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The Environmental Sanitation in Fishermen's Families in Muara Siberut, Mentawai Islands, Indonesia

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OVERVIEW OF THE ENVIRONMENTAL SANITATION IN FISHERMEN'S FAMILIES IN MUARA SIBERUT, MENTAWAI ISLANDS, INDONESIA

Abstract: This study aims to determine the physical components of houses, environmental sanitation facilities, and pro-environmental behavior in fisherman families in Muara Siberut Village, Mentawai Islands Regency. Ninety-eight fishermen's families were used as respondents, who were selected systematically and randomly. The physical components of the house that are assessed are floors, walls, living room windows, bedroom windows, ventilation, ceilings, and kitchen smoke holes. Environmental sanitation facilities include clean water sources, latrines, wastewater disposal facilities, and garbage disposal sites. Pro-environmental behavior includes waste disposal methods, disease vector control, the habit of wearing footwear, the habit of opening windows, and cleaning the yard. The results showed that 44.9% of the physical components of fishermen's family houses in Muara Siberut were not good (the score obtained is less than the average score), 39.8% of families had poor environmental sanitation facilities (the score obtained is less than the average score), and 38.8% of fishermen's families had poor pro-environmental behavior (the score obtained is less than the average score). Nearly half of the environmental health of fishing families in Muara Siberut, Mentawai Islands Regency, is in the unfavorable category (score is less than the average score). It is recommended that the regional government provide environmental health education related to housing environmental health and pro-environmental behavior and provide a stimulus for environmental sanitation facilities that meet health requirements for fishermen families in Muara Siberut.

Keywords: House, Sanitation, Pro-environmental, Behavior, Fisherman Family

Introduction

Ideas for reducing the environmental and human health consequences arising from poor environmental health practices have been pursued by past and present government administrations (Gusti & Iqbal, 2023a). One of these is residential environmental health practices. This practice is carried out in urban and rural environments, including in fishing settlements (Shofa & Hadi, 2017a).

The physical components of a house and environmental health are interrelated, because the physical condition of a house and its environment can influence the health of its occupants (Davis, 2007). Physical components of a house that are related to environmental health include floors, walls, living room windows, bedroom windows, ventilation, ceilings, lighting., and kitchen chimney (Christiyani *et al.,* 2019).

One of the vital human needs is environmental sanitation facilities where sanitation reflects the orderliness of people's lives, where through sanitation people can see the level of understanding and concern regarding the cleanliness of the surrounding environment (Sa'ban *et al*., 2020). The sustainability of human life is very dependent on the health achieved, so sanitation is very necessary in society to achieve a more orderly life with good sanitation in community life.

Environmental health behavior refers to the involvement of residents in the provision, use and maintenance of environmental health facilities and services as well as compliance with environmental laws and regulations (Daramola & Olowoporoku, 2016). Knowledge, attitudes and practices of pro-environmental behavior determine environmental health conditions in fishing settlements. Thus, to achieve adequate environmental health conditions in fishing settlements, good sanitation behavior and the availability of facilities and services must go hand in hand (Gusti & Iqbal, 2023b) .

At different points in time, there has been a lot of information in the literature regarding the relationship between environmental facilities and pro-environmental behavior (Ekong, 2013; Olowoporoku & Olowoporoku, 2016;

Sembiring & Safithri, 2021). However, most of these studies do not place much emphasis on environmental sanitation on coastlines, which is an important part of commercial land use in island areas.

This research aims to examine the quality of the physical components of houses, the availability of environmental sanitation facilities and the implementation of pro-environmental behavior in fishing families. Using a case study approach, this research will focus on fishing families in Muara Siberut Village, Mentawai Islands Regency, West Sumatra, Indonesia.

Method

This research is descriptive analytical research with a quantitative approach. The research population was all fishing families in Muara Siberut Village, Mentawai Islands Regency, West Sumatra Province. 98 research respondents were selected systematically randomly.

The variables in this research include the physical components of the house, environmental sanitation facilities and environmental sanitation behavior. The physical components of a house consist of floors, walls, living room windows, bedroom windows, ventilation, ceilings, lighting and kitchen chimneys. Environmental sanitation facilities include clean water sources, latrines, wastewater disposal facilities and rubbish dumps. Meanwhile, pro-environmental behavior includes how to dispose of rubbish, controlling disease vectors, the habit of wearing footwear, the habit of opening windows, and the habit of cleaning the yard.

Primary data was collected through a survey using a questionnaire. Secondary data that supports the research results will be collected from the Muara Siberut Village Government and the Muara Siberut Community Health Center. Data analysis was carried out descriptively for each research variable.

