

Implementation Strategyeco Fishing Portat the Hamadi Fish Landing Base (PPI), Jayapura City, Papua Province

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Abstract

This research aims to analyze the public perception of the environmental management system that has been implemented in Hamadi's fish landing base (PPI) and to provide policy strategy recommendations to Local Government regarding the Eco Fishing Port (EFP) implementation at Hamadi PPI. There are 5 aspects that will be examined in the application of eco fishing port concept in a Hamadi PPI, such as; how the environmental management system and the status of its application; how the integrated waste management system; what is the condition of the components of public service facilities; what matters the attention of the management of the fishing port in environmental management; and how the sanitary and hygienic conditions of fish landing sites (TPI). This research used descriptive qualitative method through surveys and interviews. SWOT analysis method used to identify an internal and external factor that influenced the implementation of the Eco Fishing Port, and to find out the best strategy recommendation in order to increase the quality of environment management system at Hamadi PPI. The analysis result shown that the rating value of internal factors (strengths and weaknesses) is 2.510 and the rating value of external factors (opportunities and threats) is -0.175.

Keywords

Hamadi; fishing landing base; eco fishing port; management; strategy



I. Introduction

The Hamadi Fish Landing Base (PPI) is one of 6 PPIs in Papua Province located in Jayapura City, which is included in the criteria for a Class D fishing port, and has been equipped with several basic, functional and supporting facilities to support all types of fisheries business fishing activities carried out in the waters north of Jayapura City and the Pacific Ocean. Currently, PPI Hamadi has several basic facilities, including: an area of approximately 8,500 m², a wave barrier, a pier with a length of approximately 80 m and a road within the PPI complex. Meanwhile, functional facilities consist of: fish marketing place (TPI), fuel installation (depot), cold storage, ice factory, docking/slipway, and offices. Existing supporting facilities include: fisherman's meeting hall, coastal shop, guard post.

Marketing is a process of planning and execution, starting from the conception stage, pricing, promotion, to the distribution of goods, ideas and services, to make exchanges that satisfy the individual and his institutions (Dianto in Asmuni *et al*, 2020).

In 2013, the Ministry of Maritime Affairs and Fisheries (KKP) began to seriously develop the concept of an eco-fishing port, in which the basic concept of an eco-fishing port (EFP) is a port management framework to achieve a balance between value or cost. environmental and economic benefits so that there is harmonization of commercial or economic and environmental aspects in supporting sustainable management. Meanwhile,

the implementation of EFP is a systematic effort, method, and steps to build and maintain a fishing port that is environmentally friendly, Lubis (2012).

Supriyanto (2014) formulates 5 aspects that will be studied in the application of EFP in a fishing port, namely how the environmental management system and the status of its application are; how is the integrated waste management system; how is the condition of the components of public service facilities; what matters are the concern of fishing port management in environmental management; and what are the sanitary and hygienic conditions of fish landing sites (TPI).

The purpose of this study was to determine the public's perception of the environmental management system that has been implemented in the PPI Hamadi environment, and how the scenario of the implementation of the eco fishing port concept at PPI Hamadi.

II. Research Method

This study uses a qualitative descriptive method through surveys and interviews conducted to 38 respondents representing respondents from UPTD PPI Hamadi officials, traders, kiosk and restaurant owners, and fishermen. The questionnaire made refers to 5 aspects of the eco fishing port, including: how is the environmental management system and the status of its implementation; how is the integrated waste management system; how is the condition of the components of public service facilities; what matters are the concern of fishing port management in environmental management; and what are the sanitary and hygienic conditions of fish landing sites (TPI).

