

## RESEARCH ARTICLE

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# Evaluating Sanitation Practices at Ibn Cholil Islamic Boarding School: Insights on Clean Water, Waste Management, and Latrine Provision

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**ABSTRACT** Basic sanitation is crucial in preventing the spread of diseases like diarrhea, dengue fever, and typhoid. This study aimed to evaluate basic sanitation management at Ibn Cholil Islamic Boarding School in Bangkalan Regency, covering clean water provision, waste treatment, provision of healthy latrines, and sewerage. Employing a descriptive qualitative approach, the study utilized interviews and observation checklists with POAC assessment criteria (planning, organizing, actuating, and controlling). Six male and female santri administrators were interviewed. Variables included clean water provision, waste management, provision of healthy latrines, and sewerage. Non-probability sampling was used. Results revealed that basic sanitation management in male dormitories was good (71%), while in female dormitories, it was sufficient (62%). Waste management in both male and female dormitories was categorized as sufficient (52% and 56% respectively). Healthy latrines provision in male dormitories was good (68%), while in female dormitories, it was good (73%). However, sewerage conditions in both dormitories were poor, with the men's dormitory at 10% and the women's at 24%. In conclusion, basic sanitation management at Ibn Cholil Islamic Boarding School, Bangkalan Regency, was moderate. Continuous education on basic sanitation management and direct monitoring from the health center are necessary to improve sanitation quality, along with policies supporting better sanitation management in Islamic boarding schools.

**INDEX TERMS** Basic Sanitation, Management, Boarding School.

## I. INTRODUCTION

Basic sanitation plays a crucial role in improving human well-being by providing a healthy environment and essential public health facilities necessary to meet daily needs [1]. It is a cornerstone in preventing the spread of diseases like diarrhea, dengue fever (DF), and typhoid [2]. The management of basic sanitation encompasses various aspects, including clean water supply, waste management, provision of healthy latrines, and wastewater disposal facilities [3].

Islamic boarding schools face common challenges regarding basic sanitation, such as inadequate access to clean water, insufficient toilet facilities, and ineffective waste disposal systems. Many boarding schools struggle to provide an adequate supply of clean water, which compromises the cleanliness and health of the students. Toilet facilities often fall short in number or lack proper maintenance, leading to

unhygienic conditions and an increased risk of disease transmission. Moreover, inadequate waste disposal systems can result in environmental pollution and have adverse health effects on the residents [4].

Basic sanitation management involves planning, organizing, directing, and controlling various aspects of basic sanitation within a particular community or region [5]. Its objective is to enhance the quality of sanitation and protect public health by maintaining environmental hygiene. In the context of Islamic boarding schools, basic sanitation management includes ensuring the cleanliness and safety of clean water sources. Wells must be securely closed and located at least 10 meters away from potential sources of contamination to maintain the cleanliness of the water [6]. Waste management systems should be tightly sealed to prevent the breeding of disease-carrying vectors such as flies [7]. Providing healthy latrines entails meeting specific

criteria, including the use of gooseneck latrines and non-slip flooring. Additionally, a closed wastewater disposal system and a wastewater treatment plant are essential to prevent the direct flow of wastewater into water bodies, thus mitigating the risk of waterborne diseases [6].

The absence of proper basic sanitation management can lead to the spread of diseases like dengue fever, primarily caused by the *Aedes aegypti* mosquito larvae found in bathroom tubs [8]. Indiscriminate waste disposal without considering its type or nature can result in environmental damage, such as soil pollution and flooding, which can have adverse effects on human health, including skin infections and tetanus. Open defecation can contaminate water sources with bacteria like *Escherichia coli*, leading to diarrheal diseases [8]. Moreover, the direct disposal of wastewater into water bodies containing chemicals and heavy metals can degrade water quality and cause diseases such as diarrhea and typhoid.

Islamic boarding schools, being the oldest Islamic educational institutions in Indonesia, aim to foster independence and develop religious values among students, shaping their character in accordance with Islamic principles [9]. These schools are where students, both male and female (*santriwan* and *santriwati*), seek knowledge on environmental sanitation and personal hygiene [10]. One such example is the Ibn Cholil Islamic Boarding School in Bangkalan Regency, which follows a curriculum that prioritizes religious education and offers extracurricular activities like abacus lessons, sewing, scouting, martial arts, and more.

