Strategy for Implementation of Seaworthiness of Large Pelagic Purse Seine at Nizam Zachman Ocean Fishing Port

Nur Alfianto , Agus Suherman * , Suryanti Suryanti , Yayan Hernuryadin

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Article

Strategy for Implementation of Seaworthiness of Large Pelagic Purse Seine at Nizam Zachman Ocean Fishing Port

Nur Alfianto [1,2], Agus Suherman [1,*], Suryanti [1] and Yayan Hernuryadin [2]

[1] Departement of capture fisheries, Capture Fisheries Department, Faculty of Fisheries and Marine Sciences, Diponegoro University

[2] Directorate General of Capture Fisheries, Ministry of Marine Affairs and Fisheries, Republic of Indonesia

* Correspondence: lpgsuherman2@gmail.com

Abstract: To realize sustainable capture fisheries management, Nizam Zachman as an ocean fishing port in practice has taken action to regulate fishing vessels and large pelagic purse seine fishing gear which is a form of control on the application of fishing vessel seaworthiness in an effort to ensure compliance with provisions on safety aspects and the seaworthiness of fishing activities. This study aims to examine and determine the priority strategy of Nizam Zachman ocean fishing port in implementing the seaworthiness of large pelagic purse seine vessels. The analytical method used is descriptive statistics using SWOT and AHP analysis. The results showed that the SWOT analysis based on internal and external factors in the IFAS and EFAS matrices obtained factor values of 0.36 and -0.1 which were located in quadrant IV or the S-T strategy, which mean by strengthening the role of Nizam Zachman ocean fishing port in complying with rules for purse seine owners large pelagic with good supervision in supporting the sustainability of fishery resources. The results of the AHP analysis of prioritising the four implementation aspects of the fishing vessel seaworthiness policy are on the communication aspect (0.346) by means of holding regular outreach; the disposition aspect (0.242) by systematically assessing seaworthiness and the need for evaluation; the resource aspect (0.234) by increasing the number and capacity of fishing vessel seaworthiness inspectors, and on the bureaucratic aspect (0.177), by applying the rules of supervision with prevention through assistance to large pelagic purse seine owners.

Keywords: fishing port; purse seine; Jakarta

1. Introduction

The utilisation of economic resources is very high, including large pelagic fish in the form of skipjack, bigeye tuna, yellowfin tuna, albacore, cob krei, and cob lisong [1]. According to the Decree of the Minister of Maritime Affairs and Fisheries Number 87 of 2021 concerning Productivity of Fishing Vessels, the fishing gear for large pelagic fish that has the highest productivity is the large pelagic purse seine, which is 1.72, with the percentage composition of the catch being skipjack (60%), tuna (17%), yellowfin tuna (15%), bigeye tuna (5%), and other types of fish (3 %). So with the utilisation of these fish resources, aspects of the feasibility of catching them must be supported by means of controlling them by fulfilling good fishing vessel seaworthiness standards. The government has regulated for proper fishing vessels to carry out fishing activities, with the Government Regulation of the Republic of Indonesia Number 27 of 2021 concerning the Implementation of the Maritime and Fisheries Sector, which mandates that every fishing vessel that will operate must meet the eligibility requirements of fishing vessels.

Inspection of the seaworthiness of fishing vessels is carried out at fishing ports as a safe place to carry out preparatory activities for re-fishing at sea [2]. The existence of fishing port apart from supporting traditional fishermen in fishery development, also has a sizable function in regional or regional development [3]. According to [4], as the largest ocean-type fishing port in Indonesia, Nizam Zachman ocean fishing port is expected to be able to have an impact that can be felt by all port users,

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both from the facilities provided, competent resources, services provided, and others. According to integration report data 2022 of Nizam Zachman ocean fishing port, the number of large pelagic purse seine-type fishing vessels has the largest population, amounting to 567 vessels (41%) of the total number of 1,365 existing fishing vessels. Support for fishing vessel seaworthiness services at Nizam Zachman ocean fishing port needs to be supported by strategic plans and policy optimisation so that they are well coordinated