To get clear and unequivocal answers regarding the condition of the 5 aspects of eco fishing port management, the questionnaire was developed into 12 question indicators, namely:

- a. Completeness of AMDAL documents
- b. Implementation of RKL-RPL, management and ISO 14001 certification
- c. Waste management system and supporting facilities
- d. Type, condition and adequacy of trash cans at PPI Hamadi
- e. Drainage conditions at PPI Hamadi
- f. Condition of kiosk/canteen/restaurant at PPI Hamadi
- g. Condition and adequacy of toilets at PPI Hamadi
- h. PPI Hamadi's attention in monitoring and ecological management of fishing ports
- i. PPI Hamadi's attention in monitoring and social management of fishing port growth
- j. PPI Hamadi's attention in monitoring the economic growth of fishing ports
- k. The suitability of the location, construction and layout of the TPI building with the SSOP
- l. Conformity of the implementation of sanitation and hygiene of TPI with SSOP

The form of the answer to be obtained uses the Guttman scale (skalo) method, which is a scale used for clear (firm and consistent) answers to a question being asked. For example: sure_not sure, yes-no, true-false, positive-negative, never-never, agree-disagree and so on. According to Osman and Patandianan (2014) and Tutupoho (2011) that the validity of the data consists of the Reproducibility Coefficient (Kr) > 90% and the Scalability Coefficient (Ks) > 60%. In this study, the Guttman scale used was "Yes-No" as shown in the following table.

No	Question	Answer		Total Respondents
		Yes	Not	
1				
2				
....				
N				

Determination of the sample from the population using the Slovin formula (Steph Ellen, eHow Blog, 2010), with a confidence level of 90%. Slovin's formula: $n = N/1+Ne^2$, where n is the number of samples, N is the total population, e is the critical value (%) or the tolerance value of the sample error accuracy that can still be tolerated (10%).

In the Slovin formula there are the following provisions:

1. The value of $e = 0.1$ (10%) for a large population
2. The value of $e = 0.2$ (20%) for a small population

So the range of samples that can be taken from the Solvin technique is between 10-20% of the research population.

Furthermore, to implement the eco fishing port concept, a SWOT analysis is used to formulate the right strategic position by considering the conditions of internal and external factors from PPI Hamadi. The analysis process begins with collecting data from various information, documents and literature reviews about external and internal factors that influence the management of PPI Hamadi. After the internal and external factors have been identified, then the internal factors are grouped into strengths and weaknesses, and external factors into opportunities and threats. Furthermore, weighting is carried out for each internal and external factor with the numbers 0 (not important), 1 (important) and 2 (most important).

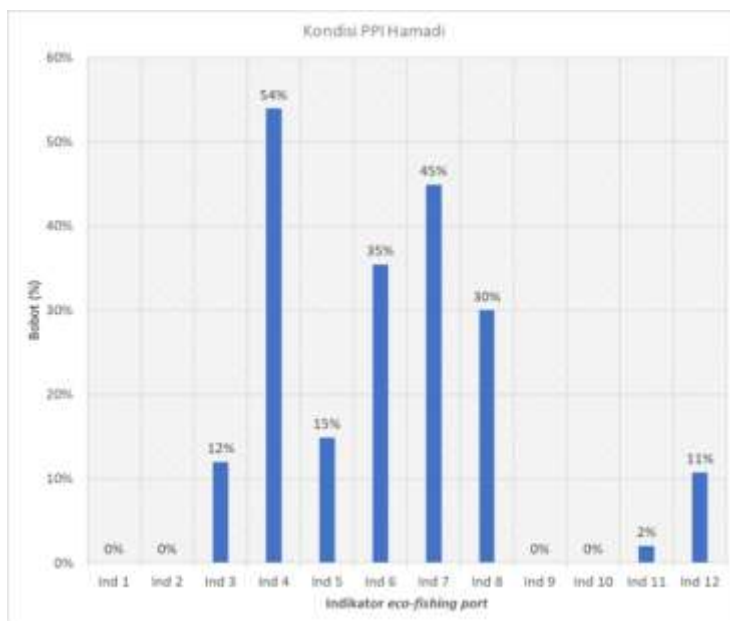
Then a rating is carried out for internal factors using numbers 1 to 4 for each internal factor, where number 4 indicates major strength, number 3 indicates minor strength, number 2 indicates minor weakness and number 1 indicates major weakness, and ratings for external factors using 1 to 4 on each key external factor to indicate how effectively the current strategy responds to that factor, where: 4 is a superior response (extraordinary), 3 is an above average response, 2 is an average response and 1 is a below average response. After that, multiply the weighted value of each factor with the rating value to obtain a weighted score for each internal factor (strengths and weaknesses) and each external factor (opportunities and challenges).