Ensuring environmental sanitation within the boarding school environment is crucial for disease prevention and maintaining a clean, healthy environment. Dormitory cleanliness involves tasks such as cleaning windows, bathrooms, and latrines, as well as proper garbage disposal [11]. The cooperation and awareness of all stakeholders in the boarding school are essential in establishing and maintaining good hygiene and sanitation practices.

Studies have shown that many Islamic boarding schools pay insufficient attention to environmental sanitation, particularly concerning clean water supply, waste disposal facilities, and sewerage systems [12]. To promote good health among students, it is imperative for them to understand the principles of basic sanitation management within the boarding school environment. Similar studies have identified sanitation challenges in other boarding schools, such as the Ainul Yaqin boarding school, where uncovered trash bins contributed to the proliferation of disease vectors, dirty bathrooms posed hygiene issues due to inadequate cleaning, and direct disposal of liquid waste into open channels threatened environmental safety [13].

Initial observations at the Ibn Cholil Islamic boarding school revealed certain deficiencies in basic sanitation management. The clean water supply relied on well water, which often appeared yellowish, and bathroom walls showed signs of moss growth. Waste management lacked segregation between organic and inorganic waste, and the

trash cans were neither sealed nor watertight. Although the provision of gooseneck latrines with septic tanks was in place, some latrines were non-functional due to clogging and lack of maintenance. The floors were slippery, with visible puddles, and no wastewater treatment facilities were present due to the absence of an installed treatment unit, leaving the wastewater drains uncovered.

## II. METHODS

This qualitative research employed a descriptive approach. The research instruments included interviews and observation checklists with criteria assessment based on Planning, Organizing, Actuating, and Controlling (POAC). Six informants were involved in this study, consisting of three male and three female dormitory administrators. The variables investigated were the provision of clean water, waste management, provision of healthy latrines, and provision of wastewater disposal facilities. Non-probability sampling was employed as the sampling technique. The dependent variable in this study was the management of basic sanitation at Ibn Cholil Islamic Boarding School, while the independent variables were the availability of clean water, waste management, the adequacy of healthy latrine facilities, and the availability of wastewater disposal facilities.

To ensure the rigor and reproducibility of the study, the sampling strategy was carefully designed to represent a diverse range of perspectives within the boarding school community. The participants were selected based on their roles and responsibilities in managing basic sanitation facilities. Data collection procedures were systematically conducted to minimize potential biases. The collected data were then analyzed using qualitative methods, including thematic analysis and content analysis. Any potential biases or limitations in the data collection process were documented and addressed accordingly to maintain the methodological integrity of the study.

## III. RESULTS

The management of basic sanitation activities at Ibn Cholil Islamic Boarding School in Bangkalan Regency is summarized in [TABLE 1](#). The men's dormitory achieved a sanitation management score of 50%, while the women's dormitory reached 54%. At Ibn Cholil Boarding School, various components of basic sanitation have been meticulously implemented, encompassing the provision of clean water, effective waste management, the provision of hygienic latrines, and the establishment of an efficient sewerage system. This multifaceted approach underscores the commitment of the school to ensuring the well-being and health of its students. Notably, the implementation of these management functions is categorized as sufficient, signifying a commendable effort in maintaining acceptable sanitation standards within the institution.

The results indicate that while basic sanitation management is implemented to some extent, there are still

areas that require improvement. By providing a detailed breakdown of the sanitation management scores, the study aims to identify specific areas for enhancement and inform targeted interventions to improve overall sanitation conditions at Ibn Cholil Islamic Boarding School. Statistical measures of significance and confidence intervals were not calculated in this study; however, future research may benefit from incorporating these analyses to further strengthen the validity and reliability of the findings.

