



Sanitation Control of Ferry Ports in Tanjung Harapan Harbor

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Abstract

Environmental sanitation is an activity to create healthy environmental conditions in the port area. Good sanitation conditions can prevent disease transmission. Sanitary conditions in the Port of Tanjung Harapan Selat Panjang are not good enough, characterized by rat catching which increases every year, poor drainage conditions, and inadequate sanitation facilities. The purpose of this study is to evaluate the management of sanitation at Tanjung Harapan Harbor in Selat Panjang to become input material to make it better in the future. This research uses a qualitative method with a system approach based on input, process and output where the data collected comes from interviews, observation and documentation and is analyzed using triangulation. Sanitary management of the Port of Tanjung Harapan Selat Panjang is managed by port management and supervised by the Port Health Office. Sanitary management at the Port of Tanjung Harapan Selat Panjang is already running but not optimal, there are still obstacles from the aspects of human resources, large financing and inadequate infrastructure such as the unavailability of TPS and WWTP for waste management. Port sanitation management must be maintained to prevent the development of disease vectors and transmission of various types of diseases. The need for good cooperation between the manager and the Port Health Office to create a healthy port.

Introduction

The port is a transportation crossing facility and infrastructure consisting of buildings and other facilities both on land and surrounding waters with certain boundaries. The port is a government and economic activity that is organized in an integrated manner to provide port services according to the level of need (Rohmah et al., 2019; Ma et al., 2021; Gurzhiy et al., 2021). The sanitary condition of the port must be well maintained in order to prevent the potential risk of spreading disease, health problems, security and dynamic order so as to create a healthy port. Therefore, as the entrance to the country in carrying out its activities, the port needs to pay attention to the management of a clean and healthy environment so that it grows and develops a sense of security, comfort, order and health which is a form of "excellent service" as an economic growth center area that refers to the ECO Port concept as stipulated in Government Regulations on Maritime Environmental Protection and Guidelines for the Implementation of Environmentally Friendly Ports and Airports (Awan & Salsabila, 2024; Hua et al., 2020; Castellano et al., 2020; Manampiring et al., 2024).

From the aspect of public health, environmental media that need attention in realizing the quality of a healthy port environment are efforts to monitor disease spreading agents (physical,

chemical, microbiological), intermediary media (water, air, food / drink, disease vectors such as insects and rodents, garbage and waste, humans and their behavior), disease observation and public complaints related to activities at the port. This is in line with the enactment of the International Health Regulation (IHR) 2005, which Indonesia has agreed to fully implement in 2014 in the regulation of the Minister of Health No. 44 of 2014 through disease surveillance or observation activities at the port, so that potential infectious diseases do not develop into a public health emergency of international concern, such as ebola, alvian influenza, swain flu, cholera, bubonic plague, yellow fever, west Nile fever, smallpox, polio, dengue meningococcus and SARS (Nisa & Fadilah, 2023; Senthilingam, 2020).

Ports are the main gateway for the movement of people, goods and services, both domestically and internationally. Tanjung Harapan Port in Selat Panjang, as one of the important ferry ports in the region, plays a strategic role in community mobility and logistics distribution. However, the high activity at this port also brings great challenges in terms of sanitation control, especially in preventing the spread of infectious diseases that can have an impact on public health (Ellwanger et al., 2021; Filip et al., 2022; Burkle, 2020). Poor sanitation in ports can lead to various health problems, such as gastrointestinal infections, skin diseases, and respiratory infections. In addition, ports that are not well-managed in terms of sanitation can be a source of spread of infectious diseases, including those from abroad, considering that ports are gathering places for people from various regions and countries.

Several studies have shown that ports with good sanitation systems can significantly reduce the risk of disease spread. Therefore, sanitation management in ports is one of the critical aspects that must be considered, especially in this era of globalization and high mobility. Like the research conducted by Nero et al. (2024) Assessment of Environmental Sanitation and the Presence of Rats at the Belawan Sea Port of the Class I Medan Port Health Office, the results of the study found that rat control was carried out by installing live rat traps. Research conducted by Nisa & Fadilah (2024) Based on the results of research using the observation method, it can be concluded that environmental sanitation management at Tanjung Perak Port Surabaya generally meets the standards set out in the Minister of Health Regulation (Permenkes) No. 492. However, there is one aspect that does not meet the standards, namely wastewater treatment in the Temporary Waiting Room (RTS), which has the potential for pollution. In addition, less than 50% of sewage lines and septic tanks do not meet health requirements.