SWOT	Kekuatan (S)	Kelemahan (W)
Peluang (O)	Strategi SO: • Strategi yang memaksimalkan kekuatan untuk memanfaatkan peluang yang ada, • Strategi agresif, • Keunggulan, • Komparatif	Strategi WO: • Strategi yang meminimalkan kelemahan untuk memanfaatkan peluang, • Strategi orientasi putar balik, • Investasi/disvestasi.
Ancaman (T)	Strategi ST: • Strategi yang memaksimalkan kekuatan untuk mengatasi ancaman, • Strategi diversifikasi, • Mobilisasi	Strategi WT: • Strategi yang meminimalkan kelemahan untuk mengatasi ancaman • Strategi defensif, • Kontrol • kerusakan/strategi

To get priorities and linkages between strategies, from the results of the IFE and EFE weighting for each of these indicators, a combination of strategies is interacted which includes internal-external combinations, as shown in the table.

III. Results and Discussion

The results of the Hamadi PPI Management assessment with reference to the 12 indicators of Environmentally Friendly Ports are shown in the following figure.



For the category of availability of environmental management documents and their application in port management; therefore PPI Hamadi currently does not have complete AMDAL documents including preparing documents (RKL and RPL) and proof of feasibility that PPI Hamadi has committed to demonstrate its responsibility to the environment as a result of the system or mechanism for managing the operational management of fishing ports.

For the availability of integrated waste management facilities; Currently there are garbage cars and temporary garbage disposal sites (TPSS) while other indicators supporting integrated waste management are not yet available, namely incinerators, composting, waste treatment systems, integrated WWTPs, WWTP connections, company UPL, garbage boats and oil spill handling systems.

For the components of public service infrastructure facilities; the availability and utilization of the waste handling area has reached 50%, while the drainage conditions, the condition of the kiosk or restaurant, and the adequacy of the toilets are still below 50%.

For environmental management indicators; In monitoring and managing the ecology of the port, a monitoring and handling system for the cleanliness of the area has been implemented, the environmental development program has been implemented and has its own waste treatment unit. Meanwhile, the overall economic and social environmental management indicators have not been implemented

For the implementation of sanitation and hygiene at fish marketing places (TPI), it can be seen that the suitability of the location, construction and spatial planning of TPI

with the Sanitation Standard Operating Procedure (SPSS) is only 2%, while the suitability of the implementation of sanitation and hygiene of TPI with SPPS only reaches 11%.

3.1 Internal Factor Weighting Results

Based on the identification and grouping of PPI Hamadi's internal factors, there are 4 strategic strength factors (S) and 4 strategic weaknesses (W), which have the possibility of influencing and improving the management conditions of PPI Hamadi in the future.

a. Strength Strategic Factor (S)

1. Have an institution that has the duties, functions and authority in the management and can optimize the supporting facilities for the management of the PPI Hamadi port;
2. Have institutional operational policies that can be used as operational standards for the management of PPI Hamadi;
3. have supporting facilities for port operations, including basic facilities, functional facilities and supporting facilities, although overall these supporting facilities have not been fully managed and utilized properly; and
4. PPI Hamadi is included in the territorial waters management area of the Republic of Indonesia (WPPNRI) 717.

b. Strategic Factors Weaknesses (W)

1. Environmental management documents and their application are not yet available;
2. Not yet optimal in the management of basic facilities, functional and supporting port activities;
3. Monitoring and management of the port's social, economic and ecological environment is not carried out properly; and
4. Limited operational funds,

3.2 External Factor Weighting Results

Based on the results of the identification and grouping of external factors that will affect the implementation of the management and development of PPI Hamadi into an environmentally sound fishing port in the future, there are 4 strategic opportunity factors (O) that can be grouped, including:

1. Increased market demand;
2. Integrated management of PPI with the aquatic environment of Yotefa Bay;
3. Easy access to the location of PPI Hamadi; and
4. There is an interest in Partner/BUMN Participation and Funding.

