ORNE_DISEASES_IN_WETLAND_ECOSYSTEM_BANYUASIN,_SOUTH_SUMATERA.pdf

by Totong Kamaluddin16

Submission date: 15-Sep-2020 12:05PM (UTC+0700)
Submission ID: 1387472536
File name: ORNE_DISEASES_IN_WETLAND_ECOSYSTEM_BANYUASIN,_SOUTH_SUMATERA.pdf (351.88K)
Word count: 6212
Character count: 31480

AARJMD VOLUME 1 ISSUE 19 (MARCH 2014) ISSN : 2319 - 2801

A Peer Reviewed International Journal of Asian Academic Research Associates

AARJMD

ASIAN ACADEMIC RESEARCH JOURNAL OF MULTIDISCIPLINARY

EPIDEMIOLOGY STUDY OF WATER-BORNE DISEASES IN WETLAND ECOSYSTEM BANYUASIN, SOUTH SUMATERA

DIANITA EKAWATI*;TAN MALAKA;ROBIYANTO H SUSANTO***;M.T. KAMALUDDIN****;DWI SETYAWAN*** ****

*Doctoral student, Postgraduate Program on Environmental Management, Sriwijaya University, Palembang Indonesia

**Faculty of Medicine Sriwijaya University Palembang Indonesia

***Faculty of Agriculture Sriwijaya University Palembang Indonesia

*Faculty of Medicine Sriwijaya University Palembang Indonesia

**Faculty of Agriculture Sriwijaya University Palembang Indonesia

Abstract

Aim : to find the frequency of infectious diseases through the water and explore the relationship of risk factors with the occurrence of water-borne diseases in the area of wetlands Banyuasin, South Sumatra.

Material and Methods: Monitoring the quality and quantity of water used daily. Patients with disease data were collected for 5 years, and then to monitor the frequency of the disease for 3 months. Then conducted a case-control study with a sample size of 300, with 100 cases and 200 controls. The study population is the population that resides in the village Telang Jaya, Telang Rejo and Telang Karya.

Results: The biggest source of domestic water used rain water community (43.33%), 37.14% of pool water. In domestic water during the dry season, the amount is less for everyday needs. Diarrhea and skin is the largest waterborne diseases, with the highest incidence rate of diarrhea in the village Telang Jaya in July 2011, while persons with risk factors for lack of water supplies has 3.461 times the risk; poor sanitation has 2.768 times the risk and healthy home has 2,757 times the risk for suffering from diarrhea.

Conclusion: Waterborne diseases namely Diarrhea largest and unavailability of domestic water that meets the standards provide risk 3,461 times (Odds ratio 3,461) to cause diarrhea in the study site. The spread of waterborne diseases in the location associated with the availability of domestic water, sanitation, healthy homes and clean and healthy behaviors.

Key words : Epidemiology, Water, Disease, Wetland

Introduc tion

Infectious diseases that are transmitted through water, air, food, vector is still a priority public health issue, because case and the death occurs in a short time. Infectious diseases have infectious properties that may cause unusual epidemic giving rise to losses[7]. The spread of infectious diseases associated with human activity, including deforestation, dam-construction, community settlements, drying, and climate change[21].

Health problem in an area can be answered with the known pattern of disease that are prominent in the area. The pattern of disease in low per capita income countries suffer many infectious diseases, while the high per-capita income countries tend to suffer from the disease is not contagious. In the condition of the environment within the community, its economic and social circumstances of its nutrition value is low, it will be easy going bad the transmission of the disease, especially in children. Including the children's age who are sensitive to infectious disease and as a result many children's deaths occurred so that the short life expectancies[21].

The data shows that cases of Diarrhea in the South Sumatra from 2011 to September 2013 was the city of Palembang, and followed by the District of Banyuasin as much as 30.582 cases in 2011. Based on observation of epidemiologic surveillance of diarrhoea in 2010-2013 the highest case was discovered in September.

The distribution of the disease sufferers seek treatment to health clinics in district of Banyuasin in 2008 as follows: Rheumatic diseases as much as case 31235 (25.3%), Diarrhea as much as 20483 cases (16.6%). Total Acute respiratory tract infections 14563 cases (11.8%), Gastritis as 13190 cases (10.7%), Dental caries as 9097 cases (7,39%), other Eye diseases as much as 7943 cases (6,45%), accidents and Malaria clinical as 6885cases (5.59%), Influenza as much as 6696 cases (5.44%), and Bronchitis as 5583 cases (4.53%)[8].