Based on initial preliminary studies, sanitation conditions at Tanjung Harapan Port in Selat Panjang are still not good, there are still toilets that have not been maintained with perforated tiles, clean water that is brown, drainage channels that are clogged with garbage, garbage scattered in the canteen area and based on data from the Port Health Office in 2024 the capture of rats at Tanjung Harapan Port in Selat Panjang was 16 rats and the density of flies was 4 flies /block grill. In 2018 the capture of rats at the Port of Tanjung Harapan Selat Panjang was 20 rats, an increase in the number of rat catches from the previous year. This study was conducted to analyze the sanitation conditions at Tanjung Harapan Port in Selat Panjang in 2024. This study also aims to evaluate sanitation control efforts that have been carried out, identify factors that affect the effectiveness of these controls, and provide recommendations for better sanitation system improvements. The results of this study are expected to make a positive contribution to improving the quality of public health, especially for port service users and the surrounding population.

Methods

This research uses qualitative research methods. According to Mellani et al. (2023) descriptive research is research intended to investigate the state, condition, situation of events and activities whose results are presented in the form of a research report. The research location chosen in

this study is the Panjang Strait Port in 2024. said data processing in qualitative research is carried out by classifying or categorizing data based on several friends according to the research focus (Prihastuty, 2023).

In this triangulation technique, researchers use source (data) triangulation techniques by developing cross-check data with facts from other sources by including informant categories using different informant groups then identifying variables and conducting variable relationships, triangulation of data collection methods with information from interviews with informants as data sources, confirmed with other sources such as documentary data and observation results, triangulation of investigations, researchers conduct investigations with direct observation to the field to find out the actual situation in a problem and triangulation of theory, namely researchers comparing the findings and data in accordance with the theory in order to get the right trust results (Rahardjo, 2010).

Result and Discussion

Input

Human Resources

Table 1. Results of In-depth Interviews Regarding Human Resources

Question		Observation Results	Document Review Results
Human Resources			
Are there human resources or officers who handle sanitation at the <i>Tanjung Harapan Selat Panjang port</i> ?		The presence of human resources or officers who handle sanitation issues, both from the port management and from the KKP, is in accordance with the Republic of Indonesia Minister of Health Regulation No. 44 of 2014 concerning the implementation of healthy ports and airports.	There are regulations related to human resources in sanitation management at ports
Informant 1	"Yes, there is, there is also one from the KKP"		
Informant 3	"Yes ma'am"		
Informant 4	"Yes there is sis"		
Informant 5	"Yes, there is,"		
Informant 6	"Obviously there must be"		
How many human resources or officers handle sanitation at the <i>Tanjung Harapan Selat Panjang port</i> ?		There are 4 human resources from the port management and 4 people from the KKP	There are regulations related to human resources in sanitation management at ports
Informant 1	"Now there are 4 cleaning services, if you add KKP people there are 8, but in the future there will be more additions"		
Informant 3	"Four people ma'am"		
Informant 4	"Four, one shift of 2 people "		

Informant 5	<i>"I don't know how much the cleaning service is now, but it is ok"</i>		
Informant 6	<i>"I don't know how many people, because now it seems like it's new. "The old CS was also a porter."</i>		
Is there a management structure responsible for sanitation at the <i>Tanjung Harapan Selat Panjang</i> port ?		There is no specific organizational structure for sanitation management at <i>Tanjung Harapan Selat Panjang Port</i>	There is a sanitarian structure at the Port Health Office but there is no related sanitarian structure at the <i>Tanjung Harapan Selat Panjang Port</i> .
Informant 1	<i>"Nothing ma'am"</i>		
Informant 3	<i>"I don't know, it's like it doesn't exist"</i>		
Informant 4	<i>"There's nothing like that, sis."</i>		
Informant 5	<i>"There's no such thing as a bet"</i>		
Informant 6	<i>"Nothing yet, just the core management structure I think"</i>		
Who supervises the sanitation process at the <i>Tanjung Harapan Selat Panjang</i> port?		Sanitation supervision at <i>Tanjung Harapan Selat Panjang Port</i> is carried out directly by officers from the Port Health Office	There is a routine picket schedule carried out by the Ministry of Maritime Affairs and Fisheries to report the results of monitoring and assessment of the sanitation of the Port of <i>Tanjung Harapan, Selat Panjang Port</i> .
Informant 1	<i>"There is management, there is also KKP. Cooperate with each other ma'am"</i>		
Informant 3	<i>"There are officers, and management people"</i>		
Informant 4	<i>"There is a special officer, ma'am."</i>		
Informant 5	<i>"From KKP, of course, collaboration with managers to improve sanitation quality"</i>		
Informant 6	<i>"KKP coordinates with port management"</i>		

Based on table 1, the results of in-depth interviews conducted by researchers with informants obtained information that regarding human resources in sanitation management at *Tanjung Harapan Selat Panjang Port*, there are 8 people consisting of 4 *cleaning service people* and 4 supervisory officers from the Health Office. Harbor. In implementing sanitation, there is no organizational structure. Sanitation supervision is carried out by the Port Health Office and in coordination with the *Tanjung Harapan Selat Panjang Port* management.