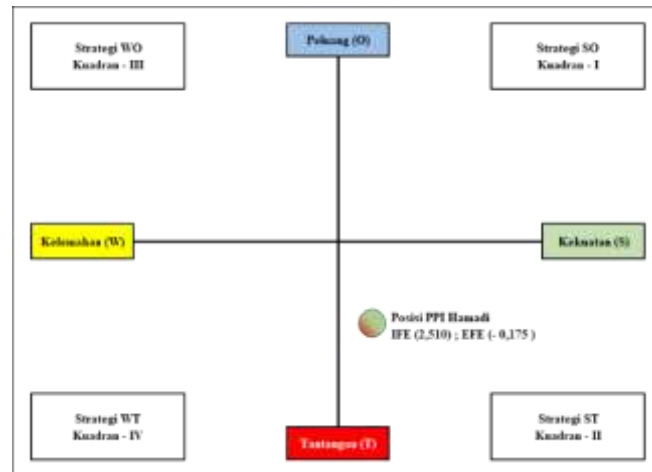
Meanwhile, for the strategic challenge factor (T), there are 4 factors identified, including:

1. Limited availability of land in the PPI development plan;
2. The PPI environment that has the opportunity to experience security disturbances both inside and outside the PPI environment;
3. There is competition in the price of the catch with other companies; and
4. Limited reliable and growing workforce.

3.3 SWOT Strategy Determination

From the results of the rating carried out for all internal strategic factors (strength score less weakness score), the total value of internal strategic factors is 2.510, and from the results of the rating carried out for all external strategic factors (opportunities and challenges), the total number of factor values is obtained external strategic (opportunity

factor score less challenge factor score) is - 0.175. Thus, if this score is transferred to the SWOT combination quadrant, it can be seen that the management position of PPI Hamadi is in quadrant II (Strength-Threat Strategy).



The combination Strength-Threat (ST) strategy interaction is a strategy that uses strength to overcome threats, which means that, despite facing various threats, PPI Hamadi currently still has strength from the internal institutional side to take advantage of long-term opportunities by improving institutional functions and capacities as well as optimizing supporting facilities for product diversification targets based on market demand so as to anticipate market competition and also limited land for development.

The results of the formulation of the strategy combination between each internal and external factor are as follows:

 Evaluasi Faktor Internal (IFE) Evaluasi Faktor Eksternal (EFE)	Kekuatan (S)		Kelemahan (W)
	1. Telah memiliki kelembagaan, tugas, fungsi dan wewenang UPITD PPI. 2. Memiliki kebijakan operasional kelembagaan (SOP). 3. Memiliki fasilitas pendukung operasional antara lain fasilitas pokok, fasilitas fungsional dan fasilitas penunjang. 4. Lokasi PPI berada dalam WPPNRI 717.		1. Belum tersedianya dokumen pengelolaan lingkungan dan penerapannya. 2. Belum optimal dalam pengelolaan fasilitas pokok, fungsional dan penunjang kegiatan pelabuhan. 3. Pemastan dan pengelolaan lingkungan sosial, ekonomi dan ekologi pelabuhan tidak terlaksana dengan baik. 4. Keterbatasan dana pengelolaan fungsi dan fasilitas PPI Hamadi.
Peluang (O)	Strategi SO	Strategi WO	
1. Permintaan pasar perikanan tangkap yang meningkat. 2. Ketersediaan pengelolaan lingkungan perairan Teluk Yotefa. 3. Akses ke lokasi PPI Hamadi. 4. Adanya partisipasi dan pendanaan mitra BUMN.	1. Mengoptimalkan fasilitas pendukung operasional pelabuhan (S1, S2, S3, O1, O2, O3). 2. Meningkatkan mutu produksi nelayan, pengelolaan dan pemasaran (S2, S3, O1, O3, O4). 3. Meningkatkan kerjasama dengan CSR, mitra pembangunan dan instansi terkait dalam pengembangan konsep pelabuhan berwawasan lingkungan (S1, S2, S3, S4, O2, O3, O4).	1. Meningkatkan fungsi dan fasilitas penunjang operasional PPI Hamadi (W2, W3, O1, O3). 2. Meningkatkan kerjasama dengan masyarakat di sekitar lokasi PPI dalam pengelolaan dan pemastan kualitas lingkungan (W1, W3, O2, O4). 3. Cost-sharing dengan mitra pembangunan BUMN dalam pengelolaan fungsi dan fasilitas PPI Hamadi (W1, W2, W3, O1, O3, O4).	
Tantangan (T)	Strategi ST (Strategi Pengelolaan PPI Hamadi)		Strategi WT
1. Ketersediaan lahan dalam pengembangan PPI. 2. Gangguan keamanan di dalam maupun dari luar lingkungan PPI. 3. Persaingan harga hasil tangkapan dengan perikanan lain. 4. Tersedianya tenaga kerja yang handal berkembang.	1. Meningkatkan kapasitas kelembagaan dalam menjalankan tugas dan fungsi dalam pengelolaan PPI Hamadi (S1, S2, S3, T1, T3, T4). 2. Optimalisasi ketersediaan lahan untuk membangun fasilitas pendukung pengelolaan PPI (S2, S3, T1, T3). 3. Meningkatkan kerjasama dengan masyarakat nelayan di sekitar lingkungan PPI dalam peningkatan hasil produksi (S1, S3, T1, T2, T3, T4).		1. Optimalisasi kinerja fungsi dan fasilitas pendukung yang tersedia dalam pengelolaan sosial, ekonomi dan ekologi PPI Hamadi (W2, W4, T1, T2, T3). 2. Optimalisasi kerjasama dengan masyarakat di sekitar pelabuhan dalam pengelolaan lingkungan sosial dan ekologi (W1, W3, W4, T2, T4).

