

(Research/Review) Article

Evaluation of Environmental Sanitation in Laino Central Market Operations: Assessing Compliance with Health Standards in Raha City

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Abstract: Sanitation issues are critical and need to be addressed by all parties, as they are closely linked to public health. Sanitation refers to efforts aimed at preventing disease by eliminating or controlling environmental factors that contribute to disease transmission. One of the public service facilities that must organize proper sanitation is the public market. This study aims to evaluate the environmental sanitation of Sentral Laino Market in Raha City. The research utilizes a quantitative descriptive analysis method to assess various parameters of the market's sanitation. A total of 14 parameters were measured based on the Regulation of the Indonesian Minister of Health No. 17 of 2020. The parameters and their respective values are as follows: Market Building (75%), Stall Building (63%), Waste Disposal (60%), Sewage and Drainage (57%), Toilets (88%), Clean Water (83%), Food and Foodstuff Sales Places (57%), Control of Disease Transmitting Animals (33%), Market Security (50%), Lighting, Temperature and Humidity (100%), Hand Washing Places (50%), Parking Places (75%), Traders/Employees (40%), and Visitors/Buyers (25%). Among the 14 components assessed, 5 components met the required standards, while 9 components did not meet the eligibility criteria. The overall category value, based on the "yes" answers from all the components, totaled 56 points (60%). According to the Regulation of the Indonesian Minister of Health No. 17 of 2020 concerning Healthy Markets, a market is considered eligible if the total score reaches $\geq 70\%$. Therefore, the Sentral Laino Market does not meet the standards for a healthy market. This study highlights the need for significant improvements in various aspects of the market's sanitation to ensure public health and safety. It is crucial for local authorities and stakeholders to address these sanitation challenges to create a healthier environment for both traders and consumers.

Keywords: Environmental Sanitation, Laino Central Market, Market Sanitation, Public Health, Sanitation Assessment.

1. Introduction

Sanitation issues have become a worldwide problem. Based on data from the Environmental Performance Index (EPI) in 2022 related to the provision of clean water and sanitation, Indonesia is ranked 164th out of 180 countries with a score of 28.2 below Nepal and Nigeria. According to WHO in 2019, Indonesia is ranked third with access to sanitation for only 61% of the population and is one of the countries with the lowest sanitation in ASEAN and Asia after India and Cambodia.

Sanitation plays an important role in public health efforts to create environmental conditions that can support the achievement of a healthy, prosperous and happy quality of human life. According to WHO (World Health Organization), sanitation is an effort to prevent disease by breaking or controlling environmental factors that become the chain of disease transmission (Sucipto, 2019).

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Sanitation issues need to be considered by all parties because they are related to public health, environmental balance and all human activities. Poor quality sanitation is linked to the transmission of infectious diseases such as diarrhea, typhoid fever, ascariasis, malnutrition, dysentery, cholera, intestinal worm infections and other infectious diseases (World Health Organization, 2022).

Laino Central Market is a traditional market located in Laiworu sub-district, Batalaiworu district, Muna Regency. Laino Central Market is the largest economic hub in Muna Regency. However, a survey conducted at this market shows that the semi-permanent buildings are partially damaged, with much trash scattered and neglected, allowing disease-carrying animals such as flies and mosquitoes to roam. The available temporary waste disposal sites do not meet health standards. Drainage is inadequate. These conditions result in an unhealthy market, contributing to the spread of disease and disrupting the comfort of shoppers visiting the market. This indicates that basic sanitation in the market has not received attention from relevant parties. Therefore, it is important to conduct research on the Evaluation of Environmental Sanitation in the Operation of the Laino Central Market in Raha City based on Minister of Health Regulation No. 17 of 2020 concerning Healthy Markets. This is to determine whether the Laino Central Market is categorized as a healthy or unhealthy market, in order to improve or provide comprehensive environmental sanitation services for a healthy, clean, and comfortable market environment.

2. Literature Review

Sanitation

Sanitation can also be defined as an effort to reduce the number of human diseases so that optimal health status can be achieved. Sanitation is a part of environmental health science that includes the ways and efforts of individuals or communities in controlling the environment that threatens human health and survival. (Yuningsih, 2019).

Sanitation is a priority in improving public health services by monitoring factors in the human physical environment that can have an adverse effect on physical development. Sanitation is an important aspect in building a healthy and sustainable society (Aldo, 2019).

