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The 1<sup>st</sup> International Conference on  
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# **The 1<sup>st</sup> International Conference on Sciences and Technology**

*December, 1-2, 2016 Mataram, Lombok-NTB, Indonesia*

## **PREFACE**

Bismillaahirrahmaanirrahiim  
Assalaamu'alaikum warahmatullaahi wabarakaatuh.

Praise always we pray to God Almighty for giving us the abundance of grace, guidance and inayah, so that we all can met in the "1<sup>st</sup>International Conference on Science and Technology (ICST) 2016". ICST is a conference where researchers can share and publish their scientific papers about science and technology. The theme of this conference is "Emerging Innovation on Science and Technology for Sustainable Development".

This conference was done for two days, from 1<sup>st</sup> to 2<sup>nd</sup> December 2016, and took place in the Green Campus of the University of Mataram.

We received more than one hundred papers from various universities and research institutions in Indonesia and from overseas, but not all of the papers were published in this proceeding. The paper has been selected and grouped based on the similarity of the research field, which then are presented and discussed. Presentation of the papers will be held in eight parallel classes.

At this moment, the organizing committee would like to expressour gratitude to all of you who have participated this conference, especially to the all keynote speakers, presenters who have submitted posters or orally presented papers and also to the participants. Our special gratitude also goes to the Rector of the University of Mataram who has been highly supporting this conference. Last but not least, the organizing committee would like to thank to all of you who have supported this conference.

Wassalamu'alaikum warohmatullahi wabarakatuh.

Chairman of 1<sup>st</sup> ICST 2016

Dr. Satrijo Saloko

# **The 1<sup>st</sup> International Conference on Sciences and Technology**

*December, 1-2, 2016 Mataram, Lombok-NTB, Indonesia*

## **OPENING SPEECH - RECTOR THE UNIVERSITY OF MATARAM The 1<sup>st</sup> International Conference on Science and Technology 2016**

Respected Guests,  
Keynote speakers,  
Conference participants,  
and all other participants.

On Behalf of all staffs of the University of Mataram, I welcome you all to Lombok, a beautiful island in West Nusa Tenggara Province, where the University of Mataram is located. Lombok is known for its natural and cultural diversity where you can enjoy traditional cuisines, beaches, waterfalls, mountain, traditional villages and handicraft of many ethnics including Sasak, Samawa, Mbojo, Balinese, Chinese, Arabic, and many others.

As the Rector of the University of Mataram, it is a great honour for me to address the opening of “The 1<sup>st</sup> International Conference on Science and Technology” here at the University of Mataram, which will be held from 1<sup>th</sup> to 2<sup>nd</sup> December 2016, with a theme “Emerging Innovation on Science and Technology for Sustainable Development”. The main aim of this seminar is to gather scientist from all over the world to share their ideas, knowledge and experiences and to build network for possible future collaboration.

As we are aware that sharing knowledge and experiences from speakers are extremely valuable in a conference, therefore I would like to express my high appreciation, first, to the keynote speakers from overseas and from Indonesia for their willingness to come to Lombok to share their acknowledged works. Your effort and contribution to this conference are absolutely valuable. Second, my high appreciation also goes to the national speakers and all other participants, including the speakers from University of Mataram and local universities in West Nusa Tenggara Province, your participation in this conference not only will give incredible share of ideas, skills and knowledge that

## **The 1<sup>st</sup> International Conference on Sciences and Technology**

*December, 1-2, 2016 Mataram, Lombok-NTB, Indonesia*

you have, but also will improve the academic environment that we are developing in this university. I hope this conference will be a good forum, not only for communicating and sharing ideas, knowledge and experiences, but also for building networking for future collaboration.

I would also like to take this opportunity to express my appreciation to the sponsors which have given some contribution to this conference. Last but not least, I would like to thank the organizing committee as well as all other supporters and participants, without their effort, commitment and hard work, this conference will not run well.

Finally, I wish you most successful conference, enjoy Lombok Island and hope to see you again in other forum here at the University of Mataram.