Result and Discussion

General Description of Research Locations

Muara Siberut is one of the villages and the capital of South Siberut District, Mentawai Islands Regency. Siberut Island is one of the main islands in the Mentawai Islands group. Muara Siberut Village is located on the southwest coast of Siberut Island and directly borders the Indian Ocean.

Muara Siberut Village is one of the villages that is the main gateway for tourists who want to explore the beauty and uniqueness of the Mentawai Islands. Siberut Island is famous for its natural wealth, including pristine tropical rainforests, rare flora and fauna, and the rich and unique culture of the Mentawai tribe.

Muara Siberut Village is the starting point for tourists who want to visit the Mentawai tribe and experience their simple and natural life. In this village, visitors can see the traditional houses of the Mentawai tribe, interact with residents, and get to know more about their culture. Tourists can trek through the rainforest, visit other Mentawai tribal villages, and watch traditional Mentawai dances and performances.

Physical Components of the House

Based on table 1, there are still 26.5% of fishing families who live in houses with cracked and dusty floors made of plasterboard/soil. 34.7% of fishing families live in houses with walls that are not walls.

There are still 10.2% of fishing families who do not have windows in the living room. Most fishing families (79.6%) have bedroom windows that can be opened/closed.

More than half of fishing families (66.3%) live in houses with adequate ventilation. Good ventilation can provide many benefits for house occupants, such as maintaining healthy air quality in the house, reducing electricity bills, being environmentally friendly, and preventing dangerous viruses.

It is still found that 29.6% of fishing families live in houses without ceilings. For lighting, more than half (66.3%) of fishermen's family homes have bright, non-glare lighting.

10.2% of fishing families do not have a kitchen smoke hole and another 37.8% have a kitchen smoke hole but do not meet the requirements. Kitchen smoke holes are associated with the incidence of ISPA disease (Husna *et al.,* n.d.). Therefore, a healthy kitchen must have a kitchen smoke hole (can be a wall or roof that has a hole).

Overall, almost half of the fishing families in Muara Siberut have poor physical house components.

Table 1. Physical Components of Houses for Fisherman Families

Physical Components of Houses	Number	%
Floor		
- Cracked and dusty plasterboard/ground	26	26,5
- Smooth cement without tiles/ceramics	36	36,7
- Plastered/tile/ceramic/board (house on stilts)	36	36,7
Wall		
- Not a wall	34	34,7
- Semi permanent	40	40,8
- Permanent	4	4,5
Family room window		
- There isn't any	10	10,2
- Yes, it can't be opened/closed	18	18,4
- Yes, it can be opened/closed	70	71,4
Room window		
- There isn't any	1	1,0
- Yes, it can't be opened/closed	19	19,4
- Yes, it can be opened/closed	78	79,6
Ventilation		
- There isn’t any	3	3,1
- Yes, it doesn't meet the requirements	30	30,6
- Yes, meets the requirements	65	66,3
Palate		
- There isn’t any	29	29,6
- Yes, it's dirty, difficult to clean and prone to accidents	14	14,3
- Available, clean, and not prone to accidents	55	56,1
Lighting		
- Not bright	5	5,1
- Underexposed	28	28,6
- Bright and not glare	65	66,3
Kitchen smoke hole		
- There isn’t any	10	10,2
- Yes, it doesn't meet the requirements	37	37,8
- Yes, meets the requirements	51	52,0
Overall physical components of the house		
- Not good	44	44,9
- Good	54	55,1

Sanitation Facilities

Based on table 2, the clean water sources for fishing families in Muara Siberut are mostly owned by themselves and meet health requirements, namely 62.2%. However, there are still 7.1% of families who do not have access to clean water sources. Clean water in settlements must be available

good in the sense that the quality meets standards, the quantity is sufficient, it is continuously available and the method of obtaining it is easy and affordable (Shofa & Hadi, 2017b).

Ownership of a latrine influences family behavior in using the latrine (Linda Destiya & Rudatin, 2017). There are still 8.2% of fishing families in Muara Siberut who do not have a latrine in their home. Although most other families already have goose-neck toilets with septic tanks which are found in 61.2% of families.

It was found that 14.3% of fishermen's family homes did not have wastewater disposal facilities, causing water to stagnate in the yard. Only 8.2% of fishermen's houses have closed wastewater drainage channels. Meanwhile, 65.3% of houses have wastewater drainage channels, but it flows into open gutters. Drainage channels have a very important role in channeling dirty water originating from household waste and rainwater so that residential conditions will always be dry and protected from the threat of disease (Purwanto *et al*., 2017).

29.6% of fishermen's family homes do not have a rubbish bin. Although 59.2% of houses have a garbage disposal but it is not watertight or does not have a lid.

