

**ANALYSIS OF AVAILABILITY AND CONDITION OF BASIC SANITATION  
FACILITIES IN HATO-LULI SUB-VILLAGE, MAUBISSE VILLAGE, MAUBISSE  
SUB-DISTRICT, AINARO DISTRICT.**

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**Abstract**

Sanitation is an effort to control several physical environmental factors so as to prevent the emergence of diseases that affect humans, especially things that have a damaging effect on human physical development, health, and survival. Several environmental health requirements that must be met by every family to fulfill their daily needs are known as basic sanitation, which includes the provision of clean water, family latrine facilities, garbage disposal facilities, and waste water disposal facilities. Therefore, the availability and conditions of these facilities need to be considered. Analysis of the availability and condition of basic sanitation facilities in the Hato-Luli sub-village, Maubisse Village, Maubisse Sub-district, Ainaro District, Timor-Leste. The results showed that the sources of drinking water in Hato-Luli Village consisted of 72.2% piped water, 20.8% well water, and 6.9% from rivers and gutters. Latrine conditions, which use water at 66.67%, do not use water at 29.17%, and other types use 4.17%. In terms of the cleanliness of the latrines, they were clean 33.3%, less clean 63.9%, and dirty 2.8%. Those that have garbage dumps (56%, have and don't use 41%, don't have 67.4%. The data shows that the percentage of people not having a garbage dump is still high, at 67.4%.

Conditions of environmental sanitation in the Hato-Luli sub-village, Maubisse Village, Maubisse Sub-district, and Ainaro District were said to be not good, judging from the indicators of the conditions of the latrines, sewerage, garbage dump, and healthy homes, which did not meet health requirements because there were still people who did not know the importance of maintaining environmental sanitation.

**Keywords: Availability, Condition, Sanitation**

## Introduction

Sanitation facilities are all facilities that support environmental sanitation. Facilities and infrastructure that are of concern related to environmental health aspects include the provision of clean water, the condition of sewerage channels, the condition of latrines, and the condition of the hygiene office space (Fatmawati dkk, 2018). This research was conducted by collecting data using questionnaires and observing the basic sanitation facilities used by the community. The data that has been collected will be analyzed and can explain the condition of the basic sanitation facilities. From the results of a previous study, it was found that there was a significant relationship between basic environmental sanitation and the incidence of diarrheal disease ( $p < 0.05$ ). This can be seen from the existence and condition of facilities such as the provision of clean water, waste disposal sites, and inadequate toilets (Isnawati, V.S., Jimedio, A. C. Q., and Santiago, J. P., 2020). Based on the results of this study, the authors conducted an analysis of the community's basic sanitation facilities through household arrangements through an observation at Hato-Luli sub-village, which is located in the northern part of Maubisse Sub-district, which is in the Ainaro district, with 72 household heads, and each household head or one of the family members is the respondent in this study. This study aims to find out the availability and conditions of basic sanitation (clean water supply, garbage disposal, and toilets) in the community of Hato-Luli sub-village, Maubisse village, Maubisse sub-district, Ainaro district.

Global data shows that tens of thousands of people in developing countries have health problems that lead to death due to poor sanitation. Diarrhea is experienced by almost everyone due to bad sanitation. Diarrhea is an infectious disease with more frequent bowel movements, three times per day or even more. The form of feces with a semi-liquid or liquid consistency is the main symptom, besides the frequency of bowel movements. Based on its duration, diarrhea can be divided into three categories: acute with less than 14 days, persistent with 14 to 29 days, and chronic with 30 days or more (Birawida, A.B., 2020).