Financing

Table 2. Results of in-depth interviews regarding financing

Question		Observation Results	Document Review Results
Financing			
Is there a budget for port management at Tanjung Harapan Selat Panjang Port ?		The ongoing management of port sanitation cannot be separated from financing.	In the financing process, no document review is carried out because it is company privacy. According to the Republic of Indonesia Minister of Health Regulation no. 44 of 2014 concerning the implementation of healthy ports and airports, the availability of a special budget for sanitation management at ports.
Informant 1	"Yes ma'am, of course there is, we budget for it every year"		
Informant 2	"Yes ma'am"		
Informant 5	"Certainly there is from the management"		
Informant 6	"Yes for sure"		
Tanjung Harapan Selat Panjang port come from ?		Tanjung Harapan Selat Panjang Port management does not allow it because it is considered privacy.	In the financing process, no document review is carried out because it is company privacy. According to the Republic of Indonesia Minister of Health Regulation no. 44 of 2014 concerning the implementation of healthy ports and airports, funding for sanitation management for Healthy Ports can be sourced from government funds or operational funds from the port itself.
Informant 1	"From port operational costs, we turn the money over"		
Informant 2	"From port operational costs"		
Informant 5	"From the operational costs of this port"		
Informant 6	"From the management side, if there are improvements we will submit them to management"		
Approximately how much does it cost a month for port sanitation management costs at Tanjung Harapan Selat Panjang Port ?			In the financing process, no document review is carried out because it is company privacy.
Informant 1	"How much is it, sis, tens of millions every month, if it was repaired like this it could be hundreds of millions"		
Informant 2	"Could be estimated at 80-500 million for now"		
Informant 5	"Well, I don't know either way"		
Informant 6	"I don't know because the management people are managing it"		

Based on table 2 obtained from the results of in-depth interviews conducted by researchers with informants, information was obtained that the financing for port sanitation management at *Tanjung Harapan Selat Panjang Port* comes from the management of operational costs of the port. Financing ranges from tens to hundreds of millions each month depending on sanitation activities carried out by the *Tanjung Harapan Selat Panjang Port* management .

Regulation

Table 3. Results of In-depth Interviews Regarding Regulations

Question		Observation Results	Document Review Results
Regulation			
Is there an SOP available regarding sanitation management at the <i>Tanjung Harapan Selat Panjang port</i> ?		There is already an SOP regarding port sanitation at <i>Tanjung Harapan Selat Panjang Port</i> .	There is an SOP related to port sanitation at <i>Tanjung Harapan Selat Panjang Port</i> in accordance with the Republic of Indonesia Minister of Health Regulation No. 44 of 2014 concerning the implementation of healthy ports and airports.
Informant 1	"Yes, it already exists, from the KKP what needs to be completed and become homework"		
Informant 3	"There are rules, we also explain them"		
Informant 4	"Yes, there is"		
Informant 5	"There are regulations for port sanitation."		
Informant 6	"Yes, there is, we have also socialized it to management"		
Refers to what regulations?		The port sanitation management process at <i>Tanjung Harapan Selat Panjang Port</i> refers to the Republic of Indonesia Minister of Health Regulation No. 44 of 2014 concerning the implementation of healthy ports and airports.	The existence of the Republic of Indonesia Minister of Health Regulation No. 44 of 2014 concerning the implementation of healthy ports and airports.
Informant 1	"I forget what number the regulations are for, regarding harbor health," he said.		
Informant 3	"I don't know ma'am"		
Informant 4	"What, I don't know, sis"		
Informant 5	"Minister of Health Regulation No. 44 of 2014 concerning the implementation of healthy ports and airports"		
Informant 6	"Regulation regarding the implementation of healthy ports and healthy airports No. 44 in 2014"		
Is sanitation management at <i>Tanjung Harapan Selat Panjang port</i> in accordance with applicable regulations?		The implementation of sanitation management at <i>Tanjung Harapan Selat Panjang Port</i> has been implemented in accordance with existing regulations, but at the implementation stage	Based on records from the Port Health Office, sanitation management is running in accordance with existing regulations, but still needs improvement and improvement.
Informant 1	"We have followed the rules ma'am, but there are still things that are lacking and are still in the improvement stage"		
Informant 3	"I think so"		

