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Facility Performance Evaluation at Fish Landing Port (PPI) Binuangeun Banten, Indonesia: What strategies can be applied?

Setiadi M Noor[1*], Iin Solihin[2], Retno Muninggar[2]

[1] Master Program of Marine Fisheries Technology, Faculty of Fisheries and Marine Science, IPB University, Jl. Raya Darmaga, IPB Darmaga Campus, Bogor, 16680, West Java, Indonesia
Email: setiadinoor@apps.ipb.ac.id

[2] Department of Fisheries Resource Utilization, Faculty of Fisheries and Marine Sciences, IPB University, Jl. Raya Darmaga, IPB Darmaga Campus, Bogor, 16680, West Java, Indonesia
Email: iin_solihin@apps.ipb.ac.id; muninggar@apps.ipb.ac.id

**Corresponding Authors: setiadinoor@apps.ipb.ac.id (S.M.N)*

Abstract:- The Binuangeun Fish Landing Port (PPI) plays a significant role in driving fisheries activities for fishermen in the Binuangeun area, Lebak, Banten. Despite being the largest fishing port in the region, the facilities owned by PPI Binuangeun have not been optimally utilized. This study aimed to explore the problems associated with the underutilization of operational facilities at PPI Binuangeun. The quantitative research design was carried out by conducting observations and interviews and distributing questionnaires to relevant stakeholders who played a role in the utilization of facilities at PPI Binuangeun. This research seeks to identify problems, constraints, and expected strategies for optimizing the PPI Binuangeun. All the results are presented descriptively. The findings show that the ability of facilities to utilize dock capacity reached 81.8%, that of port ponds reached 89.9%, and that of fish auction sites reached 50%, indicating that the operational facilities at PPI Binuangeun are at an adequate level of feasibility, but their utilization is not optimal. Field findings showed that during 2015-2022, there was a periodic increase in the number of vessels of various sizes, including the number of vessels that docked. Fish production has also increased with an increase in the number of fishing vessels, fishing gear, number of fishermen, production, and production value. In line with this, the manager of PPI Binuangeun must improve the operational efficiency of the port, including optimizing the port's contribution to improving the fishing industry and the economy of the port. Strategic steps are taken to improve the performance and competitiveness of PPI Binuangeun in the future.

Keywords: Port facilities, PPI Binuangeun, facility performance, fisheries manager, development strategy

1. Introduction

Fishing ports carry out management and services for the utilization of fish resources, as well as ensuring the operational safety of fishing vessels [1,2]. In addition, fishing ports also have government and business functions to support the management of fish resources and the environment, such as increasing the smoothness of fishing operations, facilitating the landing of catches, processing fish, and marketing them [3–5]. Optimizing these functions requires adequate facilities for obtaining significant results [6]. The operational development of fishing port facilities has been regulated in the National Fishing Port Master Plan (RIPPN) contained in Ministerial Decree Number 109 of 2021, one of which is PPI Binuangeun [7].

The PPI Binuangeun is a type D fishing port in Banten Province [8,9]. This port plays a role in increasing the fishing activities of fishermen around the coast and is the largest PPI in the Lebak Regency, Banten [10]. This is characterized by fish production at PPI Binuangeun, which experiences significant fluctuations every year. In addition, PPI was the most significant contributor to fish production, with monthly achievements of 140 tons and 1,688 tons per year, especially in the southern region of Banten Province, compared to PPI Cibareno, PPI Bayah, PPI Panyaungan, PPI Citarete, PPI Cimandiri, and PPI Sukahujan. [9,11]

Based on the findings of a preliminary study conducted in June 2023, there are strong indications that the utilization of facilities in the PPI Binuangeun is still below the optimal capacity (under capacity). This condition is reflected in the number of facilities that have not been fully utilized. Impacts arising from this condition include damage or inadequate capacity of several facilities, such as land, docks, port ponds, ice factories, clean water availability, and electricity installation infrastructure [5,12,13]. This has resulted in the port function not being carried out optimally and has implications for the reduction of ship visits to fishing ports.