Based on the study of literature as articulated above, which is done in stages of the preparation of the study, found that various studies that have been conducted relating to wetlands is

still focused on the study of the breeding place and the resting place of the mosquito disease spreaders are sourced on the beast, water quality analysis of product coverage, well water, climate change and infectious diseases. Research on the pattern of the spread of infectious diseases through the water and environmental sanitation in relation to wetland areas have been examined and the number of infectious diseases that occur in the area of wetlands raises interest to inspect it.

Wetlands area is an area of potential contributor to communicable diseases when the environment is not controlled, the more people who suffer pain then the big losses suffered, for it needs to be thought out efforts of disease prevention that can be transmitted through the water by observing the relationship of environmental factors and the incidence of such diseases. The area is an area of Telang Jaya wetlands and into government development priority area, which is directly related to the Musi River. When the river water in tidal conditions, the volume of water and increased water levels even cause floods. The influence of floods can be a source of infectious diseases. When low tide conditions, the community tend to use rain water, swamp water as a source of water and it is also likely to contribute to the incidence of infectious diseases.

The study of aims to finding spread of waterborne diseases and to determine risk factors related to disease of current in the wetland area of the South Sumatera.

Materials and Methods

This research was carried out in Telang disctrict of Banyuasin. The location was selected based on the tidal marsh land hidrotopografi the 3 villages namely Telang Jaya village, Telang Karya village and Telang Rejo village. The rationale for the selection of study sites is Telang Jaya Village is a pedestrian village of hidrotopografi into a category C which is a swamp area that never highest tide from the tidal variations in river water but the tide still affects the groundwater never advance from 50 cm below the face of the land, Telang Karya Village is the swamp with hidrotopografi into category A, where the swamp was always be drowned by the tide's highest tidal variations of river water. Telang Rejo village is a swamp with

hidrotopografi into category B, where the swamp is not always be drowned by the tide's highest tidal variations of river water.

The study takes place through three stages of research :

Done by collecting data on the environment, sampling the water that comes from each source of domestic water to be used for the purposes of everyday life. Water samples are taken and examined in Technique Center for Environmental Health Disease Control Class I Palembang. Water sample taken comes from each source of water used by the community to the needs of everyday life, in this case a sample of well water, rain water, drinking water, refill water swamps, and river water. Specifically for river water taken at the time of the tidal conditions and conditions recede. The water of the river is derived from primary, secondary channels funnel in each village. Water quality checks carried out in the laboratory by doing a physical exam, the chemical is limited and purity checks.

Data collection begins with a gather secondary data about the number of pain and death caused by infectious diseases through the water for 5 years starting in the 2006-2010 in research area. Furthermore conducted observation for 3 months by applying the principle of epidemiologic surveillance/observation data obtained will be diseases and diseases suffered by people in 3 locations research. Monitoring is carried out for 3 months on the grounds that as the image data obtained by comparing the results of the clinical diagnosis in each month.

After that used case-control study used a case-control design. Statistical analysis is then conducted to look at the strength of the relationship dependent variable and independent, seeking a dominant risk factor for the occurrence of water-related diseases.

Theory and Calculation

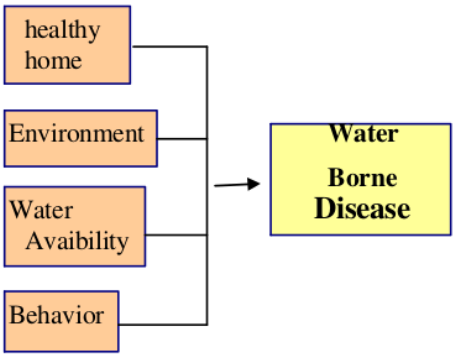


Figure1. Theoretical framework of the research

This study adopts the theory of Bloom, L.Green and Gordon.

The number of samples obtained using the calculation :

$$n = \frac{(p0.q0 + p1.q1)(Z1 - / 2 + Z\ 1\text{-}ß)^2}{(p1 - p0)^2}$$

Description :

n = number of samples a minimum of cases and controls
Z1 - / 2 = value on the standard normal distribution is equal to the rate of significance (1.96)
Z1 - ß = value on the standard normal distribution is equal to the power of desirable (1.28)

p0 = proportion of exposure in the control group or no pain = 0.5
p1 = proportion of exposure in the case group
qo = 1 - p0 and q1 = 1 - p1
n = 100
Comparison of cases and controls = 1 : 2 , then the total number of samples 300 people.

