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The Service of Bungus Ocean Fishery Port to Support Tuna Industries

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ABSTRACT

The services of the Bungus Ocean Fishery Port as the only tuna Fishery port in West Sumatra in supporting the availability of facilities required by each tuna industry stakeholder. The purpose of this study is to determine the services from the Bungus Oceaning Fishery Port that are currently being experienced by fisheries stakeholders, especially tuna and to determine the level of satisfaction of tuna entrepreneurs with the performance of the Bungus Ocean Fishery Port. The data analysis used is weighting or scoring, and then IPA and CSI analysis is carried out. The results showed that the Bungus Ocean Fishery Port played a good role in providing production activities, infrastructure and public services, and tuna stakeholders felt quite satisfied with the performance of the Bungus Ocean Fishery Port in supporting the tuna industry.

Keywords: Bungus, fishing port services, IPA and CSI, Stakeholder satisfaction, Tuna industry.

1. INTRODUCTION

The fishing port is a center for fishing activities, equipped with various facilities that support all fishing activities at the port as well as services that can be enjoyed by port users (Zain *et al*., 2010). One of the fishing industries in fishing ports that plays a very important role in the economy of a region is the tuna fishing industry. The tuna fishing industry has quite an important value for the regional industrial economy because tuna is a fish commodity that has important economic value because it has high selling value and high production (Hutapea *et al*., 2017).

Apart from having an important economic value, tuna is also one of Indonesia's export commodities, this is evidenced by PPS Bungus statistical data of 44,522 tons of export volume for fresh tuna production, 381,068 tons for processed tuna production, and 61,083 tons for fresh tuna production for local areas that are landed at PPS Bungus (DJPT, 2018).

Bungus Ocean Fisheries Port (PPS) is a type A fishing port (ocean) and the only PPS on the island of West Sumatra which carries out direct export of tuna commodities. Bungus PPS services are needed to support the tuna fishing industry because the port is the center of tuna industrial activity, good support from the port will also make a good contribution, especially in the tuna fishing industry. Based on this, it is necessary to conduct research to analyze what kind of services are provided by PPS Bungus in supporting the tuna fishing industry, these services are expected to meet stakeholder needs and be able to support tuna industry activities.

The aimed of this study was to determine the assessment of the services of the Bungus Ocean Fishery Port as perceived by tuna fishery stakeholders and to determine the level of satisfaction of tuna entrepreneurs with the performance of Bungus PPS.

2. RESEARCH METHODS

Time and Place

This research was carried out in June 2022 at the Bungus Ocean Fishing Port, West Sumatra, Indonesia.

Methods

The research method used is survey method. Data was collected through questionnaires, direct observation at the port and interviews. Sampling usingpurposive sampling, namely 5 respondents which included 1 person from the tuna processing industry, 2 people from the fresh tuna industry and 2 people from PPS Bungus managers.

Questionnaire result data is processed using Microsoft Office Excel. The resulting data is tabulated in advance to facilitate the analysis process. The collected PPS Bungus

service assessment data is tabulated based on production activities, infrastructure, and public services to then be analyzed using the scoring method. The second questionnaire data was tabulated based on the interest level of tuna stakeholders and the performance level of the Bungus PPS that were then analyzed using the IPA and CSI methods.

Analysis of the data used in this study is the analysis of port services and analysis of the level of importance tuna stakeholders and the performance of PPS Bungus.

Port Service Analysis

Analysis of port services is carried out using the weighting method or scoring method. Data analysis was carried out by examining several parameter and sub-parameter assessments related to production activities, infrastructure and public services at fishing ports. The stages of the assessment are as follows:

1. Determination of Parameters and Subparameters

Each parameter and sub-parameter is given a weight, scale and value according to the level of interest of tuna stakeholders. The parameters discussed are production activities, facilities and infrastructure and public services, each parameter is developed by five subparameters.

2. Determination of scale and weight

The weight is determined based on the quality (level of importance) assessed by the respondents with a total weight of 1.00. The scale given for each subparameter is using a Likert scale, with a value range of 1-5 (bad, not good, good enough, good very good).

