurrence of the symptoms. The observations are made once every 2 days until the symptoms appear.

Table 1 – The list of interstock and scion combination

Combination	Interstock	Scion
Combination 1	Rootstock <i>Japansche citroen (JC)</i> – Control	<i>C. reticulata</i> (Blanko) vr <i>Keprok Batu 55</i>
Combination 2	Rootstock <i>Japansche citroen (JC)</i> – Control	<i>C. nobilis</i> vr <i>Siam Pontianak</i>
Combination 3	Rootstock <i>Japansche citroen (JC)</i> – Control	<i>C. aurantifolia</i> vr Sweet Lime
Combination 4	<i>Carrizo citrange</i>	<i>C. reticulata</i> (Blanko) vr <i>Keprok Batu 55</i>
Combination 5	<i>Carrizo citrange</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>
Combination 6	<i>Carrizo citrange</i>	<i>C. aurantifolia</i> vr Sweet Lime
Combination 7	<i>Citrumello</i>	<i>C. reticulata</i> (Blanko) vr <i>Keprok Batu 55</i>
Combination 8	<i>Citrumello</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>
Combination 9	<i>Citrumello</i>	<i>C. aurantifolia</i> vr Sweet Lime
Combination 10	<i>Poncirus trifoliata</i>	<i>C. reticulata</i> (Blanko) vr <i>Keprok Batu 55</i>
Combination 11	<i>Poncirus trifoliata</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>
Combination 12	<i>Poncirus trifoliata</i>	<i>C. aurantifolia</i> vr Sweet Lime
Combination 13	<i>Volkameriana</i>	<i>C. reticulata</i> (Blanko) vr <i>Keprok Batu 55</i>
Combination 14	<i>Volkameriana</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>
Combination 15	<i>Volkameriana</i>	<i>C. aurantifolia</i> vr Sweet Lime
Combination 16	<i>Rough lemon</i>	<i>C. reticulata</i> (Blanko) vr <i>Keprok Batu 55</i>
Combination 17	<i>Rough lemon</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>
Combination 18	<i>Rough lemon</i>	<i>C. aurantifolia</i> vr Sweet Lime
Combination 19	<i>Troyer citrange</i>	<i>C. reticulata</i> (Blanko) vr <i>Keprok Batu 55</i>
Combination 20	<i>Troyer citrange</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>
Combination 21	<i>Troyer citrange</i>	<i>C. aurantifolia</i> vr Sweet Lime
Combination 22	<i>Citrus kumquat vr Kanci</i>	<i>C. reticulata</i> (Blanko) vr <i>Keprok Batu 55</i>
Combination 23	<i>Citrus kumquat vr Kanci</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>
Combination 24	<i>Citrus kumquat vr Kanci</i>	<i>C. aurantifolia</i> vr Sweet Lime

(b) The severity of disease symptoms. A wide observation of the symptoms is done on the infected stem. The observation was conducted once every 7 days until the symptoms appear by measuring vertically (v) and horizontally (h) on the infected parts. The area of the infection symptoms (cm<sup>2</sup>) is known by multiplying (v) and (h). The observation was carried out 49 days after inoculation.

(c) Plant growth:

- Plant height. Plant height is measured from the edge of the joint (attachment/grafting) between the scion and the interstock to the growing point. The observation was done once every two weeks.
- Stem diameter. The measured stems include rootstock and scion. The stem was measured in diameter by using the sliding term. The measured stems were marked with a black waterproof pen. This observation was conducted once a month.

The data of the observation will be analyzed by using the Analysis of Variance (ANOVA) on 5% level. If there is a significant difference, the results will be tested further by using DMRT Test (*Duncan Multiple Range Test*) on 5% level.

## RESULTS AND DISCUSSION

*The Percentage of Successful Inoculation and Incubation Period.* Based on the results of the study, the percentage of infected plant inoculation showed that almost all inoculation was successful (100%) except in the combination of *JC/volkameriana/Siam Pontianak*, *JC/Citrus jambhiri vr RL/Siam Pontianak*, *JC/Citrus jambhiri vr RL/sweet lime*, *JC/Citrus kumquat vr Kanci/Siam Pontianak*, and *JC/Citrus kumquat vr Kanci/sweet lime*. Scion varieties of *Keprok Batu 55* with all interstock combinations produce 100% of infected plants. The infection of *diplodia* characterized by stem peels, discoloration, or gum secretion begins to appear within 12 to 25 days after the varied inoculation in between treatments. The incubation period was not found in 4 treatment combinations because the plants showed no symptoms such as in the treatment 1). *JC/volkameriana/C. aurantifolia vr Lemon Sweet*; 2). *JC/Troyer citrange/C. reticulata vr K. Batu 55*; 3). *JC/Troyer citrange/C. aurantifolia vr Lemon Sweet*; 4). *JC/Citrus kumquat vr Kanci/C. aurantifolia vr Lemon Sweet* (table 2). Previous studies which brought similar inoculation methods on different combinations of rootstocks

and different inoculums proved that the incubation period is varied between 9 to 39 days (Dwiastuti, *et al.*, 2017, Putra *et al.* 2013 and Salamiah *et al.* (2008). The incubation of *B.theobromae* in grape and pear plants was reported fairly rapidly in the study (Verma *et al.* 2010) which is 3 to 7 days after inoculation (HIS or *hari setelah inokulasi*). The incubation period and symptoms arising from *B. theobromae* infection depend on the number and pathogenic virulence, plant species, and climatic conditions (Shahbaz *et al.*, 2009 Adandonon 2014). The isolates of *B.theobromae* from the inoculated citrus on rubber have an incubation period of 14 days. After the inoculation, it is known the the isolates become faster than the isolates from mango, papaya, cashew, or avocado (Febiyanti, *et al.*, 2017). The pathogens can develop well at 80% of moisture especially in high rainfall conditions in between the temperatures of 25 to 30°C (Shah *et al.*, 2010; Khanzada *et al.*, 2006).

Table 2 – The percentage of successful inoculation and incubation period on the treatment of rootstock, interstock, and scion combination

Combination	Interstock	Scion	Successful inoculation percentage (%)	The incubation period (days)
Combination 1	Rootstock <i>Japansche citroen</i> (JC) - Control	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	100	14
Combination 2	Rootstock <i>Japansche citroen</i> (JC) - Control	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	100	14
Combination 3	Rootstock <i>Japansche citroen</i> (JC) - Control	<i>C. aurantifolia</i> vr Sweet lime	100	15
Combination 4	<i>Carrizo citrange</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	100	16
Combination 5	<i>Carrizo citrange</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	100	14
Combination 6	<i>Carrizo citrange</i>	<i>C. aurantifolia</i> vr Sweet lime	100	14
Combination 7	<i>Swingle citrumello</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	100	12
Combination 8	<i>Swingle citrumello</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	100	16
Combination 9	<i>Swingle citrumello</i>	<i>C. aurantifolia</i> vr Sweet lime	100	14
Combination 10	<i>Poncirus trifoliata</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	100	17
Combination 11	<i>Poncirus trifoliata</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	100	14
Combination 12	<i>Poncirus trifoliata</i>	<i>C. aurantifolia</i> vr Sweet lime	100	12
Combination 13	<i>Citrus volkameriana</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	100	18
Combination 14	<i>Citrus volkameriana</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	50	21
Combination 15	<i>Citrus volkameriana</i>	<i>C. aurantifolia</i> vr Sweet lime	100	20
Combination 16	<i>Citrus jambhiri</i> vr RL	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	100	19
Combination 17	<i>Citrus jambhiri</i> vr RL	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	50	18
Combination 18	<i>Citrus jambhiri</i> 6 vr RL	<i>C. aurantifolia</i> vr Sweet lime	50	19
Combination 19	<i>Troyer citrange</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	100	19
Combination 20	<i>Troyer citrange</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	100	20
Combination 21	<i>Troyer citrange</i>	<i>C. aurantifolia</i> vr Sweet lime	100	-
Combination 22	<i>Citrus kumquat</i> vr Kanci	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	100	16
Combination 23	<i>Citrus kumquat</i> vr Kanci	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	50	25
Combination 24	<i>Citrus kumquat</i> vr Kanci	<i>C. aurantifolia</i> vr Sweet lime	50	-

**Severity of Disease Symptoms.** The symptoms of the disease were marked by brownish areas and/or yellow exudate (gum) secretion from the point of inoculation so that



the surface becomes wet and sticky. Another symptom of this disease is the appearance of cracks around the wound area in which the wound becomes rotten in white and discolored to brown (Figure 2). From the observation, it is known that most of the rotten stems (most extensive areas of the rot) are found in the treatment 1). *JC/Carrizo citrange/C. reticulata (Blanko) K Stone 55*; 2). *JC/Carrizo citrange/C. aurantifolia vr Sweet Lime*; 3). *JC/Swingle citrumello/K Stone 55*; 4). *JC/Poncirus trifoliata/C. reticulata (Blanko) K Stone 55*; and 5). *JC/Poncirus trifoliata/C. aurantifolia vr Sweet lime* with a width between 5.08 to 6.15 cm<sup>2</sup>. The width is different from other treatments. All of those five treatments were included in the moderate severity group (>5 to 10 cm<sup>2</sup>). The treatment classified in mild severity group (1 to 5 cm<sup>2</sup>) was the most common group of 11 treatment combinations with a mean value of 1.53 - 3.25 cm<sup>2</sup>. This is lower than those 5 treatment combinations which have moderate severity but higher and significantly different than the 4 combinations of tolerant group treatments. The combination of interstock treatment *JC/volkameriana/C. aurantifolia vr Treatment Sweet lime*; *JC/Troyer citrange/C. reticulata (Blanko) vr Tangerine Rock 55*; *JC/Troyer citrange/C. aurantifolia vr Lemon Sweet* and *JC/Citrus kumquat vr Kanci/C. aurantifolia vr Sweet lime* showed that there are no symptoms until 16 weeks after inoculation so that it can be classified to the tolerant group (table 3).

The rootstock resistance of Troyer citrange in this study is similar to that have been mentioned by Mulaa *et al.*, 2011 from the results of the research (2006 to 2008) concerning the tolerance of pests or diseases called as the combination of 'Troyer Citrange'/'Washington Navel 39'. In addition, (Mulaa *et al.*, 2011) also found a tolerance on other rootstocks such as 'Rough Lemon'/'Washington Navel 102', 'Citrumello 4475'/'Washington Navel 205', 'Citrumello 4475'/'Washington Navel 216', and 'Carrizo Citrange'/'Washington Navel 205. On the other hand, (Widyaningsih *et al.*, 2017) mentioned that there is a similarity on the results of *volkameriana* that is more tolerant to CVPD or HLB rather than JC. It is also mentioned that the use of a mixture of rootstock and scion will increase the tolerance against HLB.



Figure 2 – The plant's performance of 8 interstocks inoculated with *B.theobromae*, 3 weeks after inoculation: a). Without interstock, b). *Carrizo citrange* interstock, c). *citrumello* interstock, d). *Poncirus trifoliata*, e). *Volkameriana*, f). *Citrus Jambhiri*, g). *Troyer citrange*, h). *Citrus kumquat vr Kanci*. = Gum, = Early rotten stem symptoms, pathogenic fungi develop in between the point of inoculation

As we can see, the penetration of *B. theobromae* into the plant tissue is helped by the wounds inducing the production of enzymes and pathogenic toxins. The main enzymes produced by *B.theobromae* are  $\beta$  glucosidase and cellulase which are used to soften the citrus trunk tissue while toxins are used to kill plant cells. The presence of toxins affects the permeability of cell membranes by inactivating and inhibiting plant enzymes or stopping the activity of the related plant enzymes.

Table 3 – The average of disease severity between the citrus combinations until 16 weeks after inoculation

Combination	Interstock	Scion	Average rotten areas (cm <sup>2</sup> )	Severity group
1	2	3	4	5
Combination 1	Rootstock <i>Japansche citroen</i> (JC) - Control	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	6.12 a	Moderate
Combination 2	Rootstock <i>Japansche citroen</i> (JC) - Control	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	5.48 a	moderate
Combination 3	Rootstock <i>Japansche citroen</i> (JC) - Control	<i>C. aurantifolia</i> vr Sweet lime	6.15 a	moderate
Combination 4	<i>Carrizo citrange</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	5.78 a	moderate
Combination 5	<i>Carrizo citrange</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	2.70 b	mild
Combination 6	<i>Carrizo citrange</i>	<i>C. aurantifolia</i> vr Sweet lime	5.70 a	moderate
Combination 7	<i>citrumello</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	5.63 a	moderate
Combination 8	<i>citrumello</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	2.43 b	mild
Combination 9	<i>citrumello</i>	<i>C. aurantifolia</i> vr Sweet lime	1.43 b	mild
Combination 10	<i>Poncirus trifoliata</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	3.25 b	mild
Combination 11	<i>Poncirus trifoliata</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	5.08 a	moderate
Combination 12	<i>Poncirus trifoliata</i>	<i>C. aurantifolia</i> vr Sweet lime	5.35 a	moderate
Combination 13	<i>volkameriana</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	1.53 b	mild
Combination 14	<i>volkameriana</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	1.78 b	mild
Combination 15	<i>volkameriana</i>	<i>C. aurantifolia</i> vr Sweet lime	0.00 c	tolerant
Combination 16	<i>Rough lemon</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	3.88 b	mild
Combination 17	<i>Rough lemon</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	3.43 b	mild
Combination 18	<i>Rough lemon</i>	<i>C. aurantifolia</i> vr Sweet lime	2.80 b	mild
Combination 19	<i>Troyer citrange</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	0.00 c	tolerant
Combination 20	<i>Troyer citrange</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	1.98 b	mild
Combination 21	<i>Troyer citrange</i>	<i>C. aurantifolia</i> vr Sweet lime	0.00 c	tolerant
Combination 22	<i>Citrus kumquat</i> vr <i>Kanci</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	5.38 a	moderate
Combination 23	<i>Citrus kumquat</i> vr <i>Kanci</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	2.88 b	mild
Combination 24	<i>Citrus kumquat</i> vr <i>Kanci</i>	<i>C. aurantifolia</i> vr Sweet lime	0.00 c	tolerant

Successfully grafted seedlings were arranged in a randomized complete block design with two replications. Severities grouping on seedling: no symptom = tolerant group, 1- 5 cm = mild group, > 5 – 10 cm = moderate group, > 10 cm = severe group.

The enzymes and toxins produced by *B. theobromae* are used to penetrate the point of infection located in the epidermis and parenchyma cells (Al-Saadoon *et al.*, 2012; Parthasarathy *et al.*, 2016, Umeruzike, 1979). It is suspected that 4 tolerant group treatments with the interstock of *Volkameria*, *Troyer*, and *Kanci* which are connected above JC tend to have a mechanical resistance that inhibits the production of enzymes and pathogenic toxins, especially in the sweet lime.

The development of rotten stem symptoms by the treatment of several interstocks on each scion of *K. Batu 55*, *Siam Pontianak*, and Sweet lime for 5 to 16 weeks after inoculation is presented in Figures 3, 4, and 5. The treatment with the scion of *K. Batu 55* without interstock showed the highest rod development. The trend itself is increased during the time of observation compared to other treatments (Figure 3) and then followed by the treatment with *Citrumello* and *Poncirus trifoliata*. The treatment that produced the narrowest rotten stem area was found on the RL interstock. In RL interstock, the trend was also decreased until end of the observation.