Other problems include the practice of providing supplies for fishing needs that are still centered on the same dock. This is due to the lack of standardized loading docks, as well as the suboptimal condition of facilities to fulfill needs such as fuel oil (BBM), ice, and clean water. The availability and adequacy of these supplies have the potential to affect the effectiveness and efficiency of fishing operations, which in turn has implications for increasing the productivity of fishermen in catching fish [9,12,14]

2. Objectives

Efforts have been made to develop fisheries subsectors, but they are not optimal and are equipped with adequate port facilities. In view of these problems, this study aimed to evaluate the performance of the operational facilities and strategies used by the PPI Binuangeun to address existing problems. The results of this study are expected to provide strategic recommendations to PPI Binuangeun managers, which can effectively improve the port economy. The findings of this research are expected to make meaningful contributions to the Banten Province Marine and Fisheries Service (DKP) in an effort to optimize port functions and increase fishery sector activities. In addition, the results of this study are expected to benefit other parties involved, such as fishermen, ship owners, and the fish-processing industry, which are users of the port at PPI Binuangeun.

3. Methods

A quantitative research design was carried out by conducting observations and interviews and distributing questionnaires to relevant stakeholders who play a role in the utilization of facilities at PPI Binuangeun [15]. This research was conducted for three months (September–October 2023) at the PPI Binuangeun in Lebak Regency, Banten Province (Figure 1). The data in this study are all related to facilities and capacity at PPI Binuangeun, including the level of facility utilization and its conditions (including main facilities, functional facilities, and supporting facilities), dock capacity, port pond area capacity, fish auction site (TPI) capacity, and potential losses of operational facilities and development strategies. The research data included primary data based on field findings and secondary data based on documents and archive studies. In this study, the sampling technique used purposive sampling [16], with the determination of sample inclusion criteria, namely, port users (such as fishermen, boat owners, and traders in the port area) and port managers (PPI Binuangeun and the Banten Provincial Maritime and Fisheries Office).

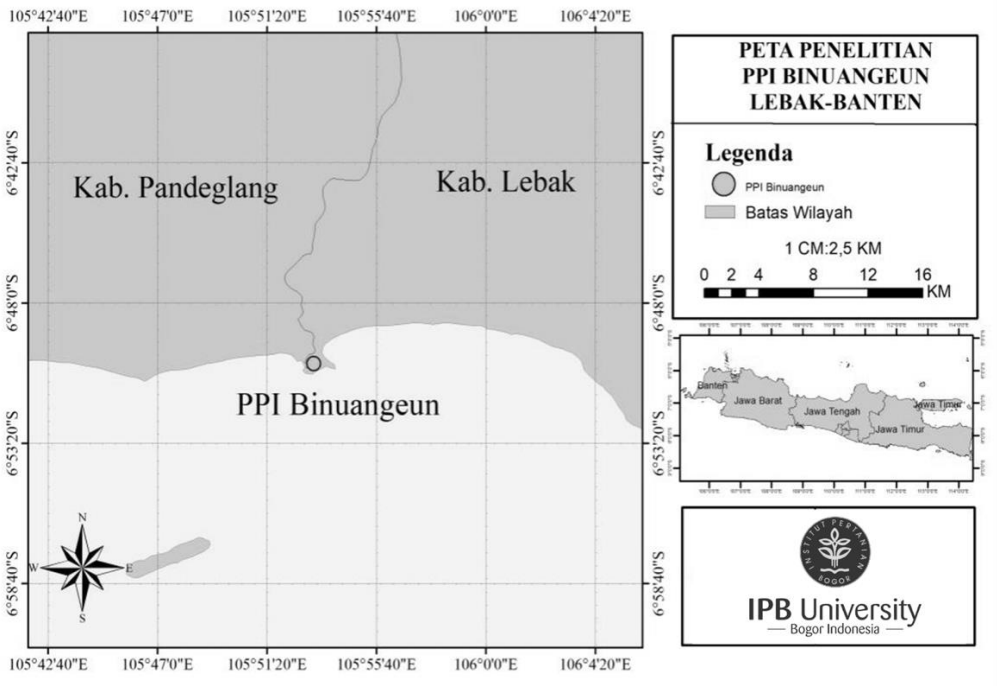

Figure 1. Geographical location of the PPI Binuangeun

Furthermore, the Slovin formula [17], a sample size of 275 fixed vessels at PPI Binuangeun, was used to determine the number of samples and obtained with the criteria of <5 GT (122 vessels), 5–10 GT (34 vessels), and 10–30 GT (119 vessels). The level of utilization of PPI Binuangeun facilities is limited to basic and functional facilities, including port docks, ponds, fish auction sites, ice factories, clean water reservoirs, and fuel oil supply facilities. The level of facility utilization was analyzed descriptively and quantitatively with a direct approach in the field by comparing the utilization and capacity of both the main facilities and functional facilities. The data were processed using Microsoft Excel and are presented in the form of tables and graphs.