3. Assessment on parameters

Assessment of the parameters of production activities, infrastructure and public services is by multiplying the weight and scale of each sub-parameter that has been given by the respondent.

4. Determination of the results of the assessment

The result of the assessment is the final value of the sum of the total values of each subparameter. The results of the service assessment using the Likert scale are divided into 5 categories, namely:

1) Very good ; total value = 4.2 - 5.0
2) Well; total value = 3.4 - < 4.2
3) Pretty good; total value = 2.6- <3.4
4) Not good; total value = 1.8-< 2.6
5) Not good ;total value = 1.0 - < 1.8

Analysis of Tuna Stakeholder Satisfaction Level and Bungus PPS Performance

Analysis of the level of importance and performance using IPA (Importance Performance Analysis) analysis. The steps taken are: 1) Assessment of attributes based on four dimensions, namely facilities, permits, availability of raw materials and services that are then developed into 20 assessment attributes, 2) determination of importance and performance values with a Likert scale. 3) Calculating the average performance level and importance level of all attributes., 4) making a Cartesian diagram to assess all dimensions of service company performance based on customer expectations (Handajani & Yanto 2015), and 5) determining the middle line using the average value overall attributes as dividing lines on the X (performance) and Y (importance) axes

Stages of CSI analysis (Supranto *in* Nasir *et al.,* 2012):

1. Calculating Weighting Factors (WF)

$$WF = \frac{RSP}{\sum RSP} \times 100\% \cdots\cdots\cdots\cdots (2)$$

Information:
WF : Weighting Factors
∑RSP : Total score of importance level
RSP : Average importance score

2. Calculating Weighted Score (WS)

$$WS = RSK \times WF \ldots\ldots\ldots\ldots (3)$$

Information:
WS : Weighted Score
SSR : Rated performance level
WF : Weighted Factors

3. Calculating Total Median Weight (WMT)
4. Calculating the CSI consumer satisfaction index (Customer Satisfaction Index)

$$CSI = \frac{WMT}{L} \times 100\% \ldots\ldots\ldots\ldots (4)$$

Information:
CSI : Index of consumer satisfaction
WMT : Weight Median Total
L : Maximum scale

5. The level of satisfaction of respondents as a whole can be seen from the criteria for the level of customer or consumer satisfaction

with the following criteria:

1) $x < 35\% \rightarrow$ not satisfied
2) $35\% \leq x \leq 50\% \rightarrow$ not satisfied
3) $51\% \leq x \leq 65\% \rightarrow$ quite satisfied
4) $66\% \leq x \leq 80\% \rightarrow$ satisfied
5) $81\% \leq x \leq 100\% \rightarrow$ very satisfied

3. RESULT AND DISCUSSION

Bungus PPS Service Assessment

The results of the Bungus PPS service assessment on the parameters of production activities, infrastructure and public services can be seen in Table 1

Table 1. Parameters for assessing tuna industry services

	Parameter	Weight (B)	Scale (S)	Evaluation PPS Bungus (B x S)
A	Production Activity			
1.	Sanitation and hygiene in ports and the tuna fishing industry	0.21	4	0.84
2.	The quality and quality of the catch landed	0.20	3,8	0.76
3.	Data collection on the production of catches landed or entering the industry	0.22	4,2	0.92
4.	Supporting the availability of tuna raw materials	0.16	3,2	0.51
5.	Maintain the quality of products issued	0.21	4	0.84
	Total	1.00		3.87
B	Infrastructure			
1.	Provision of mooring places for tuna boats	0.27	4,6	1.24
2.	Provision of a place for loading and unloading tuna	0.24	4	0.96
3.	Provision of place for tuna fish processing activities	0.14	2,4	0.34
4.	Provision of marketing and distribution facilities for fishery products (to markets, industries, refrigerated vehicles)	0.15	2,6	0.39
5.	Provision of landfills	0.20	3,4	0.68
	Total	1.00		3.61
C	Public service			
1.	Tuna boat mooring service	0.19	2,6	0.49
2.	Price and market information services	0.10	1,4	0.14
3.	Ease of licensing tuna boats	0.16	2,2	0.35
4.	Easy access to and from the tuna industrial area	0.26	3,6	0.94
5.	Provision of cold storage, clean water and electricity supply for the tuna fishing industry	0.29	4	1.16
	Total	1.00		3.08
	Overall average rating			3.52