The sample size in each area is determined by the Probable proportional to size (PPS) Based on the above calculation of sample size (300), then the sample size can be determined in each village as follows: Telang Jaya village 92 samples, Telang Rejo village 97 samples and Telang Karya Village 111 samples.

Results

Laboratory examination for physical examination to see that turns the color and turbidity parameter are not eligible either either at the time the condition of the tide and low tide. As for chemical examination of pH water enters into the category of acid and to the village of Telang Karya (low tide) and Telang Karya (tide), water conditions for normal Fe content. The water stream conditions both in the Telang Jaya high tide and low tide contain KMnO4 does not comply with the quality standard.

Table 1. Results of laboratory test of water wells are not qualified based Permenkes RI.No. 416/Per/X/1990.

NO	Locations	Results Test					
		Physical			Chemistry		
		Parameter	Standart	Results	Parameter	Standart	Results
1	Telang Karya	Turbidity Colour	25 50	18, 21 54	pH	6,5 - 9,00	5,89
2	Telang Karya	Colour	50	60	pH	6,5 - 9,00	6,02
3	Telang Karya (Bidan Erlin)	Colour	50	77	pH	6,5 - 9,00	6,3
4	Telang Karya	Qualify					
5	Telang Karya	Qualify					
6	Telang Rejo				pH	6,5 - 9,00	5,92
7	Telang Rejo				pH	6,5 - 9,00	4,88
8	Telang Rejo				pH	6,5 - 9,00	4,49
9	Telang Rejo	Colour	50	55			
10	Telang Rejo	Qualify					
11	Telang Jaya	Colour	50	56			
12	Telang Jaya	Turbidity Colour	25 50	71 23 7	KMnO4	10	37,604
13	Telang Jaya (Sumarto)	Turbidity Colour	25 50	40, 24 11 1	pH	6,5 - 9,00	5,78
14	Telang	Colour	50	77	pH	6,5 -	5,65

	Jaya					9,00	
15	Telang Jaya	Qualify					

Based on the results of laboratory test showed that water in the area of research a lot of locations that do not correspond to the quality of the raw water is clean and does not deserve to be consumed by the community where the water is cloudy, colored, containing iron and pH acid. Similarly for purity test where all the samples examined shows entirely unqualified.

Test results showed the water quality of the river water does not deserve to be the source of domestic water.

Table 2. Water Quantity in Telang

No	Locations	the number of head of family	Needs (L/person/ day)	Needs (5 person/L/ family/ day	needs during the dry season (L)
1	Telang Jaya	488	138,5	337.940	51.704.820
2	Telang Rejo	512	138,5	354.560	54.247.680
3	Telang Karya	588	138,5	407.190	62.300.070
Total		**1.588**	**138,5**	**1.099.690**	**168.252.570**
Water availibility (Banyuasin)/year				26.389.062 x 1000m3	

Domestic water needs high in the research area and source of domestic water is well, rivers, rain water, pond water while local water company (PDAM) does not exist so that when the dry season comes down, the public will use river water for daily needs.

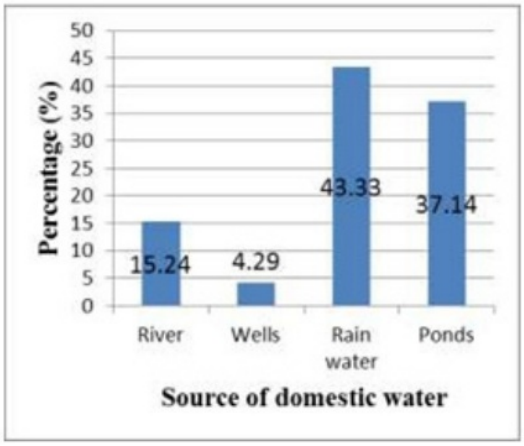
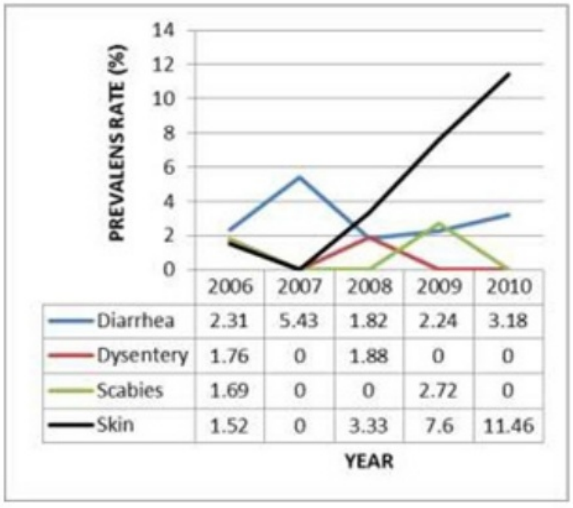


Figure 2. Percentage (%) source of domestic water in area research.