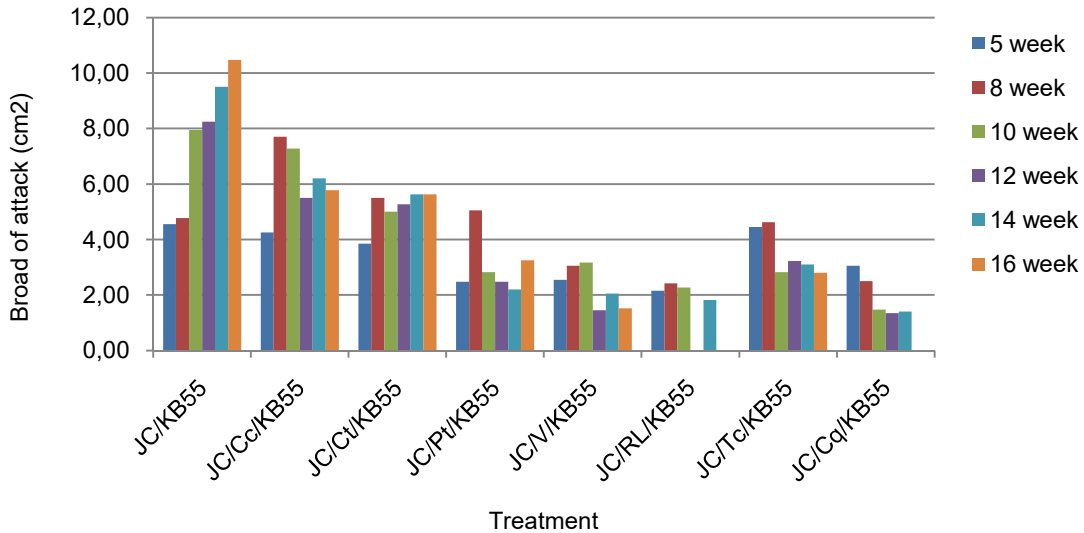


Figure 3 – Figure 3. The development of rotten stem area (cm) with several interstocks on *Keprok Batu 55* scion at 5 to 16 weeks after inoculation

In the treatment with the scion of *Siam Pontianak* and Sweet Lime without interstock, the highest stem rot development is found. Also, the trend is known to be increased during the time of observation compared to other treatment (Figures 4 and 5). The combination of *Troyer citrange* interstock with *Siam Pontianak* produces the narrowest rotten stem are and decreases the trend compared to other treatments. At the end of observation, there is a healing and no symptoms occur. The development of rotten stem in other treatments looks volatile (some might stagnant, increased, or decreased).

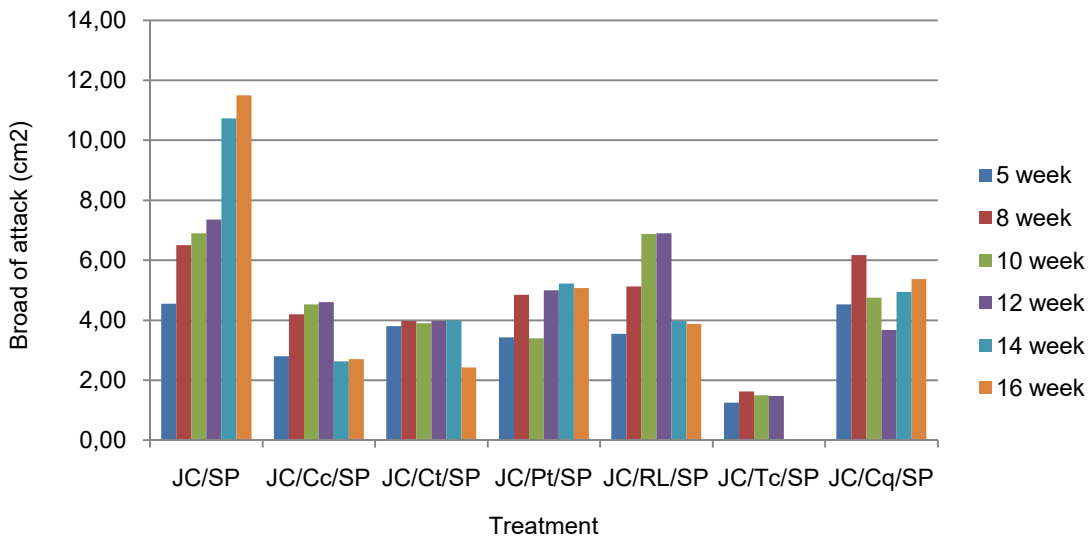


Figure 4 – The development of rotten stem area (cm) with several interstocks on *Siam Pontianak* scion at 5 to 16 weeks after inoculation

On the treatment with Sweet Lime scion, there are 3 types of interstocks used such as *Volkameriana*, *Troyer citrange*, and *Kanci*. It is found that there are no symptoms from start to finish. All of the three interstocks can be grouped into the tolerant group (figure 5). The development of the disease with *P.trifoliata* interstock tends to rise very slowly while the treatment with *Carizo citrange* seems to produce a stagnant result. Last but not least, *Citromello* and *RL* tend to decrease the disease attack.

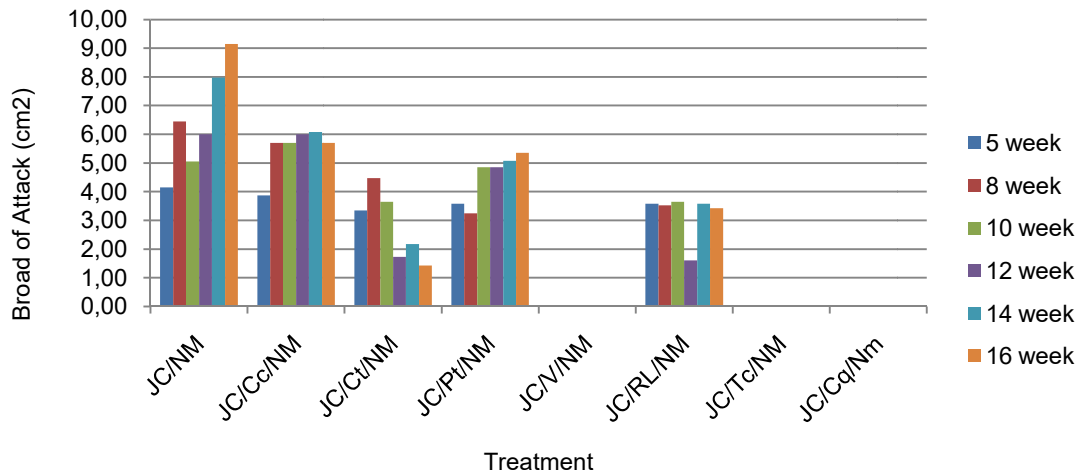


Figure 5 – The development of rotten stem area (cm) with several interstocks on sweet lime scion at 5 to 16 weeks after inoculation

**Plant Growth.** The results of the analysis of variance indicate that plant height is not significantly influenced by scion interaction and interstock usage. The average height of *Kepron Batu 55* varieties on various interstock treatments has a plant height of 79.06 cm. It tends to be higher than the height of *Siam Pontianak* and Sweet Lime in various treatments. The height of the scion of *Siam Pontianak* and Sweet Lime is 75.94 cm and 66.73 cm. The differences in scion are believed due to the genetic differences of the scion itself. Makmur (1992) stated that genetic variation occurs as a cause that plants have different genetic characteristics.

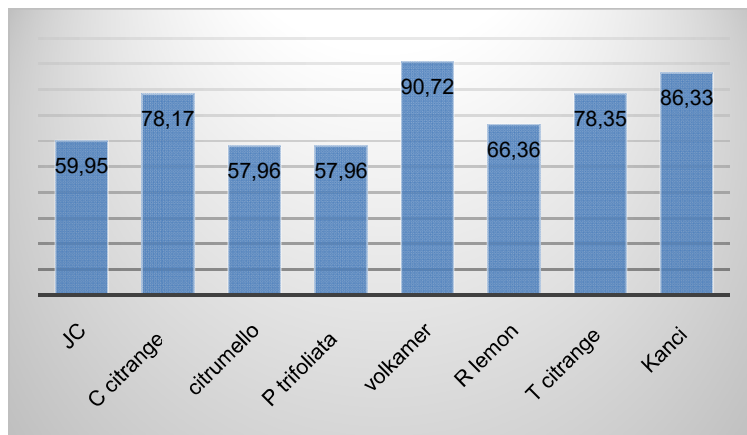


Figure 6 – Average Plant Height of several interstock at 23 weeks after inoculation, cm

Plants joined to the *Volkameriana* interstock tend to be higher than the other 6 interstocks. The plant height of *Volkameriana*, *Carizo citrange*, *Troyer citrange*, and *rough lemon* is 90.72cm, 86.33cm, 78.17cm, 78.35cm, and 66.35cm respectively. The shortest plant height is found on *Citromello* and *P.trifoliata* (57.6 cm) (Figure 6). However, the results of this study differ from the research from Susanto *et al.* (2004) saying that Citrumelo and Troyer can stimulate the growth of Cikoneng Pamelu.

The main benefits of interstock that can control the growth of the scion also become the substantial factor in the development of citrus cultivation in regulating the density of plants in the field. Short plants will ease the cultivation techniques such as spraying, pruning, harvesting, and others. The use of interstock is also able to overcome the incompatibilities between scion and rootstock.

At 23 weeks after inoculation, the *Siam Pontianak* which was grafted with the interstock of *Citromello* and *P. Trifoliata*, as well as the Sweet Lime which was joined with the interstock of Rough lemon, has the shortest plant height which was 58.25cm, 58.55cm, and 60.70cm. The tallest plant height was obtained by *Kepron Batu 55* which was connected with the interstock of *Carrizo Citrange* and *Volkameriana* as well as *Siam Pontianak* which was joined with *Volkameriana* and then *Siam Pontianak* and *Sweet Lime* which were grafted with *Kanci* (88.15cm, 96.44cm, 90.92cm, 93.4cm, and 89.4 cm respectively) (Table 4).

Table 4 – Mean comparison of citrus plant height combination using the Duncan multiple range test

Interstock	Scion	Plant height (cm)
Rootstock <i>Japansche citroen</i> (JC) - Control	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	78.25 b
Rootstock <i>Japansche citroen</i> (JC) - Control	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	77.41 b
Rootstock <i>Japansche citroen</i> (JC) - Control	<i>C. aurantifolia</i> vr Sweet lime	70.43 c
<i>Carrizo citrange</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	88.15 a
<i>Carrizo citrange</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	78.05 b
<i>Carrizo citrange</i>	<i>C. aurantifolia</i> vr Sweet lime	68.31 c
<i>citrumello</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	65.73 c
<i>citrumello</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	58.25 d
<i>citrumello</i>	<i>C. aurantifolia</i> vr Sweet lime	53.12 e
<i>Poncirus trifoliata</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	65.10 c
<i>Poncirus trifoliata</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	58.55 d
<i>Poncirus trifoliata</i>	<i>C. aurantifolia</i> vr Sweet lime	50.25 e
<i>volkameriana</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	96.44 a
<i>volkameriana</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	90.92 a
<i>volkameriana</i>	<i>C. aurantifolia</i> vr Sweet lime	84.80 ab
<i>Rough lemon</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	66.90 c
<i>Rough lemon</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	71.50 bc
<i>Rough lemon</i>	<i>C. aurantifolia</i> vr Sweet lime	60.70 d
<i>Troyer citrange</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	81.5 b
<i>Troyer citrange</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	83.5 b
<i>Troyer citrange</i>	<i>C. aurantifolia</i> vr Sweet lime	70.05 c
<i>Citrus kumquat</i> vr <i>Kanci</i>	<i>C. reticulata</i> (Blanko) vr <i>Kepron Batu 55</i>	93.4 a
<i>Citrus kumquat</i> vr <i>Kanci</i>	<i>C. nobilis</i> vr <i>Siam Pontianak</i>	89.4 a
<i>Citrus kumquat</i> vr <i>Kanci</i>	<i>C. aurantifolia</i> vr Sweet lime	76.2 c

Different letters are significantly different and means followed by the same letters are not significantly different at  $P = 0.05$ . A total of 48 successful grafted seedlings were arranged in a randomized complete block design with Two replications.

## CONCLUSION

In general, it is found that there are 3 groups resistance to *B theobromae* combination of interstock. The first is a tolerant group: Sweet Lime scion with the interstock of *Volkameriana*, *Troyer citrange*, and *Kanci* have the smallest attack area (0 cm<sup>2</sup>). The second one is a group that is quite resistant to mild attack: *Siam Pontianak* scion with the interstock of *Carrizo citrange*, *Citrumello*, *Poncirus trifoliata*, *Volkameriana*, *Rough lemon*; sweet lime scion with the interstock of *citrumello*, *Rough lemon* and *Kepron Batu 55* scion with the interstock of *volkameriana* and *Rough lemon* have the incubation period of 14 to 25 days after inoculation. Lastly, the group that has light resistant with moderate severity: The scion of *Kepron Batu 55* with the interstock of *Carrizo citrange*, *Swingle citrumello*, *Poncirus trifoliata* as well as Sweet Lime scion with the interstock of *Carrizo citrange* and *Poncirus trifoliata* has an incubation period of 12 to 16 days after inoculation. The plants grafted with the interstock of *Volkameriana* are taller than the plants which are joined with the interstock of *Citromello* and *P.trifoliata*.

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**BIOACTIVE CONTENT IDENTIFICATION OF BULUBANGKAL LEAF  
(NAUCLEA SUBDITA [KORTH.] STEUD.) AND IT'S ANALYSIS AS AEROMONAS  
HYDROPHILA ANTIBACTERIAL BY IN VITRO AND IN SILICO METHODS**

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**ABSTRACT**

This research aimed at finding out a bioactive content of bulubangkal leaf and extractability of 3 polar solvents, semi-polar and non-polar as *Aeromonas hydrophila* antibacterial. The sample was extracted by maceration and fractionation methods using n-hexane solvent, ethyl acetate, and methanol. Antibacterial activity was carried out by disk-diffusion agar method. It was found that active agent contained within bulubangkal leaf are saponin, tannin, phenolic, and steroid as *A. hydrophilia* bacterial based on the antibacterial test by in vitro and in silico methods.

**KEY WORDS**

Phytochemistry, antibacterial, *Nauclea subdita*, *Aeromonas hydrophila*.

Indonesia is the second largest country in the world after Brazil to have biological diversity. A plant is a home of various active agent content-rich chemical compounds, among others secondary metabolic products function to the process of metabolism. This compound group plays an important role in the process of interaction or competition, including defending self from pests and diseases attack. At a swampland is found more than 1000 kinds of a plant which can be used as a material of pest controller such as biopesticides material (Asikin, 2015). One of the swamp plants frequently utilized as an alternative medicine is the bulubangkal; it commonly results in a secondary metabolic compound such as tannin, phenolic, steroid, and alkaloids (Liew *et al.*, 2012). People commonly utilize bulubangkal to reverse injury; it is applied to the surface of ulcer and tumor, the water of the boiled leaf functions to reverse diarrhea and toothache. *N. subdita* also contains antioxidant and steroid working for cells growth so almost all of the Banjar utilizes it as the raw material of anti-acne powder and to soften skin face in which steroid compound has an ability to rejuvenate damaged cells.

Bioactive compound contained within *Nuclea subdita* is a type of secondary metabolic such as tannin, alkaloid, and phenolic which can be used as a natural bactericide. Leaf, flesh, and root of *N. Subdita* are found to contain alkaloid, tannin and phenolic and saponin (Amos *et al.*, 2005). Some phytochemistry such as tannin, alkaloid, and flavonoid has shown pathogen antibacterial within fish (Haniffa & Kavitha, 2012). This research made an identification of bioactive content and antibacterial test of bulubangkal leaf towards *Aeromonas hydrophila* bacterial which is pathogen bacterial contained within fish especially fresh water by in vitro and in silico methods.

**MATERIALS AND METHODS OF RESEARCH**

The materials used to conduct this research were bulubangkal leaf, methanol (polar), ethyl acetate (semi-polar), n-hexane (non-polar) all of them with PA grade, active extract of

bulubangkal leaf, TLC plate. A set of tools used are among others Miyako BL-152 GF blender made in Indonesia, a rotary evaporator (IKA RV 10 Digital V made in Germany), erlenmayer flask, mixer, measuring cylinder, lint, silica gel, aluminum sheet, etc. While the equipment is TLC vessel, oven, splattering, UV lamp, glassware, UV-Vis.

*N. subdita* (Korth). Steud. leaf was cleaned, cut into small pieces and dried by being aerated. The dried leaves were then mashed with a blender until becoming soft powder. It was then given phytochemistry test towards the sample and conducted maceration. 50 grams of *N. subdita* (Korth). Steud. powder was soaked in 200 ml methanol, ethyl acetate and n-hexane for 2x24 hours in an erlenmayer screw cap, the next step was being separated between extract and waste, repeated for 3x with the same solvent. The extract collected was then evaporated using vacuum rotary evaporator at the temperature of 40°C until there is no solvent condensation anymore at the condenser. It was then being baked for 3 hours under the temperature of 45°C aiming at relieving solvent still trapped in the bioactive extract, its waste was dried and then its final weight was weighed. A thick extract was the last one will use to conduct an antibacterial test.