Respondents' assessment of the parameters of production activity is 3.87, meaning that production activity services play a good role. The production activity parameters consist of five subparameters that are the highest values, namely data collection on the production of catches that are landed or enter the industry, for the lowest value the quality and quality of the catches that are landed, and supporting the availability of raw materials.

The data collection of landed catches is carried out directly by port employees, data collection of each arrival of fishing boats with catches is the highest value, and this is

supported by research by Khairani *et al.* (2022) that the catches published by PPS Bungus are accurate.

The quality of the catch landed at Bungus PPS is considered low, reinforced by previous research conducted by Kopa (2016) that the low quality of catch landed at Bungus PPS is caused by fishermen's lack of concern for handling fish on board, the use of bulk ice in fish storage hatches and temperatures in fish storage areas that are still irregular. Efforts that must be made to improve the quality and quality of the catch is through counseling to fishermen.

The availability of tuna raw materials for the tuna fishing industry is considered low; this is related to the lack of raw materials in the production process. One of the causes of the lack of availability of raw materials namely decreased visits or landings from fishing vessels, particularly tuna vessels.The reason for the decline in fishing vessel visits is that licensing for tuna vessels over 30 GT is considered difficult and the spread of Covid-19.

Sanitation and hygiene in ports and the tuna fishing industry have an important role in fishing activities. Sanitation and hygiene at ports and the tuna fishing industry have an important role in fishing activities because they affect the quality of the products to be released. Every tuna fishing industry in Bungus PPS, liquid waste that is the result of a production process is disposed of through drainage channels so that it does not stagnate which cause an unpleasant odor and can will cause contamination of tuna products or raw materials.

The respondent's rating on the infrastructure parameters is 3.60, meaning that production activity services play a good role. The parameter of infrastructure consists of five subparameters that is the highest value, namely the provision of a place to moor for tuna boats and the lowest value is the provision of a place for tuna processing activities.

The provision of mooring places for tuna boats is of the highest value and provides many conveniences both in replenishing supplies, repairing ship engines and fishing gear as well as for resting fishermen before going out to sea, mooring facilities namely wharf and harbor pool withlength of 3,730 m^2 with a capacity of 100 ships and a harbor area of 7.2 hectares. The harbor pool functions as a place for turning ships and unloading catches (Hasan *et al.*, 2022).

Provision of a place for tuna processing activities is the lowest value, because the facilities at the fish processing site are not functioning and some of the equipment is rusty so it cannot be used for fish processing, fish landed at PPS Bungus are directly brought by the company to the factory where the fish is produced with the final result such as meatballs, nuggets etc.

General Service parameter is 3.60, meaning that production activity services play a good role. The infrastructure parameters consist of five sub-parameters that are the highest values in the public services sub-parameter, namely the provision of cold storage, clean water and electricity supply for the tuna fishing industry, while the lowest values are in the sub-parameter ease of licensing for tuna boats and price and market information services.

PPS Bungus services in providing cold storage, clean water and electricity supply for the tuna fishing industry were considered good by respondents, but in providing cold storage, clean water and electricity supply not only for the tuna industry but for all parties who need these facilities in the port area. Coldstorage has a capacity of 100 tons consisting of 3 ABF freezing rooms with a temperature of -40° and one cs frozen storage room with a temperature of -20°. Easy access to and from the tuna industry area in PPS Bungus in the form of good road access because every company needs good road access for the smooth process of distribution and delivery of raw materials or tuna fishery products.

Price and market information services at PPS Bungus are rated low because information on tuna and tuna prices is based on an agreement between fish owners and potential buyers. Information services are very important at fishing ports because they can be used as a promotional event to attract investors in the marine and fisheries sector (Puspitasari *et al.*, 2013).