Rector of the University of Mataram

**Prof. Ir. Sunarpi, Ph.D**

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Ronnie S. Natawidjaja, Irlan A Rum, Bayu Wijayanto



## **The Performance of Production and Price of Rice In South Sumatra**

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### **Abstract**

Availability of basic foodstuffs, especially rice production affected by the amount of rice in an area. South Sumatra province as one of the breadbasket regions should always maintain the stability of foodstuffs, especially rice required by the community. The government is always trying to improve production and keep prices of rice are in the favorable conditions for farmers and consumers. The government will face food price dilemma, where farmers want higher rice prices, but consumers want instead. This paper aim to analyze the performance of rice production, productivity, and the price in South Sumatra. This study is collecting secondary data from BPS, period 2010 until 2014. Statistically, South Sumatra have a surplus of rice every year. In such conditions, the problem of food security in South Sumatra determined more on the aspects of accesibility (people's purchasing power) and continuity of food availability between seasons. South Sumatra province accounted for 21.55 percent of Sumatra's rice production or 5.04 percent of Indonesia's rice production with an average production of 2,170,638 tons per year. South Sumatra rice production on average showed an increasing trend from 2010 to 2014. Compared with the average productivity of Indonesian rice by 5.08 tons per hectare, South Sumatra rice productivity only reached 4.39 tons per hectare. The average price of grain in South Sumatra that was converted rice equivalent is about Rp7,652.31 per kilogram while the average price of rice at Rp8,394.16 per kilogram. It means that there is a differences about Rp741.86 per kilogram. There is a fairly large difference in price between the producer prices to consumer prices, indicating that there are imperfect price transmission from retail market to producers.

**Keywords:** *foodstuffs, price, production, productivity, rice*

### **1. Introduction**

Accessibility to rice food can be seen from the stability and level of rice prices. Foodstuffs should always be available in sufficient quantity, feasible quality and medically safe for consumption. These factors are economically related to the purchasing power of the people, so the price of food products must be affordable for consumers. Affordable prices does not mean that food prices should always be low or cheap, because it is actually cause many disadvantage on farmers and the ability of national food security, Husodo[1].

South Sumatra is one of the rice producing areas which quite large in Indonesia. South Sumatra became the sixth center of rice production in Indonesia or third outside Java island after South Sulawesi and North Sumatra. In 2008 the South Sumatra province is contribute to 4.82 percent of the national rice production, Aryani [2]. South Sumatra province as one of the breadbasket regions should always maintain the stability of foodstuffs, especially rice required by the community. The government is always trying to improve production and keep prices of rice are in the favorable conditions for farmers and consumers as well. The government will face food price dilemma, where farmers want higher rice prices, but consumers want instead, Yustiningsih [3]. The objective of this study was to analyze the performance of rice production, productivity, and the price in South Sumatra.

**2. Materials and Method**

This study is collecting secondary data from BPS, period 2010 until 2014. Collection of data is done by using documentation method, it is research method that obtained by collecting data, records and reports objective data obtained from the source. The collected data were processed mathematically and described descriptively. To answer the research objective, it is quantitatively analyzed with descriptive statistics. The results described in descriptive analysis supported by facts and phenomena. Analysis relative deviation from the average price of rice at the level producers (farmers) and consumers which expressed by the standard deviation.

**3. Results and Discussion**

**3.1. Rice Production and Productivity**

Availability of basic foodstuffs (rice) affected by rice production in an area. In 2015, the average production of *padi sawah* in South Sumatra reached 4,998 tons per hectare, while the average production of *padi ladang* reached 2,769 tons per hectare, BPS South Sumatera [4]. Data of rice production over the last five years in South Sumatra province than provinces in Sumatra Island and the national rice production can be seen in Table 1.