This test is used to find out what solvent most effective to use as extracting of *N. subdita* (Korth). Steud. bioactive which is antibacterial in nature using disk method, that is an antimicrobial examination by measuring the diameter of obstacle area happens along the disk paper under the diameter of 6 mm, which has been given *N. subdita* (Korth). Steud. extract. Extract from the solvent giving the biggest drag zone was selected active extract. The last extract that has been concentrated with gas N<sub>2</sub>, taken only 0.1 ml and then diluted in 10 mL volumetric flask with applicable solvent. This solution was then entered into absorption cuvettes and its uptake reads using spectrophotometer UV which has been calibrated using proper solvent blanks in advance. The uptake is read at the wave length of 200-400 nm. Pure isolates identification with spectrophotometer FTIR is used to take 2 gram solids of free-water KBr and the mashed and pressed at 2 torr pressure. KBr pellet was added by 1 drop of isolate, then analyzed using spectrophotometer FT-IR over the 4000-8000 cm<sup>-1</sup> range. Active isolate analyzed using GC-MS, carrier gas used is helium with regulated stream below: Injector temperature is 320°C, initial temperature is 70°C. Increase rate of temperature is 10°C, and the last temperature in oven is 310°C.

In Silico Analysis - using PASS prediction method, that is GCMS result search using software Pass Online (WAY2DRUG).

## RESULTS AND DISCUSSION

Identification result of bulubangkal plant used in this research was undertaken at Research Center for Biology in Cibinong, Bogor. Identity result revealed that this plant is categorized into the family of Rubiaceae and species (*Nauclea subdita* [Korth.] Steud.).

### Phytochemistry Test Result

Table 1 – Phytochemistry test result of bulobangkal leaf

No.	Secondary Metabolic	Test Result
1	Phenolic	++
2	Flavonoid	
	• Reagen HCL concentrated + Mg	-
	• Reagen H <sub>2</sub> SO <sub>4</sub> 2N	+
	• Reagen NaOH 10%	-
3	Alkaloid:	
	• Reagen Mayer	-
	• Reagen Wagner	-
	• Reagen Hager	-
4	Steroid	+
5	Triterpenoid	+
6	Saponin	++
7	Tanin	++

According to the result of phytochemistry test above, bulubangkal leaf contains saponin, tannin, phenolic, flavonoid, triterpenoid, and steroid. Phenolic and flavonoid contained within the plant are known to have an important role in antioxidant activity test. The higher the phenolic content in the sample, the higher the activity of its antioxidant, (Trisharyanti, et al., 2011).

Tannin is a secondary metabolic compound contained within a plant. Tannin is polyphenol derivative with a characteristic which is able to form a complex compound with other macromolecules. Tannin is commonly soluble in the polar solvent. Chemically, there are two types of tannin, i.e. condensed tannin and hydrolyzed tannin. Condensed tannin is widely spread on woody plants and ferns, while the spread of hydrolyzed tannin is limited to dicotyledon (Auni, et al., 2013). According to Akiyama, et al., 2001, at the activity of antimicrobial, tannin has a positive effect on the different bacterial strain.

Tannin and saponin are proven to have anthelmintic activity (pal, et al., 2007). Tannin found functions to tie independent protein in the digestive tract of the host or glycoprotein in the parasitic cuticle and will cause death (Mali & wadekar, 2008). Benefit and effect potential of tannin, such as antimicrobial and antioxidant in nature. Tannin also has a physiological effect such as accelerating blood clots, and decreasing cholesterol content and lipid also blood as well as ability to act as anticancer (Chung, et al., 1998). An observation to utilize several sources containing tannin, food of several fish species show low lipid deposit in the digestive tract (Hossain, et al., 2001). Tannin has shown antibacterial (Banso & Adeyeme, 2007). Tannic acid can disturb microorganism growth by forming a complex with surface protein (Bhat, et al., 1998).

Saponin causes stimulus on a particular tissue, nasal epithelium, bronchus, kidney, etc. Stimulation on the kidney is expected to cause diuretics effect. Saponin can increase a respond of various substances from surface activity, saponin is also able to stretch insoluble particle and to assign that particle spread and divide softly into the solvent (Sartini, et al, 2012).

The test result of drag power of bulubangkal leaf towards *A. hydrophila* bacterial by disk method, drag zone resulted can be seen in Table 2.

Table 2 – Drag zone test result of bulubangkal leaf towards *A. hydrophila* bacterial growth after 24 hours

No	Sample	Drag Zone (mm)
1	Bulubangkal leaf - methanol	17.83 ± 0.28
2	Bulobangkal leaf-ethyl acetate	23.33 ± 0.57
3	N-hexane	-
4	Gentamicin control	21.66 ± 0.57

Antibacterial test result after 24 hour shows that the biggest drag zone of ethyl acetate fraction is 23.33 ± 0.57 mm, followed by methanol fraction with drag zone of 17.83 ± 0.28 mm. While n-hexane fraction has no drag zone from the initial observation until the last, gentamicin control of 21.66 ± 0.57 mm. Ethyl acetate fraction (semi-polar solvent) is able to dissolve active agent well contained within bulubangkal leaf compared to methanol (polar solvent) and n-hexane (non-polar solvent). Control actually has bigger drag zone than a treatment but at 72 hours bactericidal zone decreases and more decreases at 96 hours observation.

Drag zone formed shows an active agent ability contained within bulubangkal leaf using semipolar and polar solvent, it is expected that tannin contained within bulobangkal leaf has an antibacterial ability, in which tannin activity has been reported as bacteriostatic and bactericidal including *A. hydrophilla*, *E. coli*, *Listeria*, *Pseudomonas*, *Salmonella*, *Staphylococcus* and *Streptococcus* (Chung et al., 1998). A complex capability of polyphenol and polymer as well as mineral have inhibition effect towards bacteria. Tannin contained within bulubangkal leaf also contains toxic characteristic and hamper enzyme in microbe (Bossi et al., 2007).



**UV-VIS test Result.** Analysis result of UV-VIS shows 6 spectrums of wavelength over the 200 until 800 nm, with maximum peak spectrum of 222 nm and 206nm. The occurrence of strong uptake at ultraviolet spectrum shows the existence of the number of double bonds C=C in the friction compound of bulubangkal leaf. This strong uptake indicates phenol compound and its derivative.

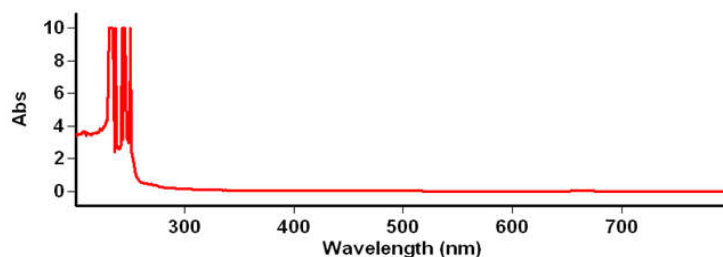


Figure 1 – Results of spectroscopy analysis

Spectroscopy analysis result of infrared shows the existence of –OH bending with widened bond at number absorption.

Table 3 – Extract components of bulubangkal leaf based on the result of UV-VIS

No	UV-VIS result	Literature Rojas & Ojeda, (2009&2013)	Component	PubChem CID
1	239.0	239.0	Citalopram (C <sub>20</sub> H <sub>21</sub> FN <sub>2</sub> O)	2771
2	222.0	217.4 - 223.0	Fosinopril (C <sub>30</sub> H <sub>46</sub> NO <sub>7</sub> P)	55891
3	215.0	215	Vincamine (C <sub>21</sub> H <sub>26</sub> N <sub>2</sub> O <sub>3</sub> )	15376
4	212	212	Tocopherol acetate (C <sub>31</sub> H <sub>52</sub> O <sub>3</sub> )	86472
5	209.9	209.9	Piracetam (C <sub>6</sub> H <sub>10</sub> N <sub>2</sub> O <sub>2</sub> )	4843
6	206.9	200 – 210	Ramiopril (C <sub>23</sub> H <sub>32</sub> N <sub>2</sub> O <sub>5</sub> )	5362129

FTIR test result of ethyl acetate extract of bulubangkal leaf having 9 absorption bonds can be seen in Figure 2.

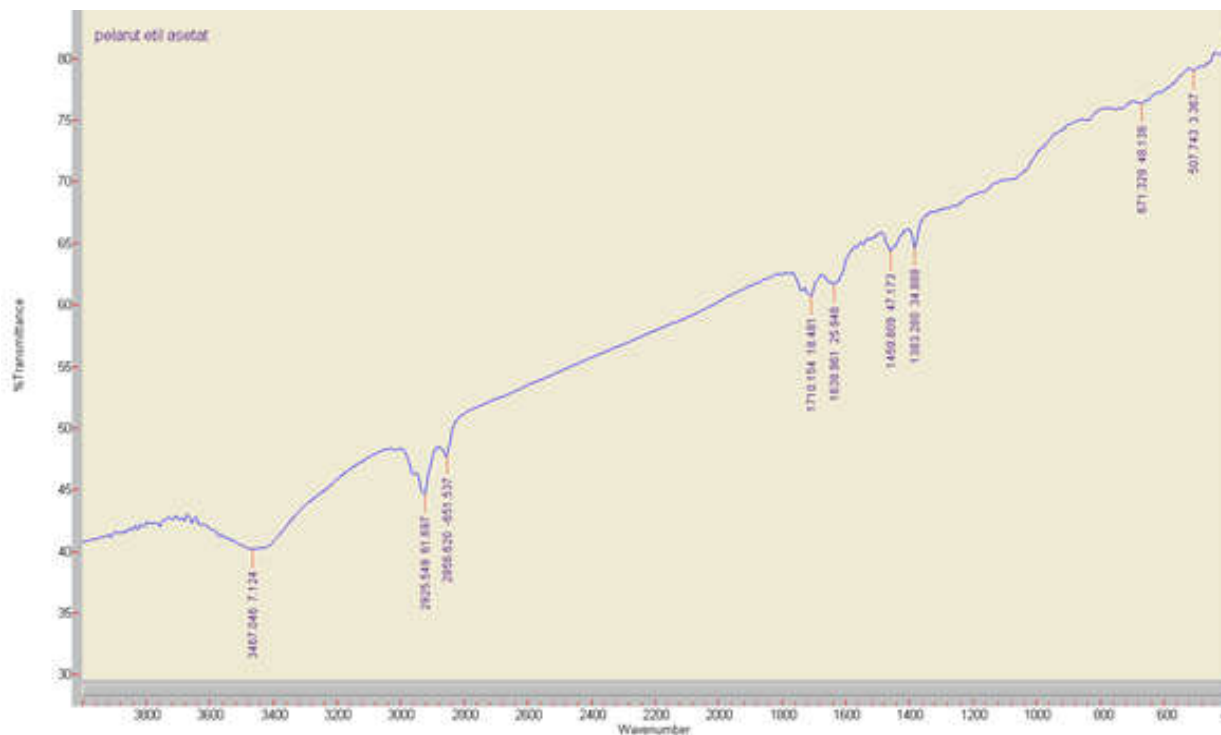


Figure 2 – FTIR test result towards bulubangkal leaf extract

According to figure 2 ethyl acetate fraction compound of bulubangkak leaf extract contains ionic fractions as listed in the following table.

Table 3 – Absorption band, wave number, vibration type and band form of FTIR result of bulobangkak leaf extract

Absorption bond	Wave Number (cm <sup>-1</sup> )	Reference(Harborne, 2006)	Vibration type	Bond form
1	3467	3500 – 3200 alcohol	-OH bending	Widened
2	2926	3000 – 2700	-C-H (SP <sup>3</sup> ) stretching aliphatic	Weak
3	2856	3000 - 2700	-C-H (SP <sup>3</sup> ) stretching aliphatic	Weak
4	1710	2100 - 1700	aromatic C=H stretches	Weak
5	1638	1670 - 1475	-C=C- aromatic	average
6	1459	1470 - 1450	-CH <sub>2</sub> , -CH <sub>3</sub> scissoring	Weak
7	1383	~ 1050	-OH primer	Average
8	671	690 - 590	-C=CH out of plane	Weak
9	507	~ 570 – 540	monobranched alkanes (-CH <sub>3</sub> )	Weak

According to the result of GCMS test conducted to the ethyl acetate extract of bulubangkak leaf is obtained a graph as follows:

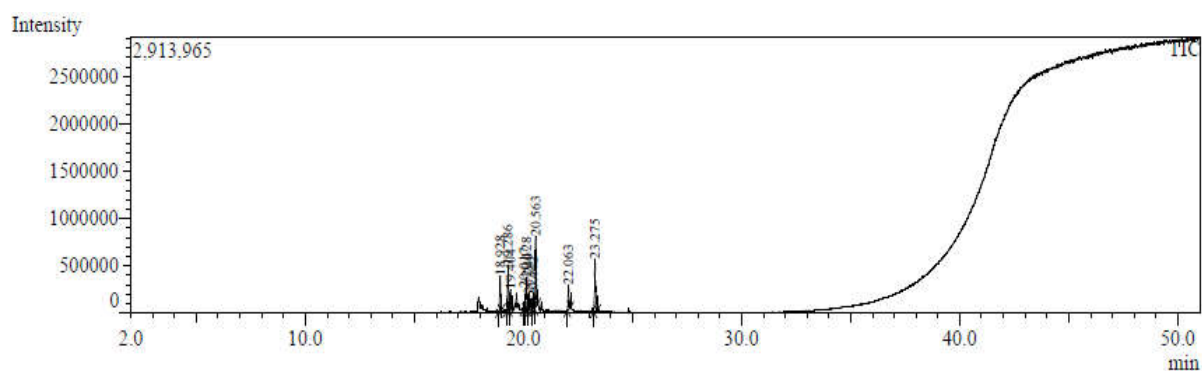
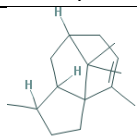
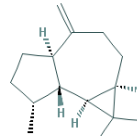
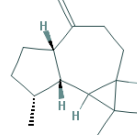
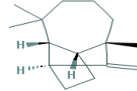
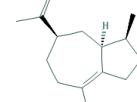


Figure 3 – GCMS analysis result of ethyl acetate extract of bulubangkak leaf

According to the figure above, it can be known that there is a different point, among other, there are 9 highest points. Of the point received, based on the literature review, is expected that the compound contained within bulubangkak leaf extract as follows.

Table 4 – Compound contained within bulobangkak leaf based on the library (PubChem)

n/n	Point	Name	Formula	Compound Structure	PubChem (CID)/BM
	1	2	3	4	5
1	18.925	Beta-caryophyllene	C <sub>15</sub> H <sub>24</sub>		5281515/ 204.357 g/mol
2	19.283	Alpha guaiene	C <sub>15</sub> H <sub>24</sub>		5317844/ 204.357 g/mol
3	19.400	Seychellene	C <sub>15</sub> H <sub>24</sub>		519743/ 204.357 g/mol
4	20.125	Alpha panasinsen	C <sub>15</sub> H <sub>24</sub>		578929/ 204.357 g/mol

n/n	1	2	3	4	5
5	20.558	Alpha-patchoulene	C <sub>15</sub> H <sub>24</sub>		521710/ 204.357 g/mol
6	20.550 – 20.567	-	C <sub>15</sub> H <sub>24</sub>		11095734/ 204.357 g/mol
7	20.443-20.450	Allo-aromadendrene	C <sub>15</sub> H <sub>24</sub>		42608158/ 204.357 g/mol
8	20.442	Longifolene	C <sub>15</sub> H <sub>24</sub>		204.357 g/mol
9	20.443-20.450	Alpha-Bulnesene	C <sub>15</sub> H <sub>24</sub>		94275/ 204.357 g/mol

According to the result above, the compound contained within bulobangkal leaf has a formula and similar molecular weight of C<sub>15</sub>H<sub>24</sub>, with molecular weight of 204.357 g/mol, but having different compound structure.

According to the result of compound identification using GCMS is known 9 active compounds of Bulobungkal leaf which its potential is then analyzed using WAY2DRUG PASS prediction as antimicrobial and antifungal, etc, demonstrated in the following table as antibacterial, antibiotic, antiseptic, antiparasitic, and Peptidoglycan glycosyltransferase inhibitor.

Table 4 – Compound content in bulubangkal leaf based on in silico analysis

Compound	Antibacterial	Antibiotic	Antiseptic	Antiparasitic	Peptidoglycan glycosyltransferase inhibitor
Beta-caryophyllene	0.437			0.382	0.397
Alpha guaiene	0.306			0.414	0.482
Seychellene				0.401	0.589
Alpha panasinsen	0.33				0.566
Methandrostenolone					0.562
Alpha-patchoulene	0.356			0.477	0.457
Allo-aromadendrene	0.38				0.471
Longifolen					0.627
Alpha-Bulnesene	0.34			0.355	0.391

Assessment result of Pa value for a particular activity such as antibacterial, antibiotic, antiseptic, antiparasitic, and peptidoglikan glikosiltransferaseinhibitor (playing role as cell cycle, cell form, and cell wall). Pa (probability To Be Active) value is a value reflecting a potential of a compound tested. An active agent of bulubangka leaf has various values. If Pa value above 0,7 so the compound is predicted to have a high potential as antimicrobial computationally and through laboratory test method. While if Pa value is more than 0.3 or less than 0.7 so the compound has computationally ability as antimicrobial and antifungal, but in a laboratory test way is not proven or its potential is small.