4. Results

4.1 Ship fleet growth rate

The growth of the vessel fleet at PPI Binuangeun played a crucial role in the evaluation and development of port facilities. With a careful analysis of the growth in the number of vessels from year to year, authorities can identify trends in fishing activities as well as facility utilization. Based on the data obtained from 2014-2022, each year, the number of vessels at the PPI Binuangeun increased according to the type and size. There are two types of motorboats: motorboats and outboard motorboats. The basic material of a boat typically varies according to its size. Outboard motorboats with an average size of 1-5 GT are fiber- or wood-based, whereas motorboats larger than 5 GT are predominantly wood-based. The number of vessels per year, vessel size, and annual growth rate are presented in Table 1.

Table 1. Number of ships based at PPI Binuangeun in 2014-2022

Years	Ship (GT)		Total	Growth Rate (%)
	1-5	>5		
2014	38	16	54	-
2015	50	20	70	29,6
2016	69	26	95	35,7
2017	84	44	128	34,7
2018	89	53	142	10,9
2019	153	122	275	93,7
2020	185	125	310	12,7
2021	188	142	330	6,5
2022	192	157	349	5,8
Average growth rate				**28,7**

Remarks: -: unknown growth data, all information obtained from PPI Binuangeun.

4.2 Use of fishing gear

The diversity in gear types, sizes, and costs reflects the inherent complexity of fishing activities in the PPI Binuangeun area. The dominant preference for the use of fishing gear, such as gillnets and rampus nets, indicates that this decision is often influenced by considerations of affordable production or acquisition costs. In this context, it should be understood that the level of facility utilization at the port is influenced not only by the number of vessels but also by the type and number of fishing gear utilized by the fishers. The existence of various types and numbers of fishing gear, such as purse seines, seines, bubu, and floating bagans, adds to the level of complexity in planning and optimizing the utilization of facilities at PPI Binuangeun. In addition, the limited capacity of the pier can affect the distribution and use of fishing gear by fishermen. Therefore, an in-depth understanding of the complex interactions among the fleet, fishing gear, and capacity of facilities at the port is essential to improve the overall efficiency and performance of PPI Binuangeun operations. The number of fishing gear units at the PPI Binuangeun is shown in Figure 2.

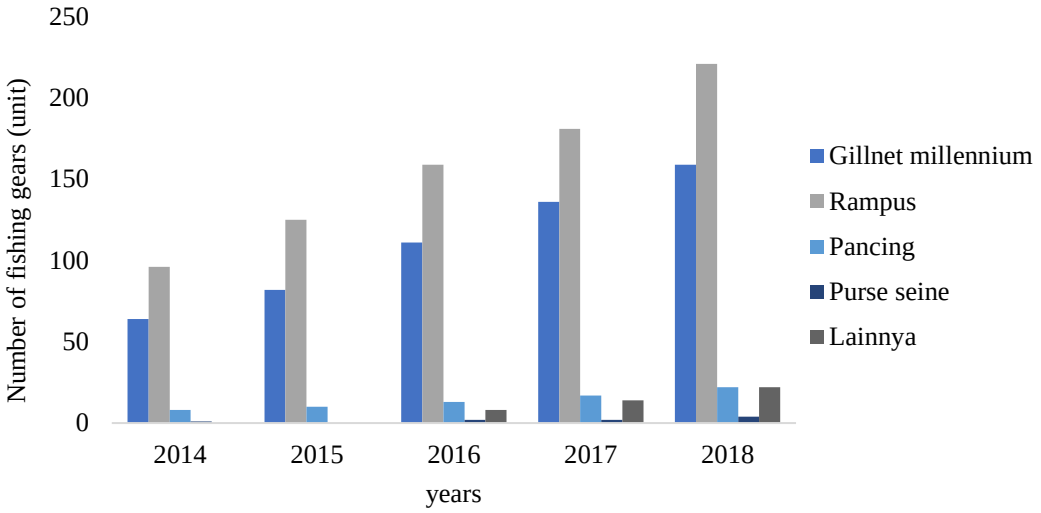

Figure 2. Development of fishing gear at PPI Binuangeun from 2014–2018.