The Indonesian government, through the Ministry of Maritime Affairs and Fisheries, uses a fisheries management approach policy as an option for long-term sustainability and ecosystem services provided to the community such as food security, livelihoods, economic resilience, protection of the coastal environment, and human welfare [5]. In implementing the policy carried out by the government, it has made regulations regarding the seaworthiness of fishing vessels regulated in the Minister of Marine Affairs and Fisheries Regulation Number 33 of 2021 concerning Fishing Log Books, Monitoring onboard Fishing Vessels and Fish Transporting Vessels, Inspection, Testing, and Marking of Fishing Vessels, as well as Management of Manned Fishing Vessels. According to [6], the task of implementation is to create a bond that makes it easier for policy objectives to be realized as a result of a government activity, so that "a policy delivery system" is formed, namely certain means designed to achieve the desired goals. According to [7], in policy implementation conditions can occur where policies fail because they do not achieve the goals and competencies that have become established and no longer get support from policy objectives. Implementation of policies carried out by the government requires policy evaluation as stated by [8] that evaluation is an activity to assess the level of performance of a policy so that it has a related meaning, each of which refers to the application of several value scales to the results of policies and programmes.

[9] stated that there are five types of approaches to policy: policy problems, policy alternatives, policy actions, policy outcomes, and policy outcomes. Capture fisheries activities are always associated with risk, so the risk identification used by the government must be precise to produce good policies [10]. So, fisheries management requires a good understanding of fishing gear policies that have various productivity and efficiency level [11]. This study aims to examine and determine the priority strategy of Nizam Zachman ocean fishing port in implementing the feasibility of large pelagic purse seiners for capture fisheries management.

2. Material dan Methodology

2.1. Study Sites

The location of this research is at Nizam Zachman ocean fishing port, with the scope of implementing the seaworthiness of large pelagic purse seiners based at PPS Nizam Zachman. In addition, the role of PPS Nizam Zachman is also explained through an analysis of the strategies used in implementing the policy for seaworthiness of fishing vessel.

2.2. Assessment of Seaworthiness

Discussion of strategy analysis is urgently needed to achieve goals. In this case, an assessment of efforts that can be used as alternative solutions in the management and development of strategies for sea worthiness of fishing vessel at Nizam Zachman ocean fishing port (Salim and Mukhamad, 2019). [12] explains that the performance of organisational strategy development can be determined by a combination of internal and external factors, so that in addressing opportunities and challenges, as well as the strengths and weaknesses of this analysis strategy needs to be identified as a basis for making alternative strategic decisions taken by Nizam Zachman ocean fishing port.

2.3. Data Analysis

Strategic analysis is obtained based on internal factors, which include strengths, weaknesses, and external factors in the form of opportunities and threats related to the policy of worthiness for

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large pelagic purse seiners at Nizam Zachman ocean fishing port. The number of respondents in the study using SWOT analysis was 63 people consisting of ship owners, fishing vessel seaworthiness officers, Nizam Zachman ocean fishing port employees, Directorate of Fishing Vessels and Fishing Gears, Ministry of Marine Affairs and Fisheries.

Priority in implementing the seaworthiness for large pelagic purse seiners is determined through the results of the Analytical Hierarchy Process (AHP) method, which is carried out based on a pairwise comparison matrix. The implementation aspects of the resulting policies are then compared and then given a score based on preferences and knowledge sourced from 15 selected respondents. The results of the answers given are then processed through the SuperDecisions v3.2 application to obtain a ranking of aspects of policy implementation, that is aspects of communication, resources, dispositions, and bureaucracy [13]. In addition, a comparison of the strategy formulation obtained in the SWOT analysis (S-0, W-O, S-T, and WT) was obtained for each of the four aspects of policy implementation.