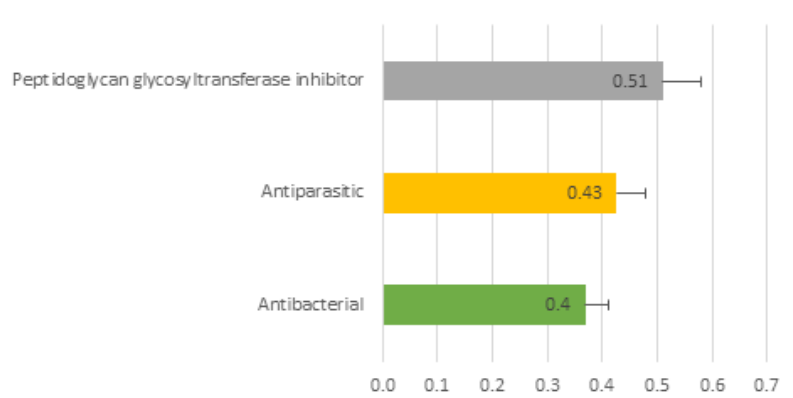


Figure 4 – Pa value of Bulubangka leaf

According to that Pa value above, an active agent of bulubangka leaf has a computational potential as antibacterial but its potential needs to be proven in a laboratory way since its score probability to be active is under 0.7. Trial result of in vitro method is proven that bulubangka leaf extract has a big drag zone towards *A. hydrophila* bacteria, ethyl acetate extract of  $23.88 \pm 0.74$  mm and methanol of  $17.03 \pm 0.48$  mm. Peptidoglycan (PG) is an important macromolecule like a tissue surrounding bacteria, giving them the form, and protecting them from its osmotic pressure. PG inhibition of synthesis causes bacterial cell lysis (Derouaux, *et al.*, 2013) This inhibition of synthesis of the cell wall is like a medicine containing  $\beta$  lactam, working procedure of inhibition was initiated by medicine binding of cell receptor-like transpeptidase enzyme among other. After adhesion at one or more receptor, reaction happened is a transpeptidase enzyme reaction and hampered peptidoglycan synthesis leading to the activity termination of autolysis on cell wall, and furthermore lysis enzyme becomes active (Jaweltz, *et al.*, 2001).

## CONCLUSION

Bulubangka leaf has a computational potential as antibacterial under 0.7, it is proven by in vitro method of ethyl acetate fraction and effective methanol fraction hampering *A. hydrophila* bacterial while n-hexane fraction does not effectively hamper. It concludes that bulubangka leaf contains bioactive in form of saponin, tannin, phenolic, flavonoid, and steroid used as *A. hydrophila* antibacterial.

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## **COMMUNITY BASED MANGROVE ECOSYSTEM MANAGEMENT AT CLUNGUP BEACH OF TAMBAKREJO VILLAGE, MALANG REGENCY**

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### **ABSTRACT**

The success of mangrove ecosystem management has been done through community-based management, for example in Clungup Beach, Tambakrejo Village of Malang Regency. The management of this area successfully restored 73 Ha of mangrove forest and able to integrate tourism activities, conservation, and empowerment of local communities. This study aims to determine the level of community participation and formulate management strategies. The study was conducted in March-July 2017 using descriptive method. The level of community participation is obtained based on its involvement in the management of the area. SWOT analysis is used in formulating management strategies. The level of community participation consists of four stages: planning, implementation, utilization and evaluation. The level of community participation at each stage is in the high category. According to Arnstein (1969), included in citizen power, where people are able to plan, implement programs that are made independently. The strategy applied is aggressive growth; utilize the power to achieve the opportunity. Priority undertaken: strengthening mangrove ecotourism management through: improving the function of education, improving the quality and comfort of tourists, improving the quality of media outreach with the improvement of sites on the internet; improving community empowerment.

### **KEY WORDS**

Mangrove ecosystem, community participation, community-based management, strategy.

Indonesia is a country with the largest mangrove ecosystem in the world, which is about 3.49 million hectares of mangroves or nearly 21% of the world total mangrove area with good condition of 1.67 million hectares and damaged condition of 1.82 million hectares (Anonymus, 2017) This ecosystem has an important role in the management of coastal areas and oceans. Mangroves provide a wide range of ecosystem services, including nutrient cycling, soil formation, production of wood, spawning grounds, carbon storage and ecotourism (Mudiyarso et al., 2015).

Excessive mangrove utilization with no attention to the importance of the ecological side became a major threat to the sustainability of this ecosystem. The area of mangrove forest in Indonesia has decreased by 30-50%, due to coastal area development, expansion of fishpond area, abrasion, and illegal logging (CIFOR, 2012).

In the last fifty years, in many developing countries, the concept of community-based mangrove management is considered essential in the sustainable use of resources. This concept emphasizes the involvement of local communities in the strategic activities of resource identification, priority development, choice and adaptation of appropriate

technologies to formulate and implement sustainable management practices (Damastuti and Rudolf, 2017). In community-based mangrove management processes, local people have been encouraged to participate in every step of resources management and planning (Surin, 2014).

Participation means taking part in a stage or more of a process (Khairuddin, 2000). The level of community participation consists of eight ladders / levels (levels), ranging from no participation to delegation of authority to supervise (Arnstein, 1969).

In Indonesia, community-based management practices have been able to recover more than 100 km<sup>2</sup> of mangrove forest (Field, 1999). One of them is the mangrove ecosystems in Clungup Beach, Tambakrejo Village, Malang Regency, East Java, where around year 1999 mangrove forest in this area suffered severe damage due to illegal logging and conversion of land into ponds and plantations. The successful management of this area is able to rehabilitate 73 Ha of mangrove forest from the total area of 81 Ha. In 2014, this area began to be used as an ecotourism area while maintaining the sustainability of its ecosystem. Efforts to manage the area get appreciation from the Government as a conservation area with the best management version of Adhibakti Mina Bahari 2015 in the category of Coastal Area Development Tangguh (PKPT) and Kalpataru East Java Province Environmental Pioneer category in 2016 (Harahab, 2017).

Given the vulnerability of mangrove ecosystems and the importance of the role of communities in maintaining these ecosystems, the question arises about the active role of local communities in Clungup Beach, so that mangrove ecosystems in this area are maintained and sustainable. This study aims to analyze the level of community participation in ecosystem management and formulate strategies management of community-based mangrove ecosystems as one of the efforts to conserve sustainable coastal resources. The result of this research is expected to be one of the considerations of mangrove ecosystem management in Clungup Beach, Tambakrejo Village, Sumbermanjing Wetan Subdistrict, Malang Regency.

## METHODS OF RESEARCH

The research was done by descriptive method. The technique used is a survey by using questionnaires and interviews as the main data collection tool. Data collection techniques were conducted by interviewing and filling out the questionnaires directly from the surrounding community and informants (area managers, Tambakrejo Village Head, DKP Malang Regency, Malang Environment Agency, Culture and Tourism Office of Malang Regency, KKP). Data collection is also obtained through observation and literature study methods.

Determination of respondents was taken using "purposive sampling" technique, where the researcher had certain considerations in sampling or sampling for a particular purpose (Natsir, 2005). In this case the respondent is a community around the area, especially Sendang Biru Village either directly or indirectly involved in the management of mangrove ecosystem (group members and non-members of the group, head of household, indigenous or immigrants with a minimum five-year stay). Number of respondents taken as many as 40 Head of Family.

This research takes place in Mangrove Ecotourism Area in Clungup Beach, Sendang Biru Village, Tambakrejo Village, Malang Regency, East Java. The study was conducted for 5 months starting from March until July 2017. The community participation level was obtained based on community involvement in mangrove ecosystem management stage, which cover: planning, implementation, evaluation and utilization (Soetomo, 2008).

Furthermore, to identify the level of community participation in the management of mangrove ecosystems the concept of participation, this divides into eight levels of participation as shown in figure 1 below (Arstein, 1969).

Eight ladder levels of community participation:

- Manipulation, public participation is only used as a tool of publication, there is no participation at all.

- Therapy, community engagement is meant to change the pattern or way of thinking of the community involved rather than to get advice or input from them.
- Informing, the public is informed of the rights, responsibilities, and alternative options to participate. But the emphasis is more on providing information that is one-way participation.
- Consultation, the community began to get involved providing ideas and inputs that are important factors to lead to a full form of participation. However, this way has a low success rate, because there is no guarantee that the idea from society will be noticed and used.
- Placation, society begins to have influence although in some cases still determined by those who have power.
- Partnership, at this level, power is shared among parties representing the community with stakeholders based on mutual agreement.
- Delegated Power, communities are provided with the authority to make strategic decisions and have the authority to plan and determine that the programs implemented are beneficial to them.
- Citizen Center, the community has full power to manage the program in the form of authority to plan, execute and conduct supervision of the program it makes independently.

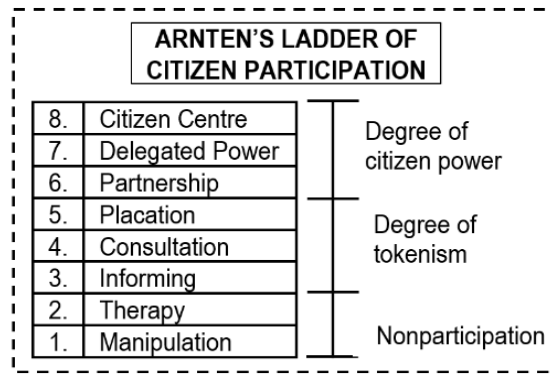


Figure 1 – Eight levels of community participation (Arnstein, 1969)

In this research, SWOT analysis approach is used to formulate community-based mangrove ecosystem management strategy. The SWOT analysis aims to identify various factors systematically in formulating a strategy based on logic by maximizing existing strengths and opportunities simultaneously and minimizing existing weaknesses and threats simultaneously (Rangkuti, 2006). According to Purwanti et al., (2017) the stages of SWOT analysis performed include: (a) Identification of internal and external factors; (b) Weights, relative weights, and scores; (c) SWOT matrix analysis; (d) Grand Strategy Analysis.

## RESULTS AND DISCUSSION

*Respondent's Characteristic.* The majority of respondents are at the productive age, where the oldest reponden age 77 years and the youngest age 21 years. In general, age distribution by class is obtained: Age 21 - 31 years old 20%, Age 32 - 42 years old 27,5%, Age 43-53 year 30%, Age 54-64 year 17,5% and Age > 64 years at 5%. Thus, communities around the area have great potential to be involved in the management of mangrove ecosystems.

Most of the respondents had very low level of education, only graduated from primary school equal to 57,5%, then lower education level (junior high) equal to 27,5% and respondents who have medium education level (pass senior high school) equal to 15%. As is known, most of the respondents are farm laborers and fishermen so choose to work instead



of continuing school. However, the community has a high knowledge of the functions and benefits of mangroves.

The lowest income of respondents is Rp500.000,00 per month and highest Rp5.000.000,00 per month. The majority of people in this region have an average income with sufficient category, which ranges from Rp 2,000,000,00 to Rp 2,900,000,00 per month. This is because most people have alternative livelihoods, one of them as a tour guide as a positive impact of the use of the area through ecotourism approach.

*Community Participation Level.* The role of communities around the mangrove ecosystem area in Clungup Beach is an important key to the success of the management of the area where the implementation requires long-term consistency and active participation from the community. Distribution level of community participation at each stage can be seen in picture 2 below:

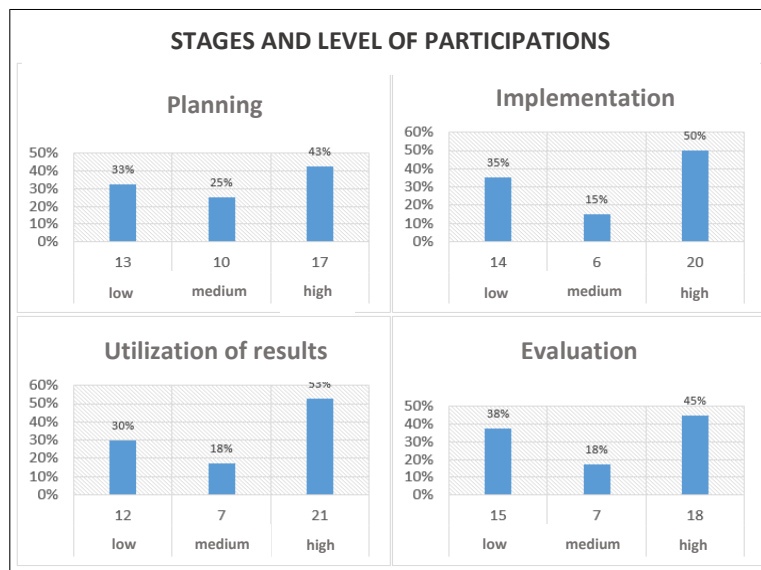


Figure 2 – Distribution of Community Participation Level in Mangrove Ecosystem Management

**Planning Stage.** The level of participation is measured through the extent of community involvement in planning activities which include the level of attendance and awareness in counseling activities, socialization, meetings / meetings held by the government or by groups / institutions and activeness in expressing opinions.

**Implementation Phase.** The level of participation is measured by the presence and awareness and involvement of family members in the rehabilitation of mangrove ecosystems through the planting of mangrove vegetation.

**Evaluation Stage.** The level of participation is measured by looking at the extent of community involvement and role in the evaluation and maintenance of mangrove vegetation that has been planted and already in the CMC area

**Phase Utilization.** Measured from the benefits gained from the management of mangrove ecosystems

Based on Figure 2, the general level of community participation is high. This participation rate according to Arnstein (1969) is included in citizen power, in which the society is able to plan, implement the program it creates independently. The community is active in following extension activities and meetings. The community can carry out the planting of mangrove vegetation independently. Mangrove seeds obtained through the contribution of visitors in addition through assistance programs from the government and cooperation with educational institutions.

The community also has a high awareness of the sustainability of mangrove vegetation, willing to re-stitch mangrove that died or carried away and eradicate pests attached to mangrove seedlings. In addition, the active role of the community is high by

applying a ban to destroy and revoke mangrove vegetation in the mangrove ecosystem area in Clungup Beach. As is known, mangrove ecosystem area in Clungup Beach is a conservation area so it is not allowed to utilize mangrove vegetation or conduct fishing / marine life within the area.

At the planning, implementation and evaluation / maintenance stages, community involvement is quite high. This is because some respondents who are members of the Bhakti Alam Foundation are actively involved in the management of the mangrove ecosystem. However, there are respondents who opposed the management of this area, especially fishermen, because their activities are limited by the conservation area of the mangrove ecosystem, so the level of participation is at a low level.

The use of ecosystem as an ecotourism area can integrate tourism activities, conservation and empowerment of local communities. Increased revenues from the utilization of mangrove ecosystems for ecotourism areas, making a lot of tourists who visit, so the number of homestay homes or lodging, places to eat / stalls around the area. In addition, there are alternative livelihoods as tour guides, motorcycle taxi drivers, and parking attendants. Most of the communities, both group members and non-members, have a positive impact with ecotourism in the CMC area.

*Mangrove Ecosystem Management Strategy:*

*Strength:*

- Potential area of mangrove ecosystem (Clungup Mangrove Conservation). This area has a total area of ± 210 ha with complete features such as mangrove forests, coral reefs, sandy beaches, and hills.
- Utilization as ecotourism area. Utilization of mangrove ecosystem as an ecotourism area by applying strict rules for visitors to make sustainability and cleanliness of the area is maintained so that the main attraction for visitors.
- The level of community participation in the management of mangrove ecosystems. This can be seen from the analysis of the level of community participation that has been done, where the community directly involved and play an active role in the management of mangrove ecosystems starting from the stages of planning, implementation, utilization and evaluation.
- The existence of Yayasan Bhakti Alam Sendang Biru in the management of mangrove ecosystem. CMC area manager, the Bhakti Alam Sendang Biru Foundation plays an important role in the successful management of mangrove ecosystems in the region. This institution is a container as well as a driver to encourage community participation in the management of mangrove ecosystems. The Institution of Bhakti Alam Sendang Biru Foundation has a legal basic through the Decree of the Minister of Justice and Human Rights of the Republic of Indonesia Number AHU-0015997.AH.01.04 of 2016 on Ratification of the Establishment of Legal Entity of Bhakti Alam Sendang Biru Foundation, set in Jakarta on 21 March 2016.
- The benefits of mangrove ecosystem management for the community. The existence of mangrove ecosystem management provides positive benefits for the community, which is an increase in incomes of communities around the area.