4.3 Fishing capacity and growth

As the main actors in the capture fisheries industry, fishermen play a key role in the utilization of facilities at PPI Binuangeun. The daily activities of fishermen, such as the departure and arrival of boats, the use of dock areas, and the need for supporting facilities such as boat repair workshops, affect the use and optimization of port facilities. Therefore, an in-depth understanding of the needs and behavior patterns of fishermen is important for designing and managing facilities at PPI Binuangeun to support fisheries activities effectively and efficiently. Based on the activities carried out, the fishermen were categorized into 3 (three) groups: full-time, main part-time, and additional part-time. A total of 2057 people were indigenous (local) fishermen and migrant fishermen (Marine Fisheries Service of Lebak Regency). Based on the data obtained, the number of fishermen at PPI Binuangeun has continued to increase from 106 to 359 from 2014 to 2021. The largest increase occurred in 2016, with a growth rate of 41.1%, although there was a small decrease of -0.6% in 2021. The fishing profession is the main source of livelihood in the region, which is in line with the growth of fleets and fishing gear in PPI Binuangeun. The number of fishermen and their growth are presented in Table 2.

Table 2. Number of Fishermen in PPI Binuangeun

Year	Number of fishermen (people)	Growth Rate (%)
2014	106	-
2015	135	27.4
2016	190	40.7
2017	268	41.1
2018	310	15.7
2019	328	5.8
2020	361	10.1
2021	359	-0.6
Average growth rate		20.0

Remarks: -: unknown growth data, all information obtained from PPI Binuangeun.

4.4 Fish production and production value

The analysis of fish production and its production value from 2015 to 2022 is directly related to the optimization of facilities at the PPI Binuangeun. These data provide insights into the level of fishing activity occurring at ports over time. With a good understanding of the production volume and value of fish production, authorities can assess the effectiveness of existing facilities in supporting fishery activities. Based on the data obtained, fish production in PPI Binuangeun from 2015 to 2022 showed significant variations. The highest production occurred in 2020 (2,504 tons), whereas the lowest production was recorded in 2015 (1,534 tons). The average annual production during this period was 3,613 tons. Overall, the fish production reached 16,258 tons. Moreover, the highest production value occurred in 2019, with an IDR of 42.1 billion, while the lowest production value occurred in 2016, with an IDR of 30 billion. The average annual production value during this period was 66 billion per year. There was significant growth in fish production, with an average annual growth rate of 11%. However, the production value showed greater variation, with an average annual growth rate of 7%. The fish production and production values from 2015 to 2021 in the PPI Binuangeun are presented in Table 3.

Table 3. Fish production and production value 2015-2022

Year	Fish Production(ton)	Production Value (Rp. billion)	Production growth rate (%)	Value growth rate (%)
2015	1.534	30,0	-	-
2016	1.689	35,9	10,1	19,5
2017	1.816	35,0	7,5	-2,4
2018	1.865	37,1	2,7	6,0
2019	2.204	42,1	18,2	13,5
2020	2.504	39,0	13,6	-7,3
2021	2.378	39,2	-5,0	0,4
2022	2.269	37,8	-4,6	-3,4
Total	**16.258**	**296**	**43**	**26**
Average	**3.613**	**66**	**11**	**7**

Remarks: -: unknown growth data, all information obtained from PPI Binuangeun.