The above table shows domestic water source most used by the public is rainwater (43,33%).



Source : Public health center, 2006-2010.

Figure 3. Prevalence Rate (%) in the majority of water-borne diseases Public health center, 2006-2010.

Data development of a disease each year is useful in order to local area monitoring diseases likely occurrence of extraordinary events/outbreaks, including diseases that are spread through the air. The monitoring of disease trends by considering the maximum and minimum pattern so that the system of early warning of the outbreaks/plague can be accomplished. Variable time is one of 3 things that need to be analyzed in the study of epidemiology. The element of time reflecting the change in the factors etiologis and change the number of pain/death.

Data survey results diarrhea rate pain diarrhea in 2000 was 301/1000 population, 2003 was 375/1000 inhabitants, as of 2006 of 423/1000 inhabitants. Deaths from diarrhea in toddler 75,3/100,000 toddlers and all age 23.2/100,000 population all age.

Diarrhea is the leading cause of death no. 4 (13.2%) in all age groups of infectious diseases, the leading cause of death baby (31.4%)[8].

The following table of disease monitoring done during 3 months period of observation, is intended to find out the incidence rate of diseases that exist in the area of wetlands Telang. Observations of the disease began in May to July 2011.

Diarrhea diseases continue to be found each year where the biggest diarrheal disease discovered in 2007, then the case is declining and the 2009-2010 year is rising again.

Table 3. a frequency distribution disease in three months observation

No. ICD-10	The name of a disease	Times (2011)			Total
		May	June	July	
J10- 18	ISPA	107	110	118	335
I 10 - I15	Hypertension	38	46	48	132
A04.0 - A.04.4	**Diarrhea**	**111**	**80**	**134**	**325**
B50 - B54	Malaria	2	5	2	9
E.10-E14	DM	0	2	0	2
L20-L30	Dermatitis	24	14	19	57
B09	Allergies	5	10	19	34
B77	Kecacingan	2	0	1	3
K02	Dental Caries	17	8	14	39
A60; B00	Herpes	1	0	0	1
A01.0	Typhus	1	2	1	4
M00.0	Rheumatism	7	15	10	32
J95-J99	Asthma	16	11	19	46
A15 - A19	TBC	0	1	0	1
Total		**331**	**304**	**385**	**1020**

The table above shows the diarrhea was ranked first in May and July 2011, while in June 2011, diarrhea ranks second.

Table 4. a frequency distribution Diarrhea, May-July 2011 in study area

Villages	Time (2011)					
	May	IR (%)	June	IR (%)	July	IR (%)
Telang Jaya	35	0.91	28	0.72	66	1.71
Telang Karya	33	1.07	17	0.55	27	0.87
Telang Rejo	43	1.58	35	1.29	41	1.51

*IR = Incidence rate

Table 4 above shows the highest incidence rate in the village Telang Jaya in July 2011 (1.71%).

Distribution spread of cases in the location of the research can be seen in the following figure.

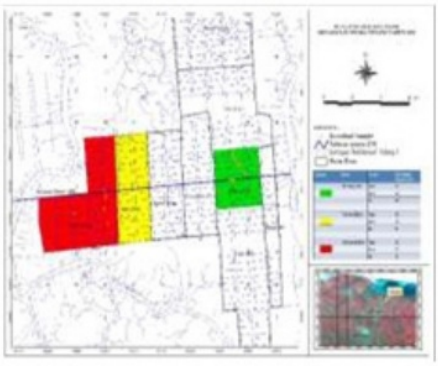


Figure 4. Map of the spread of cases of Diarrhea for 3 months of observations on study area

The table below shows the data that the highest case in week 13 with a number of cases and the cases of 39 people in the Telang Jaya Village and Telang Rejo village in week 4 with the proportion 6,46%.Di bawah ini disajikan gambar perkembangan kasus di lokasi penelitian.