**Table 1 Rice production in Sumatra Island and Indonesia, 2010-2014**

Province	Production (Tons)						Percent	Productivity (Tons/Ha)
	2010	2011	2012	2013	2014	Average		
Aceh	992.793	1.112.356	1.122.254	1.227.784	1.141.938	1.119.425	11,11	4,65
North Sumatra	2.247.536	2.263.285	2.331.113	2.338.476	2.276.815	2.291.445	22,75	4,89
West Sumatra	1.387.337	1.430.222	1.485.928	1.524.823	1.580.433	1.481.749	14,71	4,94
Riau	360.670	336.153	321.324	272.382	241.847	306.475	3,04	3,65
Jambi	394.527	405.703	392.228	416.929	417.045	405.286	4,02	4,25
<b>South Sumatra</b>	<b>2.053.136</b>	<b>2.123.542</b>	<b>2.067.438</b>	<b>2.306.776</b>	<b>2.302.299</b>	<b>2.170.638</b>	<b>21,55</b>	<b>4,39</b>
Bengkulu	324.284	315.301	365.090	390.765	372.170	353.522	3,51	4,01
Lampung	1.761.536	1.845.055	1.945.853	2.012.073	2.083.163	1.929.536	19,16	4,92
Babel Island	13.965	9.543	14.051	17.868	14.732	14.032	0,14	2,71
Riau Island	782	767	830	860	880	824	0,01	3,41
Sumatra's Rice Production	9.536.565	9.841.928	10.046.109	10.508.736	10.431.322	10.072.932	100,00	4,18
Indonesia's Rice Production	41.702.898	41.255.882	43.325.813	44.720.889	44.439.842	43.089.065		5,08

Source: BPS, 2015

Over the last five years (2010 to 2014), the average production of rice in Sumatra Island amounted 10,072,932 tons or 23.38 percent of Indonesia's rice production. South Sumatra province contributes 21.55 percent of Sumatra's rice production or 5.04 percent of Indonesia's rice production with an average production of 2,170,638 tons per year. South Sumatra rice production on average showed an increasing trend from 2010 to 2014. This is in line with previous research which of the results shown that the trend of harvested area, production and productivity of rice in South Sumatra showed an upward trend from 1991 to 2010, Aryani, [2].

High rice production in South Sumatra, was not accompanied by high productivity as well. The level of rice productivity in South Sumatra, is not higher than other provinces that have lower production (province of West Sumatra, Lampung and Aceh). Compared with the average productivity of Indonesian rice by 5.08 tons per hectare, South Sumatra rice productivity only reached 4.39 tons per hectare. South Sumatra proclaimed as one of the national food basket, as a regional breadbasket, production of rice from South Sumatra greatly

affect the national rice production. In 2014 rice production reached 2,302,299 tons in South Sumatra contributes 5.18 percent of the total national production amounted 44,439,842 tons. The ability of rice production in South Sumatra varies between regions (districts/cities) and between seasons. There is no clear mechanism rice arrangement in South Sumatra, although the region barns but in real terms still import rice from outside the region and abroad. Rice from South Sumatra sold to other provinces, this is because of almost all the rice producers in South Sumatra bordering to other provinces that have better access in transportation. In line with these studies, the results of research, Aryani [2] concluded that there is rice distribution in and out of South Sumatra Province. Rice that traded on South Sumatra not only from the production of local farmers in the province but also came from outside the province, among others, Lampung and West Java. Likewise the marketing area of rice is not just to local consumers in the province, but also to consumers outside the province, among others, the provinces of Bengkulu, Jambi, Riau and Padang.

### 3.2. Rice Price

As one of the provinces with a high level of rice production, South Sumatra have a surplus of rice every year. High rice surplus in one area can distinguish two things, the surplus can guarantee the food security of high society in the aggregate. On the other hand a large surplus if it is not accompanied by the ability to distribute the excess production to other areas, it can create excess domestic market demand, consequently the price may fall so low that can adversely affect economic conditions, Majdah [5].

Based on the BPS [6], the average rice retail price in the traditional markets of South Sumatra (Palembang) in 2014 amounted Rp 10,248.70 per kilogram. The price is higher than the average rice retail price in Aceh, Tanjung Pinang, Jambi and Pangkal Pinang, which is not a regional center of rice production in Indonesia. In average from 2010 to 2014, retail price of rice in South Sumatra is amounted Rp 8,413.17, it is higher than the two other provinces in Sumatra Island of Jambi and Pangkal Pinang (Table 2).