*Weakness:*

- The condition of the road to the main area. The condition of the road to the main location of the CMC area after parking the vehicle, quite bad. Existing roads are perforated at various points and hardening has not yet been done. If the rainy season the road is muddy and slippery so must be careful to pass through.
- Some communities oppose the management of mangrove ecosystems. Some communities, especially fishermen, are opposed to the management of mangrove ecosystems. This is because they cannot do any fishing or other biota in this area, so the management of this area is considered not to provide benefits.
- Waste management. To overcome the garbage coming from the visitors, the manager implements the rule that every visitor's luggage is checked and recorded. If there is trash left behind, a fine of Rp100,000.00 per item is required. This is effective to reduce the

amount of garbage coming from visitors. It is different with garbage that is came from outside, carried by currents from other places as well as waste discharges from fishing vessels or boats that anchored in the harbor near the CMC area. Waste management that has been collected is currently only temporary, in this case only limited to be collected (centralized) to be discharged to landfill/collector, there is no sustainable waste management effort.

- The ability to produce refined products based mangrove. Currently, the manager of the area is the foundation of natural blue bhakti yayasan still not developed mangrove-based processed.

*Opportunity:*

- Cooperation in mangrove rehabilitation activities. Management of mangrove ecosystem area in Clungup Beach has done a lot of mangrove rehabilitation cooperation, one of them with Universitas Brawijaya Malang.
- Government support in mangrove ecosystem management. Government support either through central or regional government in the form of assistance, provision of infrastructure has been done for the preservation of mangrove ecosystem in Clungup Beach. Among them are the provision of mangrove seeds, the construction of bridges, generator assistance, ship engines, mangrove tracking.
- Village Regulation Tambakrejo No. 03 of 2015 on Customary Law, Administration, and Development as well as the Environment. In addition to regulations on mangrove management on a national basis that can be used as the basis of management, this area also has a rule issued by the village as support for conservation of mangrove ecosystems in Clungup Beach, namely Village Regulation Tambakrejo No. 03 of 2015 About Customary Law, Administration, and Development and Environment Life. The rule mention that one of the core zones of the mangrove ecosystem is in Clungup Beach.
- Demand for tourism. Utilization of mangrove ecosystems in Clungup Beach as an ecotourism area started in 2014, has made this area one of the favorite tourist destinations. The increase in the number of tourists, considering the region has a beautiful panorama complete with beaches and hills.
- South Cross Road Malang Regency. Sendang Biru Area is crossed by a wide 7 to 8 m highway, with good road quality making it easier for tourists to come and visit the Mangrove Ecotourism Area on Clungup Beach.

*Threats:*

- The presence of migrant communities. The existence of Fishery Port of Pondok Dadap Sendang Biru in this region makes a lot of migrants among others fishermen andon, crew, fish traders and so on. Based on the results of interviews, most of the mangrove damage caused by immigrant residents.
- Resource use conflict. In its implementation, there has been a conflict between Perum Perhutani as the owner of the legality of the region and the community of the area management, which stems from the unclear in terms of land tenure and the status of area management by the community groups. The Regulation of the Minister of Environment and Forestry of the Republic of Indonesia No. P.39 / MENLHK / SETJEN / KUM.I / 6/2017 on Social Forestry in Perum Perhutani Working Area issued on 4 July 2017, became the basis of the management (community groups) Permit for Social Forestry Utilization (IPHPS) which is currently in the process of issuing permits.
- Awareness of the tourists about the environment. As one of the favorite ecotourism destinations, an increase in the number of visitors can be a positive value for the development of the region. Nevertheless, the awareness of visitors for environmental sustainability remains a threat to the region. Increased awareness of visitors to the environment is done by applying strict rules, one of which is a ban on disposing of garbage inside the area and limiting the number of visitors.
- The Destruction of mangrove ecosystem. Mangrove ecosystems in this area suffered severe damage in the year 1999 due to illegal logging, conversion of land into fishponds, farmland / plantation. Since 2005, mangrove conservation efforts have been made and

have improved significantly. However, the destruction of ecosystems by irresponsible persons remains a major threat.

- Environmental pollution. The area of mangrove ecosystem in Clungup Beach is near Pondokdadap Fishery Port area or better known as TPI Sendangbiru. The negative impact of the presence of the ship and anchor mooring activities, the landing and marketing of fish, as well as other activities in the harbor form where solid and liquid wastes into the causes of environmental pollution. Types of waste to be disposed of activity ships docked in general form of garbage plastic bottles, plastic bags, and the rest of the fishing gear (fishing lines, nets and ropes float), discharge residual water used to wash in the pool area port, the exhaust of diesel used, leftovers, plastic bottles, waste bins and plastic waste, and spilled pieces of fish.

Table 1 Matrik IFAS

Matrik IFAS					Matrik EFAS			
Num.	Strength Variables	Relative Weights	Rating	Score	Variable Opportunities	Relative Weights	Rating	Score
1.	Potential area of mangrove ecosystem (Clungup Mangrove Conservation)	0,097	3	0,291	Cooperation in mangrove rehabilitation	0,118	4	0,472
2.	Utilization of ecosystem as ecotourism area	0,129	4	0,516	Government support in mangrove ecosystem management	0,118	4	0,472
3.	The level of community participation in the management of mangrove ecosystems	0,129	3	0,387	Demand for tourism	0,118	4	0,472
4.	The existence of Yayasan Bhakti Alam Sendang Biru in the management of mangrove ecosystem	0,129	4	0,516	Village Regulation Tambakrejo Num.03 Year 2015 on Customary Law, Administration, and Development and Environment	0,088	3	0,264
5.	The benefits of mangrove ecosystem management for the community	0,097	3	0,291	South Cross Road Malang Regency	0,088	3	0,264
Total		0,581	2,001		Total	0,53	1,944	
Num.	Weakness Variables	Relative Weights	Rating	Score	Threat Variable	Relative Weights	Rating	Score
1.	The condition of the road to the main area	0,097	3	0,290	The presence of migrant communities	0,088	2	0,176
2.	Some communities oppose the management of mangrove ecosystems	0,129	2	0,258	Destruction of Mangrove Ecosystem	0,088	3	0,264
3.	Waste management	0,097	3	0,290	Environmental pollution	0,088	3	0,264
4.	The ability to produce refined products based mangrove	0,097	3	0,290	Resource use conflict	0,118	4	0,472
5.					Awareness of the tourists about the environment	0,088	4	0,352
Total		0,419	1,128		Total	0,47	1,528	
Grand Total Internal Factors		1	3,129		Grand Total External Factors	1	3,472	

SWOT Matrix Analysis:

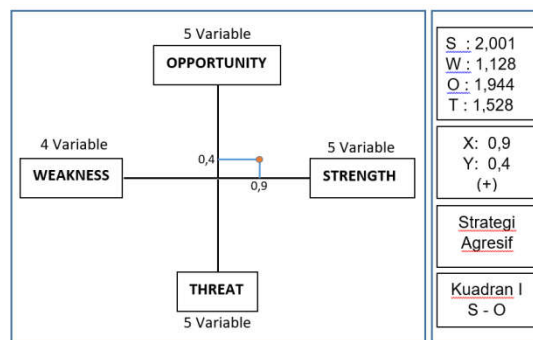


Figure 3 – Grand Strategy Matrix

*Community Based Mangrove Ecosystem Management Strategy:*

Based on internal and external factors in the management of mangrove ecosystems in Clungup Beach, the strategy obtained is an aggressive strategy that is in quadrant I. This strategy is prepared by utilizing the strengths to achieve the opportunity. Community-based mangrove ecosystem management strategies in Clungup Beach are:

- **Strengthening Mangrove Ecotourism Management.** (a) Improving the educational function of mangroves. This area can be used as an environmental learning center, especially mangroves by providing information on the potential and superiority of mangrove vegetation that is packaged in an interesting and communicative way; (b) Improving the quality and comfort of visitors is a priority in ecotourism management. Area managers need to establish Standard Operating Procedures, improve supporting facilities and infrastructures such as: repairing access roads from parking, providing health facilities such as health posts and first aid kits, providing souvenir shops and meals; improving the quality of communication media of the area manager with web / website improvements on the internet so that it can be accessed by anyone and anytime.
- **Increasing community empowerment.** Community participation in the management of mangrove ecosystems in Clungup Beach is an important key to the successful management of the area. However, there are still some communities who oppose the management of this area. Therefore, it is necessary to provide assistance / mediator from Dinas Perikanan and local apparatuses, through the establishment of a dialogue forum between the managers and community leaders to support the sustainability of management.

Need support / assistance from related agencies including the Department of Fisheries, Department of Culture and Tourism of Malang Regency in improving the empowerment of surrounding communities. One of them is the establishment of food processing and handicraft processing business group from fishery and non-fishery products (mangrove based) and product marketing. As is known, this area became one of the favorite tourist destinations that the number of visitors increased each year. The visitors are the market share of the products that will be produced later. Provision of souvenir shops or souvenirs typical of this region can be one of the marketing media. Besides the provision of that concept of natural eating-place with typical menus of fishery products such as grilled fish or seafood, can be one of the tourist attraction. The involvement of all elements of society, including fishermen therein in utilization of mangrove ecosystems as ecotourism will minimize conflict, so the management of this area can be accepted by the whole society.

## CONCLUSION

The level of community participation in mangrove ecosystem management in Clungup Beach is included in the high category. This participation rate according to Arnstein (1969) is included in citizen power, in which the society is able to plan, implement the program it creates independently.

The current ecosystem management is good enough with aggressive value (0.9, 0.4). This area is managed by Yayasan Bhakti Alam Sendang Biru initiated by the community. The Foundation was established in 2014 and officially established on March 21, 2016, based on Decree of the Minister of Justice and Human Rights of the Republic of Indonesia Number AHU-0015997.AH.01.04.

The strategy applied is aggressive growth, harnessing the strength it has to achieve the opportunity. The strengthening of mangrove ecotourism management needs to be done through improvement of education function about mangrove, improvement of quality and comfort of visitors, improvement of media quality of area manager with web / website improvement on internet.

Increased community empowerment necessary support and assistance of the Department of Fisheries and Culture and Tourism Malang through the establishment of the groups of business processing of food and craft derived from the fishery and non-fishery (based mangrove) and marketing their products.

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**FACTORS AFFECTING SUSTAINABILITY OF WATER SUPPLY  
IN COASTAL COMMUNITY OF TARAKAN ISLAND NORTH KALIMANTAN:  
AN APPLICATION OF MUTIDIMENSIONAL SCALING METHOD**

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**ABSTRACT**

Coastal communities are known to be vulnerable to water needs. They are largely isolated, vulnerable to natural hazards, and climate variability inhibits their ability to obtain adequate water resources to support their lives. Hence, finding a sustainable water supply provision model is a sensible way to address these uncertainties and vulnerabilities. However, achieving sustainable water supply is a challenging issue, as it is influenced by various factors from an environmental, social, economic, technological and institutional perspective. This study assessed the water supply problem by identifying key factors that affect its sustainability. Data were analyzed using the approach of multidimensional scaling. The analysis showed that the multidimensional system of clean water supply on Tarakan is sustainable with 13 sensitive attributes that have an effect on increasing the sustainability index. The attributes are divided into 3 attributes on the environmental dimension, 3 attributes on the economic dimension, 2 attributes on social and cultural dimensions, 3 attributes on infrastructure and technology dimensions, and 2 attributes on legal and institutional dimensions. To improve long-term sustainability status, the scenario that needs to be done to improve the provision of clean water is a prolonged-optimistic scenario by making a thorough improvement of all sensitive attributes.

**KEY WORDS**

Sustainability, water supply, coastal communities, island.

As one of nature's resources, water on earth is unevenly available. Distribution of water from one place to another place on earth varies according to time and space. Many areas have enough water potential, but it is not uncommon to find areas with very little water potential and often difficulty getting water. Water is an essential need for the survival of living things in everyday life, especially humans (Edyanto, 2011) to support the needs of both agriculture, household, and office. Water serves as engine coolant, raw materials or cleaning or disposal of waste. Coastal communities are known to prone to vulnerability arising from their nature of work (Paulus and Fauzi, 2017). To meet the community's water needs, raw water supply is needed, especially in urban and rural areas (Yasin, et al, 2013). Under Law No. 5 In 1962, Indonesia, providing clean water for urban public or usually run by government-appointed government agencies such as the Regional Water Company (Susanti, 2010).

Geographical factors affect the location and relative distance of water sources and population distribution (Susanti, 2010). Increasing population and its growth rate, the higher the level of utilization of water resources (Susilawaty, et al, 2016). However, many water sources are polluted because of waste generated by economic activities and industries causing water quality that can be directly ingested or public consumption on the wane. It takes a management system and raw water supply to be managed into clean water that can be distributed to the population. The availability of water resources in small islands is particularly vulnerable due to changes in seawater quality. Given the magnitude of the

function and role of clean water and to anticipate the increasing demand for water in small islands, water supply stems should receive serious attention as it is one of the main sources of clean water resources in small islands (Selintung et al., 2010).

The development of Tarakan as the second gateway of East Kalimantan after the city of Balikpapan in the sailing and aviation traffic caused the attraction to the surrounding community so that the population density increased. Industry, business, and people need clean water for daily use. Tarakan Island, which is surrounded by oceans, produces groundwater and surface water susceptible. The coastal area has strategic significance because it is a transitional area between terrestrial and marine ecosystems, as well as having the potential of natural resources and environmental services are very rich (Paulus et al., 2018). The low coverage of clean water services causes industries and communities to use groundwater and lead to lower groundwater levels and even land subsidence in some places. For that reason, a thorough study of the sustainable small island water supply model is needed.

## METHODS OF RESEARCH

This study was conducted using a survey method through in-depth interviews and observation techniques. Respondents were taken by Purposive Random Sampling with criteria of Respondents Experts who have expertise in accordance with the field under study. Data analysis in this study using Multidimensional Scaling with Approach "Rapid Appraisal - Index Sustainability of Land Management that has been modified from Rapfish (Rapid Assessment Technique for Fisheries) developed by Fisheries Center, University of British Columbia (Kavanagh and Pitcher 2001, Fauzi and Anna, 2002).

## RESULTS AND DISCUSSION

*Water Supply Sustainability Index.* The study of clean water supply conducted in Tarakan Island on the sustainability index of the five dimensions of sustainability, ie environmental, economic, social, infrastructure and technology dimensions, and law and institutions based on the assessment of attributes and expert opinion scores. The result of using Rap-Tarakan analysis shows that the index of the environmental dimension of 31.80% with an unsustainable status, the index of the economic dimension of 88.24% with a sustainable status, an index of the social dimension of 57.53% with less sustainable status, index of dimension infrastructure and technology 20,14% with less sustainable status, and index of legal-institutional dimension equal to 74,21% with sustainable enough status. In order for this index value in the future to continue to increase until it reaches a sustainable state, it is necessary to improve the sensitive attributes that influence the value of infrastructure index and technology dimension as well as environmental, economic and social dimension. Attributes that are considered sensitive by experts are based on the conditions of the existing region. Value index of the five dimensions of sustainability of Rap-Tarakan analysis results are presented in Figure 1.

*Factors affecting the sustainability index of water supply on Tarakan Island:*

*Environmental Factor.* Factors estimated to affect the sustainability of the environmental dimension consist of (1) water conservation area, (2) frequency of drought occurrence, (3) raw water quality, (4) raw water quantity, (5) rainy & rainy days, (6) development of raw water resources, (7) land use, (8) groundwater levels, and (9) river pollution levels. The leverage analysis used to look at sensitive attributes has an effect on the environmental sustainability index value. Based on the results of leverage analysis, there are three attributes that are sensitive to environmental sustainability index value (1) raw water quantity can be obtained through: rain & rainy day (2), and development of raw water source (3). Figure 2 provides information on the results of leverage analysis of environmental sustainability dimensions. Attributes that are sensitive to the environmental sustainability index values are (1) the quantity of raw water can be obtained through rain and rainy days



are the main factors that control the hydrological cycle process in the catchment or watershed area (2), and (3) its development from water source standards.