Based on data from the *United Nations Children's Fund* (UNICEF) and the *World Health Organization* (WHO) for 2013, it shows that two million children die every year because of diarrhea. Diarrhea is still a health problem in the world, including in developing countries such as Timor-Leste. The importance of a healthy environment has been proven by the WHO with investigations around the world, where it was found that high mortality and morbidity rates are just as often endemic in places where environmental hygiene and sanitation are poor. Environmental sanitation is also closely related to the availability of clean water and latrines. Increasing efforts to provide basic sanitation is an important thing to note in order to know and control environmental conditions, preventing and minimizing the effects of pollution on the environment. Poor basic sanitation will cause problems, starting with sanitation in the house, the use of clean water (shallow wells), the disposal of household waste (latrines), and septic tanks. There are still people who build animal cages near their homes. This results in a decrease in the degree of public health (the cleaner the water for daily needs, the smaller the risk of children getting sick).

Environmental sanitation is an important part of improving health status, where, in essence, environmental sanitation is an optimum condition or state of the environment so that it has a positive effect on optimum health status as well. Environmental sanitation prioritizes the prevention of environmental factors in such a way that the emergence of disease can be avoided (Heller L. et al., 2003). The effort of sanitation can also mean an effort to reduce the number of germs in the environment so that the degree of human health is perfectly maintained. Sanitation

is related to environmental health, which can affect the degree of public health. The impact of the low level of sanitation coverage can reduce the quality of life of the community, cause contamination of drinking water sources for the community, and increase environmental-based diseases such as diarrhea. Diarrhea is a disorder of defecation more than three times a day with the consistency of liquid stools, which may be accompanied by blood or mucus. Poor environmental sanitation is an important factor in the occurrence of diarrhea. The interaction between disease, humans, and environmental factors that cause disease needs to be considered in the prevention of diarrhea. The role of environmental factors, enterobacteria, intestinal parasites, viruses, fungi, and several chemicals has been classically proven in various epidemiological investigations as a cause of diarrheal disease (Angeline, Y.L., Irnawati Marsaulina, and Evi Naria, 2012).

Efforts to maintain the quality of basic sanitation are very important for public health because basic sanitation is the minimum facility and infrastructure that every dwelling must have. The facilities included in basic sanitation include the provision of clean water, waste water disposal, drainage channels, and waste management. Poor-quality basic sanitation can cause slums in a settlement. A minimum sanitation system that must be owned by every family as a condition for environmental health to live in daily life includes the availability of clean water used to meet water needs, both domestic and non-domestic. The drainage system refers to the activity of draining water, both surface water and ground water, from an area. A settlement must have a good drainage system in order to be able to reduce excess water so that it does not cause puddles or even floods that can interfere with the health and lives of its inhabitants. Waste management includes the storage, collection, and destruction of waste in such a way that waste does not interfere with public health or the environment.

## **Method**

This research was conducted in March 2023 for two weeks. The research design was cross-sectional in the community by using a questionnaire. Non-probability sampling using a quota sampling technique for each head of the family or one of the family members who is considered eligible, totaling 72 respondents. Data analysis in this study is done by comparing the number of answer scores with the expected (highest) score, then multiplying by 100.

## **Results and Discussion**

### **1. Clean Water**

According to Kepmenkes (No. 1405/MENKES/SK/XI/2002), clean water is water used for daily needs, and its quality meets the requirements for clean water quality in accordance with applicable laws and regulations and can be drunk when cooked.

In the results of this study, the clean water facilities used by the community in the area were seen from the source, which came from pipe water (72.2%), well water (20.8%), and from other sources, river or gutter water (6.9%). Judging from the water debit, there is always 51%, and the water debit decreases to 48.6% during the dry season. Judging from the physical condition of the water, it is 65.3% odorless and colored, and 34.7% colored or chalky. Judging from the distance to get clean water: <5 minutes (63.9%), <1 km (36.1%), or <15 minutes (36.1%). And when viewed from clean water storage areas, it is 9.7% tightly closed, 16.7% less tightly closed, and 73.6% not closed. The data shows that the condition of clean water in Hato-Luli sub-village, Maubisse village, Maubisse sub-district, and Ainaro district is less secure. In polluted water,

there are several bacteria that cause health problems. One example of health problems caused by water contamination is diarrhea, itching, skin infections, and others. Sources of clean water in this sub-village use a lot of surface water, and currently, drinking water treatment plants still use surface water as their main water source. Apart from surface water, there are other sources of clean water, namely groundwater and rainwater. Each of these water sources has advantages and disadvantages. Groundwater generally contains a lot of iron and manganese and is not good if used continuously because it can lower the soil surface, while rainwater depends on the season. Rainwater can also be used as raw water by making large tanks or reservoirs where it can store water on a large scale.