TABLE 1

Results of Basic Sanitation Management in Men's Dormitories and Women's Dormitories at Ibn Cholil Islamic Boarding School, Bangkalan Regency in 2024

No	Basic Sanitation Components	Male Dormitory Result(%)	Female Dormitory Result(%)
1.	Water supply management	71%	62%
2.	Waste management	52%	56%
3.	Management of healthy latrine provision	68%	73%
4.	Management of sewerage provision	10%	24%
	<b>Average</b>	<b>50%</b>	<b>54%</b>
	<b>Category</b>	<b>Enough</b>	<b>Enough</b>

The calculation of the dormitory results was based on the following formula for both the male and female dormitories: Interval Distance Formula:

- Calculation of Male Dormitory
 
$$= \frac{\text{maximum value} - \text{minimum value}}{\text{interval distance}}$$

$$= \frac{201 - 0}{4}$$

$$= 50,2 = 50\% \text{ (Fair Category)}$$
- Calculation of Female Dormitory
 
$$= \frac{\text{maximum value} - \text{minimum value}}{\text{interval distance}}$$

$$= \frac{215 - 0}{4}$$

$$= 53,75 = 54\% \text{ ((Fair Category)}$$

The results indicate that while basic sanitation management is implemented to some extent, there are still areas that require improvement. By providing a detailed breakdown of the sanitation management scores, the study aims to identify specific areas for enhancement and inform targeted interventions to improve overall sanitation conditions at Ibn Cholil Islamic Boarding School. Statistical measures of significance and confidence intervals were not calculated in this study; however, future research may benefit from incorporating these analyses to further strengthen the validity and reliability of the findings. Statistical measures of significance and confidence intervals were not calculated in this study; however, future research

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## IV. DISCUSSION

### A. CLEAN WATER SUPPLY MANAGEMENT

Clean water is water that does not contain substances that can harm human health. The quality of clean water must be considered, such as adequate oxygen levels, low numbers of bacteria and other harmful chemicals. Nona Utomo, Health and Hygiene Communication Coordinator of the Environmental Service Program of USAID, revealed that every year, around 100,000 toddlers in Indonesia die from diarrheal diseases caused by an unhealthy environment [14]. This problem occurs because some people still use river water for daily purposes such as drinking, washing, and cooking.

Clean water treatment has very important benefits in ensuring safe and healthy water quality for consumption and use in daily activities. The treatment process removes contaminants such as bacteria, viruses, harmful chemicals, and other particles that can harm human health. Well-treated clean water also improves the taste and clarity of the water, making it more drinkable and more suitable for various household purposes such as cooking, bathing, and washing clothes. In addition, clean water treatment helps protect the environment from pollution and maintains the sustainability of water resources. Thus, clean water treatment not only provides direct benefits to human health and well-being, but also contributes to the preservation of a clean and healthy environment for future generations.

TABLE 2

POAC Provision of Clean Water Source

Planning	Organizing	Actuating	Controlling
There is a schedule for Maintenance of well construction or water source	There is a well or water source construction officer	There is an SOP for the maintenance of well construction or water sources	There is an evaluation in monitoring wells or water sources
There is a schedule for cleaning bathroom containers	There is an attendant cleaning the bathroom container tub	There is 1x weekly cleaning of bathroom container tubs	There is a report on the quality and quantity of clean water at the boarding school
There is a schedule for cleaning the reservoirs	There are cleaning and filling personnel for bathroom	There is regular cleaning of the reservoir	There is monitoring of physical water parameters such as: odor, color, turbidity, taste

The application of the management function of planning, organizing, actuating, controlling (POAC) in the Ibn Cholil Islamic boarding school shows that several components of environmental health management in the management of clean water supply have not been implemented, such as planning for clean water needs of 60 liters per day. Other

research also supports that the standard water requirement for domestic use is 60 liters per person per day. Practical guidelines for rural clean water planning in 2008, which set a range of 30-60 liters per person per day [15]. The cause of the absence of clean water planning is due to the lack of knowledge of the Ibn Cholil boarding school management in paying attention to the quality and quantity of clean water. The results showed that clean water provided in the men's dormitory and the women's dormitory at Ibn Cholil Islamic Boarding School came from wells with the help of electric pumps. This well water is used by the dormitory residents for daily needs.

The water in the bathroom container tub looks cloudy. Clean Water Management Requirements in the Minister of Health Regulation No. 2 Year 2023 on the Implementation of Government Regulation No. 66 Year 2014 on Water Environmental Health. Water is considered clean when it is colorless, has no taste such as saltiness, and does not smell like an aroma that indicates the presence of bacteria or decay of organic substances. The lime content in the well water at Ibn Cholil Islamic boarding school causes the water to become cloudy. This research is also the same as Fibrianti "The Relationship between Basic Sanitation Facilities and the Incidence of Stunting at Loceret Public Health Center, Nganjuk" said that the condition of clean water that is cloudy and colored can cause diarrheal disease [7].