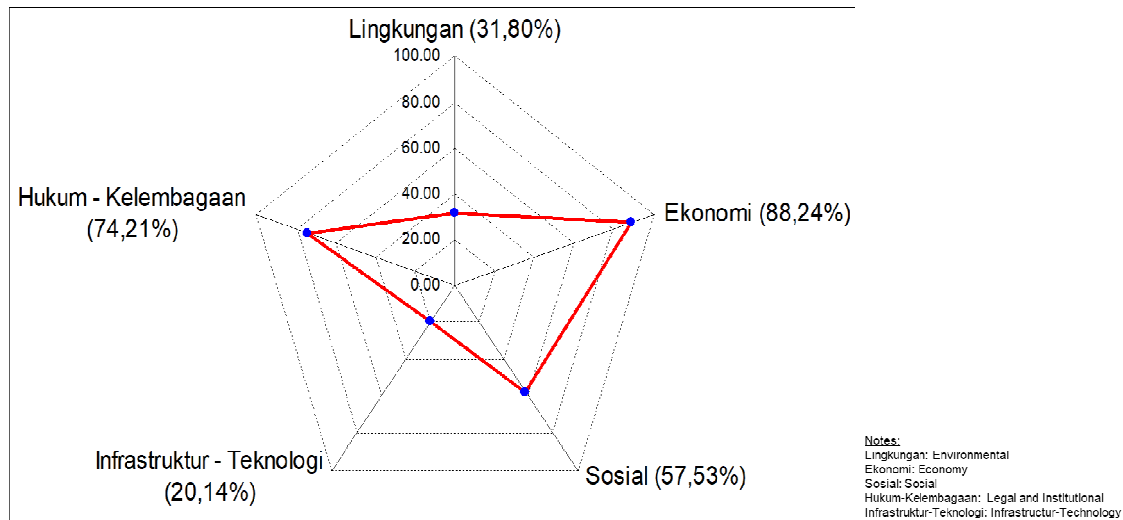


Figure 1 – Kite diagram value of sustainability index on water supply in Tarakan

Rain is water particles with a diameter of 0.5 mm or more. If it falls to the ground, it is called rain, but if it falls could not reach the ground because it evaporates so the fall is called Virga. Rain can also be defined by condensation vapor and falls in a series of hydrological processes. Rain is a form of vapor deposition that comes from clouds in the atmosphere. Other forms of rainfall are snow and ice. For the occurrence of rain required condensation points, ammonia, dust and sulfuric acid. This condensation dots have properties that can remove moisture from the air. Rainfall units are always expressed in millimeters or inches but for Indonesia, the unit of rainfall used is in millimeters (mm). Rainfall is the height of the rainwater collected in a flat, unstable, not pervasive, and non-flowing place. Rainfall of 1 (one) millimeter means in the area of one square meter in a flat place collected water as high as one millimeter or contain water as much as one liter. Rain intensity is the number of rainfall units for a certain period of time. Other factors that lead to low rainfall or prolonged drought is the impact of climate change on small islands such as emerging global natural phenomenon El Nino with consequent impact on the global climate fluctuations or variability in the presence of drought and floods in other places (Paulus and Sobang, 2017). The average Tarakan Island rainfall in 2008 reached 330.8 mm per year with the highest average rainfall occurring in January of 443.6 mm and the lowest average rainfall of 206.6 mm occurred in October (BPS Tarakan, 2009).

In order to improve the sustainability status of Tarakan Island, remedial efforts are not only done to sensitive attributes that affect the environmental sustainability index, but other insensitive attributes based on leverage analysis also need serious attention to be addressed. Efforts that need to be made to maintain or enhance attributes that have a positive impact on increasing the dimension of environmental sustainability of the region and can minimize attributes that negatively impact on the sustainability of diminishing regional environmental dimensions. Attributes that need to be maintained or enhanced include: (1) water conservation area, (2) groundwater level and (3) surface water quality, while attributes that need to be suppressed so as not to negatively impact the decreasing of sustainability status of the area are land use for water quality, and drought frequency using dam construction, embankment, flood retention and drainage for water resources management, and making absorption wells.

**Economic Factor.** Factors affecting sustainability in the economic dimension consist of seven attributes, namely (1) the PDAM's (local water utility company) profit level, (2) the water cost of the PDAM, (3) the percentage of the poor, (4) price discrimination between and (5) willingness to pay, (6) contribution of utilization of water resources for PDRB (gross

regional revenue), and (7) availability of fund for clean water development. Based on the results of leverage analysis, the three attributes that are sensitive to the economic sustainability index value are (1) the level of PDAM's profit, (2) the water costs of the PDAM, and (3) willingness to pay (willingness to pay in the use of water resources).

The attributes that are sensitive to the value of economic sustainability index dimension are (1) the level of PDAM's profit, (2) water cost of PDAM and (3) willingness to pay. Water cost is the price in rupiah that PDAM customers must pay for each use of cubic meters of clean water supplied by PDAM (Regulation of Ministry of Home Affairs No. 2 Year 1998). The amount of cost is a mutual agreement between the provider of clean water service (PDAM) with the users of clean water service (customer), while the role of government in carrying out its functions as the regulator of the water resources sector should in determining the policy in the field of drinking water pay determination deliberate considerations of the willingness and willingness to pay on the one hand and the survival of the enterprise on the other. To find out the ability and willingness of paying, it is necessary to analyze the affordability of consumers' purchasing power in paying cost which includes willingness to pay analysis and ability to pay analysis against the prevailing cost.

Low levels of economic constraints for the sustainability of the water supply system. One indicator of the sustainability of the system is the level of customer satisfaction. Sustainability can be ensured by good management and supported by community participation, either in the form of water usage smoothness payment or direct involvement in every stage of the water services. Management and community involvement are both pushing the reliability of the water supply system, which in turn increases the level of satisfaction of the people.

*Social Factor.* Factors affecting sustainability in the social dimension consist of seven attributes, namely (1) the level of formal education of the community, (2) understanding and awareness of the community towards the conservation of water resources, (3) community empowerment in clean water utilization activities, (4) ) the level of public complaints against PDAM customers, (5) the level of community dependence on clean water, (6) the role of indigenous peoples in water utilization activities, and (7) water source conflict. The results of leverage analysis reveal two attributes that are sensitive to the value of the social sustainability index, namely (1) the level of customer complaints to the PDAM and (2) the level of community dependence on clean water. Both these sensitive attributes have a close relationship in order to meet the need for clean water, the community depends heavily on clean water in everyday life, but if the clean water obtained does not match the quantity and quality required will cause problems and usually a complaint.

Water is an important component of the environment to life. Life on earth can not be separated from the water requirement. Water is a major requirement for the process of life on earth, so there is no life if there is no water on earth. However, water can be disastrous when it is not available under appropriate conditions, both quality and quantity. Clean water is highly coveted by humans, both for daily life, for industrial purposes, for agricultural purposes and so forth. Water today is a matter of concern, this is due to the difficulty of getting clean water in accordance with certain standards, water becomes scarce and expensive. Contamination of water by various kinds of waste from human activities, whether waste from household activities, waste from industrial activities and other activities, as well as human dependence on water increases with population growth. In addition to water quality degradation due to pollution of water sources, insufficient amount of clean water that can be used by the community can also cause problems for public health such as the incidence of diseases caused by water use such as diarrhea, scabies and trachoma. To improve the sustainability status of social factors, it is necessary to pay attention to the public's complaints about the dependence of clean water worth consuming (quality) and the quantity of public demand for clean water (quantity).

Customer complaints to PDAMs are a matter of customer satisfaction. Customer satisfaction or also called Total Customer Satisfaction according to Barkelay and Saylor (1994) is the focus of Customer-Driven Project Management (CDPM) even in the process stating that customer satisfaction is quality. So is the short definition of quality expressed by

Juran (1993) that quality is customer satisfaction. According to Kotler cited Tjiptono (1996) that customer satisfaction is the level of one's feelings after comparing the perceived performance (or results) with hope. Thus, the level of satisfaction is a function of the difference between perceived performance and expectations. Quality includes all the elements necessary to meet customer goals, both internal and external, and includes every item in product quality, service quality, performance, availability, durability, aesthetics, reliability, maintenance, logistics, support, customer service, training, delivery, billing, shipping, repair, marketing, warranty, and life cycle costs.

Through communication, both between customers and with suppliers will make expectations for customers to the quality of products to be purchased. Understanding customer expectations by suppliers is an input to improve and improve product quality, both goods, and services. Customers will compare with other service products. When his expectations are met, it will make him a loyal customer, satisfied with the product or service he bought. Conversely, when not satisfied, the supplier will be abandoned by the customer. Key customer decisions relate to satisfaction with a valuation of goods and services. The customer satisfaction framework lies in the supplier's ability to understand customer needs, wants and expectations so that the delivery of products, both goods, and services by suppliers in accordance with customer expectations. In addition to the factors mentioned above, the time dimension also affects the customer perception responses to product quality, both goods, and services.

The word quality contains many definitions and meanings because different people will interpret it differently, such as conformity with requirements or demands, suitability for the use of continuous improvement, free of defects or defects, customer needs fulfillment, doing all the happiness. In the perspective of TQM (Total Quality Management) the quality is viewed more broadly, which is not only an aspect of the emphasized result, but also includes the process, the environment and the human. This is clearly evident in the definition formulated by Goeth and Davis citing Tjiptono (2000) that quality is a dynamic condition associated with products, services, people, processes, and environments that meet or exceed expectations. In contrast, according to Lukman (1999) the definition of quality varies from controversial to more strategic. Conventional quality definitions usually describe the immediate characteristics of a product, such as: 1) performance; 2) reliability; 3) easy to use; and 4) aesthetics, and so on. Therefore, quality in principle is to keep the customer's promise that the parties served are fulfilled and disclosed. Quality has a very close relationship with customer satisfaction, ie quality gives impetus to customers to undergo a strong relationship with the company. In the long run term, this relationship allows companies to understand carefully the expectations of customers and their needs. Thus, the company can increase customer satisfaction, which in turn customer satisfaction can create customer loyalty or loyalty to companies that provide satisfactory quality.

*Infrastructure and Technology Factors.* Factors affecting infrastructure sustainability and technological dimensions consist of six attributes, namely (1) PDAM service level, (2) wastewater infrastructure, (3) drainage conditions in residential areas, (4) pipeline network condition, (5) water supply condition of IPAM (drinking water treatment plant), and (6) availability of electricity service for water treatment. Leverage analysis yields three attributes that are sensitive to the value of infrastructure and technology sustainability indexes (1) service level of PDAM (water supply) and (2) IPAM condition of PDAM, therefore (3) availability of electricity service for water treatment to support clean water service for Tarakan Island community.

The service level of PDAM in Tarakan is still low, in some cases the clean water that occurs in the field is still water that is not clean. One example, water from the PDAM if it flowed into the bath or shelter after a few hours then the water becomes yellow. According to Lukman (1999: 11) service are activities that are not clear, but provide customer satisfaction and or industrial users and are not bound on the sale of a product or service others. It further said that service is a sequence of activities which occurs in direct interaction with people or machines physically and provide customer satisfaction.

Government as a bureaucratic institution has a function to provide services to the community. In contrast, the community as the party mandating the government has the right to service. Therefore, the demand for public services gave birth to a study, namely service how to provide the best service and improve the quality of public services. Apparatus as servants should understand the service variables as contained in the agenda of public sector service prime services as LAN hotspots cited by Lukman (1999). The variables are as follows: (1) Government in charge of serving, (2) Communities served by the government, (3) Policies on which public services are based, (4) sophisticated equipment or service targets, (5) Resources available for (7) Management and leadership and community service organizations, and (8) Behaviors involved in service and community, each describing the function. These eight variables indicate that the importance of today's quality of community service cannot be ignored, even to be tailored to the demands of globalization.

*Legal and Institutional Factors.* Factors affecting sustainability in the legal and institutional dimension consist of five attributes, namely (1) presence of a water quality monitoring center, (2) presence of social institutions, (3) availability of water management regulations (4) availability of customary law, and (5) cooperation among stakeholders. The results of leverage analysis reveal two sensitive attributes namely (1) the existence of social institutions, and (2) availability of water management legislation. Targeted use of clean water for social purposes. In accordance with the Joint Decree of the Minister of Home Affairs and Minister of Public Works no. 4 Year 1984, PDAM as the clean water sector (SAB) economic actors provide services and regulate public benefits. This implies that PDAMs should be able to formulate objective social interests, tailored to their internal circumstances, and select the area of operation that should be. The second operational step of this objective has been done through the allocation of water to the public hydrant connection terminals. Other operational measures, though less directly correlated with the strategy of increasing the population of service is a clean water supply to the water crisis regions or other disasters.

Strategies for the development of the SAB is motivated by the fact that SAB institutions associated with the taps with other external parties and not run optimally in providing water services. This indirectly puts SAB itself (status quo) in the development of the SAB, the implication is that efforts to find a new institutional structure that is believed to be more effective and efficient can not be realized, and always can cause leakage factor (externalities) which harm either party. With this strategy all the stakeholders expected to look objectively the factors or variables that affect the level of access to clean water and found the agent formulation SAB management more efficient and sustainable.

SAB's institutional development strategy has three objectives. First, build community participation in SAB development. The relationship between PDAMs as producers and customers as consumers is not sufficient in exploring potential benefits in the development of SAB. Community participation must touch the scientific and academic side so as to identify the characteristics of clean water from all points of view and involve professional sectors in their fields. This first target operational step is prioritized to build communication networks among stakeholders involved in SAB development, especially from governments, the private sector, consumers, non-government and research groups. Networking is not enough to facilitate problem solving, but also to run high-quality, rich-incentive communication for the invention of new technologies. The network at the international level that deals with water resources and includes SAB is global water. The next step can be to conduct research on the behavior of clean water consumption and the factors that influence it. Various studies (World Bank 1993, Jordan and Elnagheeb 1993) show that communities can demonstrate their willingness to pay response to new pipeline connections as well as improved water services and water quality.

Second, the goal of developing an efficient and sustainable SAB economic institution. The existence of PDAM as an economic institution of water actors is fully related to the municipal or district government. This situation is in many ways contrary to the economic scale and efficiency of the allocation of raw water sources so that the potential benefits do not materialize as a result of the current institutional structure. The recommended operational step is to formulate the institutional relationship between PDAMs with government and the

private sector in ensuring the efficiency of raw water allocation and customer service operations. Furthermore, the most profitable management options can be arranged, for example: PDAM Surabaya, Gresik, and Sidoarjo have the opportunity to gain relatively large social benefits if they are in a single management. The same can be done between urban and district areas, even mergers in one ex-residency. SAB in Malaysia has only 18 management institutions (Malaysia Water Supply Development, 2001), much more efficient than 307 PDAMs in Indonesia, or 37 PDAMs in East Java. The next operational step is to establish institutional mechanisms that support the PDAM's authority and independence to improve functionally by LGs and technically by the relevant technical directorates. The objectives of developing sustainable economic institutions can be implemented by incorporating environmental variables in PDAM performance evaluation standards, such as applying ISO 9000 or environmental auditing. Thus, the entire production process, the distribution of clean water and the surrounding environment is protected by high quality standards.

Third, develop the legal institutions of SAB. SAB's legal instruments may not be exclusive but may be inherent in applicable law. Incentives in the form of an award should be given to the stakeholders who have contributed to the development or support of the development of the water sector and sanctions imposed on those who violate or counter-productive to efforts to improve water services, so that the availability of water management law.

*Multidimensional Index.* Result from multidimensional analysis of Rapuh Tarakan for water supply based on existing condition, sustainability index value is 52,38% included in continuous status. This value is derived based on the assessment of factors on 34 attributes of the five dimensions of sustainability: environment, economy, social, infrastructure and technology, and legal and institutional dimensions. Multidimensional analysis results with Rap-Tarakan for water supply system can be seen in Figure 2.

The sensitive attribute contributes to the value of the multidimensional sustainability index based on the leverage analysis of each dimension of 13 attributes. These attributes need to be upgraded in the future to improve the sustainability status Tarakan Island's water supply system. The intended increase is to increase the capacity of attributes that have a positive impact on increasing sustainability index values and instead minimize attributes that may have a negative impact or lower the value of the region's sustainability index.