4.5 Fishing area and season

PPI Binuangeun has a tropical climate. The average annual rainfall ranges from 2000-3000 mm, with 122-130 days of rain per year. According to Schmidt–Ferguson, based on the state of rainfall, a wet climate is included. The fishing grounds (DPIs) of Binuangeun fishermen are generally along the southern coast of the Banten Province to Tinjil Island and Deli Island. Large vessels (20-30 GT) typically reach the Indonesian exclusive economic zone (EEZ). Noor et al. (2022) mentioned that the division of fishing areas automatically occurs based on the ability of the ship and fishing gear to operate. The dominant fishing gear used by Binuangeun fishermen is gillnets and rampus nets. Judging from the number of fish catches landed at PPI Binuangeun, growth in 2022 was recorded from January to April, with an increase in catches of up to 260,368 kg or approximately 260 tons, a decrease in May-June, a decrease of 129,909 kg or approximately 129 tons, and an increase from July to December, with the highest catch recorded as much as 236,723 kg or approximately 236 tons. The fish production during the fishing season is shown in Figure 3.

Seasons in Binuangeun are influenced by sea breezes from two directions, the west and east winds, which divide the year into three seasons: west (December-February), east (May-September), and Paliwungan (March-April and October-November). During the western season, winds from the west (Ujung Kulon) cause heavy rain and large waves. In the eastern season, winds from the east (Ujung Genteng) tended to be calm without large waves. In the paliwungan season, the wind direction is uncertain but generally from the south (ocean). During the fishing season, a variety of fish species are caught in Binuangeun, with skipjack dominating (39%), followed by other fish (24%) and fin tuna (21%). Several other types of fish, such as kite, layur, squid, marlin, snapper, mackerel, lamadang, mackerel, and bentong, also land at PPI Binuangeun.

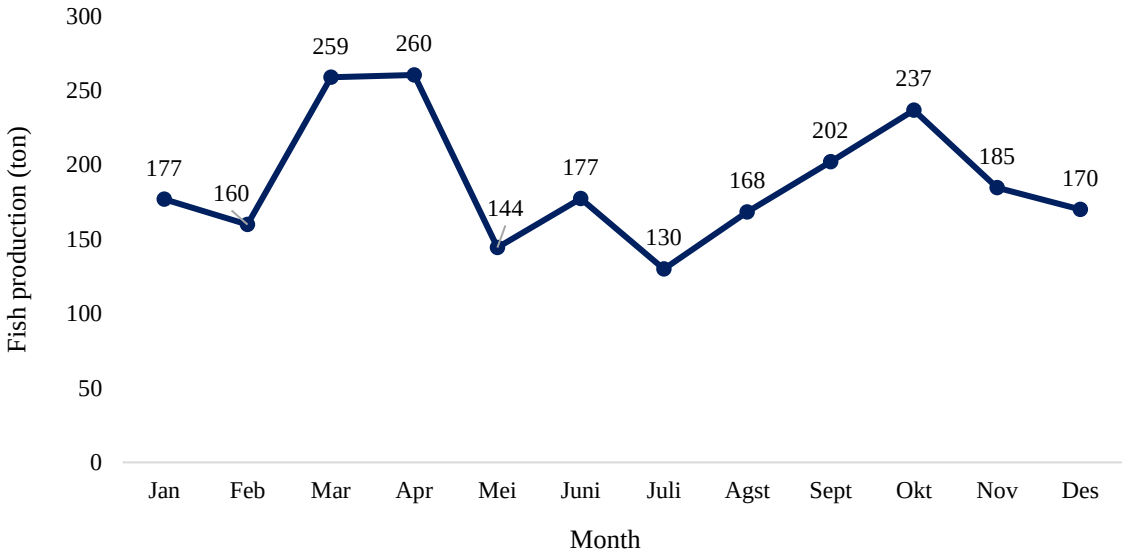

Figure 3. PPI Binuangeun Fish Production (Ton) in 2022

4.6 Facility utilization rate and condition

PPI Binuangeun, as a fishing port, is regulated by Government Regulation number 27 of 2021, which stipulates the role and function of fishing port facilities, including their operational aspects. The pier at PPI Binuangeun was built in 1985, and renovations were carried out in 1993. Based on facility data, PPI Binuangeun has three main types of facilities, basic, functional, and supporting facilities, the details of which are shown in Table 4. This is in accordance with the standards stipulated in the relevant government regulations and has become an important foundation for assessing the performance and operational efficiency of fishing ports.