3.4 PPI Hamadi Management Scenario with Environmental Perspective

a. Availability of environmental management documents and their application in port management

In implementing the eco fishing port concept at PPI Hamadi, it is necessary to prepare AMDAL and UKL/UPL documents that are in accordance with current conditions

and apply them consistently to port management. PPI Hamadi must implement an environmental management system and be certified such as the ISO 14001 Environmental Management System or other environmental management systems such as the Eco-Management and Audit Scheme (EMAS) in Europe, or environmental audits.

b. Availability of Integrated Waste Treatment Facilities

The PPI Hamadi scenario with the concept of an eco fishing port for waste handling facilities must be equipped with:

1. Liquid waste treatment facility or Waste Treatment Unit (UPL).
2. Waste processing facilities can be in the form of incinerators.
3. Garbage fishing boats are used to clean up garbage in the waters of the harbor pool and the waters around the port.
4. Mobil waste carriers or other means of transporting waste, used to transport waste from the entire port area to the port's Temporary Waste Disposal Site (TPSS).
5. forgingt Temporary Waste Disposal (TPSS) at the port, is used to collect waste from the port area before processing it with an Incinerator.
6. forgingt trash/garbage cans that are spread evenly throughout the port area in sufficient quantity.
7. Oil waste handling facilities, used to handle oil spills in port waters

c. Availability of Components of Public Service Infrastructure Facilities

Scenarioo PPI Hamadi with the concept of an eco fishing port needs to be equipped with components of public service infrastructure facilities with the following criteria:

1. forgingt trash/garbage cans with criteria made of materials that are easy to clean, rust-resistant, do not leak and have a lid. These trash bins/trash cans are scattered throughout the port area in sufficient numbers and placed in appropriate places.
2. Sewers/drainage, with the criteria that there are no piles of garbage, not clogged, does not cause unpleasant odors, the condition is clean and in good condition.
3. toilett, with the criteria clean, does not cause unpleasant odors, is in good condition and is used according to its function.
4. Kiosks/canteens/shops and restaurants, with the criteria that they are placed in strategic and appropriate locations, neatly arranged, clean and comfortable, no piles of used goods and garbage, the status of their business permits is official and not illegal.
5. The office, with the criteria of being placed in a strategic and appropriate location, is neatly arranged, clean and comfortable, there are no piles of used goods and garbage.