Informant 4	<i>"I don't know, it seems like that"</i>	not yet everything is running completely, there are still things that are not appropriate and need improvement.	
Informant 5	<i>"There are some that already exist and those that don't yet because this is still in the renovation stage too"</i>		
Informant 6	<i>"Some of it is already in accordance with the process stage"</i>		
Is there socialization of regulatory policies and sanitation procedures at the <i>Tanjung Harapan Selat Panjang port?</i>		There has been socialization of policies related to sanitation management at <i>Tanjung Harapan Selat Panjang Port.</i>	The implementation of sanitation at the Port of Tanjung Harapan Selat Panjang Port already uses the regulations of the Republic of Indonesia Minister of Health No. 44 of 2014 concerning the implementation of healthy ports and airports.
Informant 1	<i>"Yes, there is one from the KKP, we will socialize it to other employees"</i>		
Informant 3	<i>"Yes, there is"</i>		
Informant 4	<i>"There is"</i>		
Informant 5	<i>"We are here, it has been socialized"</i>		
Informant 6	<i>"Yes, there is"</i>		

Based on table 3 obtained from the results of in-depth interviews conducted by researchers with informants, information was obtained that regarding regulations for sanitation management at the Port of *Tanjung Harapan Selat Panjang Port* already exist and have been socialized by the Port Health Office, but are not yet fully implemented as they should.

Infrastructure

Table 4. Results of in-depth interviews regarding infrastructure

Question		Observation Results	Document Review Results
Infrastructure			
What sanitation facilities are available at the Port of <i>Tanjung Harapan, Selat Panjang?</i>		Availability: 1. clean water 2. rubbish bin, 3. sink 4. cleaning tool 5. drainage channel Not yet available: 1. WWTP 2. TPS 3. Smoking room	There are regulations that regulate standards for fulfilling infrastructure for ports.
Informant 1	<i>"Clean water, adequate trash cans, adequate lighting, toilets"</i>		
Informant 3	<i>"Cleaning equipment, clean water, trash can"</i>		
Informant 4	<i>"Trash cans are plasticized, equipment is cleaned"</i>		
Informant 5	<i>"Clean water is available, toilets are also good, rubbish bins are also available, but there are no TPS yet."</i>		
Informant 6	<i>"What's the point is that there isn't a TPS"</i>		

	<i>yet, the IPAL is what's important"</i>		
Is there a check on the condition of sanitation infrastructure at the Port of Tanjung Harapan Selat Panjang ?		There are checks carried out by both the KKP and management. Checks are carried out every month.	There are reports regarding the results of sanitation checks at the Port of Tanjung Harapan, Selat Panjang.
Informant 1	<i>"Yes there is, if something is damaged we will handle it immediately"</i>		
Informant 3	<i>"Yes, every damage is noted"</i>		
Informant 4	<i>"Yes, every day there are reports of whether the condition is good or bad. If it is damaged, a management report is made."</i>		
Informant 5	<i>"Yes, there are those of us and management"</i>		
Informant 6	<i>"There is"</i>		
Do the suggestions and infrastructure meet standards?		Not all infrastructure facilities meet standards, there are still infrastructure facilities that are not complete and adequate.	
Informant 1	<i>"There are still things that don't exist yet, but we are still in the improvement stage"</i>		
Informant 3	<i>"I think so"</i>		
Informant 4	<i>"I think so"</i>		
Informant 5	<i>"There's still homework"</i>		
Informant 6	<i>"Some have, some haven't"</i>		

Based on table 4, the results of in-depth interviews conducted by researchers with informants obtained information that regarding the infrastructure and facilities in sanitation management at *Tanjung Harapan Selat Panjang Port* in providing sanitation facilities is not yet fully running well and optimally. There are still infrastructure facilities that have not been met, such as IPAL, TPS and smoking rooms.