As a result of the alternative strategies that have been recommended, it is possible to decompose complex multi-factor or multi-criteria problems into a hierarchy, which can then be broken down into groups which are then arranged into a more structured and systematic form [14]. Assessment analysis to determine the order of SWOT strategy alternative hierarchies to strengthen the four aspects of policy implementation. On the first hierarchy is the implementation of fishing vessel worthiness policies, while on the second hierarchy are four aspects of policy implementation: there are Communication, Resources, Disposition, and Bureaucracy [15].

3. Result and Discussion

3.1. The Role of PPS Nizam Zachman

Nizam Zachman Jakarta Ocean Fishing Port is the largest fishing port in Indonesia, located in the Jakarta bay with an area of 110 Ha consisting of 40 Ha (harbour pool) and 70 Ha (reclaimed land). The location of this large port is enable to become a port that can accommodate large fishing vessels, including large pelagic purse seines. In addition, the function of fishing ports can also be a place for collecting statistical data obtained from fish landings to assess the feasibility of fish stocks and can continue to be developed [16]. Furthermore, with Nizam Zachman ocean fishing port's membership in the Port State Measure Agreement (PSMA), the role of reporting and data collection activities for flagged vessels must be reported to the state [17]. The number of purse seines based at Nizam Zachman ocean fishing port in the period 2017 – 2021 always dominates, as shown in Table 1.

Table 1. Number of fishing vessels based at PPS Nizam Zachman

Fishing gears	Year				
	2017	2018	2019	2020	2021
Bouke Ami	470	355	349	363	321
Huhate	4	1	-	-	-
Cast net	77	169	189	222	324
Gill net	64	83	51	78	62
Squid angling	108	207	195	237	310
Handline	49	16	6	8	13
Purse seiner	454	411	370	415	415
Handline tuna	175	164	89	137	159
Fish carrier	115	122	115	132	159
Total	1.516	1.528	1.364	1.592	1.763

In the report on the number of vessels in table 1, the number of purse seiners in 2017 – 2021 is in first position with a percentage of 26.6 % of the total fishing vessels based at Nizam Zachman ocean fishing port. While data on the frequency of fishing vessels landing fish at Nizam Zachman ocean fishing port in the same period, show purse seines are in second place after bouke ami with a percentage of 21.9% which is shown in Table 2.

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Table 2. Frequency of fishing vessels fish landing at PPS Nizam Zachman

Fishing gears	Year				
	2017	2018	2019	2020	2021
Bouke Ami	**1.149**	**777**	**709**	**893**	**865**
Huhate	**4**	**1**	**-**	**-**	**-**
Cast net	**71**	**445**	**416**	**521**	**757**
Gill net	**64**	**77**	**51**	**71**	**56**
Squid angling	**91**	**202**	**173**	**198**	**239**
Handline	**54**	**25**	**9**	**14**	**20**
Purse seiner	**963**	**759**	**603**	**623**	**672**
Handline tuna	**380**	**311**	**160**	**186**	**241**
Fish carrier	**661**	**660**	**741**	**779**	**805**
Total	**3.437**	**3.257**	**2.862**	**3.285**	**3.655**

The area of Nizam Zachman ocean fishing port's pier and pool in the period 2017-2021 can accommodate an average of 3,299 ships per year. According to [4], Nizam Zachman ocean fishing port, as the largest ocean-type fishing port is expected to be able to have an impact that can be felt by all port users, both from the facilities provided, competent resources, services provided, and others.

3.2. Catchability Aspects of Fishing Vessels

The implementation of the rules for examining the seaworthiness of fishing vessels by implementing fishing vessel worthiness is listed in the Regulation of the Minister of Marine Affairs and Fisheries Number 33 of 2021 concerning Fishing Log Books, Monitoring onboard Fishing Vessels and Fish Transporting Vessels, Inspection, Testing, and Marking of Fishing Vessels, Management of Manning of Fishing Vessels, which states that each fishing boat must meet the eligibility requirements of fishing vessels such as seaworthiness, capture worthiness, and storage worthiness.