Tuna Stakeholder Satisfaction Level

The assessment of the level of importance of tuna stakeholders and the performance level of PPS Bungus is shown in Table 2. Determination of the position of each attribute in the Cartesian diagram by calculating the location of the boundaries of two lines that intersect perpendicular to (X,Y), the centerline of the axis X is 2.60 and the axis

Y is 4.20 which is the average value of the level of performance and the level of importance. The position of the attributes in the Cartesian diagram in Figure 2.

Table 2. The results of the respondents' assessment of the value of the performance level ($\bar{X}$) and the importance level value ($\bar{Y}$)

No.	Attribute	Performance	Interest
	Facility		
1	Availability of basic facilities	3.33	4.63
2	Availability of Functional Facilities	2.67	4.33
3	Availability of Supporting Facilities	2.67	3.33
4	Ease of using basic facilities	2.33	3.67
5	Ease of utilizing functional facilities	2.67	4.67
6	Ease of utilizing supporting facilities	2.67	3.67
7	Facility Conditions	3.00	4.63
	Licensing		
8	Ease of licensing tuna boats	1.67	4.33
9	Length of license (speed of processing)	1.67	4.33
	Availability of Raw Materials		
10	Adequacy of raw materials	2.00	5.00
11	Raw material quality	3.00	4.33
12	Raw material continuity	3.00	4.33
13	Flow of raw materials	2.33	4.67
	Service		
14	Unloading and loading	2.00	3.67
15	Packing and transport	2.33	3.33
16	Supplies	2.67	4.33
17	Safety & Cleanliness	2.67	4.33
18	Service quality	3.00	4.67
19	Clear procedures	3.00	3.00
20	Officer alertness	3.33	4.67
		2.60	4.20

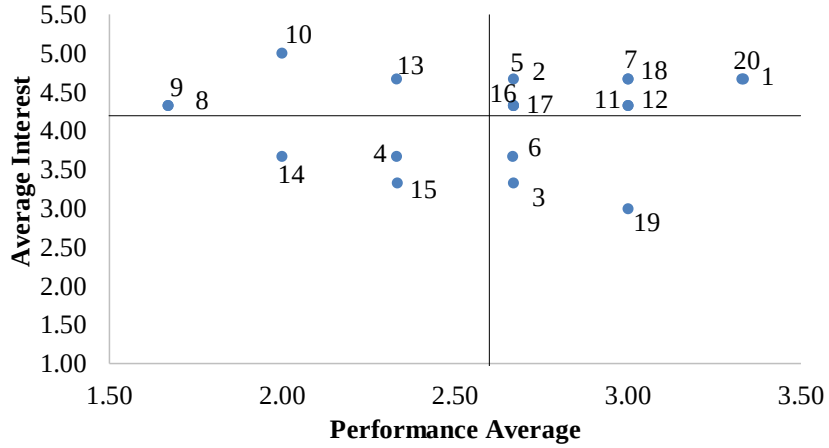

Figure1. Cartesian Diagram Importance Performance Analysis

***Customer Statistics Index* (CSI)**

The results of the analysis show that the CSI stakeholder value obtained for tuna is 52.12% (in the range of 51% -65%). It can be said that tuna stakeholders are quite satisfied with the services provided by PPS Bungus. Overall PPS Bungus has succeeded in providing services in accordance with stakeholder expectations. Even so, the port side must continue to strive to improve and maintain performance so that stakeholders remain very satisfied in the future. Guswanto *et al.* (2012)

also stated that the creation of a good service is an absolute thing in fishing ports and must be endeavored, because service is one of the activities that determine the successful development of fishing port development.

4. CONCLUSION

Bungus Ocean Fishing Port has played a good role in providing services for production activities, infrastructure and public services. Tuna stakeholders feel quite satisfied with the services provided by PPS Bungus. Attributes that have a high level of importance and low satisfaction should receive more attention from the port, namely the ease of licensing, length of permits, adequacy of raw materials, smoothness of raw materials, information on marketing and distribution of tuna.

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