Process

Table 5. Results of in-depth interviews regarding the process

Question		Observation Results	Document Review Results
How long has the sanitation management process at <i>Tanjung Harapan Selat Panjang port</i> been going on ?		<i>Tanjung Harapan Selat Panjang port</i> first became operational.	There is monthly reporting regarding sanitation at the Port of <i>Tanjung Harapan Selat Panjang</i> .
Informant 1	<i>"From the moment this port was established there was a statement of commitment to</i>		

	<i>sanitation management"</i>		
Informant 3	<i>"I don't know ma'am, because we are new"</i>		
Informant 4	<i>"It's been a long time"</i>		
Informant 5	<i>"From the start this port has been operating"</i>		
Informant 6	<i>"I don't know from when. "It should be right from the start when this port starts operating."</i>		
What are the obstacles in maintaining sanitation at the Port of Tanjung Harapan, Selat Panjang ?			
Informant 1	<i>"Currently the funds are quite large because there are many repairs"</i>	The obstacle is sometimes difficult coordination between port management and the Port Health Office. The workforce in sanitation management is still minimal so the sanitation maintenance process is not optimal.	There are evaluation notes from the KKP regarding sanitation management at <i>Tanjung Harapan Selat Panjang Port</i>
Informant 3	<i>"The workforce is not enough, ma'am, sometimes we are not optimal if we have 2 people in one shift "</i>		
Informant 4	<i>"Not enough people"</i>		
Informant 5	<i>"We sometimes find it difficult to coordinate with management, we give input but sometimes the response is slow"</i>		
Informant 6	<i>"Sometimes it takes a long time for the problems we report to be resolved"</i>		
How often is monitoring for sanitation at the <i>Tanjung Harapan Selat Panjang port</i> ?			
Informant 1	<i>"Daily there is, weekly there is, monthly there is."</i>	Monitoring by cleaning staff is carried out every day for the condition of toilets, rubbish and floors every third of the hour.	There is a monitoring schedule regarding sanitation at <i>Tanjung Harapan Selat Panjang Port</i> , monitoring is carried out every day with a checklist regarding cleanliness and sanitation conditions.
Informant 3	<i>"Every day, every third of the hour, I will check the condition of the toilet and the room."</i>		
Informant 4	<i>"Every day"</i>		
Informant 5	<i>"If you monitor it, of course every day"</i>		
Informant 6	<i>"Depending on us, we have a daily agenda, even a monthly one."</i>		

Is there an assessment regarding sanitation at the <i>Tanjung Harapan Selat Panjang</i> port ?		There is an assessment regarding port sanitation at <i>Tanjung Harapan Selat Panjang Port</i> . The assessment is carried out by the KKP and will later become input to the port management.	There is a form for assessment results related to port sanitation which is carried out every month.
Informant 1	"Yes, it's there for healthy harbors"		
Informant 3	"There's definitely something to see, ma'am, how things are going."		
Informant 4	"Yes, it's from the officers"		
Informant 5	"Yes, there is, to know the score of port sanitation"		
Informant 6	"There is, especially if healthy ports are monitored, the assessment score must be stable or high, if possible, don't lower it."		
The assessment is based on what aspects?		Sanitary conditions at: a. Outer harbor yard b. Latrine maintenance c. Waste management d. Building room e. Water sanitation f. Vector control RI Minister of Health Regulation No. 44 of 2014 concerning the implementation of healthy ports and airports	Sanitary conditions at: a. Outer harbor yard b. Latrine maintenance c. Waste management d. Building room e. Water sanitation f. Vector control RI Minister of Health Regulation No. 44 of 2014 concerning the implementation of healthy ports and airports
Informant 1	"Aspects of healthy port criteria, such as sanitation, facilities, services"		
Informant 3	"Cleanliness equals neatness"		
Informant 4	"Such cleanliness ma'am"		
Informant 5	"From all kinds of aspects, from building sanitation, providing clean water, how to use vectors, how to manage waste and rubbish"		
Informant 6	"Aspects of infrastructure, aspects of sanitation, aspects of providing clean water, there are many more"		
Is there a report on sanitation management at the <i>Tanjung Harapan Selat Panjang</i> port?		There have been reports regarding sanitation management at the Port of <i>Tanjung Harapan, Selat Panjang</i> .	There are reporting documents related to the results of Port sanitation management.
Informant 1	"Yes, there is input from the KKP"		
Informant 3	"Every day we report whether the condition is clean or not."		