[18] stated that the allocation for fishing using purse seines is influenced by the fishing season and fishing ground, the number of fishing gear operating during the fishing season and certain fishing ground. The use of FADs as fishing aids has been regulated by the Regional Fisheries Management Organisation (RFMO) to reduce environmental impacts, because they can pollute the sea, cause damage to the seabed, and damage to coastal habitats [19]. While the use of lights as light is used to detect, attract, or to increase the selectivity of fishing gear [20]. The catchability specifications of large pelagic purse seines in terms of selectivity, placement of fishing gear, and fishing aids are in Table 3.

Table 3. Selectivity, placement of fishing gear and fishing aids

Selectivity and capacity measures	Fishing aids	Vessel tonnage					Indonesia fisheries management area										
		TM	≤ 5 GT	>5 – 10 GT	>10 – 30	> 30 GT	571	572	573	711	712	713	714	715	716	717	718
The cod end mesh size is ≥3 inches and the rope length is ≤700 m	FADs and/or lamps ≤16,000 watts	X	X	X	√	X	√	√	√	X	X	√	√	√	√	√	X
The cod end mesh size is ≥3 inches and the rope length is ≤1500 m	FADs and/or lamps ≤16,000 watts	X	X	X	X	√	√	√	√	X	X	√	√	√	√	√	X

Nizam Zachman ocean fishing port has reported that the number of fishing vessels that have been issued certificates of fishing vessel seaworthiness in 2022 is 830 fishing vessels. A graph of the issuance of fishing vessel worthiness certificates by type of fishing gear in 2022 is shown in Figure 1.

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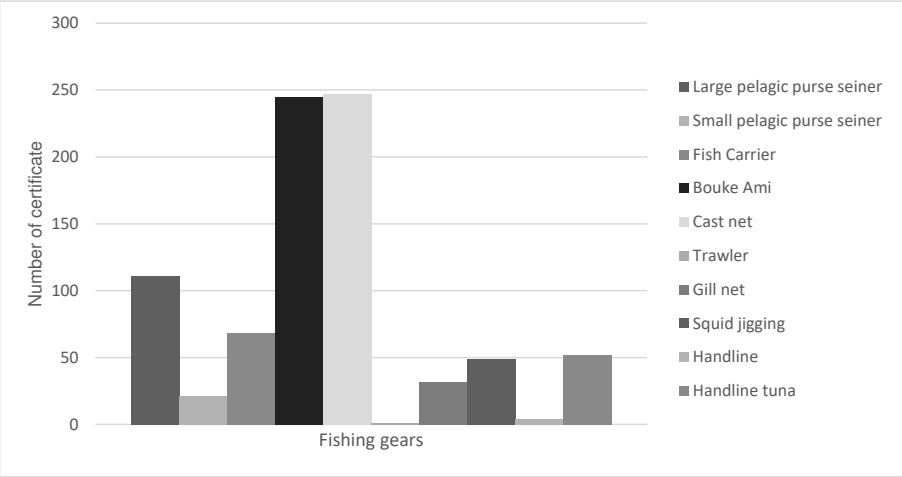

Figure 1. Data on the issuance of certificates for worthiness of fishing vessel based on the type of fishing gear at PPS Nizam Zachman in 2022

A certificate for seaworthiness of fishing vessels is a document that must be fulfilled stating that the fishing vessel has met requirements of the fishing vessel's seaworthiness certificate. Based on the Decree of the Director General of Capture Fisheries Number 15 of 2022 concerning Procedures for Issuing Certificates of Seaworthiness of Fishing Vessels and Inspection of Seaworthiness of Fishing Vessels, the stages of procedures for examining the issuance of certificates of seaworthiness of fishing vessels are mandated by Government Regulation Number 27 of 2021 concerning the Implementation of the Marine and Fisheries Sector, which mandates that every operating fishing vessel must meet the eligibility requirements.