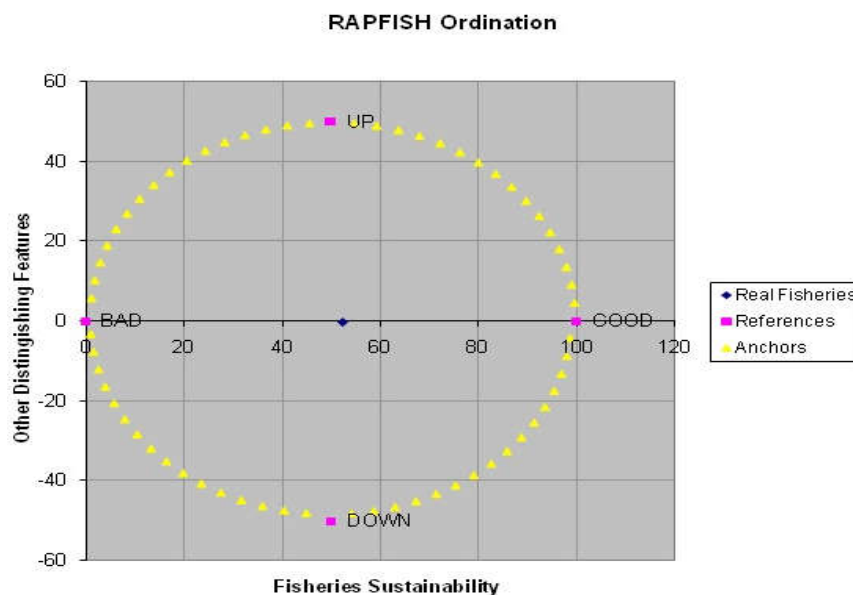


Figure 2 – Multidimensional Sustainability of Water Supply Index in Tarakan Island

Monte Carlo analysis shows that the index value of a clean water supply on the island of Tarakan at a rate of 95% shows the results did not change much with the results of the

analysis of multidimensional scaling (MDS). This means that errors in the analysis can be minimized both in terms of the assessment of each attribute, the variations in the assessment due to relatively small disputes, and the data analysis process performed repeatedly stable, and errors in the input data and lost data can be avoided. The differences in the sustainability index values of MDS and Monte Carlo analysis are presented in Table 1.

Table 1 – Differences value of the index Sustainability *Monte Carlo Analysis* with the Rap-Tarakan

Sustainability Dimensions	Value of the Sustainability Index (%)		Difference
	MDS	<i>Monte Carlo</i>	
Environmental	31,80	32,75	0.95
Economy	88,24	85,67	2.75
Social	57,53	57,21	0.32
Infrastructure and Technology	20,14	22.29	2.15
Legal and Institutional	74,21	73,40	0.81
Multidimensional	52,38	52.18	0.20

Rap-Tarakan results of the analysis showed that all of the attributes studied for sustainability status Tarakan Island for water supply accurate enough to provide better results and be more responsible. It can be seen from the voltage value of only about 13 to 15% and the coefficient of determination (R<sup>2</sup>) obtained ranged between 0.92 and 0.95. This is consistent with Fisheries (1999), which states that the results of the analysis are adequate if the stress value is less than 0.25 (25%) and the value of the coefficient of determination (R<sup>2</sup>) approaches 1.0. Stress and the coefficient of determination (R<sup>2</sup>) are presented in Table 2.

Table 2 – Value of Stress & Determination Coefficient (R<sup>2</sup>) Rap-Tarakan

Parameters	Sustainability Dimensions					
	A	B	C	D	E	F
Stress	0.13	0.13	0.15	0.14	0.15	0.13
R <sup>2</sup>	0.95	0.95	0.92	0.95	0.94	0.95
Iteration	2	2	3	2	2	2

*Description: A = Environmental, B = Economy dimension, C = Social, D = Infrastructure-Technology, E = Legal-Institutional, and F = Multidimensional.*

## CONCLUSION

Based on the provision of clean water on Tarakan Island to existing conditions in the study sites, the sustainable economic dimension and legal and socio-institutional dimensions are sustainable enough to be less sustainable, while the environmental dimensions and infrastructure-technologies are unsustainable. Water supply systems Tarakan have 13 sensitive attributes that need to be corrected to improve the sustainability index. These attributes are divided into 3 attributes of environmental dimensions, 3 attributes of the economic dimension, 2 attributes of social and cultural dimensions, 3 tech-infrastructure attributes, and 2 attributes of legal-institutional dimensions. The strategy of upgrading the clean water supply system's sustainability status on Tarakan Island in the long run in the future, so the scenario that needs to be done is an optimistic progressive by completely combating all the sensitive attributes, at least 3 attributes of key factors of environmental dimensions and infrastructure-technology, namely: (1) the amount of raw water in the catchment and watershed, (2) development of standard water source, and (3) the PDAM water supply service.

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## THE PREDICTION OF WATERS TROPHIC STATUS BASED ON THE CONTENTS OF NUTRIENT AND CHLOROPHYLL-A THROUGH THE TROPHIC INDEX AT THE ESTUARY OF KETINGAN RIVER, SIDOARJO

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### ABSTRACT

Eutrophication is a process of abundant increasing of nutrient contents (nitrate and phosphate) in waters which can stimulate the process of algae blooming and can decrease the quality of waters. This research aims to know the trophic status based on the contents of nutrient and chlorophyll-a at the estuary of Ketingan river, Sidoarjo on March 2018. The main parameter that was measured in this research is dissolved inorganic nitrogen and dissolve inorganic phosphate, chlorophyll-a and the dissolved oxygen that as main component to predict the fertility status by using the TRIX method. The trophic status that was got at the estuary of Ketingan river, Sidoarjo using the TRIX method shows the value of 1.21 to 2.30, means, it is included in oligotrophic waters category.

### KEY WORDS

Eutrophication, estuary, chlorophyll-a, trophic index, waters.

Ariver estuary is as a transition ecosystem between fresh and sea water. An estuary area gets a lot of load of organic materials from the land especially the domestic waste from the settlement which is washed away flowing of river until to the estuary in the sea shore area (Hutabarat and Evans, 2008). The estuary of Ketingan river is located between the Buduran and Sidoarjo Sub Regency-Sidoarjo. This area has potency of waters resource and important life supporting function and used by the people in the society as the catching fish area, fishermen route to the gulf and sea, also as the mangrove conservation in Sidoarjo Regency.

The condition of the Ketingan estuary was turbid enough at that time and was founded a lot of waste. That case can't be separated by the influence of the people's activities in the society. Anthropogenic waste from the household which thrown away to the river can increase the nutrient content, like nitrate (N) and phosphate (P) at the estuary, in which this element is needed for the growth of the aquatic organism, phytoplankton. The height of the nutrient content in the waters can stimulate the eutrophication process that indicates the worse aquatic surroundings (Qiu *et al.*, 2010).

The waters trophic status can be analyzed through the physics, chemistry and biology parameter by using the fertility index approach that in general is illustrated in the three levels; oligotrophic, mesotrophic and eutrophic. The load of organic material usually brings suspended particles, nutrient and dissolved organic materials that will support the process of eutrophication and can cause the decrease of light penetration in the depth of water. It influences the content of chlorophyll-a in waters, because the process of eutrophication usually will stimulate the phytoplankton blooming process if it is supported by the suitable sunlight for photosynthesis. This research has the purpose to know the condition of the trophic status at the Ketingan river estuary in Sidoarjo Regency, based on the content of nutrient and chlorophyll-a by using the trophic index (TRIX) method.

### MATERIAL AND METHODS OF RESEARCH

This research was conducted in the Ketingan estuary and implemented in March 2018, with the number of locations as much as 3 stations (Figure 1) and 3 repetitions.



Determination of the station according to the different character of the waters where station 1 is the estuary area closest to the settlement, station 2 is Permisan bay area, station 3 is the outside of bay area overlooking the sea (Madura strait).



Figure 1 – Research Location Map

The parameters measured include physical, chemical and biological parameters divided into main parameters (DIN, DIP, chlorophyll-a and DO) and supporting parameters (temperature, brightness, current velocity, salinity and pH).

Chlorophyll-a analysis was carried out by taking 1 liter of water samples at the site and inserted in dark bottles, and then stored in a cool box, for analyzed in a laboratory by formula (Parsons *et al.*, 1984):

$$\text{Chlorophyll - a} \left( \frac{\text{mg}}{\text{l}} \right) = \left( \frac{\text{Ca} \times \text{Va}}{\text{V} \times \text{d}} \right)$$

Where:

Va = Aseton volume (10 ml);

V = Filtered water sampel volume (ml);

d = cuvet diameter (1 mm);

Ca = (11,6 x E665) – (1,31 x E645) – (0,14 x E630);

E = Absorbance at different wavelengths (corrected with 750 nm wavelengths).

Trophic status is determined by the TRIX (Trophic Index) method, the scale is classified between 0 - 10 (Table 1) using 4 parameters ie chlorophyll-a, oxygen saturation, total N and P with equation of formula:

$$\text{TRIX} = \left( \frac{\text{Log} (\text{Chl - a} \times \% \text{O}_2 \times \text{DIN} \times \text{DIP}) + 1,5}{1,2} \right)$$

Where:

- TRIX = Trophic index value;  
 Chl-a = Chlorophyll-a concentration (mg/l);  
 DIN =  $\text{NH}_4 + \text{NO}_2 + \text{NO}_3$  (mg/l);  
 DIP =  $\text{PO}_4$  (mg/l);  
 %O<sub>2</sub> = Oxygen saturation [(DO/Doi) x 100%];  
 DOi = Oxygen absolute.

Table 1 – TRIX Scale Factor Index (Tammi et al. 2015)

TRIX Value	Trophic Status
0 < TRIX < 4	Oligotrophic
4 < TRIX < 5	Mesotrophic
5 < TRIX < 6	Eutrophic
6 < TRIX < 10	Hypertrophic

## RESULTS AND DISCUSSION

Water quality can be used as an indicator of trophic status. Water quality conditions at the Ketingan Estuary are presented in Table 2.

Table 2 – Water Quality Measurement Result

Parameter	unit	Time								
		1st			2nd			3rd		
		St 1	St 2	St 3	St 1	St 2	St 3	St 1	St 2	St 3
Temperature	°C	30	31	31	30	31	31	30	30	31
Brightness	m	0,34	0,34	0,37	0,35	0,41	0,42	0,33	0,38	0,44
Current velocity	m/s	0,4	0,3	0,6	0,5	0,2	0,4	0,6	0,5	0,6
Salinity	ppt	0	7	28	1	6	30	1	8	28
pH	-	7	8	8	7	8	8	7	7	8
DO	mg/l	4,1	4,7	5,2	4,2	5,4	5,6	4	4,4	5,3
NH <sub>4</sub>	mg/l	0,06	0,07	0,05	0,08	0,06	0,06	0,08	0,03	0,04
NO <sub>2</sub>	mg/l	0,03	0,01	0,02	0,01	0,001	0,01	0,04	0,01	0,01
NO <sub>3</sub>	mg/l	1,52	1,39	1,23	2,27	1,53	1,21	2,12	1,7	1,84
PO <sub>4</sub>	mg/l	0,19	0,03	0,01	0,27	0,03	0,02	0,31	0,04	0,01
Chlorophyl-a	mg/l	0,44	0,59	0,84	0,51	0,78	1,54	0,39	0,66	1,08

The concentration of dissolved oxygen (DO) ranges from 4 to 5.6 mg/l. Based on Table 2 shows the occurrence of increased DO that leads to the sea. This is allegedly caused by the influence of freshwater inputs from rivers into the bay carrying pollution materials both in organic and organic form. So there is a decomposition of inorganic materials process that can reduce DO levels. According to Giovanardi and Vollenweider (2004), decomposition of organic matter and the oxidation of inorganic materials can reduce DO to 0 or anaerobes. In addition, DO also depends on the mixing and water mass movement process, photosynthesis and respiration activity.

Nitrate (NO<sub>3</sub>) and orthophosphate (PO<sub>4</sub>) concentration during the study activity showed a fairly high number. According to Mustofa (2015), water with ranges 1 - 5 mg/l of nitrate is mesotrophic. In addition,

Effendi (2003) added that nitrate concentrations more than 0.2 mg/l can lead to eutrophication which further able to trigger the rapid growth of algae (bloom), whereas for orthophosphate concentration with values 0.011 – 0.03 mg/l including mesotrophic, and 0.031 – 0.1 mg/l including eutrophic. This high N and P concentration may caused by the influence of anthropogenic activities such as residual water debris of pond farm activities that dominate the area around the estuary. In addition, the settlement at the edge of the estuary (station 1) can be a source of nutrient waste that potentially increases the trophic status of the waters. According to Brigden and Stringer (2000), waste with nitrogen content is largely derived from the secretions of mammals, nitrogen fertilizers, agricultural fertilizers and erosion.

The measured chlorophyll-a concentration during the research ranged from 0.39 to 1.54 mg/l (Table 2). This value indicates a less variable range. Generally the highest concentration of chlorophyll-a is found in areas with the rich nutrients, but it is different from the conditions at the Ketingan estuary. The distribution of chlorophyll-a concentration is relatively higher in the lower nutrient areas, but has a higher brightness value. This indicates that beside of to the availability of adequate nutrients, sunlight is also needed to support the photosynthesis process by phytoplankton, in order to produce chlorophyll-a.

Table 3 – The Waters Trophic Status at Ketingan estuary

Time	Station	TRIX Value	Trophic Status
1	1	1,97	Oligotrophic
	2	1,43	Oligotrophic
	3	1,21	Oligotrophic
2	1	2,30	Oligotrophic
	2	1,61	Oligotrophic
	3	1,70	Oligotrophic
3	1	2,21	Oligotrophic
	2	1,63	Oligotrophic
	3	1,45	Oligotrophic

The TRIX index is one of the most commonly used indexes in assessing the trophic level of a waters in monitoring the condition of aquatic eutrophication through the total parameters of nitrogen, total phosphate, saturated oxygen and chlorophyll-a. The calculation results of the four parameters, will be described based on the criteria of fertility rates. The results of the TRIX index in the Ketingan estuary range from 1.21 to 2.30.

The trophic status indicated by the DIN and DIP content of nutrients gives different trophic status to the TRIX index value obtained. The presence of high N and P nutrients is estimated due to the high input of organic material from the mainland especially from anthropogenic activity waste especially fishery activities (ponds) and households around the estuary of the Ketingan River. Meanwhile, trophic status indicated by the content of chlorophyll-a gives trophic status according to TRIX index, that is oligotrophic water category. This shows that high-low chlorophyll content is not only influenced by the presence of high nutrients, but also the effect of brightness due to the phytoplankton photosynthesis process. As a constituent of phytoplankton biomass (chlorophyll-a), where high brightness (low turbidity) will affect the intensity of sunlight for the continuity of the photosynthesis process. So because of the low brightness in the waters of the Ketingan estuary makes the concentration of chlorophyll-a is low too. This is in accordance with the opinion of Effendi (2003), that the relationship of primary productivity of phytoplankton in the waters is also much influenced by the intensity of sunlight in addition to the presence of nutrients itself.

## CONCLUSION

Trophic status of Ketingan estuary based on TRIX is oligotrophic, with the range value from 1.21 to 2.30. The presence of the nutrient values (Nitrate and Phosphate), indicates the trophic status from mesotrophic to eutrophic. However, the obtained of chlorophyll-a concentration tends to be low and is categorized as oligotrophic, due to the low brightness value at the study site so that the photosynthesis process is very limited.

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**CONE PENETRATION TEST AND PILE REKOMENDATION IN THE RICE FIELD:  
A CASE STUDY AT BOGOR AGRICULTURAL UNIVERSITY OUTSIDE DOMICILE  
STUDY PROGRAM DEVELOPMENT AREA OF SUKABUMI, WEST JAVA**

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**ABSTRACT**

This study was conducted on cone penetration test data existed in the plan area of the Bogor Agricultural University's outside domicile study program. The purpose of this study is to calculate the bearing capacity of piles resulted from cone penetration and material strength, compare the bearing capacity of piles to be recommended. The data collection methodology was done by observation and retrieving data in the field. The layer with conical resistance value ( $q_c$ ) > 250 kg / cm<sup>2</sup> was found in the depth of 7.2 m from existing ground elevation for s1. For s2, it could be found at the depth of 7.6 m from existing ground elevation, while for s3, it was at the depth of 4.8 m from ground elevation.

**KEY WORDS**

Cone penetration test, engineering management, study program, rural development.

In any construction, the first thing to do is the foundation work (bottom structure) and then carries out the upper structure work. To build a foundation is very important on a construction. In general, the foundation is defined as an underground building which forwards the building's internal load and the external load working on the building to the surrounding ground.

The bottom structure of a foundation is also generally divided into two types: shallow foundation and deep foundation. The selection of both depends on the type of upper structure, whether it is light or heavy load construction, as well as the type of soil. For light load construction and good soil surface conditions, the shallow foundation type is adequate. But for heavy load construction, the deep foundation type is an option, and generally, its foundation planning problems are more complicated than the shallow one (Sihotang, 2009).