3.5 Environment that is Considered in Port Management

Environmental monitoring that is a concern in the management of PPI Hamadi using the eco fishing port concept is environmental monitoring based on ecological, social and economic aspects.

a. Pay Attention to the Ecological Aspects of Fishing Ports

Managern the environmental impact of PPI HAMADI's development, development and operation activities on the quality of the land environment, aquatic environment and air environment of PPI Hamadi.

1. PPI HAMADI's land quality improvement scenarios are as follows:
 - a) Monitoring and implementation of cleanliness throughout the port area carried out by cleaners.
 - b) Prepare facilities for trash cans / trash cans that are easy to clean, do not rust, do not leak and have lids. The number of trash bins is adequate and scattered in strategic places in the port area such as at the dock, TPI, offices, kiosks/shops/canteens, restaurants, parks, and other strategic places.
 - c) Members Clean the port from solid waste or garbage and collect the waste at the Temporary Waste Disposal Site (TPSS) before processing the waste.
 - d) Have a solid waste/garbage management facility that can accommodate all waste at the port and solid waste/garbage management can be done with the 3R (Reduced, Reused, and Recycle) concept.
 - e) The increase in the area of Green Open Space (RTH) reaches 20% of the port area. For shade, comfort and beauty or aesthetics of the mainland fishing port area.
 - f) Emphasize the role of all stakeholders in fishing ports by carrying out environmental development programs in the fishing port area.
2. Improving Water Quality at PPI HAMADI is structured as follows:
 - a) Environmental monitoring of harbor pond waters and collecting data on the calculation value of the Pollution Index (IP) at high and low tides per year, in order to see the level of pollution of fishery port pond waters.
 - b) Memihave a wastewater treatment facility that is in good condition and suitable for use for wastewater treatment.
 - c) don prohibition on fish traders from dumping their liquid waste into drainage or into the waters around the port and requiring them to channel their liquid waste to a waste treatment facility in the form of an integrated Waste Treatment Unit (UPL).
 - d) Mengprepare reception facilities for handling waste oil/oil in port waters and prepare garbage catching vessels in port waters.
 - e) don cleaning the port pool from waste oil, oil and garbage
3. The air quality level at PPI HAMADI is structured as follows:
 - a) don monitoring port air quality and recording the value of the annual Air Pollution Standard Index (ISPU) calculation, so as to determine the level of air pollution in fishing ports.
 - b) don prohibition of fish-carrying vehicles with high emission levels from entering the fishing port area.
 - c) don emission test on every vehicle that will enter the fishing port area.
 - d) The increase in the area of Green Open Space (RTH) reaches 20% of the port area. To be able to absorb carbon dioxide produced from industry and vehicle fumes in the fishing port area.

b. Pay attention to the Social and Economic Aspects of Fishing Ports

1. Improving the social aspects of PPI HAMADI with the scenarios that will be carried out are as follows:
 - a) Pay attentionand provide guarantees for employment at PPI HAMADI by encouraging the improvement of fisheries business at PPI HAMADI.
 - b) TastingPPI HAMADI will act as a safe area for activities by alerting security officers throughout the fishing port area.

- c) The security officers at fishing ports are the Fisheries Port Security Guard and POLAIR, and in carrying out their duties these security officers coordinate with each other.
 - d) Security officers carry out security monitoring throughout the fishing port area and at fishing ports equipped with adequate security facilities such as Security Guard Posts (Pos SATPAM), POLICE Posts.
 - e) Occupational safety and health at the port is considered by conducting direct monitoring in the field by security officers and fishery port health officers.
 - f) It is mandatory for companies at fishing ports to implement a work safety system and provide direction and training to their employees in maintaining work safety.
 - g) The handling of environmental health in fishing ports and occupational health in fishing ports is carried out with the following steps:
 - 1) Other environmental risks consist of supervising the provision of clean water at fishing ports, inspections of environmental sanitation and sanitation in fishing ports, inspections of sanitation of fishing vessels, supervision of food supply, waste control, supervision of hygiene and sanitation of buildings in fishing ports, air pollution control, noise measurement and control. mosquitoes, flies, cockroaches, mice, etc;
 - 2) Implementation fishery port health efforts consisting of emergency handling of infectious and non-communicable diseases, fisherman's health checks, giving vaccinations, monitoring the traffic of sick people at fishing ports, monitoring drugs and medical devices at fishing ports.
 - h) Routine Monitoring of environmental health of fishing ports by port health officers
2. Improving the economic aspects of PPI HAMADI with the following scenarios:
- a) Monitoring the increase in fish production at PPI HAMADI by recording and collecting data on every fish that enters the fishing port.
 - b) Increased marketing of fish production at PPI HAMADI, by increasing the quality of fish to be marketed.
 - c) Monitoring and improvement of fishing vessel activities at PPI HAMADI and port capacity.