Clean water management does not have a maintenance schedule for well construction in male and female dormitories. The schedule for cleaning the reservoirs only exists in the men's dormitory, carried out every three days, filling the reservoirs in the women's dormitory is done twice a day, morning and evening. The implementation of standard operating procedures (SOP) for the maintenance of well construction or water sources has not been implemented because male and female dormitory administrators are not fully aware of the importance of monitoring well construction. Water pollution comes from garbage containing organic compounds that stagnate on the water surface. It is necessary to make a schedule for checking well construction and cleaning reservoirs at the Ibn Cholil Islamic boarding school so that implementation is more regular, in order to avoid the entry of dirt or insects into the well to maintain clean water quality.

## B. WASTE MANAGEMENT

Waste management is an action that includes the collection, transportation, processing, and disposal of waste efficiently by taking into account its impact on the environment [16]. Minimizing the negative impact of waste on the environment can be done by creating a clean and healthy environment. Reducing the use of plastic bags by switching to reusable shopping bags. These shopping bags are a small but important step in environmental protection. Replacing single-use packaging, such as plastic cups, with reusable tumblers and lunch boxes, thus reducing plastic waste [17].

Waste management has important benefits in maintaining environmental cleanliness and supporting ecosystem sustainability. By effectively managing waste, we can reduce

the amount of waste that pollutes the environment and reduce negative impacts on public health. Waste management processes such as recycling and composting can reduce the volume of waste that goes to landfills, thereby reducing greenhouse gas emissions generated from burning waste. In addition, waste management also helps generate alternative energy through burning waste to produce electricity or exhaust gas, which can be utilized to meet energy needs. Overall, waste management not only improves environmental and public health, but also supports global efforts in reducing carbon footprints and promoting more sustainable resource management.

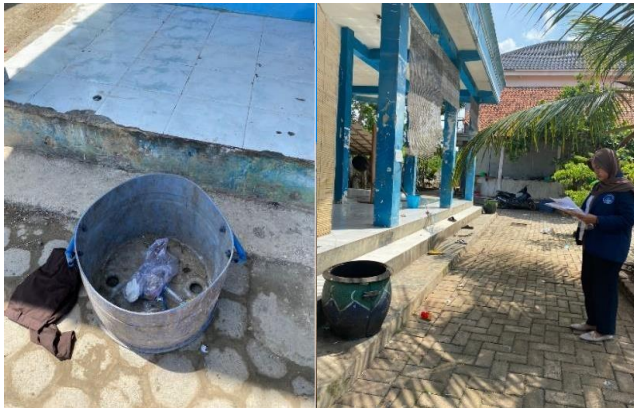
The results showed that garbage in the male and female dormitories at Ibn Cholil Islamic Boarding School was transported from the Waste Disposal Site by the Environmental Service officers every day at 06.00 WIB. There is no rotting or smelly garbage around the temporary landfill because transportation is carried out 1x24 hours. The trash bins in the men's dormitory are made of plastic material and there are holes at the bottom that cause garbage to scatter. The bins do not rust easily and are easy to clean. This is in line with Supriadi's research in Jambi city, that the results of waste management at the Ainul Yaqin Islamic boarding school lack waste management facilities such as 1 trash can used for 2 rooms in the women's dormitory, trash cans that do not have lids and trash cans that leak easily with a percentage of 100% trash cans that do not meet the requirements and the unavailability of trash cans in the men's dormitory [13].

TABLE 3  
POAC Waste Management

Planning	Organizing	Actuating	Controlling
There is a temporary landfill capacity plan	There is an officer for the transportation of waste from temporary landfill to the final processing site	There is a maximum 1x24 hour transportation activity to the final processing site	There is monitoring of waste generation reports
There is provision of easy-to-clean waste transportation equipment	There is a clear job description for waste collection officers	There is a separation of organic and non-organic waste bins	There is supervision of waste segregation and transportation to temporary landfill
There is a construction of a container for waste processing residue at temporary	There are officers who do Reduce, Reuse, Recycle waste processing	There are Reduce, Reuse, Recycle waste management activities	There is supervision related to Reduce, Reuse, Recycle waste processing

The application of the POAC management function at Ibn Cholil Islamic Boarding School shows that some components of environmental health management in waste management have not been implemented. Waste management planning is not done sorting between organic and inorganic waste. All waste is collected together in the

waste disposal site. According to the Regulation of the Minister of Health of the Republic of Indonesia No. 3 of 2014 concerning Community-Based Total Sanitation which requires sorting waste by type, amount, or nature. The volume of temporary waste bins at Ibn Cholil Islamic Boarding School is 4m<sup>3</sup>. There is no recording or reporting of waste generation every day from the Environmental Service to the Ibn Cholil Islamic Boarding School.