Figure 5. Development Trend of cases Diarrhea week 1 s.d Sunday 14 May s. d Juli 2011 in study area

Epidemiologic curve which describes the development of diarrhea cases in the epidemic curve shows Telang propagated person-to-person where cases evolved with the transmission of the disease from person to person. There are 2 cases, the peak occurred in week 4 and 13. Diarrhea cases monitored showed in Telang did not happen of the outbreak.

Discussion

Diarrhea disease surveillance conducted for 3 months in 3 villages where the highest case study looks at Telang Jaya village in July 2011 with the highest incidence rate of 1.71%, this is because there Telang Jaya village health centers so that more

timely monitoring of disease. When compared with the national data in case of diarrhea is much greater where the national prevalence of 0.2% of diarrhea cases.

This is according to a survey conducted by the Ministry of Health which of the recording and reporting system that is approximately 1.5-2 million diarrhea outpatient treatment facilities to both the government health clinics and hospitals. This amount is 10% of the number of patients who came for treatment entirely for all diseases[8].

The results showed a general pattern of treatment of diarrhea in 46.6% of infants with diarrhea never treated themselves , 67 % to outpatient health services and 0.9 % go to traditional healers . Patients with diarrhea were taken to health care higher in urban than in rural areas. By region, the Java Bali that brings more to the health care of the outside Java, Bali and go to traditional healers more outside Java than Java Bali[9]. Search improper treatment of diarrhea in the community can lead to a lot of cases that are not detected so the incidence of disease in the community is actually higher and anticipation tends to be late which ultimately led to extraordinary events (outbreak).

Diarrhea diseases are included in the 10 diseases that often lead to extraordinary events. Under the Integrated Disease Surveillance report the data sourced outbreaks in 2010, diarrhea ranks 6th highest frequency after the outbreak of Dengue fever, Chikungunya, Food poisoning, Diphtheria and Measles.

Diarrhea cases nationally shows one of them due to the increase in the completeness of reporting, which has reached 89% with disease monitoring is done by using the integrated disease surveillance reporting format. Apparently there are still many cases that have not been recorded by the government, and this is evidenced by the discovery of cases in 3 areas of studies showing a higher incidence rate.

Monitoring the frequency of the disease is based on the variable location of the research community in 3 more women are suffering from diarrhea and treatment to health care facilities than men but the numbers are almost the same, which is in line with the national average where diarrhea prevalence in men was 8.9% and 9.1%

in women[8]. The data show the results of diarrhea was highest in the age group 36-50 years by 43 people (13.23%). Lowest cases are in the age group 5-14 years at 1.85% Spread of the disease is spread evenly in each age group.

Age is one of the characteristic properties of the very major. The spread of age in the state of society is easily seen to curve the population or population pyramid. Age has a relationship with the level of exposure, the magnitude of risk, as well as the specific nature of the resistance. Age has a close relationship with the various properties of the other, and also with the characteristics of a place and time. The difference to the experience of illness by age so have significance associated with differences in the level of exposure and vulnerability by age, differences in the pathogenesis, the difference in experience against certain diseases. The data indicate that male gender more likely to suffer from diseases that can be transmitted through water when compared with women, possibly because women are generally caused by more attention to hygiene and personal and family health. From the research work of the farmer as a contributor types of diarrhea and dysentery cases in a wetland area, this is likely due to poor higyene and opportunities to be exposed to the risk factors that cause disease.

Results showed the majority (85%) of respondents have a low level of education. Respondents who suffered from diarrhea and low education by 86%.

Education obtained from a person's formal education can affect various aspects including the knowledge about the importance of water as a decisive element in health. Similarly, in the water treatment process is generally the higher the education level the higher the level of knowledge of water treatment, it can be seen from the above results. Generally people Telang pass water treatment in water reservoirs are available in their homes, after previously being sucked from the water source.

The results of the study[10], stating there is a significant association between educational relationship with the mother's behavior in the treatment of infants with diarrhea. PR = 3,750, meaning that women who are less well-behaved low-risk level 3,750

times acted not according to the standard of care in infants with diarrhea. Helda (2012) states there is a relationship between education towards the prevention of diarrhea in infants with p value = 1.045.