3.6 Management of an environmentally friendly fishing port pays attention to the sanitation and hygiene of the fish auction place

a. Location, construction and layout of the building for the PPI HAMADI Fish Auction Place

- 1. buildn is not located in a place that is a waste disposal area, densely populated settlements and areas that can cause pollution.
- 2. Free from irregular piles of used goods and free from piles of garbage.
- 3. Free from hiding or breeding places for insects or stinging animals.
- 4. The drainage system is in good condition.
- 5. TPI floor surface is sloping, non-slip and easy to clean.

b. Sanitation and hygiene at the Fish Auction Place that must be applied at the PPI HAMADI Fish Auction Place are as follows

- 1. Floor, containers and equipment are cleaned and washed before and after use using clean water containing chlorine.
- 2. Cleaning equipment (brushes, brooms, sprayers, etc.) is available at any time when needed and in sufficient quantity.
- 3. forgingt fish or fish containers are kept clean.
- 4. Weighn to weigh the fish in a clean condition and not dirty and rusty.

5. Fish transport equipment from the dock where the fish lands to the TPI using a wheelbarrow or trolley is clean, not dirty and rusty.
6. Mobil used to transport fish in a clean and closed condition. Usually use a car that has cooling or freezing facilities for fish.
7. The wharf where fish landing is kept clean and is not used for ship repairs, ship engines and fishing gear, is not used for selling, not used for parking vehicles and not used for vehicle traffic.
8. At the dock where fish are landed, crew members and unloading and transportation workers maintain cleanliness by not littering, not stepping on fish containers containing fish, wearing gloves, closing fish containers containing fish, lifting fish containers containing fish from the pier properly, does not slam and it is better to use conveyance tools such as pulleys and other tools.
9. Tempat trash is made of materials that are easy to clean, rust-resistant, leak-free, in sufficient quantity, have a lid and are placed in an appropriate place.
10. Everyone entering the TPI must wash their hands and feet/shoes by dipping them into a tub filled with water containing chlorine.
11. not everyone except those with an interest can enter the TPI.
12. Auction officers, fish sellers and auction participants maintain the cleanliness of the TPI environment by not littering, not coughing, sneezing and spitting at the TPI, not smoking at the TPI during the auction and not stepping on fish containers containing fish.

IV. Conclusion

The current management of PPI Hamadi does not meet the Eco Fishing Port concept, because in environmental-based management planning, PPI HAMADI does not yet have an AMDAL, UKL/UPL and ISO 14001 environmental management system that are relevant to current port conditions. For the availability of integrated waste management facilities; Currently PPI Hamadi already has a garbage car and temporary waste disposal site (TPSS) while other indicators supporting integrated waste management are not yet available, namely incinerators, composting, waste treatment systems, integrated WWTPs, WWTP connections, company UPL, garbage boats and spill handling systems. oil. For the components of public service infrastructure facilities; the availability and utilization of the waste handling site at PPI Hamadi has reached 50%, while the drainage conditions, the condition of the kiosk or restaurant, and the adequacy of the toilet is still below 50%. For environmental management indicators; In monitoring and managing the ecology of the port, the monitoring and handling system for the cleanliness of the area has been implemented, the environmental development program has been implemented and has its own waste treatment unit, while the economic and social environmental management indicators have not been implemented as a whole. And for the implementation of sanitation and hygiene of fish marketing places (TPI); it can be seen that the suitability of TPI's location, construction and spatial planning with the Sanitation Standard Operating Procedure (SPSS) is only 2%, while the suitability of TPI's sanitation and hygiene implementation with SPSS only reaches 11%.