3.3. Threats

Threats to the sustainability of capture fisheries aside from the problem of overfishing and overcapacity, are also pressures on climate change, climate change, pollution, resource degradation and fluctuations in commodity prices and conflicts over national boundaries, which increase the vulnerability of fishermen and the sustainability of capture fisheries [21]. This can be seen from the aspects of the worthiness of large pelagic purse seiners where the ship owner does not have concern, the use of non-selective fishing gear, the use of fishing areas that are not in accordance with fishing routes, and the incompatibility of fishing gear with the catch. Most purse seiner operating in the Indian Ocean use FADs as fishing aids, which are used to make it more effective and efficient, which can actually damage aquatic ecosystems [22]. Apart from that, inappropriate vessel sizes, conflicts over fishing ground routes, capture fisheries permits that are not yet understood by the community, also have an impact on decreasing fish stock populations. This is corroborated by the statement of [23] that although purse seine fishermen only represent a small portion of the fishing fleet in Indonesia, their impact on fisheries is more significant, with large catch volumes, more incidents of bycatch, and more significant potential for degradation, especially from fishing that causes damage. Rusmilyansari et al. (2010) stated that capture fisheries management which tends to be borderless and oriented towards economic interests (economic-based fisheries resource management), harms the utilization of fish resources, resulting in scarcity or depletion of fish resources and the emergence of utilisation conflicts.

3.4. Opportunity

[24] state that purse seine is a productive fishing gear for catching tuna and other large pelagic fish, so that it can provide greater profits compared to other fishing gear both in MSY (maximum sustainable yield) and MEY (maximum economic yield) conditions. Therefore, as a preventive measure

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against illegal, unregulated, and unreported fishing practices, efforts are needed to ensure that the large purse seiner used complies with the aspects of catchability that aim to limit the catch capacity and selectivity of the fishing gear used. [25] stated that 78% of purse seine fishing gear in Australia and Indonesia was lost due to snagging and drifting nets as a barrier, in addition it was also stated that 19% of the causes of loss of fishing gear were due to fishing gear conflicts with fishermen other than bad weather factors. Furthermore, implementing the safety of fishing activities can reduce the risk of ship accidents and damage to the marine environment [26]. This opportunity can be used by Nizam Zachman ocean fishing port to manage fishing activities, which are also supported by the port's operational work area and human resource capabilities. Capacity building at all levels of society and government is needed to develop competence, especially for fisheries and the sustainability of fishermen's livelihoods [27].

3.5. Strength

The status of capture fisheries development is very important to know as a measure of the achievement of the development itself, the effectiveness of the programmes that have been carried out, and also as a basis for further planning [28]. The policy for regulating the seaworthiness of fishing vessels is an act of managing the regulation of vessels and fishing gear as a form of input control. Furthermore, [28] added that it is necessary to control the access of stakeholders in capture fisheries activities because if the production rate is high enough, it will put pressure on resources. With the seaworthiness of these fishing vessels, it is expected to have a sustainable management impact. Nizam Zachman as one of the fishing ports that carries out this policy, has provided services and oversight of the fishing worthiness of large pelagic purse seiners supported by a procedural mechanism, and an evaluation has been carried out.

3.6. Weakness

According to [29], the low performance of capture fisheries in Indonesia is because in general they do not apply the latest technology, and are not friendly to the marine environment as an object. Then in terms of infrastructure conditions it is still bad which causes low economic connectivity and there are still illegal activities, low quality human resources, and a lack of synergistic cooperation between stakeholders. According to [30], practises carried out by purse seine fishermen include poor monitoring, making it difficult to manage and evaluate the sustainability of fish stocks. In addition, purse seine catches that are not the target catch still occur, so the characteristics of fishing gear, fishing practices, and ecosystems must be considered [31]. In practice, the implementation of worthiness for large pelagic purse seiners carried out at PPS Nizam Zachman is still not optimal because the understanding of ship owners is still low, the number of seaworthiness inspectors is still lacking, and the process is still not integrated.

3.7. SWOT Strategy on Implementation

The internal strategic factors obtained from the assessment of the strengths and weaknesses factors obtained the quality, ratings, and scores shown in Table 4, and for external strategic factors in Table 5.