Environmental Sanitation

Environmental health efforts or environmental sanitation can be defined as activities that aim to improve and maintain basic environmental conditions and affect human welfare. Environmental sanitation includes the provision of clean and safe water, waste disposal from humans, animals and industry, food sanitation, clean and safe air, clean and safe homes (Novianti and Pertiwi, 2019).

The scope of Environmental Sanitation is an equilibrium in the ecology that must exist between humans and the environment to ensure the healthy state of humans. The scope of environmental health includes: 1. drinking water availability 2. Waste water management and pollution control 3. Solid waste disposal 4. Prevention/countermeasures for soil pollution by human waste 5. Countermeasures for air pollution 6. Countermeasures for radiation 7. Occupational health 8. Countermeasures for noise 9. Environmental health aspects and air conveyance 10. Urban design 11. Prevention of accidents (Ningsih, 2019).

Sanitation of Public Places

Sanitation of public places is a place provided for the public facilitated by the government, individuals and the private sector and utilized by the community that has a fixed place and activities, and has sanitation facilities (latrines, landfills, waste) for environmental hygiene and health, such as traditional and modern markets, tourist attractions, terminals, stations, and the like (Sari and Nuari, 2017).

Sanitation of public places is a disease prevention effort that focuses its activities on hygiene/health efforts of public places (ITU) in serving the general public in connection with the activities of these public places physiologically, psychologically, preventing the transmission of disease or accidents and aesthetics, between residents, users, and the surrounding community (Setiamey and Deliani, 2019).

Market

Markets are territories for trading products with more than one seller, whether said to be retail outlets, conventional business sectors, shopping centers, squares, exchange focuses and different assignments (the understanding of markets can be emphasized from a monetary perspective, specifically for exchange trade). At a fundamental level, the financial actions that take place in the market depend on the existence of opportunities to compete, both for buyers and sellers, merchants have the opportunity to conclude what labor and products to deliver and which ones to disseminate. Meanwhile, buyers have the opportunity to buy and choose labor and products depending on the quantity of purchasing power (Sari, 2018).

Markets in Indonesia are known for their poor facilities and sanitation behavior of market residents and market cleaners, the behavior of market traders and letting garbage scatter and market cleaners lack of sanitation hygiene of the market environment, lack of public concern, especially market residents to apply proper sanitation hygiene. Ignorance about the benefits of sanitation among the community, especially market residents, results in a community that underestimates efforts to live clean and healthy. This results in a market environment that is slum, disgusting, and trash that can cause disease (Masyhuda, 2017).

3. Proposed Method

This research was conducted at Laino Central Market, Laiworu Village, Batalaiworu District, Muna Regency, Southeast Sulawesi. The coordinates of the research location are between 4°49'04.6" South Latitude and 122°44'0.44" East Longitude. The research was conducted from December 2024 to January 2025. The population in this study is all elements related to the Environmental Sanitation Conditions of Laino Central Market starting from the condition of the building, market facilities, environmental conditions, and market activities. The tools used in this study are a camera that functions to take pictures in the field, writing tools to write the results of direct observations in the field, GPS (Global Positioning) to determine the coordinates of the research location. The materials used in this study are questionnaires based on the Regulation of the Minister of Health of the Republic of Indonesia No. 17 of 2020. The variables observed in the study were assessed based on 14 parameters, namely: Permanent market buildings, Semi-permanent market buildings, Waste Disposal Sites, Sewerage and Drainage, Clean Water, Toilets, Places to sell food and food ingredients, Control of disease-transmitting animals, Market security, Lighting, temperature and humidity, Hand washing places, Parking lots, Traders or Employees and Visitors or buyers.

The data collection techniques used in this study were as follows: Observation. This study was conducted to directly observe the environmental sanitation facilities in the market, including the condition of the building, garbage disposal area, waste and drainage channels, toilets, clean water, food and food product sales areas, market security, lighting, temperature and humidity, handwashing facilities, and parking areas. Interviews. This was conducted regarding compliance with healthy market requirements in accordance with Indonesian Minister of Health Regulation No. 17 of 2020. The internal monitoring instrument for healthy markets, based on Indonesian Minister of Health Regulation No. 17 of 2020 concerning healthy markets, was used with relevant sources to obtain information regarding environmental sanitation at the Laino Central Market. Documentation. This study conducted documentation to determine conditions relevant to the research topic.