Research by Bambang, S. states that the biggest influence on the existence of *E. coli* is the distance of water sources from sources of pollution such as animal pens, septic tanks, and trash cans. Research also conducted by Joko Irianto (1996) found that pollutant sources such as family latrines and the distance between latrines and septic tanks have the highest risk for households that do not have family latrines.

There is a strong relationship between sources of family latrine pollution and bacteriological quality, where feces containing microorganisms or germs can be a source of disease that can be transmitted through water, either directly or indirectly through food and drink consumed by hosts or humans. Yohanes's research in 2004 regarding the effect of distance on the quality of dug well water concluded that distance affects the bacteriological quality of water. The closer the distance from the source of pollution to the source of drinking water, the greater the possibility of contamination. This is due to the speed at which bacteria reach the water source. The construction of water sources also plays an important role in the bacteriological quality of water. Pollutants can reach water sources if the construction of water sources does not meet the requirements. Pollutants function as carriers of disease and as breeding grounds for disease germs.

Deborah et al. (2007) explained that construction improvements, improved sanitation, and access to drinking water that met the requirements had an impact on reducing the prevalence of diarrhea. W. Robertson et al. (2007) explained further that the construction of good, clean water sources will protect water contamination by inhibiting the food supply for bacteria so that bacteria do not develop. Thus, good construction influences the presence of bacteria that can cause diarrhea. Diseases that can be caused by polluted water include cholera, abdominal typhus, and amoeba dysentery.

Therefore, to maintain the availability of clean water, we must instill the importance of clean water for life. There are many ways to maintain the availability of clean water, which are quite easy to do. One form of activity to maintain the availability of clean water is promoting the movement of planting trees, carrying out water-saving movements, conserving forests, building large reservoirs or water reservoirs, making bio pore holes or water absorption, and cultivating not to throw away waste, either household or industrial (A Diansyukma, 2021). There are many other ways to get clean water through technology, for example, seawater desalination. Because

of that, the community must preserve the environment and be thrifty in order to maintain the availability of clean water in each sub-village (Novriady, 2020).

## **2. Latrines**

A latrine is one of the sanitation facilities needed in every house to support the health of its occupants as a facility for the disposal of human waste, which consists of a squatting place or a seat with a goose neck or without a goose neck equipped with a unit for collecting dirt and water for cleaning (Proverawati A. & Rahmawati W., 2012). Based on this research, judging from the existence and ownership of latrines, among others, privately owned 55.6%, public 43.1%, and those who do not have latrines 1.4%. Judging from the type of latrines used, 66.67% used water, 29.17% did not use water, and 4.17% used other tricks. In terms of the cleanliness of the latrines, they were clean 33.3%, less clean 63.9%, and dirty 2.8%. The data shows that the percentage of people using family latrines that do not meet sanitation requirements is still 63.9%. This condition is very concerning because the disposal of feces needs special attention because it is a waste material that causes many problems in the health sector and is a medium for germs of disease such as diarrhea, typhus, vomiting, dysentery, intestinal worms, and itching. Besides that, it can cause environmental pollution in water sources and bad smells and aesthetics. Later, there will be contact with humans either by air, direct contact, or vectors such as insects, which can result in various health problems and the fear that it will become a serious disease outbreak in the surrounding community (Amelia R.N. Rd. Halim<sup>1</sup>, Usi Lanita, 2021). There are several determinant factors that influence people to use unsanitary latrines. Based on the results of research by Wirdawati, Ria Risti, and Komala in 2021, it shows that there is a significant relationship between economic level and ownership of healthy latrines. The low income of the community has resulted in the community prioritizing meeting their basic needs, so they have not been able to build a family latrine, even though there are some people who understand the importance of a family latrine. The results of the study also show that there is a significant relationship between culture and healthy latrine ownership. Culture has a major influence on the formation of attitudes because culture is a practice that has been around for a long time and is part of the life of a community group. The same study found a significant relationship between attitudes and ownership of healthy foods.