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Table 4. The results of internal strategic factors implementing the policy of seaworthiness for large pelagic purse seiners at PPS Nizam Zachman

Internal strategic factors	Quality	Rating	Score
Strength			
The seaworthiness of fishing vessels has an impact on sustainable fisheries management	**0,06**	**2,83**	**0,17**
The seaworthiness of fishing vessels can control the access of ship owners to fishing activities	**0,06**	**2,81**	**0,17**
There is a regulation on the issuance of certificates of worthiness for fishing vessels	**0,07**	**3,14**	**0,21**
There is a mechanism for checking the worthiness of fishing vessels in terms of catch and seaworthiness	**0,07**	**3,21**	**0,22**
There is a procedure for issuing certificates of worthiness for fishing vessels at Nizam Zachman	**0,07**	**3,22**	**0,22**
Fishing vessel worthiness inspector officer Nizam Zachman has the competence and has received training	**0,07**	**3,13**	**0,21**
Issuance of certificates of seaworthiness for fishing vessels at Nizam Zachman is free of charge	**0,07**	**3,30**	**0,23**
There is a mechanism for evaluating the seaworthiness of fishing vessels at Nizam Zachman	**0,07**	**3,40**	**0,24**
Subtotal			**1,67**
Weakness			
Ship owners do not understand the implementation of fishing vessel seaworthiness	**0,06**	**2,94**	**0,18**
The number of Nizam Zachman fishing vessel seaworthiness inspectors is insufficient	**0,06**	**3,06**	**0,20**
Ship owners and crew members do not understand the process of checking the feasibility of worthiness	**0,06**	**2,84**	**0,17**
Nizam Zachman ocean fishing port does not yet have a special place to check the seaworthiness of fishing vessels	**0,05**	**2,51**	**0,13**
Fishing gear inspection uses the size sampling method (length of rope, mesh size)	**0,05**	**2,48**	**0,13**
The procedure for issuing certificates of worthiness for fishing vessels at Nizam Zachman has not been integrated with fishing vessel licencing data	**0,06**	**2,60**	**0,14**
The captain and crew members do not understand the prevention of marine pollution from fishing vessels	**0,06**	**2,60**	**0,14**
The process of issuing certificates of worthiness for fishing vessels is slow	**0,07**	**3,11**	**0,21**
Subtotal			**-1,31**
Total	**1**		**0,36**

Based on Table 4, the highest score is on the aspect of strength (S) with the strategic factor of the existence of an evaluation mechanism for the application of fishing vessel seaworthiness certificates at PPS Nizam Zachman with a score of 0.24.

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Table 5. Results of external strategic factors implementing the policy of worthiness for large pelagic purse seiners at PPS Nizam Zachman

External strategic factors	Quality	Rating	Score
Opportunity			
The worthiness of fishing vessels has the potential to use selective fishing gear and fishing aids that are correct according to the rules	**0,06**	**3,21**	**0,20**
The worthiness of fishing vessels has the potential to use fishing lanes according to regulation	**0,07**	**3,19**	**0,20**
The worthiness of fishing vessels has the potential to use appropriate fishing grounds	**0,06**	**3,16**	**0,19**
The worthiness of fishing vessels has the potential to prevent marine pollution	**0,06**	**3,24**	**0,20**
The worthiness of fishing vessels has the potential to prevent ghost fishing	**0,06**	**3,03**	**0,18**
The worthiness of fishing vessels has the potential to protect the sustainability of fish resources	**0,06**	**3,25**	**0,20**
Nizam Zachman is the largest fishing port and has working areas in several areas outside	**0,06**	**3,19**	**0,20**
Nizam Zachman has the human resources to be trained to become a fishing vessel seaworthiness inspectors	**0,06**	**3,19**	**0,20**
Subtotal			**1,57**
Threat			
Ship owners have no concerns about the implementation of fishing vessel worthiness inspections	**0,06**	**3,22**	**0,20**
There is a mismatch of fishing gear with fish catches (not selective)	**0,06**	**3,33**	**0,21**
There is an incompatibility between fishing aids and fish catches	**0,06**	**3,22**	**0,20**
There is conflict in the fishing lane area between fishing vessels	**0,07**	**3,52**	**0,24**
Pollution in the sea caused by waste oil from ships	**0,06**	**3,33**	**0,21**
It is difficult for fishing vessel owners to understand the procedure for requesting the issuance of a certificate of seaworthiness for fishing vessel	**0,06**	**3,13**	**0,19**
There is a conflict of interest in the service of issuing certificates of seaworthiness for fishing vessels at Nizam Zachman	**0,06**	**3,16**	**0,19**
The decrease in the population of fish stocks is due to fishing gear and fishing aids that are not following the regulation	**0,06**	**3,30**	**0,21**
Subtotal			**-1,67**
Total	**1**		**-0,1**