The data was then analyzed using univariate frequency distribution or descriptive quantitative analysis using the equation:

$$P = \sum \frac{f}{\text{Indicator}} \times 100\% \quad (1)$$

Where:

P = Percentage

f = Number of Yes Answers

r = Indicator

The assessment result categories are classified based on the number of Yes answers as follows:

a. >70% = Meets Requirements

b. <70% = Does Not Meet Requirements

4. Results and Discussion

The tools used in this study are a camera that functions to take pictures in the field, writing tools to write the results of direct observations in the field, the materials used in this study are questionnaires based on the Indonesian Minister of Health Regulation No. 17 of 2020. The variables observed in the study were assessed based on 14 parameters, namely: Permanent market buildings, Semi-permanent market buildings, Waste Disposal Sites, Waste Channels and Drainage, Clean Water Toilets, Places to sell food and food ingredients, Control of disease-transmitting animals, Market security, Lighting, temperature and humidity, Hand washing places, Parking areas, Traders or Employees and Visitors or buyers.

Table 1. Observation results and overall respondent assessment related to environmental sanitation conditions at the Laino Central Market operation in Raha City.

No	Assessment Components	Answer Yes	%	Answer No	%
1.	Permanent Market Buildings	12	75	4	25
2.	Semi Permanent Market Buildings	10	63	6	37
3.	Garbage Disposal	3	60	2	40
4.	Sewage and Drainage	4	57	3	43
5.	Toilets	7	88	1	12
6.	Clean Water	5	83	1	17
7.	Food and Foodstuff Sales Points	4	57	3	43
8.	Disease Control	1	33	2	67
9.	Market Security	1	50	1	50
10.	Lighting, Temperature and Humidity	2	100	0	0
11.	Handwashing Station	1	50	1	50
12.	Parking Lot	3	75	1	25
13.	Traders/Employees	2	40	3	60
14.	Visitors	1	25	3	75
	Total	57		30	
	Average Result		60		38

Source: *Primary data processed*, 2025

Market Permanent Building

The market's permanent building variable has generally met the requirements in accordance with the Minister of Health Regulation Number 17 of 2020. The results show that out of 16 indicators of market assessment, 12 indicators with the answer “yes” (75%). This shows that some aspects of the market permanent building have met the established sanitation standards. Based on field observations, the permanent market building is in a solid condition made of concrete and durable, the cleanliness in the market building is also always cleaned by each trader, but it cannot be denied that there are still some building materials that require attention and repairs such as some leaking roofs, causing rainwater to wet the inside of the building during the rainy season. In addition, the environmental conditions outside the building are not clean, there is a lot of garbage scattered outside. This needs to be a concern by the market manager to coordinate with related parties in order to improve building materials and not disturb the comfort of both traders and market visitors.

Semi-permanent building

Semi permanent building variable The results show that in 16 assessment indicators, there are only 10 indicators categorized as yes (63%) and 6 indicators categorized as no (37%). Therefore, the semi-permanent building variable has not met the requirements of a healthy market. This can be seen from the market buildings that are not maintained, some stalls and stalls of wet and dry traders still have garbage scattered around which comes from the rest of

the sales and is left so that it accumulates and decays due to the absence of trash can facilities provided in each stall / booth, however, there are several stall / booth traders who have awareness and take the initiative to provide trash cans independently in the form of unused cardboard or sacks so that the remaining merchandise is not scattered everywhere besides that, market facilities are not maintained, the market aisle is used for selling so that road access for visitors becomes narrow.

Waste disposal site

The variable waste disposal site does not meet the requirements in accordance with the Minister of Health Regulation No. 17/2020. There are 2 waste disposal sites available. This TPS is where traders dispose of their leftover merchandise, such as fruit peels, plastic wrap, and food waste. The waste problem in this market is still not resolved because many traders are not disciplined and dispose of their waste in any place, not in the TPS. However, there are some stalls/stalls that have the awareness and initiative to provide waste bins independently in the form of unused cardboard or sacks so that the leftover merchandise is not scattered everywhere. Each kiosk does not have waste bins that meet the requirements such as being made of waterproof material, closed, and separated between organic, inorganic and residue.