Informant 4	<i>"Yes, there is, every month it is reported to management"</i>		
Informant 5	<i>"Yes, there definitely is"</i>		
Informant 6	<i>"There is an obligation"</i>		
Is there an evaluation after reporting in the form of sanitation management at the <i>Tanjung Harapan Selat Panjang</i> port?			
Informant 1	<i>"Yes there is, every bullshit"</i>	There is an evaluation regarding port sanitation at <i>Tanjung Harapan Selat Panjang Port</i> carried out by the Port Health Office.	There is a document on the results of achievements related to the sanitation management of <i>Tanjung Harapan Selat Panjang Port</i> .
Informant 3	<i>"We have a briefing, usually every day before starting work"</i>		
Informant 4	<i>"There is a work evaluation every week"</i>		
Informant 5	<i>"We have made a new report to evaluate things that we did not use as input to the port management."</i>		
Informant 6	<i>"There are reports at the KKP, every month."</i>		

Based on table 5, the results of in-depth interviews conducted by researchers with informants obtained information that regarding the port sanitation management process, *Tanjung Harapan Selat Panjang Port* still faces obstacles such as large funding, inadequate infrastructure, and insufficient human resources.

Outputs

Table 6. Results of in-depth interviews regarding output

Outputs	
Is sanitation at <i>Tanjung Harapan Selat Panjang</i> port good enough?	
Informant 7	<i>"Not bad sis"</i>
Informant 8	<i>"It's pretty good, but the front is still not there"</i>
Informant 9	<i>"It's quite comfortable, but there are still minimal seats for passengers"</i>
Informant 10	<i>"It's better than before, but the front part of the canteen is still not good"</i>
How are the infrastructure and facilities at the <i>Tanjung Harapan Port in Selat Panjang</i> port adequate ?	
Informant 7	<i>"Not everything is there yet, I don't think there's a prayer room yet, and there isn't a smoking room in particular either."</i>
Informant 8	<i>"It's not bad, but more toilets need to be added at the front because there are a lot of visitors so there's no queue."</i>
Informant 9	<i>"Yes, there aren't enough chairs, there aren't any breastfeeding rooms either."</i>

Informant 10	"The road outside still needs repair, it's still rainy and sometimes muddy, there's no smoking room yet"
Do you think this port is categorized as a healthy port?	
Informant 7	"Not yet, because there are still improvements"
Informant 8	"Not yet, because it's not neater like the one in Sekupang"
Informant 9	"Not yet, it's still a process I think"
Informant 10	"Not yet I think"
Is there any hope in the future for port sanitation at the Port of Tanjung Harapan Selat Panjang ?	
Informant 7	"Hopefully it can be much better, cleaner, neater"
Informant 8	"Yes, hopefully the infrastructure can be equipped, the service can be even better"
Informant 9	"Sanitation must improve and be better"
Informant 10	"Could be better than now"

Input Aspects for Port Sanitation Management

Analysis of input aspects in the implementation of Port sanitation management at *Tanjung Harapan Selat Panjang Port* in Batam City consisting of human resources, financing, infrastructure and regulations.

Human Resources

Human Resources (HR) referred to in this research are workers or employees who work as cleaners or supervisors in sanitation management at *Tanjung Harapan Selat Panjang Port*.

From the results of research conducted by researchers, it is known that the officers who handle sanitation management at *Tanjung Harapan Selat Panjang Port* are 8 people, consisting of 4 *cleaning service people* and 4 more people who are supervisory officers from the Port Health Office. *Cleaning service* officers are tasked with cleaning the room starting from sweeping, mopping, cleaning windows. However, waste management involves a third party, namely the Environmental Service. The *cleaning service* officers at the *Port of Tanjung Harapan Selat Panjang* come from suppliers who have been given special training for servicing and cleaning facilities.

According to human resource researchers in sanitation management at *Tanjung Harapan Selat Panjang Port*, janitors or *cleaning services* are still considered lacking because they only have 4 people divided into 2 shifts. So the results will not be optimal. At the *Port of Tanjung Harapan, Selat Panjang*, there is also no management structure for sanitation management. For optimal results, the *Tanjung Harapan Selat Panjang Port management should* increase the number of cleaning staff and form a special structure for sanitation management at the *Tanjung Harapan Selat Panjang Port*.

According to the Big Indonesian Dictionary (KBBI 2016), Human Resources (HR) is defined as human potential that can be developed for the production process. So the author can understand that the meaning of the word HR is very broad. Where, humans themselves already have potential within themselves but it is still raw or has not been developed. When the potential itself has been developed, a process is obtained to produce or produce something that is not only useful for humans themselves but can be useful for the environment around humans as well. And according to the Big Indonesian Dictionary (KBBI 2016), an informant is also defined as a person who provides information and is a source of data in research or a source.