Based on Table 5, the highest score is on the threat aspect (T) with the strategic factor of conflict in the fishing lane area between fishing vessels with a score of 0.24.

3.8. Strategy Formulation

The SWOT strategy obtained includes determining the S-O strategy, W-O strategy, S-T strategy, and W-T strategy. This determination is based on the results of the matrix of internal strategic factors and external strategic factors on the strategy for implementing the seaworthiness policy of the large pelagic purse seiner, as follows: S-O : Implementation of activities to evaluate aspects of seaworthiness in a systematic and structured manner as well as periodic evaluations to improve the performance of fishing vessel seaworthiness implementation (A1) W-O : Organizing further and periodic socialization of fishing vessel worthiness activities by increasing two-way communication to fishing vessel owners in supporting the implementation of fishing vessel worthiness at Nizam Zachman ocean fishing port (A2) S-T : Strengthening the role of PPS Nizam Zachman in regulatory compliance to fishing vessel owners in implementing fishing vessel worthiness (A3) W-T : Adding the number of human resources for seaworthiness of fishing vessels to meet the workload of PPS Nizam Zachman on the implementation of the seaworthiness of fishing vessels (A4) The formulation of the strategy can be determined by looking at the results of the matrix of strategic internal factors and strategic external factors to determine the best strategy in implementing the policy of seaworthiness of large pelagic purse seiners. The results obtained from the IFAS matrix determine the location of the X axis, while the results of the strategic external factor matrix determine the location of the Y axis. From the results of the analysis obtained, a strength factor score (S) is 1.67 and a weakness factor (W) is -1.31 The opportunity factor (O) is 1.57 while the threat factor (T) is -1.67. The total internal factors (S and W) get a result of 0.36 and the total external factors (O and T) get a result of -0.1 so that a SWOT quadrant image can be obtained in Figure 2 as follows:

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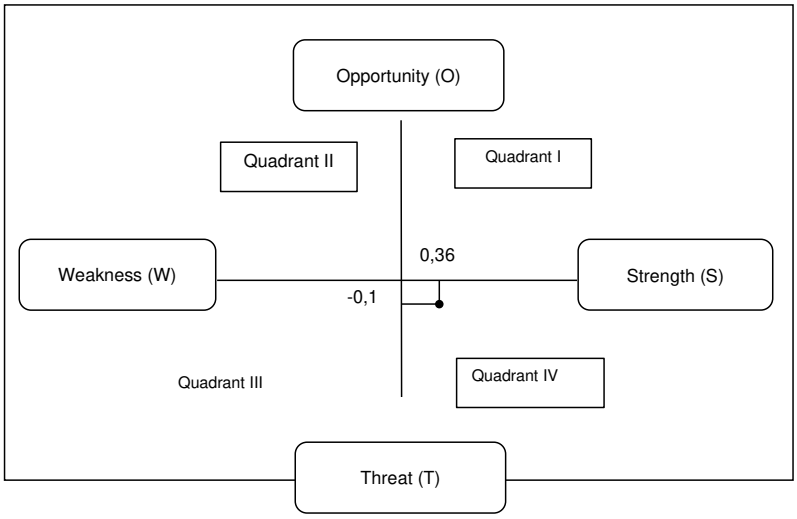

Figure 2. SWOT quadrant on the implementation of the worthiness for large pelagic purse seine fishing vessels

3.9. Priority on Implementation

A flow chart used in the structure of solving a problem consists of three levels, namely the decision results obtained are placed at the first level, various multi-criteria supporting alternative solutions are placed at the second level, and several alternatives that might be the solution are placed at the third level [13]. The implementation of fishing vessel worthiness can be seen in the scheme of Figure 3.