Table 4. Type, capacity, and condition of PPI Binuangeun facilities

Facility Type	Installed Capacity	Conditions
Basic Facilities		
Docks	140 m	Good
Harbor pond	15.000 m^2	Shallow
Breakwater (left)	186 m	Good
Breakwater (right)	250 m	Damaged
Drainage	347 m	Good
Complex road	585 m	Good
Port land	13.400 m^2	Good
Functional Facilities		
Fish Auction Place (TPI)	120 m^2	Good
Ice factory	300 Beams	Less
Solar Packed Dealer Fisherman	85.000 Liters	Good
Clean water	16.000 Liters	Good
Ship repair shop	1 unit	Good
Machine shop	1 unit	Good
Fish packing	1 unit	Good

Facility Type	Installed Capacity	Conditions
Electrical installation	400 kVa	Less
One-stop service office	1 unit	Good
Syahbandar office	1 unit	Good
Support Facilities		
Mushola	1 unit	Good
Shops	21 unit	Good
Ice depot	6 unit	Good
Parking area	45,5 m^2	Good
Water Police Station	1 unit	Good
Bathing and washing	3 unit	Good
Fishermen's cooperative	1 unit	Good

Remarks: All information was obtained from PPI Binuangeun.

4.7 Dock capacity

This study provides a comprehensive overview of the fish landing process at PPI Binuangeun, with an emphasis on evaluating dock capacity, operational efficiency, and facility optimization needs. Referring to data from the Directorate General of Fisheries of 1981, an analysis was conducted to understand how this pier functions in the context of the landing and distribution of fish catches. The results of the study show that although the pier's capacity has been carefully calculated at 55 vessels per day, its utilization reaches only 81.8%, indicating that there is room to improve operational efficiency. In this context, it is important to find ways to optimize existing facilities to reach the full potential of the wharf. The ± 3 m of damage detected also highlights the need for timely repair to maintain the primary function of the jetty. Wharf facilities are key infrastructure for supporting fish landing and distribution activities; therefore, regular maintenance and repairs are essential to ensure smooth operations. In the context of port infrastructure development, the results of this study also provide the insight that while additional berths may not be necessary at this stage, investment in the repair and maintenance of existing facilities is crucial. This will not only improve operational efficiency but also enable the port to better meet market demands.

4.8 Port pool area capacity

Supply activities in the PPI Binuangeun harbor pool, including the fulfillment of fuel oil, ice, and clean water needs, occur at the same dock as the unloading dock without any special loading facilities. Although the port pool area reached 15,000 m^2 with a maximum capacity of 89 vessels, the utilization rate reached only 89.9%. This indicates the potential to improve efficiency and optimize facilities. Although the current fleet of fishing vessels can be accommodated, further evaluation and regulation are required to ensure efficient and adequate services for fishermen, focusing on facility management and better utilization of technology. Thus, measures for facility optimization are crucial for supporting the smooth operation of fishery activities at PPI Binuangeun.

4.9 Capacity of Fish Anchorage (TPI)

The fish auction place (TPI) at PPI Binuangeun is an integral part of the port infrastructure that supports the landing and distribution of catches. Based on the analysis using the parameters of the auction building area of 120 m^2 and the frequency of auctions once a day, it was confirmed that the auction ratio reached 80%, while the remaining 20% were not involved in the auction process. Considering the capacity of the room for fish production of 10 m^2/ton, the maximum capacity of the auction building can accommodate 10 tons of fish per day. However, the analysis results show that under the existing conditions, only 5 tons of fish are active in the auction process, resulting in a facility utilization rate of 50%. Thus, the utilization rate of the TPI reaches only 50% of its capacity, and there is a need for facility optimization measures to improve its efficiency and utilization. This includes evaluating the capacity of the available space and structuring the auction process to match the increasing levels

of fish production. In addition, increasing the awareness and participation of fish sellers registered at the TPI can help maximize the utilization of existing facilities. By implementing this facility optimization strategy, the PPI Binuangeun can better accommodate the growth of the fisheries industry, improve operational efficiency, and provide better services to fisheries.