References

- Asmuni, *et al.* (2020). Implementation of the principle of sale and purchase transactions through MLM in Brand Branch (BC) PT. Herba Penawar Alwahida Indonesia (HPAI) Tanjungbalai. Budapest International Research and Critics Institute-Journal (BIRCI-Journal) Volume 3, No. 4, Page: 3376-3385
- Edi, IBP, Anggoro, S., & Susilowati, I. (2006). Fishery Port Efficiency Analysis and Development Strategy (Main of Cilacap Ocean Fishing Port Discussion). Journal of Sea Sands, 2 (1), 64-78.
- Hermada DekiawanAndHasan Subagyo (2018) Simulation of the SWOT-AHP Model in Determining the Alternative Choice of D3 Vocational Higher Education Development Strategies. Journal of Educational Innovation), 5(1), June 2018
- Ministry of Maritime Affairs and Fisheries (2006). PERMEN of Maritime Affairs and Fisheries Number: PER.16/MEN/2006 concerning Fishery Ports.
- Marine and Fisheries Ministry. (2009). Law Number 45 of 2009 concerning Amendments to Law Number 31 of 2004 concerning Fisheries. Jakarta: Bureau of Law and Organization, KKP.
- Marine and Fisheries Ministry. (2012). Minister of Marine Affairs and Fisheries Regulation Number PER.08/MEN/2012 concerning Fishery Ports. Jakarta: Bureau of Law and Organization, KKP.
- Ministry of Maritime Affairs and Fisheries. (2018) Regulation of the Minister of Maritime Affairs and Fisheries Number 6/KEPMEN-KP/2018 concerning the National Fishery Port Master Plan.
- Lubis, E. (2000). Introduction to Fishing Ports. Faculty of Fisheries and Marine Science. IPB Bogor
- Lubis, E. 2006. Book I: Introduction to Fishing Ports. Bogor: Fisheries Port Laboratory, Department of Fisheries Resources Utilization. Faculty of Fisheries and Marine Science. Bogor Agricultural Institute.
- Lubis, E. (2012). Fishing Port. Bogor: IPB Press.
- Mulyono, A. (2002). The Role of Bajomulyo Fish Landing Base (PPI) in Supporting Regional Autonomy in Pati Regency. Diponegoro University Postgraduate Program Thesis. Semarang.
- Passion Ch. Zebblon, Suzanne L. Undap, and Markus T. Lasut, (2016). Public perception of the implementation of an eco-fishing port at the Bitung Ocean Fishery Port (PPS), North Sulawesi. Journal of Aquatic Science & Management, Vol. 4, No. 1, 21-27 (April 2016).
- Prasetyo, EE (2012). Papua's Fisheries Potential is Great. Taken July 31, 2013 from the world wide web site <http://regional.kompas.com/read/2012/03/14/20312963/twitter.com>
- Rangkuti, F. (2002). SWOT Analysis Techniques to Dissect Business Cases. Jakarta: PT. Main Library Gramedia.
- Riduwan (2004). Thesis Compilation Methods and Techniques. Bandung: Alfabeta.
- Supriyanto (2013). Analysis of Environmentally Friendly Fishery Port Management at the Nizam Zachman Ocean Fishing Port, Jakarta. Journal of Environmental Sciences, Environmental Science Postgraduate Program, Riau University.
- Sutyawan, F. (2014). Implementation of Eco-Port in Fishing Ports. Presentation materials were delivered at the Socialization Event for Handling Industrial Waste and Fishing Vessels (Ecoport Implementation). Bitung: Bitung Ocean Fishing Port.

- Trisna Ningsih (2006). Strategy to Increase Institutional Capacity of Nizam Zachman Ocean Fishery Port, Jakarta
- Tumpak Benny Sarialam Haro, Suriani br. Surbakti, Nurhasanah (2014). Journal of Fisheries and Marine Management Vol. 1 No. 1, 2014, article 9. Study of the Role and Strategy of Hamadi Fish Landing Base Management