Low public knowledge can affect the ownership of healthy latrines. Healthy latrines must meet the following requirements: not contaminate the source of drinking water; do not smell of feces and are not free to be touched by insects or rats; urine; clean water and flushing water; do not contaminate the surrounding soil; the floor is at least 1 x 1 meter in size and made adequate sloping, sloping towards the squat hole; easy to clean and safe to use; equipped with walls and covers; sufficient lighting and air circulation; sufficient room area; and water and cleaning tools available (Ocaya, L.G., 2022).

### **3. Gerbage Disposal**

According to the World Health Organization (WHO), waste is something that is not used, not used, not liked, or something that is thrown away that comes from human activities and does not happen by itself (Chandra B., 2007). In connection with this definition, it can be seen that everything that is no longer used by humans must be disposed of, but to save it, a place known as a landfill is needed. In this study, judging by the ownership of the landfill, 56% owned and used it, 41% owned and did not use it, and 67.4% did not own it. The data shows that the percentage of people not having a landfill is still high, at 67.4%. Waste disposal that is not managed properly will cause environmental pollution, starting with water, air, and soil. In addition to damaging our environment, pollution from waste that is not managed properly can have a negative impact on our health by causing various diseases. Environmental pollution not only affects humans but also other living things such as animals and plants. Garbage pollution in the sea causes many marine animals to suffer and even lead to death by destroying their habitat. There have been many incidents of marine animals, from whales to turtles, that have died as a result of being contaminated with garbage, such as plastic waste, that they have eaten. The waste problem begins with the increasing number of humans and waste-producing animals and the denser population in an area. For rural areas where the population is still relatively small, the waste problem is less pronounced because the waste generated can still be handled in simple ways, for example, by burning, landfilling, or allowing it to dry itself. It is felt that waste is a separate problem. Garbage problems in an area include a high rate of waste generation, a low level of public awareness so that people tend to litter, and a reluctance to dispose of waste in the space provided. This bad behavior often causes disasters in the rainy season because the drainage is clogged with garbage, causing flooding (Hardiatmi, 2011).

With this effort, the local government must in managing and handling waste from their households, make and place landfills at each location or the closest sub-village, and as much as possible, waste should be disposed of in the bins until landfill disposal. However, the fact that this waste has always been a concern, but with the fact that now this waste is still a problem that cannot be solved properly, in essence, the main thing is in big cities. The example was Jakarta, which is currently on a very small-scale reduction for people who often do the habit of burning garbage while on a large scale disposing of waste in temporary tanks. If a landfill is not yet available, it can be a temporary dump in the vicinity (Adi A., 2005).

### **Conclusion**

Based on the description of the data and the analysis of the research data, it can be concluded as follows:

1. The condition of environmental sanitation in the Hato-Luli sub-village, Maubisse Village, Maubisse Sub-district, and Ainara District is said to be not good. Judging from the indicators of the condition of the latrines, the condition of the sewerage, the condition of the landfill, and the condition of healthy houses, they do not meet health requirements because there are still people who do not know the importance of maintaining environmental sanitation.
2. The impact of environmental sanitation on public health in the Hato-Luli sub-village, Maubisse Village, Maubisse Sub-district, and Ainara District is that there is an influence between the condition of the latrines, the condition of the sewer, the condition of the landfill, and the condition of healthy homes. Those who do not meet health requirements

have an impact on the emergence of diseases such as diarrhea, dengue fever, pulmonary tuberculosis, and others.

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