Sewage and Drainage

The sewage and drainage variables do not meet the requirements in accordance with the Minister of Health Regulation No. 17 Year 202. Drainage from some market stalls/closes is made of cement but is still in an open condition, not closed using metal gratings, making garbage from stalls, such as food scraps, plastic, and dry leaves, easily enter the open drainage channel so that it accumulates and clogs the flow of water. The condition of this drainage channel is alarming. Some parts of the drainage channels are cut off and deliberately filled in to open up access roads for traders or visitors. As a result, the water flow in the drainage channel is not smooth and stagnates at several points. These drainage channels are directly discharged into the sea and the garbage in the drainage channels is also discharged into the sea, polluting the marine environment and threatening the surrounding marine ecosystem. This should be of particular concern to market managers, who should recommend policies for the government to improve and consider the final disposal of market drainage channels.

Although the sewage and drainage assessment components do not meet the requirements, this market has been equipped with an IPAL (Waste Water Management Installation) which functions to treat fish waste before being discharged into the environment. Fish waste that has gone through the treatment process is then discharged into the sea. However, the existing WWTP in this market in terms of form and management still uses a simple WWTP to treat domestic waste.

Toilets

Toilet variables in general have met the requirements in accordance with the Minister of Health Regulation Number 17 of 2020. Laino Central Market has 12 toilets separated between men and women, 8 toilets are in the main market building and 4 toilets in the fish trader stall building each equipped with latrines and running water that are clean, odorless, no mosquito larvae, have sufficient lighting and ventilation and have officers responsible for the maintenance and cleanliness of the toilet. However, the toilet facilities in this market have significant differences in terms of facilities. Toilets in the main market building are not equipped with handwashing stations, while toilets in the fish trader stall building provide handwashing stations.

Clean Water

Clean water variables in general have met the requirements in accordance with the Minister of Health Regulation Number 17 of 2020. Laino central market has sufficient clean water. The water source used comes from the PDAM. Based on field observations, the water used is clean, colorless, odorless and tasteless.

Food and Grocery Sales Locations

Food and grocery sales locations generally do not meet the requirements set out in Minister of Health Regulation Number 17 of 2020. Some locations selling fresh food, such as vegetables and fruit, lack handwashing facilities equipped with soap and running water. Sales tables should not be made of wood, but rather of rust-resistant materials with a minimum height of 60 cm. This reflects a lack of attention from market managers regarding inadequate facilities.

Control of Disease-Transmitting Animals

The control of disease-transmitting animals generally does not meet the requirements set out in Minister of Health Regulation Number 17 of 2020. Health workers did not spray for flies, mosquitoes, cockroaches, or rats at Laino Central Market due to a lack of attention and concern from relevant parties. During observations, flies were observed hovering around several vendor stalls, particularly those selling poultry and fish, as flies prefer damp environments. Furthermore, there were pet goats roaming the market area, which could disrupt the comfort of both vendors and customers.

Market Safety

Market safety variables generally do not meet the requirements set out in Minister of Health Regulation Number 17 of 2020. Laino Central Market has a police post strategically located near the main market to maintain market security. However, this market is not equipped with fire extinguishers. This is crucial as fires can occur at any time, and fire extinguishers can help extinguish them as quickly as possible. It is highly recommended that market management and vendors work together to find a solution to ensure the market has fire extinguishers.

Lighting, Temperature, and Humidity

The lighting, temperature, and humidity variables were categorized as "yes" (100%) and met the requirements for a healthy market. The main market building is designed with a high roof and glass walls at the top to allow for natural sunlight. This creates a bright and comfortable market atmosphere during the day, and the temperature and humidity inside the building tend to be cool and not too hot even during the day. Stalls inside adjacent buildings utilize additional lighting to enhance illumination, especially in the afternoon or on cloudy days. Furthermore, the temperature and humidity are cooler because they are protected from sunlight, while stalls outside the building generally use lamps for illumination. However, some stalls are located in open areas and utilize natural sunlight. Stalls outside the building are more exposed to sunlight, so the temperature inside the stalls tends to be slightly hot, especially during the day.

Overall, Laino Central Market has varying lighting, temperature, and humidity conditions, depending on the location and type of stall building. However, in general, the market is designed to maximize natural lighting and air circulation, creating a comfortable atmosphere for visitors and vendors.