4.10 Potential loss of port operational facilities at PPI Binuangen

The facilities available at the port are important elements in supporting various activities. The optimal use of facilities is key to achieving goals in accordance with the functions carried out by fishing ports. This study aims to calculate potential losses in accordance with the existing operational facilities at the port, which were built with the aim that the function of the fishing port can run optimally. The facility capacity is an important indicator that describes the ratio between the existing capacity and current needs, and the utilization level of each facility can be determined by calculating the capacity relative to the current needs. Mooring activities, as operational activities at ports, are an important focus of attention for facilities. The potential losses associated with this facility can be calculated based on the provisions stipulated in Government Regulation Number 85 of 2021 regarding mooring fees. According to Table 5, which illustrates the number of vessels at PPI Binuangeun, there were 349 fixed vessels with an average vessel size of 5 GTs, with a proportion of approximately 55%, or approximately 192 vessels, while vessels measuring 6-30 GTs accounted for 45%, with a total of 157 vessels.

Table 5. Potential mooring losses

Ship Category	Ship Frequency/day (unit)	Average ship length (m)	Ship time (hour)		Potential loss (Rp)		Grand Total (Rp)
			Tether	Labuh	Tether	Labuh	
5-10 GT	5	13.5	2	60	33,750	70,000	103,750
10-30 GT	2	16.5	3	84	16,500	20,000	36,500
Total	**7**				**50,250**	**90,000**	**140,250**

Remarks: All information was obtained from the PPI Binuangeun.

In the context of the existing conditions at PPI Binuangeun, the mooring service tariff is not applied because there is no martyrdom activity that allows many ships to dock and carry out the loading and unloading process at the dock without being charged a mooring fee. Data on losses show that on one day, losses due to mooring activities reached IDR 50,250, and losses due to anchoring activities amounted to IDR 90,000, with a total loss of mooring at PPI Binuangeun reaching IDR 140,250 per day. If converted into a one-month period, the loss reaches a significant figure of IDR 4,207,500. Therefore, it is important to improve facilities and maritime activities to reduce the economic losses incurred by the underutilization of mooring facilities at PPI Binuangeun.

5. Discussion

Fishing ports play a vital role in a region's economy, especially as centers of economic activity related to the marine fisheries industry [18,19]. The facilities available at ports play an important role in supporting various activities related to the fisheries process [9]. Therefore, it is important to conduct a rigorous evaluation of the utilization rate of these facilities to improve the operational efficiency of fishing ports in accordance with their role in the economic ecosystem. The evaluation of facility utilization rates is a crucial step in understanding the extent to which the available infrastructure is being used effectively [20,21]. This process involves assessing the capacity of the facilities that have been installed, as well as their utilization rate over a given period. By analyzing the utilization rate of these facilities, a deeper understanding of the efficient use of fishing port infrastructure can be gained [22].

Based on the analysis of the facility utilization rate at dock capacity, which reached 81.8%, it was found that the utilization rate had not reached optimality. This lack of optimality is caused by two main factors: limited dockland and ship stacking. Limited dock space inhibits the capacity of the port to accommodate more vessels simultaneously [23,24]. This means that most vessels must wait for their turn to berth, which in turn slows down the process of landing fish and other activities at the port. This creates long waiting times for vessels, reduces operational efficiency, and increases operating costs. Moreover, the accumulation of ships in the shipping channel

causes ships to wait for their turn to dock so that they tend to form queues in the shipping channel, which can disrupt the flow of other ship traffic and even jeopardize shipping safety [18,25]. In addition, the accumulation of vessels in the shipping channel can prevent vessels from entering and exiting the port smoothly, causing delays in the process of transporting fish and distributing catches. Suboptimal utilization has also been observed at several other ports, such as the PPI Kronjo, which accounts for 11.1% of the total population [26]; the PPI Lero, with a utilization rate of 62.86% [27]; the PPI Tanrusampe, with a utilization rate of 63% [28]; and the utilization rate of the PPI Kajang pier, which reaches 51.35% [29].

Furthermore, an analysis of the capacity of the fish auction site at PPI Binuangeun revealed that facility utilization is far from optimal. With an auction building area of 120 m^2 and a capacity of 10 m^2/ton, the utilization rate of the fish auction facility was 50%. This assessment shows that fish auction facilities have not yet reached the optimal level of utilization, where the use of facilities has not reached 100% of the available capacity. This finding is consistent with that of Hamzyna [30], who reported a 51% utilization rate of the fish auction site. This indicates that although the utilization rate is not optimal, the building is still in good condition, and its capacity has not been maximized. The lower than optimal utilization rate of fish auction facilities is due to the lack of a consistent and systematic auction system [18,28]. One solution is to increase the frequency of auctions in a day to increase the throughput of the auction process and maximize the utilization of existing facilities. Thus, improvements to the auction system are crucial for improving the efficiency and optimality of the utilization of fish auction facilities at PPI Binuangeun.