The CPT methods used in this paper were developed based on data obtained from the friction cone with total cone tip resistance. ( $q_c$ ) measurement. During the past two decades many investigators (Tumay et al. 1982; Campanella and Robertson 1988) have demonstrated the need for correcting the cone tip resistance for the pore pressure generated behind the cone base, especially in soft cohesive soils. Also the CPT can used to provide additional information on pore water pressure measurements (De Ruyter, 1982). Main advantages of using CPT data for geotechnical purposes are, continuous or near continuous readings with depth, repeatable and reliable penetration data, and cost effectiveness (Jakasa, 2000).

Recently Institut Pertanian Bogor (Bogor Agricultural University) inaugurated an Outside Domicile Study Program or Multi-Campus Education located in Sukabumi. It aims to improve the rural communities' accessibility to get a decent education. IPB's PDD is planned to expand about another 20 hectares dedicated to the afrobusiness development zone located in Sukabumi.

Therefore it is necessary to investigate and obtain information in the form of required soil data, both for planning and for implementation. The soil data will facilitate the sub-structure planning and analyze (the bottom of the building). In addition, the data obtained can be at least comparable, particularly to similar soil investigations and provide appropriate stakeholder recommendations for development in IPB's PDD campus area in order to improve agricultural education for rural communities.

## LITERATURE REVIEW

The soil in nature according to Soil Survey Staff (1975), Soil is the collection of natural bodies on the earth's surface, in places modified or even made by man of earthy materials, containing living matter and supporting or capable of supporting plants out-of-doors. Its upper limit is air or shallow water. At its margins it grades to deep water or to barren areas of rock or ice. Its lower limit to the not-soil beneath is perhaps the most difficult to define. Soil includes the horizons near the surface that differ from the underlying rock material as a result of interactions, through time, of climate, living organisms, parent materials, and relief. In the few places where it contains thin cemented horizons that are impermeable to roots, soil is as deep as the deepest horizon. More commonly soil grades from at its lower margin to hard rock or to earthy materials virtually devoid of roots, animals, or marks of other biological activity. The lower limit of soil, therefore, is normally the lower limit of biological activity, which generally coincides with the common rooting depth of native perennial plants. Yet in defining mapping units for detailed soil surveys, lower layers that influence the movement and content of water and air in the soil or the root zone must also be considered. CPT or cone penetration is a cylindrical tool with a conical end. In CPT test, the tool handlebar is pressed into the ground and then provides ground resistance against the tip of the CPT, then friction on the cylindrical blanket is measured.

According to Wibowo (2011), this method is then known by various names such as static penetration test or quasi-static penetration test, dutch cone test, and briefly called sounding which means estimation. In Indonesia, it then called sondir which is taken from the Dutch language. The current CPT is one of the field tests which have been accepted by practitioners and geotechnical experts. The CPT test has demonstrated a benefit for predicting profile or coating soil against the depth as the soil behavioral type has been identified from the combination of end-resistance and friction blankets readings. An important scale measured in the CPT is the end-resistance taken as the width unified penetration force of the CPT tip ( $q_c$ ). The value of this force often indicates the identification of soil type and its consistency. On the sandstone soil, the end-resistance is greater than the fine grain.

The conical resistance value of CPT results in the soil/rock layer can be linked empirically with its strength. In fine-grained soil (clay-silt), the relative hardness level can be determined. While on coarse-grained soil (sand-gravel), the level of relative density can be determined based on the consistency of clay soil based on table 1 from (Terzaghi and Peck, 1996):

Table 1 – The consistency of Clay Soil Based on Result of CPT

The consistency	Conus resistance ( $Q_c$ ) ( $\text{kg}/\text{cm}^2$ )	Friction ratio (%)
Very soft	<5	3.5
Soft	5-10	3.5
Firm	10-35	4
Stiff	30	4
Very Stiff	60-120	6
Hard	>120	6

During classification of soils according to Robertson (1986 or 2010) it is not necessary to input parameters of soils; the program performs this step automatically with their assignment to the geological profile. For this reason, the assessment of the performed CPT is very fast and especially clear. Classification of soils according to Robertson (1986 or 2010) is based on the measured values of penetration resistance  $q_c$ , local skin friction  $f_s$ , pore pressure  $u_2$  respectively. Based on the corrected value of the cone resistance  $q_t = q_c + u_2 * (1 - a)$ , or percentage ratio  $q_c / p_a$  and friction ratio  $R_f = f_s / q_t$  program automatically performs the assignment of soil behavior type (SBT) according to the following graphs.  $p_a$  - atmospheric pressure = 100 kPa (= 1 tsf).

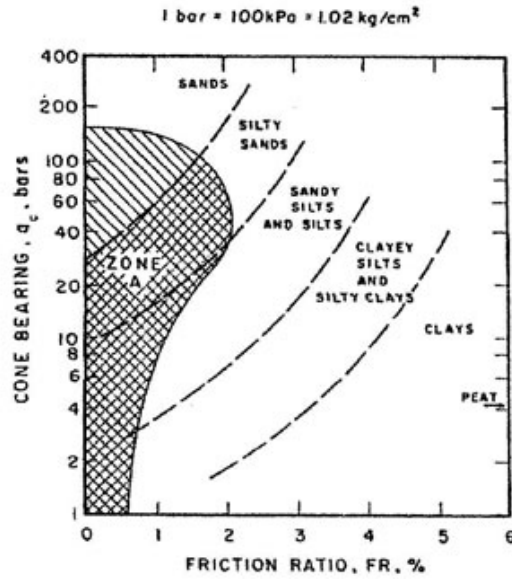


Figure 1 – Classification of soils (Robertson, 2010)

The conical resistance value of CPT results in the soil/rock layer can be linked empirically with its strength. In fine-grained soil (clay-silt), the relative hardness level can be determined. While on coarse-grained soil (sand-gravel), the level of relative density can be determined based on the consistency of clay soil based on table 1:

$$Q_u = q_c \times A_p + JHL \times K_t$$

Where:

- Q<sub>ult</sub> = the bearing capacity of the pile;
- Q<sub>c</sub> = the end-resistance of the CPT;
- A = the sectional area of the pile;
- JHL = number of obstacles sticking along the conical skin;
- K<sub>t</sub> = the circumference of the pile.

After determining the bearing capacity of soil boundaries, next is finding the allowable bearing capacity out. This is intended to prevent the load exceeds soil's retaining limit.

The calculation uses the Meyerhoff formula:

$$Q_{ult} = \frac{q_p \cdot A_p}{3} + \frac{JHL \cdot k l}{5}$$

Where:

- Pa = the bearing capacity of the pile press (TON);
- Qp = the result of CPT conus value (kg/cm<sup>2</sup>);
- Ap = the sectional area of the pile (kg /cm);
- Kil = the circumference of the pile blanket (cm);
- JHL = the number of obstacles sticking along the conical skin;
- FK1 and FK 2 = the security factors, which are 3 and 5 respectively.

However, the calculation of allowable bearing capacity can be calculated by using the material strength. It is intended to prevent the load exceeds material's retaining limit.

$$P_{Pile} = \frac{\sigma_b \cdot A_{pile}}{SF}$$

Where:

- P<sub>Pile</sub> = the bearing capacity of pile press (TON);
- Ap = the sectional area of pile (kg /cm);
- SF = Security Factor 3 – 5.

### METHODS OF RESEARCH

The step to simply determine the exact condition of research location's subsurface was collecting the soil hardness data by conducting the CPT test with a light load CPT device. With the capacity of jacket 2,5 tons, it was attributed with cone jacket adhesion which can measure the value of conical resistance and attached obstacles. The number of data retrieval points was three points with the capacity of 2.5 tons.

The data collection was carried out in the campus area of Program outside Domicile (POD) Bogor Agricultural University precisely in Limusnunggal, Sukabumi, Sukabumi, West Java 43165.

This CPT work was conducted until it had reached hard soil layer, where the value of conus resistance was  $>250 \text{ kg/cm}^2$  or had reached the sticking obstacle of 2.50 tons. The result of the foundation is presented in the form of CPT diagram showing the relationship between the depth of underground CPT and the value of conus resistance as well as the number of adhesive resistance (TF)

From the data of each point, the value of soil boundaries' bearing capacity and the soil permission bearing capacity were calculated. The result will be the basis to calculate for the recommended bearing capacity of the pile.

### RESULTS AND DISCUSSION

Based on the data of soil investigation in the field, the basic soil condition in PDD IPB's campus development area can be explained in the picture below.

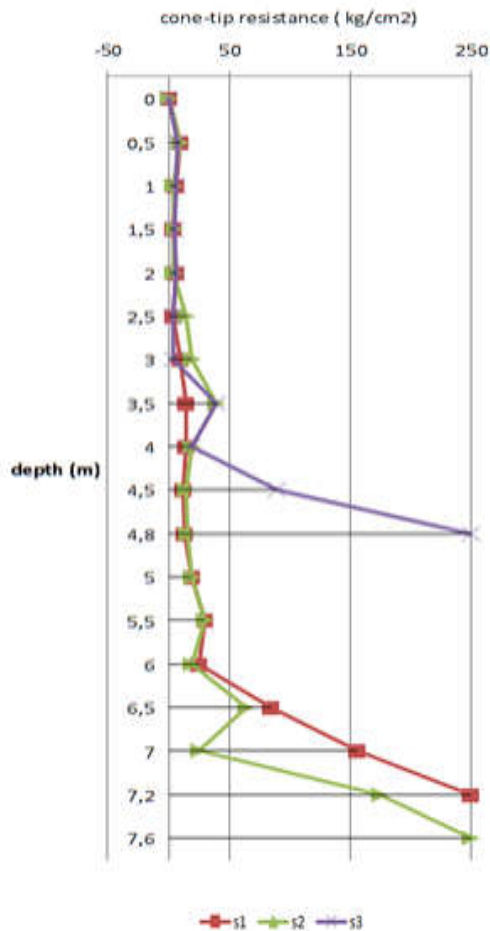


Figure 2 – The Chart of Conus Resistance to Depth

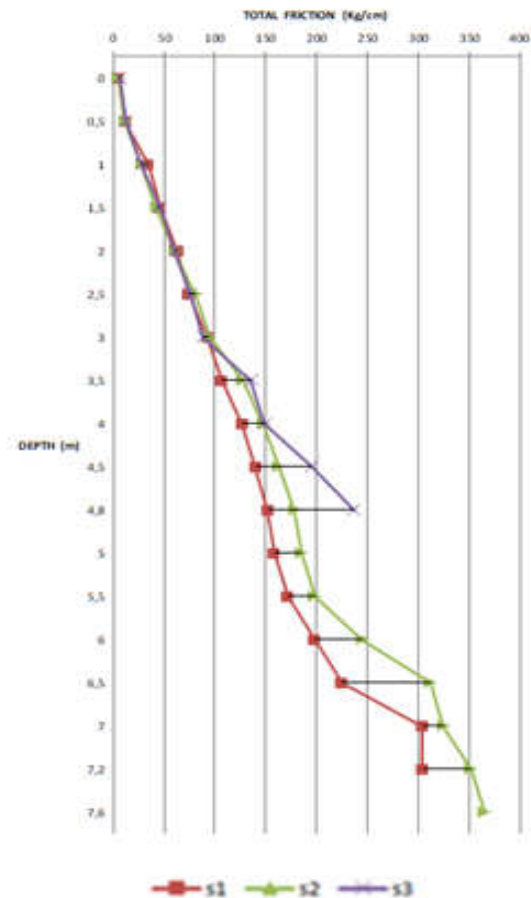


Figure 3 – The Chart of Total Friction to Depth



No	Depth	Soil Description
1	0 - 3 m	Consisted of silty clay layer type with a soft to medium stiff consistency. The yellowish-brown layer has a conical resistance of 4-7 kg/cm <sup>2</sup> and a shear resistance of 5-95 kg/cm.
2	3 - 6 m	It is a type of clayey silt layer with a steady consistency level (medium stiff to stiff). The yellowish-brown color layer has averaged CPT 's conical resistance value (qc) between 10-20 kg/cm <sup>2</sup> and shear resistance of 93 -245 kg/cm, but the result of CPT s3 reaches maximum penetration at depth 4,8 m.
3	6 - 7 m	It is a silty clay to clayey silt layer with a very steady consistency level (very stiff to hard) where the CPT 's conical resistance value obtained is approximately between 30-150 kg/cm <sup>2</sup> and shear resistance of 245- 352 kg/cm.
3	>7 m	It is a hard-layer soil where the CPT 's conical resistance value (qc) reaches the maximum tool capacity of 250 kg/cm <sup>2</sup> and shear resistance of more than 352 kg/cm.



Figure 4 – Research Location

Therefore, for buildings with light loads, the use of shallow type foundation will be at risk of decline, but it can still be applied as long as the workload is still smaller when compared to the bearing capacity of the basic soil permission in the existing area. It can be assessed by gut sanglerat calculation:

$$q_a = \frac{q_c}{SF} \text{ sf } \dots \dots \dots > 20$$

$$q_a = \frac{q_c}{20}$$

$$q_a = \frac{4}{20} = 0,2 \text{ kg/cm}^2$$

From the calculation above, it can be stated that the existing layer of soil with a depth of 1 m has the basic soil bearing capacity by 0.2 kg/cm<sup>2</sup>

The analysis of pile foundation's bearing capacity in the opening area of IPB's Outside Domicile Study Program aimed to know the bearing capacity of the pile against the load. The recommendation of pile dimension would be divided into two, namely, mini pile with k450 and bore pile with k250 concrete.

The analysis performed in Table 2 show that the soil resistance can withstand the maximum load charged by the mini pile, making it less likely to degradation of the soil.

Table 2 – The recommendation of mini pile K-450 and conus resistance of 250 kg/cm<sup>2</sup>





Dimension (cm)	The bearing capacity based on the conus resistance (ton)	The bearing capacity based on material strength (ton)
 20x20	36	36
 25x25	56	56
 28x28x28	39	35
 32x32x32	49	46

Table 3 – The recommendation of bore pile K-225 and conus resistance of 250 kg/cm<sup>2</sup>

Diameter (cm)	The Bearing Capacity Based on Conus Resistance (ton)	The Bearing Capacity Based on Material Strength (ton)
40	114	57
50	175	88
60	249	127

The analysis performed in Table 2 shows that the ground resistance can withstand the maximum load charged by the bore pile so that it is less likely to degradation of the soil. The contractor can also add the quality of concrete to k-400 to increase the bearing capacity of material at the stake.

### CONCLUSION

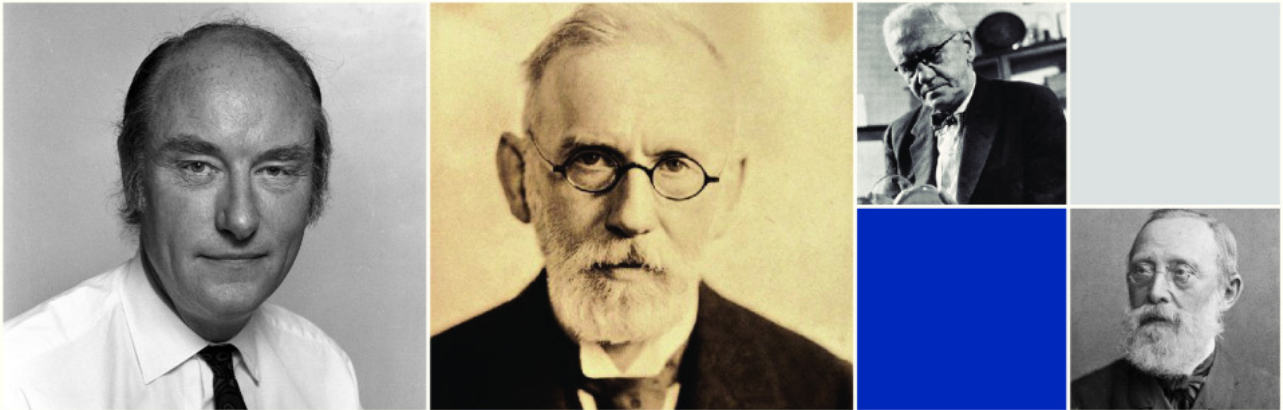
From the result of soil investigation above, it is noted that the layer with CPT conical resistance value ( $q_c$ ) > 250 kg/cm<sup>2</sup> was found in the depth of 7.2 m from the ground elevation for s1. For s2, it could be found at the depth of 7.6 m from the ground elevation, while for s3, it was at the depth of 4.8 m from the ground elevation. The 'h' existing, as well as the recommended mini pile and bore pile, are proposed to ensure that the material resistance does not exceed conus resistance to avoid a soil degradation.

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