Handwashing Stations

Handwashing stations generally do not meet the requirements set out in Minister of Health Regulation Number 17 of 2020. Handwashing facilities are only available in the toilets of the fish vendors' kiosks, which are located some distance from the main market building. This makes it difficult for other vendors to wash their hands in the designated areas, and they resort to doing so at their own convenience. This can impact the health of both vendors and customers, as hands that are not washed with running water and soap are likely to be contaminated with bacteria, which can cause illness. Handwashing stations in the restrooms are not equipped with soap.

Parking Area

The parking area generally meets the requirements stipulated in Minister of Health Regulation Number 17 of 2020. This market has parking for various types of vehicles. However, there is no clear separation between the entrance and exit lanes, resulting in numerous vehicles entering from all directions in a disorderly manner, sometimes causing congestion.

Traders/Employees

The trader/employee variable shows that out of the five assessment indicators, two indicators were categorized as "yes" (40%) and four indicators were categorized as "no" (60%). This indicates that the trader/employee variable does not meet the requirements. Traders, particularly wet vendors, do not use personal protective equipment (PPE) when selling, in anticipation of vendors who are concerned about health. This could increase customer trust. Some wet vendors, particularly meat, poultry, and fish vendors, do not wash their hands with running water. Although their sales areas are equipped with handwashing facilities, they do not provide soap. Furthermore, some vendors, particularly men, still smoke while selling, which can be irritating to customers who are sensitive to cigarette smoke, causing coughing, shortness of breath, and discomfort.

Visitors

The vendor/employee variables generally do not meet the requirements stipulated in Minister of Health Regulation Number 17 of 2020. Most visitors to Laino Central Market do not practice good hygiene practices, such as washing their hands after selecting groceries. There are no signs or slogans in the market area advising visitors about order and health measures while shopping, and some visitors still litter.

The overall research results at Laino Central Market yielded a score of only 56 points (60%) in the "yes" category. Based on Indonesian Minister of Health Regulation No. 17 of 2020, a market meets the criteria if the score is $\geq 70\%$, meaning Laino Central Market falls into the unhealthy market criteria.

A similar study conducted by Amelia et al. (2021) at the Kemiri Muka Market in Depok found that the waste disposal area, waste channels and drainage, food and feed sales areas, and control of disease-transmitting animals did not meet requirements. Meanwhile, toilets, clean water, and market disinfection met requirements. Sanitation management, such as waste management, sewage, and drainage, did not meet requirements. Furthermore, traders did not comply with PHBS (Clean and Healthy Living Behavior). This means that the Kemiri Muka Market in Depok does not meet the requirements for a healthy market based on Minister of Health Regulation No. 17 of 2020.

The government needs to implement policies and steps to address the problems at Laino Central Market:

- a. Improve infrastructure, repair and enhance inadequate sanitation facilities, such as waste management systems by increasing the capacity of adequate and easily accessible waste disposal sites, separating organic and inorganic waste, improving waste channels/drainage, and other essential facilities within the market area.
- b. Provide market signs/signs to make it easier for the public to find and identify the market location.
- c. Conduct regular outreach and education for vendors and visitors about the importance of sanitation and cleanliness in the market environment.
- d. Enforce regulations and impose clear sanctions within the market area for vendors and visitors who fail to comply with applicable regulations.
- e. Regular monitoring and evaluation of sanitation conditions to create a healthy and sustainable market environment.

5. Conclusions

Based on the results of research at the Laino Central Market, it can be concluded that of the 14 components of the market assessment, the category score or the number of "yes" answers only gets 56 points (60%), which means that the Laino Central Market is included in the category of not meeting the requirements of a healthy market. The standards of the

Indonesian Minister of Health Regulation No. 17 of 2020 stipulate that markets must achieve a minimum score of 70% to be considered health-qualified. This means that there are still many aspects of health that have not been met in the market, including semi-permanent market buildings, garbage disposal, sewage and drainage, food and food selling places, control of disease-transmitting animals, market security, hand washing places, traders/employees and visitors. In this study, the government is expected to pay attention to and monitor the sanitation facilities at the Laino Central Market in Raha City by improving the condition of damaged facilities and providing sufficient and adequate facilities. Improving environmental sanitation at the Laino Central Market in Raha City requires collaborative efforts from various parties, including market managers, vendors, visitors, and the government. This is expected to improve the sanitation conditions of the market environment and meet the requirements for a Healthy Market as stipulated in Minister of Health Regulation No. 17 of 2020.

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