Data on water availability shows that people who live in the place that wetlands are less available water has 3.461 times the risk of developing diarrhea when compared with people who live in places where water is available in sufficient quantities. Statistical test results showed no significant association between the availability of clean water with the occurrence of diarrheal disease in wetland areas. Meaningful relationship can be seen from the p-value<0.05. The largest proportion of cases in the group by 69% of respondents who reside in places where clean water available is less and the control group 57 % of respondents lives so clean water is available in sufficient quantities.

According to the study Sutini (2010) stated that the source of drinking water consumed no association with the incidence of diarrhea in infants in which the value of p = 0.001. Data source of drinking water consumed by the respondents still considered a source of drinking water is not protected as much as 73.3%. Of the 60 respondents, with water sources that are not protected against diarrhea caused a toddler 37 respondents. Image of the Goddess (2012) states there is a correlation with the incidence of diarrhea is getting clean water is used as a source of clean drinking water, the smaller our chance to diarrheal disease. Water supply in terms of quantity and quality must meet the applicable requirements. The need to insufficient clean water will cause people to use water that does not meet the health requirements for daily living needs. This facilitates the entry of germs and contamination of food that will be consumed by the public. Various ways can be done by communities for drinking water treatment method is simple, i.e boiling water until boiling, solar heating, using ceramic filters and chlorine administration. Behavior related processing and storage of drinking water is one of the key behaviors to prevent the spread E. coli into human.

Sanitation related data shows that people who live in areas where

sanitation is poor wetlands have 2.768 times the risk of developing diarrhea when compared with those that sanitation is good. Statistical test results showed a significant association between the occurrence of diarrheal disease sanitation in wetland areas. Meaningful relationship can be seen from the p-value < 0.05. In case it turns out there is a group of 70% of people who have poor sanitation, while in the control group there were 58% who have good sanitation. The increase in population is not comparable to residential areas causing problems related to disposal of human waste. Based on the research results, a normal stool is estimated to produce an average of 330 grams a day and produce 970 grams of urine. The population numbered 48,365 souls location will result in the discharge of 15.961 tons of feces per day. This would be a problem if people do not behave properly where loose carelessly like gardens, rivers, waterways, which can be a potential diarrheal disease transmission to humans. Availability of health facilities for the community such as the provision of clean water, landfills, bathing, washing and toilet facilities and health care (public health centers and hospitals) is a supporting factor behavioral measures.

Based on in-depth interviews about the quality of family latrines in accordance with the terms of health, it is actually most people already know a good family latrines, but people do not do it. It is related to the habits of the people defecate in the river, then a lot of people do not make a healthy latrine, there is also the reason most people due to limited funds. Field observations made in house informant known that people who already have a toilet with a latrine construction is pretty good but did not meet the health requirements for toilets located on the edge of the river flow, if the tide of the river water into the septic tank and the possibility of river water can be contaminated by dirt and many germs are on septic tanks.

The residential neighborhood is a place where people live diarrhea either alone or living with family members in a residential neighborhood l, where a healthy home environment has the characteristics of a healthy family latrines, availability of clean water, proper sewerage and correct, proper waste disposal is a risk factor and a factor of prevention of diarrhea. The

environmental conditions that do not meet the health requirements can lead to the occurrence of various types of disorders, such as diarrhea.

The data show that people who live in homes that do not meet the health requirements in the area of wetlands has 2.757 times the risk of developing diarrhea when compared with people who live in homes that meet the health requirements. Statistical test results showed no significant relationship between the level of education with the occurrence of diarrhea disease in wetland areas. Meaningful relationship can be seen from the p-value < 0.05. The largest proportion of cases in the group by 68% of respondents who reside in homes that do not meet health requirements and the control group 58% of respondents live in a healthy home.

Communities in this study are less aware of the importance of healthy homes even some of those who did not know how the house is included in a healthy home. Ignorance of the cause of their lack of attention to the condition of the house is inhabited. Children aged < 2 years was allowed one bedroom with their parents. The house is inhabited by many who do not consider the psychological aspects of which are not safe enough and comfortable for each occupant because no special room for each family member outside of the parents. The number of residents is an effect on the number of colonies of germs that cause infectious disease , which houses a small, high humidity and lack of ventilation and behaviors that are not clean and healthy can facilitate disease transmission. This study resulted in the data that the respondents were inhabitants solid with diarrhea 62.9% and the respondents whose residents are not solid 37.1%.

From the statistical test using the chi square obtained (p value = 0.017) with a value of $\alpha = 0.05$ ($p<\alpha$), thus showing that there is a significant correlation between the density of dwelling house with the incidence of diarrhea. With a value of OR (odds ratio) of 3.24, which means the occupants solid respondent is a risk factor for diarrhea by 3.2 times compared with the respondents that the occupants are not congested with confidence level of 95% Confidence Interval (1.22-8,63).