At a deeper level, fish population dynamics, including variations in species, number, and size, have a significant impact on the fish auction system [6]. Hasan et al. [31] revealed that the auction system at PPI Mangolo was not optimized due to inconsistent variations in fish catches. This factor affects the consistency of auction system implementation and potentially reduces the efficiency of facility utilization. It is important to remember that the existence of adequate facilities is not a guarantee of success; however, their optimal utilization is essential for providing added value to the port [10,13]. In addition, ineffective implementation of port service revenue can also cause losses to the port, as observed in the mooring service tariff at PPI Binuangeun. The mooring service tariff is regulated in accordance with the provisions of Government Regulation Number 85 of 2021 concerning tariffs on nontax state revenue applicable to the Ministry of Maritime Affairs and Fisheries. Therefore, efforts to improve, maintain, and increase the capacity of port facilities are needed to ensure that ports can properly accommodate the development of the fishing industry. Ariwibowo [21] explained that the maximum use of facilities will support the growth of fishery products more quickly. Thus, improving facilities and increasing fisheries capacity will optimize the contribution of fishing ports, including improving the economy.

5.1 Strategies that can be applied

Based on the findings that the facilities at PPI Binuangeun have a fairly high capacity characteristic but their utilization is not optimal, the following strategies can be implemented to improve the optimization of the utilization of these facilities: 1) analysis and improvement of operational efficiency by carrying out in-depth evaluation and analysis of the operational processes at the dock, harbor pond, and fish auction site [32,33], identifying and eliminating potential bottlenecks in operational flow and implementing technology and information systems to improve efficiency and logistics management [34,35]; 2) the development of a capacity monitoring and management system by establishing a real-time monitoring system to measure facility capacity and predict future needs [36–39] and develop predictive models to assist management in making decisions regarding resource allocation at all levels [40,41]; and 3) increasing the capacity of fish auction sites by identifying factors that limit the capacity of fish auction sites and considering physical expansion, facility upgrades, or improvements to the auction process [42–44].

In addition, 4) the development of training and education programs is carried out by providing training to businesses, fishermen, and related parties to increase understanding of the potential and optimal use of the facility and build awareness of the benefits of optimal utilization of the facility for local economic growth [45]; 5) the stimulation of partnerships and investment is carried out by encouraging partnerships between PPI Binuangeun, the local government, and the private sector to increase investment in facility development as well as providing

incentives or facilities for investors who contribute to the increased utilization of facilities [44,46]; and 6) the development of a marketing and promotion plan is carried out by building a marketing plan to increase the visibility of PPI Binuangeun as a strategic port destination as well as exploring new market potential and establishing cooperation with relevant stakeholders [47–51]. Finally, 7) periodic evaluation and feedback are carried out by conducting periodic evaluations of the strategies implemented, measuring their impact on facility utilization, and collecting feedback from stakeholders to continuously improve and adjust the strategies [51–53]. By implementing this strategy, PPI Binuangeun is expected to increase the optimal utilization of its facilities and have a positive impact on the economic growth and sustainability of the fishing industry in the area.

6. Conclusions

The findings show that the influence of facilities on the characteristics of the pier capacity reached 81.8%, that of the port pond reached 89.9%, and that of the fish auction site reached 50%, indicating that the operational facilities at PPI Binuangeun are at an adequate level of feasibility, but their utilization is not optimal. Field findings showed that during 2015-2022, there was a periodic increase in the number of vessels of various sizes, including the number of vessels that docked. Fish production has also increased with an increase in the number of fishing vessels, fishing gear, number of fishermen, production, and production value. In line with this, the manager of PPI Binuangeun must improve the operational efficiency of the port, including optimizing the port's contribution to improving the fishing industry and the economy of the port. Strategic steps are taken to improve the performance and competitiveness of PPI Binuangeun in the future. Further research on the implementation strategy of optimizing the capacity of PPI Binuangeun is needed to identify the potential that can be developed to improve the economy of the port community.

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