**Table 2. Average rice retail price and standard deviation in Sumatra Island (2010-2014)**

Province/ City	Rice Retail Price (Rp/Kg)						Standard Deviation
	2010	2011	2012	2013	2014	Average	
Banda Aceh	6.993,89	8.247,31	8.643,80	9.264,79	9.299,34	8.489,83	945,55
Medan	6.954,47	7.725,61	7.881,98	8.286,99	8.665,60	7.902,93	644,33
Padang	8.007,47	9.878,17	9.721,15	9.921,76	10.548,13	9.615,34	952,56
Pekanbaru	7.888,78	9.600,82	9.775,81	9.976,67	10.832,45	9.614,91	1.074,58
Tanjung Pinang	9.350,89	8.031,48	8.733,38	9.135,93	9.431,23	8.936,58	573,71
Jambi	7.335,81	7.631,13	8.376,95	8.562,53	8.871,08	8.155,50	646,84
<b>Palembang</b>	<b>6.824,81</b>	<b>7.643,67</b>	<b>8.459,45</b>	<b>8.889,22</b>	<b>10.248,70</b>	<b>8.413,17</b>	<b>1.295,47</b>
Pangkal Pinang	6.712,67	7.667,32	8.430,09	8.655,33	9.151,35	8.123,35	952,87
Bengkulu	6.742,39	7.556,16	8.673,44	9.349,06	10.866,17	8.637,44	1.599,63
Bandar Lampung	6.515,60	10.574,74	11.487,14	12.978,43	13.445,72	11.000,33	2.757,89
Indonesia	7.175,63	8.126,82	8.858,73	9.198,37	9.760,20	8.623,95	1.002,61

Source: BPS, 2015

Agricultural and food products including rice considered relatively homogeneous, the price difference between regions shows distortion caused by the difference in quality, but it probably because of their market power, inefficiency and policy distortions. Marketing margins may be affected by market forces or inefficiency food marketing chain. Competitive market encourages the determination of marketing margin rises, pushing for increased efficiency on the integration of vertical markets from producers to retail in particular for food commodities, Bojnec and Peter [7].

The grain price in producer level and rice price in consumer level are likely to show any differences. From the grain prices data that has been converted to rice equivalent (0.6274%) there is a quite large price difference, it indicates that the presence of imperfect price transmission from retail market to market producers. For five years (2010 - 2014) in South Sumatra, the average price of grain that was converted to rice equivalent is about Rp 7,652.31 per kilogram while the average price of rice at Rp 8,394.16 per kilogram. It means that there is a price difference of Rp 741.86 per kilogram (Table 3).

**Table 2. Average Price of Grain and Rice in South Sumatra Toward HPP**

Description (Rp/Kg)	2010	2011	2012	2013	2014	Average
Grain Price	4.154,17	4.337,21	4.882,88	5.068,07	5.562,96	4.801,06
Conversion of Rice	6.621,24	6.912,98	7.782,73	8.077,89	8.866,69	7.652,31
Rice Price	6.824,81	7.631,13	8.376,95	8.889,22	10.248,70	8.394,16
Difference	203,57	718,15	594,22	811,33	1.382,01	741,86
Grain HPP	3.300,00	3.300,00	4.150,00	4.150,00	4.150,00	3.810,00
Rice HPP	5.060,00	5.060,00	6.600,00	6.600,00	6.600,00	5.984,00

Source: BPS, 2015

Table 3 shows the gap between producer prices to consumer prices in South Sumatra. From 2010 to 2014 the prices range seen fluctuating and it continues to increase, where in 2010 the difference only amounted Rp 203.57 per kilogram, it increased to Rp 1,382.01 per kilogram in 2014. The determination of HPP by government is expected to help farmers to stabilize prices and fulfill their rice supply in the lean season. But in reality the welfare of farmers is not increased, farmers feel harmed by the policy, Sawit and Halid [8]. HPP determined by the government has always been far below the market price, HPP tend to not responding of price changes in the market. HPP both grain and rice remained unchanged during the period 2010 - 2011 and 2012 - 2014, does not follow the dynamic changes in the market prices that continue to rise.

#### 4. Conclusion

South Sumatra province has an average rice production of 2,170,638 tons per year, it contribute to 21.55 percent of Sumatra's rice production or 5.04 percent of Indonesia's rice production. South Sumatra's rice production showed an increasing trend from 2010 to 2014. Compared with the average productivity of Indonesian rice by 5.08 tons per hectare, rice productivity of South Sumatra only reached 4.39 tons per hectare.

Average grain price in South Sumatra that was converted to rice equivalent is about Rp 7,652.31 per kilogram while the average rice price is Rp 8,394.16 per kilogram. It means that there is a difference about Rp 741.86 per kilogram. There is a fairly large price difference between the producer prices to consumer prices, it is indicate imperfect price transmission from retail to producer market. HPP determined by the government has always been well below the market price, HPP tend to not responding of price changes in the market.

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