Good home building area is spacious building houses must be sufficient

according to the number of inhabitants. The house is too dense inhabitants unhealthy because in addition to causing lack of oxygen consumption also when one of the family members who are infected will be easily transmitted to other family members[21].

The data show that people who behave badly in a clean and healthy living has 2,716 times the risk of developing diarrhea when compared with people who have healthy behaviors and good clean living. Statistical test results showed no significant relationship between the level of education with the occurrence of diarrheal disease in wetland areas. Meaningful relationship can be seen from the p-value <0.05 . Most respondents (82%) in the case of badly behaved group in a clean and healthy life , whereas in the control group by 66% has a good behavior. In 2006, USAID conduct qualitative research on the factors driving and inhibiting behavior hieginitas found much that is important. Washing hands is a common thing for the community, but soap is still a lot of people do not do it. The use of soap for washing hands dirty is due reason, the notion appears to the eye in a dirty and smelly conditions.

Society considers cleanliness is the issue of individual and deemed beneficial to offenders only and has no impact on others. Similarly, taking out the trash, for example, is more critical of my home page clean and do not care about the waste dumped carelessly impact on others. The importance of hand washing with soap culture well and properly supported by the World Health Organization (WHO), where each year an average of 100 thousand Indonesian children died of diarrhea. WHO said studies of hand washing with soap can reduce diarrheal rates by 47%. The main cause of diarrhea is a lack of healthy behavior in the community, one of them a lack of understanding on how to wash hands properly and correctly using clean running water.

Handwashing with soap is an easy and inexpensive way to cleanse the body from germs infection member. The behavior of clean and healthy community is expected to support efforts to achieve Healthy Indonesia program. The expected result is the increasing public knowledge about the importance of handwashing with soap to prevent the onset of various diseases and to improve the ability of people to

wash their hands properly and correctly. Habits of the people of Indonesia to hand washing with soap is still relatively low, indications can be seen with a high prevalence of diarrheal disease. Handwashing should be performed in five critical time, ie : before eating, after defecating, before holding the baby, after cleaning a child and before preparing food.

Research in Bangladesh, United States, Guatemala (1984) found that the incidence of diarrheal disease could be reduced by 14-48% with the intervention of hand washing with soap. The incidence of diarrhea can be reduced if the intervention of the 4 components at once ie water supply, sanitation and hygiene behavior coaching individuals and families as well as the disposal of excreta qualified health[7].

Conclusion

1. The quality of domestic water sources do not meet the quality standard requirements Permenkes No.416/PER/X/1990 and river water as a source of domestic water used, during the dry season the amount is less clean water for daily needs.
2. Based on epidemiological surveillance carried out, water-borne diseases that is found in the wetland area Diarrhea disease with the highest incidence rate in the village Telang Jaya in July 2011.
3. People with risk factors for lack of water supplies has 3.461 times the risk; poor sanitation has 2.768 times the risk and healthy home has 2,757 times the risk for Diarrhea disease in Telang showing any statistically significant relationship with p value <0.05.
4. The pattern of prediction cases in the future in the area Telang using the formula Y = 25.71 + 0.71 X and the final model of disease risk factors associated with the occurrence of diarrhea in the wetland area = -5.680 + 3.461 (availability of water) + 2.768 (Sanitation) + 2.757 (Healthy Homes).

Suggestion.

a. For people in the area wetlands expected to improve wetland management improvement of sanitary environment to be able to improve health and avoid the seedling disease.

b. The food that will be comsumed should be cleaned and prevented from water that has been polluted.

c. For health workers is expected expected to be able to give a routine and continuous counselling about the importance of water for health through Posyandu.