**FIGURE 1.** Trash Can at Ibn Cholil Islamic Boarding School

Reduce, Reuse, Recycle waste management has not been implemented. Regulation of the Minister of Health of the Republic of Indonesia No. 3 of 2014 concerning Community-Based Total Sanitation. Household waste management should involve reducing, reusing, and recycling. The temporary waste disposal sites in the male and female dormitories are combined into one. Temporary landfill uses permanent containers made of concrete. According to the Regulation of the Minister of Public Works of the Republic of Indonesia Number 03/PRT/M/ Year 2013 concerning the Implementation of Waste Infrastructure and Facilities in Handling Household Waste and Waste Similar to Household Waste which should use containers or containers that are not permanent. Supervision is carried out by the men's dormitory management in the transportation of waste from the temporary landfill to the Environmental Service truck. Waste management planning is needed to reduce waste and process it into goods that have economic value. Recycled waste can be resold or used in daily life.

### **C. MANAGEMENT OF HEALTHY LATRINE PROVISION**

A healthy latrine is a well-designed system for managing human waste safely and hygienically. A healthy latrine is equipped with a gooseneck or pit latrine[18]. Facilities for hand washing with clean water and soap should also be provided. The provision of sanitation facilities can be complemented by effective waste management systems such as, the use of septic tanks to process waste to prevent environmental pollution [19].

Having a healthy latrine provides very important benefits to the health of individuals and the community as a whole. A healthy and proper latrine can prevent the spread of infectious diseases that often occur through contamination of

water and soil by human feces. It can effectively practice personal hygiene, reducing the risk of developing diseases such as diarrhea, cholera, and respiratory infections. The adoption of healthy latrines in the community also helps to reduce environmental pollution, improve neighborhood sanitation, and improve overall quality of life. As such, having a healthy latrine is not only a human right, but also an investment in improving the overall health, safety and well-being of the community.

The importance of having and being able to properly use a healthy latrine is to improve public health, and prevent the spread of disease. Diseases caused by not using healthy latrines include diarrhea, typhoid and polio. Diarrhea is caused by bacterial infections such as e-coli, shigella, salmonella, or staphylococcal enterocolitis. These bacteria multiply quickly and can contaminate drinking water, food and the surrounding environment. Typhoid is caused by salmonella typhi bacteria that enters the body through the mouth and attacks the digestive tract. This situation is due to poor sanitation such as not paying attention to latrine hygiene. Polio is a disease caused by a virus that enters the body through the mouth. Food or drink that has been contaminated by feces containing the polio virus. The virus then attacks the digestive tract and spreads to the peripheral nervous system, causing muscle weakness and even paralysis.

The use of healthy latrines is essential in maintaining public health and preventing the spread of disease . In addition, the development of adequate sanitation infrastructure must be supported by public health education[20]. Education on the importance of maintaining personal hygiene, proper handwashing and good sanitation practices should be improved. Involving the community in environmental hygiene programs, such as gotong royong (mutual cooperation) to clean the surrounding area, can also increase awareness of the importance of good sanitation. Governments and non-governmental organizations need to work together to provide proper sanitation facilities and ensure that all communities have access to information and tools to maintain hygiene [21]. Communities can play an active role in creating a clean and healthy environment.

The results of the research on the provision of latrines in male and female dormitories at Ibn Cholil Islamic Boarding School are equipped with septic tanks [22]. The number of latrines in the male dormitory is 10 and in the female dormitory is 9. The total number of students is 382 people. According to the Minister of Health Regulation Number 70 of 2016 concerning Standards and Requirements for Industrial Work Environment Health, the ratio is 1:40 for men and 1:25 for women. The latrine floor is slippery, and there are puddles of water around the latrine building. This condition is caused by the lack of monitoring from the male and female dormitory administrators, and there is no standard operating procedure (SOP) related to the correct use of latrines so that the facilities at Ibn Cholil Islamic Boarding School are maintained in quality. According to the Regulation of the Minister of Health of the Republic of

Indonesia No. 3 of 2014 concerning Community-Based Total Sanitation, latrine floors are made of waterproof materials, always dry and clean to prevent the spread of pests. Hand washing facilities equipped with running water and soap must be provided to prevent the transmission of bacterial diseases.