Financing

Funding for sanitation management at *Tanjung Harapan Selat Panjang Port* comes from operational funds managed by management. The *Tanjung Harapan Selat Panjang Port*

sanitation management budget in a month ranges from 80 to 500 million depending on the sanitation management activities. This funding will be used to equip infrastructure, repair infrastructure and maintain infrastructure so that the sanitation management process can run. However, this financing aspect will be hampered if the number of visitors is not large and the budget is not only focused on sanitation management.

Infrastructure

The sanitation infrastructure available at *Tanjung Harapan Selat Panjang Port* consists of cleaning equipment, availability of clean water, availability of toilets, availability of rubbish bins. Meanwhile, the infrastructure that is not yet available at the *Tanjung Harapan Selat Panjang port* includes a temporary waste disposal site (TPS), as a result, the waste that comes from the outside canteen or from inside the port building is only piled up in the yard next to the port and only one medium rubbish bin is provided to accommodate all the rubbish. at the port. As a result, cats can easily scatter rubbish. Then there is no IPAL available so there is no waste water management. Some waste water is channeled into the sea, some is channeled into large ditches. Other facilities for smoking rooms and breastfeeding mothers' rooms are also not yet available at *Tanjung Harapan Selat Panjang Harbor* .

According to researchers, it is important to fulfill sanitation infrastructure at the Port of *Tanjung Harapan Selat Panjang* to prevent the transmission of disease either from environmental factors or caused by disease vectors such as rats, flies and cockroaches due to inadequate sanitation. It is best to keep drainage channels closed so that they do not cause strong odors, as well as constructing TPS, whether permanent or not, which are adjusted to the capacity and amount of waste generation so that waste does not become scattered or scattered, which can attract various vectors of disease.

Regulation

The regulations that apply in sanitation management at *Tanjung Harapan Selat Panjang Port* are in the form of Minister of Health Regulation no. 44 of 2014 concerning the Implementation of Healthy Ports and Airports. These regulations have been socialized by the Port Health Office to the *Tanjung Harapan Selat Panjang Port* management . However, in its implementation there are still obstacles in terms of financing, infrastructure and human resources. So the port sanitation management of *Tanjung Harapan Selat Panjang Port* cannot run optimally.

According to researchers, it is important to have good coordination between the Port management of *Tanjung Harapan Selat Panjang Port* and the Port Health Office to find out the constraints and obstacles in implementing Port sanitation with existing regulatory standards so that the results are more optimal.

Process Aspects of Port Sanitation Management

The analysis of this process aspect is a further implementation of the input aspect of sanitation management at *Tanjung Harapan Selat Panjang Port*. *The implementation of the Tanjung Harapan Selat Panjang Port* sanitation management process has been running from 2006 until now. In implementing this sanitation management , *the Tanjung Harapan Selat Panjang Port* management is supervised by the Port Health Office. In the sanitation management process at *Tanjung Harapan Selat Panjang Port* , there are components that must be considered in sanitation management, including:

Outdoor environment

The outside environment of the yard is still not well organized, there is still little greenery on the front side of the port, there are no rubbish bins, not all of the roads have been cemented so that when it rains it is muddy and there are puddles and there is still rubbish strewn around the yard in front of the port. The provision of parking areas is sufficient.

Therefore, there is a need for greenery in the yard in front of the port to absorb water and reduce puddles of water when it rains. And the road is asphalted so that it doesn't become muddy and pollutes the inside of the port building. And there are trash cans provided on the outside for visitors who want to throw away rubbish so that rubbish doesn't get scattered around.

According to the Republic of Indonesia Minister of Health Regulation no. 44 of 2014 concerning the implementation of healthy ports and airports, in open spaces there must be greenery and the availability of rubbish bins.

Building room

The building has a fairly good construction, the floor is watertight and tiled, the walls are made of brick and painted in bright colors, the ceiling is strong and clean, at the Port of *Tanjung Harapan Selat Panjang*, it does not use ventilation but uses a blower. The rooms that are still not fulfilled at *Tanjung Harapan Selat Panjang Harbor* are prayer rooms, smoking rooms, breastfeeding mothers' rooms and special toilets for people with disabilities.

Water sanitation

The water at *Tanjung Harapan Selat Panjang Harbor* comes from ATB water which is supplied using a pipe system. The quality of the water is odorless, tasteless and colorless. Water needs have been met.

The results of this research are in line with previous research by Retno Adriyani (2005) regarding Domestic Port Sanitation Management in Gresik in 2005. Reno Adriyani's research results show that the provision of clean water at the Gresik Port passenger terminal comes from the regional PDAM. There is a special tank for clean water supply. Water is distributed using a piping system that is running well.