References

1. Agudelo, JI., 2001. *The Economic Valuation of Water,* Value of Water. Research Report. IHE Delft, The Netherland.
2. Beaglehode, R., Bonita, R., dan Kjellstrom, T. 1997. Dasar-dasar Epidemiologi. Terjemahan. Adi Heru Sutomo dan Hari Kusnanto. Yogyakarta : Gadjah Mada University Press, Yogyakarta.
3. Cassel, D.K. 1997. Foreword. *Dalam:* M.J. Vepraskas & S.W. Sprecher (eds.), Aquic Conditions and Hydric Soils. The Problem Soils. SSSA Special Publication 50: vii.
4. Corvalan, C. and Kjellstorm, T. 1995. Health and Environmental Analysis For Decision Making. World Health Stat Q 49 (2): 71-77. In Annale Yassi, et al. 2001. Basic Environmental Health. Oxford University Press, New York.
5. Chapagain, AK., Hoekstra, AY., 2004. Water Foortprints of Nations. Research Report 16. UNESCO - IHE.
6. Departemen Kesehatan RI. 2004. Kurikulum dan Modul Pelatihan Jabatan Fungsional Epidemiologi Kesehatan Ahli. Ditjen. PPM PL, Jakarta, Indonesia.
7. Dinas Kesehatan Kabupaten Banyuasin. 2009. Profil Dinas Kesehatan Kabupaten Banyuasin.
8. Djaja, S. 1999. Prevalensi Pneumonia dan Demam pada bayi dan anak balita, SDKI, 1991, 1994, 1997. Bulletin Peneliti Kesehatan, Vol.26, No.4.
9. Ekawati, 2011. Survei Faktor Risiko Penyakit Diare di Kabupaten Banyuasin, Sumatera Selatan. BTKL PP Kelas I Palembang.
10. Gray, N.F. 2008. Drinking Water Quality : Problems and Solutions (Second edition). Cambridge University Press, New York.
11. Halperin, W. and Baker, E.L. 1989. Public Health Surveillance. Van Nostrand Reinhold Press, New York.
12. Helda, 2012. Hubungan perilaku hidup bersih dan sehat dengan kejadian diare pada tatanan rumah tangga di Puskesmas Telang Jaya. Skripsi. Sekolah Tinggi Ilmu Kesehatan Bina Husada. Palembang. Indonesia.
13. Kadek Diana, 2007. Pencemaran Air Tanah Akibat Pembuangan Limbah Domestik di Lingkungan Kumuh. Jurnal Pemukiman Natah 5 (2): 62-108.
14. Kataoka, Y. 2002. Overview Paper on Water for Sustainable Development in Asia and the Pacific.

Development in Asia and the Pacific. Asia-Pasifik Forum for Environment and Development First Substantive Meeting, January 12-13, 2002, Bangkok, Thailand.

15. Keudel, M.. 2007. Water Quality Trading Systems: An Integrated Economic Analysis of Theoretical and Practical Approaches. Doctorgrade Dissertation, University of Koln.
16. Kevin D., 2009. The Ecology of Climate Change and Infectious Disease. Ecological Society of America. Journal of Ecology 90 (4) : 888-900.
17. Kusnoputranto, H. 2000. Kesehatan Lingkungan, Fakultas Kesehatan Masyarakat Universitas Indonesia, Jakarta: 211 halaman.
18. Laboy, G.N, 2009. Environmental Management, Sustainable Development and Human Health. Taylor & Francis Group, Cromwell Press Ltd., London.
19. Marsh, J. 1993. Strategies for a sustainable agriculture. Conference Proceedings. British Association for Central and Eastern Europe and Agricultural Research Institute of the Hungarian Academy of Sciences:11-20.
20. Puskesmas Telang Jaya Telang. 2008. Profil Puskesmas Telang Jaya Telang Kabupaten Banyuasin.
21. Slamet, S.J. 2007. Kesehatan Lingkungan (Edisi Ketujuh). Gadjah Mada University Press, Jogjakarta.
22. Sutini, 2010. Gambaran Sanitasi Lingkungan, Hiegine masyarakat dan Penyebaran Penyakit di Telang. Skripsi. Sekolah Tinggi Ilmu Kesehatan Bina Husada. Palembang. Indonesia.
23. World Health Organization (WHO), 2003. Climate change and Human Health, Risks and Responds, Geneva.
24. Yang Xihua. 2007. Evaluation and Application of Drainmod in an Australian Sugarcane Field. Agricultural Water Management Journal 95: 439-446.

ORNE_DISEASES_IN_WETLAND_ECOSYSTEM_BANYUASIN.

ORIGINALITY REPORT

10%	%	%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.asianacademicresearch.org Internet Source	4%
2	Submitted to University of Baghdad Student Paper	3%
3	Submitted to Sriwijaya University Student Paper	2%
4	www.jurnal.unsyiah.ac.id Internet Source	2%

Exclude quotes	On	Exclude matches	< 1%
Exclude bibliography	On		