This research is in line with Achmad Muchaddam said that many pesantren (50%) pay less attention to the management of their latrines, on average their latrines are dirty, the number does not match the number of students, there are no cleaners available in each toilet, the floor is not permanent and slippery, and there are often insects or vectors [22].

In boarding schools, the existence of healthy latrines is very important to support the health of students and the smooth running of daily activities. With clean and well-maintained latrines, the risk of spreading diseases such as diarrhea and gastrointestinal infections can be reduced. In addition, adequate sanitation facilities also contribute to the comfort and well-being of santri. The importance of education about hygiene and sanitation behavior so that students can maintain personal hygiene and the environment.

**TABLE 4**  
**POAC Provision of Healthy Latrines**

Planning	Organizing	Actuating	Controlling
There is a maintenance schedule for latrine cleaning	There are officers who supervise the cleaning of toilets/toilets	Implementation of Latrine cleaning 2 times a week	There is supervision in latrine cleaning
There is a fund allocation for draining latrines that are Clogged	There is a clear job description for officers	There is latrine repair according to budget	There is budget reporting that has been used for latrine maintenance
There is a provision of facilities and infrastructure in latrine maintenance activities	There is a special officer in providing facilities and infrastructure tools	There is latrine desludging done once every 5 years	There is an evaluation in Implementation of latrine cleaning activities

The application of the POAC management function in managing the provision of healthy latrines at Ibn Cholil Islamic Boarding School shows that some components of environmental health management have not been fully implemented. Latrine cleaning is done once a week. According research conducted in Nganjuk City, East Java conducted by Fibrianti said that, habits are actions that are carried out continuously by humans in the same way, such as cleaning toilets regularly or twice a week [17]. Standard Operating Procedure (SOP) planning needs to be done in cleaning the toilet twice a week so that the toilet remains clean, and does not become a breeding ground for disease vectors.

#### **D. MANAGEMENT OF WASTEWATER SEWERAGE PROVISION**

Wastewater disposal system management is a measure to collect, process and dispose of domestic or industrial wastewater safely and efficiently [23]. The main function of sewerage is to collect and convey wastewater to treatment or purification facilities [24]. Wastewater can be utilized before being discharged into water bodies or rivers [25]. Utilization of wastewater can be used for watering plants, and flushing bathrooms. Wastewater disposal channels such as underground pipes, open channels, or separate channels that separate rainwater and wastewater.

Sewerage can solve the problem of unqualified facilities. Good sewerage will not contaminate wells, rivers, lakes, or other water sources [26]. They must be covered to prevent the entry of garbage that can attract flies, mosquitoes, and other insects. Sewerage must be safe, such as the use of pipes connected to closed drains or open drains that are watertight so as not to disturb the aesthetics of the environment [17].

Effective sewage management also supports environmental sustainability by reducing water and soil pollution and promoting more efficient use of water resources. In addition, good sewerage also helps prevent flooding as it smoothly drains rainwater and wastewater into the proper drainage system. As such, having good sewerage is an important step in ensuring a clean, healthy and sustainable environment for everyone.

Untreated wastewater will contaminate clean water sources and can cause the spread of diseases such as diarrhea. Open sewerage can be a breeding ground for disease vectors [6]. Criteria that must be met to ensure efficiency and sustainability in wastewater management using Waste Water Treatment Plant are designed to be easy to operate and maintain by responsible personnel [8]. Negative impacts are also considered on the surrounding environment including reducing greenhouse gas emissions and the use of hazardous chemicals.