After combining all components of the availability of environmental sanitation facilities, it was found that almost half (39.8%) of fishing families in Muara Siberut had poor environmental sanitation facilities.

Table 2. Environmental Sanitation Facilities for Fishermen's Families

Environmental Sanitation Facilities	Number	%
Clean water source		
- There isn't any	7	7,1
- Yes, it is not your own and does not meet health requirements	2	2,0
- Yes, it is owned by yourself and does not meet health requirements	10	10,2
- Yes, it is not your own and meets health requirements	18	18,4
- Yes, owned by yourself and meets health requirements	61	62,2
Latrine		
- There isn’t any	8	8,2
- There is, not a goose neck, no cover, it is channeled into the river/pond	1	1,0
- Yes, instead of a swan's neck, it is closed (swan's neck), channeled into the river/pond	9	9,2
- There is, instead of a goose neck, a lid, a septic tank	20	20,4
- Yes, goose neck, septic tank	60	61,2
Waste water disposal facilities		
- There are none, there are, so they are stagnant irregularly in the yard	14	14,3
- Yes, it is absorbed but it pollutes water sources	7	7,1
- Yes, it flows into an open ditch	64	65,3
- Yes, it is absorbed and does not pollute water sources	5	5,1
- Yes, it is channeled into a closed sewer	8	8,2
Garbage dump		
- There isn't any	29	29,6

Environmental Sanitation Facilities	Number	%
- Yes, it's not waterproof or doesn't have a lid	58	59,2
- Yes, waterproof and covered	11	11,2
Overall environmental sanitation facilities		
- Not good	39	39,8
- Good	59	60,2

Pro-environmental Behavior

Based on table 3, as many as 31.6% of fishing families throw rubbish into rivers or beaches. Meanwhile half the families burned their rubbish. Only 11.2% of families dispose of waste in temporary landfills before transporting them to final disposal sites. Waste should be managed in the form of wet waste being recycled into compost, paper waste being recycled into paper, shell waste being processed into charcoal, wood/coir waste being processed into craft products so that all that remains is the waste residue being collected in containers to be taken to the landfill (Kasus *et al.,* 2012).

In almost all the homes of fishing families in Muara Siberut, disease vectors are found, namely mosquitoes, flies, cockroaches and rats. The behavior of collecting, piling up, leaving used items around the house and not having knowledge regarding the breeding places for vectors that transmit disease have an influence on the existence of disease vectors (Kartini & ELita, 2017).

The habit of not wearing footwear influences the prevalence of worms (Permata *et al.*, 2023). There are still 8.2% of fishing families who do not wear footwear when leaving the house. Although the other 63.3% always wear footwear when leaving the house.

6.1% of fishing families never open their windows. However, 75.5% always open the window when at home during the day. The habit of opening windows is statistically significant in preventing the incidence of environmental-based diseases such as pulmonary TB and pneumonia in children under five (Darmawati *et al.*, 2016; Halim & Satria, 2016).

There are still 3.1% of fishing families who never clean their yard. The other 58.2% always keep the house clean and dry. The habit of cleaning the yard influences the incidence of environmental-based diseases such as dengue fever (Kanan & Dwicahya, n.d.).

Overall, almost half (38.8%) of the pro-environmental behavior of fishing families in Muara Siberut is still not good.

Table 3. Pro-environmental Behavior of Fishermen's Families

Pro-environmental Behavior	Number	%
Waste disposal method		
- Thrown into the river/beach	31	31,6
- Disposed of into water/drainage channels	2	21
- Thrown into nearby bushes	5	51
- Burned	49	50,0
- Thrown away in a temporary landfill	11	11,2
Vector control		
- There are disease vectors	92	93,9
- No disease vectors	6	6,1
Habit of wearing footwear		
- Never	8	8,2
- Sometimes	28	28,6
- Always wear footwear when outside the house	62	63,3
The habit of opening windows		
- Never	6	6,1

Pro-environmental Behavior	Number	%
- Sometimes	18	18,4
- Always open windows when at home during the day	74	75,5
Cleaning the yard		
- Never	3	3,1
- Sometimes	38	38,8
- Always keep the yard clean and dry	57	58,2
Overall pro-environmental behavior		
- Not good	38	38,8
- Good	60	61,2

Conclusion

This research examines the physical components of houses, environmental sanitation facilities and pro-environmental behavior of fishermen in Muara Siberut, Mentawai Islands Regency. This study found that almost half of the physical components of houses, environmental sanitation facilities and pro-environmental behavior of fishing families in Muara Siberut are still not good. Based on the findings, local governments need to pay attention to improving the environmental health of fishermen's families which will have an impact on improving the health status of the community.

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