Waste management

Solid waste at the Port of *Tanjung Harapan Selat Panjang* comes from office activities, services/ticketing, canteens/eating areas and visitor activities. For solid waste management, there are rubbish bins available inside the port building, there are no rubbish bins outside the port building and there are also no TPS for temporary disposal of rubbish before it is finally transported by the Environmental Service.

Meanwhile, liquid waste comes from sinks, toilets, ship washing activities, canteen/eating areas and visitor activities. There is no liquid waste management because there is no IPAL available. Currently liquid waste is channeled directly into the sea or into large ditches.

According to the Republic of Indonesia Minister of Health Regulation no. 44 of 2014 concerning the operation of healthy ports and airports, liquid waste management must be managed with waste management installations, closed liquid waste channels and the absence of pools of waste water.

According to the Decree of the Minister of Health of the Republic of Indonesia No: 431/Menkes /SK/IV/2007 concerning Technical Guidelines for PRL in Ports which includes waste water disposal, they are as follows: 1) There must be a waste water drainage channel that is watertight, closed, and can flow smoothly; 2) astewater drainage channels do not pollute the ground; 3) Does not pollute the environment; 4) Does not cause odor.

Rohim (2021) regarding controlling sources of pollution at Pontianak Harbor found that there were no waste water disposal facilities and no waste water intake wells. Garbage and waste water are thrown into rivers, causing river pollution.

Disease vector control

Vector control is already underway at *Tanjung Harapan Selat Panjang Port*. Vector control takes the form of controlling rats by catching, monitoring fly density and eradicating mosquito

larvae. Vector control is carried out directly by the Port Health Office. According to the Republic of Indonesia Minister of Health Regulation no. 44 of 2014 concerning the operation of healthy ports and airports, the condition of ports must be free from vectors: mosquitoes, rats and flies.

Maintenance of latrines and bathrooms

The toilets at *Tanjung Harapan Selat Panjang Harbor* are quite good, clean water is available, does not cause odors, separate men's and women's toilets, the floor is not slippery, soap and toilet paper are available. However, the number of toilets is not yet sufficient because there is only one toilet with 5 doors so it is not sufficient for many visitors.

According to the Indonesian Ministry of Health, the sanitation requirements for water transport terminals (ports) for WCs or toilets are: (1) Clean (2) No strong odor (3) Not a storage area (4) Sufficient water available and no larvae (5) Separate between men and women (6) Waterproof floor (7) Floor sloping towards the drain, no puddles, no visible mosquitoes, trash bins available (8) Soap available (9) Dryer available (10) Cleaning equipment and sufficient lighting available

Output Aspects of Port Sanitation Management

Analysis of output aspects is the result of input aspects and process aspects of the sanitation management system at *Tanjung Harapan Selat Panjang Port*, Batam City. Based on the results of in-depth interviews with informants, namely visitors to the Port of *Tanjung Harapan, Selat Panjang*, information was obtained regarding the impact or results of port sanitation management felt by visitors to the Port of *Tanjung Harapan, Selat Panjang*. As a result, visitors feel that the sanitation of *Tanjung Harapan Selat Panjang Harbor* is much better than before, but still needs further improvement, the infrastructure is still lacking, additional chairs and toilets are needed, there is a smoking room and a room for breastfeeding mothers. So it is necessary to improve the quality of service and good sanitation management so that visitors get good service.

Conclusion

The sanitation management at *Tanjung Harapan Selat Panjang Port* involves various inputs, including human resources, financing, infrastructure facilities, and regulations. The port employs eight individuals dedicated to sanitation, supported by operational funding that varies according to activity levels. However, infrastructure deficiencies, such as the lack of temporary waste disposal sites (TPS), wastewater treatment plants (WWTP), smoking rooms, and nursing rooms, remain significant challenges. While regulations such as the Minister of Health Regulation No. 44 of 2014 and Permenkes No. 2 of 2023 have been implemented, the port still faces several issues in the process phase. The outer environment needs better organization, particularly in drainage and greening, while the building lacks essential rooms for smoking, nursing mothers, and prayer. Water sanitation is satisfactory, but waste management, particularly solid and liquid waste, is inadequate. Despite monthly vector control and well-maintained latrines, these shortcomings affect overall sanitation.

As a result, while visitors have noticed improvements in port sanitation, there is still a need for further enhancement, especially in terms of infrastructure development. Addressing these challenges will be crucial for ensuring a healthier and more sustainable environment at *Tanjung Harapan Selat Panjang Port*.

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