**FIGURE 2. Open Sewerage at Ibn Cholil Islamic Boarding School**

The research shows that the wastewater disposal channels in the male dormitory and female dormitory of the Ibn Cholil Islamic Boarding School are not equipped with a Wastewater Treatment Plant before being discharged into

water bodies, and do not have a closed and watertight wastewater infiltration system, resulting in water seepage on the ground surface. This research is the same as Rahmiani in Pare city stated that the drainage channel or sewerage in the Pondok Pesantren DDI Ujung Lare area is an open channel without a channel cover on it (FIGURE 2) and the bottom surface of the channel is not watertight so that it has the potential for environmental pollution from odor and infiltration into the soil [10]. Open sewerage from the bathroom flows into the river, causing blockages due to piles of garbage. According to the Minister of Health Regulation No. 2 Year 2023 on the Implementation of Government Regulation No. 66 Year 2014 on Environmental Health, it is required that the sewerage is made of waterproof material and has a cover.

Proper wastewater disposal systems can keep communities clean and healthy by reducing the risk of waterborne diseases. Protect aquatic ecosystems from contamination by harmful substances. Implementation and maintenance of proper sewerage requires cooperation between government, community and industry. Ensuring sustainable waste management can start from creating a clean and healthy environment for all.

The application of the POAC management function in the management of wastewater sewers at the Ibn Cholil Islamic Boarding School shows that several components of environmental health management have not been implemented. Budget allocation planning for the construction of a Waste Water Treatment Plant has not been carried out. According to the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 5 of 2021 concerning. Procedures for Issuing Technical Approval and Operational Feasibility Letters in Environmental Pollution Control, every business and activity must carry out a wastewater treatment or utilization process.

**TABLE 5**  
**POAC Wastewater Sewer Provision**

Planning	Organizing	Actuating	Controlling
There is a plan to build waste water treatment plant	There is a special officer who makes the Waste water Treatment Plant	There are facilities and infrastructure in carrying out activities wastewater treatment	There is supervision of the waste water Treatment Plant control basin
There is a schedule for draining the waste water treatment plant	There are officers who drain sludge / mud in the waste water treatment Plant	There is a sludge / drainage Wastewater Treatment Plant	There is an evaluation in the activity if it is not in accordance with the waste water treatment activity plan
There is a budget allocation for sewerage construction	There is a clear job description for officers	There are wastewater utilization activities such as: bathroom flushing, watering plants, fish ponds	There is monitoring of sewerage cleaning

Checking the pH of wastewater before it is discharged into the environment is not carried out. According to the Regulation of the Minister of Environment and Forestry Number P.68/Menlhk-Setjen of 2016 concerning Domestic Wastewater Quality Standards. The permissible pH standard for wastewater before discharge is between 6 to 9. Water with a pH below 6 tends to be acidic and potentially damaging to the environment, while water with a pH above 9 has a high level of alkalinity and can also have a negative impact on the environment. Routine supervision and monitoring is not carried out in the process of cleaning sewerage. Budget allocation planning needs to be done in making domestic wastewater treatment plants at the Ibn Cholil Islamic Boarding School. Indiscriminate disposal of wastewater can pollute water and endanger living organisms in the river.

#### **E. ANALYSIS OF BASIC SANITATION MANAGEMENT IMPLEMENTATION**

The implementation of basic sanitation management at Ibn Cholil Islamic boarding school in Bangkalan Regency includes the provision of clean water, waste management, provision of healthy latrines, and provision of sewerage. The variables studied will be assessed based on the POAC management function which is inseparable from the elements of management and is also related to the technical guidelines for sanitation of public places from the Bangkalan health office.

Analysis of the data shows that the implementation of the POAC management function of environmental health related to basic sanitation has several limitations including the lack of budget for supporting facilities and infrastructure, and knowledge of the importance of maintaining environmental hygiene.

#### **V. CONCLUSION**

Some components of basic sanitation management have met the required standards, there are areas that still need improvement. It is recommended that the boarding school administration focuses on educating the staff and management regarding basic sanitation practices, including the provision of clean water, waste management, the provision of hygienic latrines, and the establishment of an efficient wastewater disposal system.

Additionally, health authorities are advised to conduct regular monitoring of sanitation practices at the boarding school to ensure compliance with public health standards. Moreover, for future research endeavors, it is suggested to include additional variables and updated data to ensure a comprehensive and varied analysis, thereby ensuring the effective implementation of environmental health management in basic sanitation management at the boarding school.

This holistic approach will contribute to the overall improvement of sanitation standards, leading to a cleaner and healthier environment for all stakeholders involved. Furthermore, providing specific recommendations for

implementing the proposed changes and highlighting the broader implications of the study's findings for policymakers and public health officials would enhance the conclusion's impact and relevance.

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