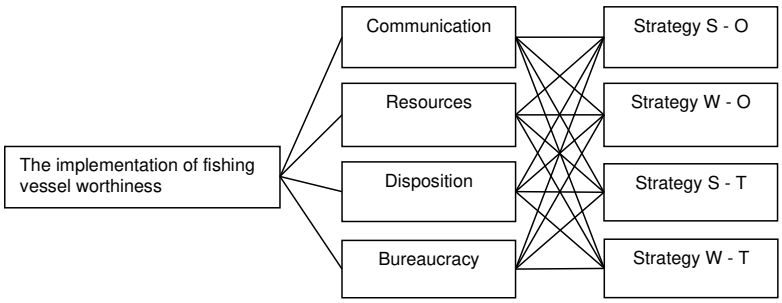

Figure 3. Hierarchical scheme for the implementation of the policy of worthiness for fishing vessels

Based on the results of the analysis obtained, the main priorities for aspects of policy implementation are presented in Table 6.

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Table 6. Results of external strategic factors implementing the policy of worthiness for large pelagic purse seiners at PPS Nizam Zachman

Respondent	Main aspect				Consistency Ratio (CR)
	Communication	Resource	Disposition	Bureaucracy	
R1	0,127	0,289	0,494	0,090	0,081
R2	0,125	0,285	0,509	0,081	0,079
R3	0,411	0,411	0,064	0,113	0,058
R4	0,098	0,098	0,219	0,584	0,085
R5	0,214	0,632	0,052	0,102	0,089
R6	0,617	0,282	0,049	0,052	0,077
R7	0,344	0,453	0,055	0,148	0,095
R8	0,468	0,171	0,259	0,102	0,095
R9	0,408	0,408	0,060	0,124	0,093
R10	0,121	0,068	0,468	0,344	0,086
R11	0,404	0,054	0,239	0,303	0,069
R12	0,073	0,083	0,669	0,175	0,082
R13	0,656	0,055	0,088	0,201	0,088
R14	0,445	0,127	0,326	0,102	0,069
R15	0,681	0,097	0,083	0,140	0,074
Mean	0,346	0,234	0,242	0,177	0,081

Based on Table 6, the aspect that has the highest priority value is the Communication aspect with an average value of 0.346. Strategic priorities in strengthening the four aspects of implementing the worthiness policy for large pelagic purse seines are presented in Table 7.

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Table 7. Results of external strategic factors implementing the policy of worthiness for large pelagic purse seiners at PPS Nizam Zachman

Respondent	S-O (A1)	W-O (A2)	S-T (A3)	W-T (A4)	Consistency Ratio (CR)
Communication aspect					
R1	0,187	0,119	0,039	0,655	0,089
R2	0,191	0,631	0,042	0,136	0,073
R3	0,503	0,093	0,184	0,220	0,095
R4	0,221	0,532	0,196	0,051	0,091
R5	0,058	0,634	0,237	0,071	0,097
R6	0,362	0,044	0,075	0,519	0,084
R7	0,238	0,136	0,043	0,583	0,088
R8	0,333	0,291	0,086	0,291	0,012
R9	0,171	0,104	0,543	0,182	0,098
R10	0,316	0,503	0,132	0,050	0,094
R11	0,156	0,094	0,357	0,394	0,078
R12	0,305	0,538	0,078	0,078	0,058
R13	0,070	0,560	0,320	0,050	0,081
R14	0,072	0,406	0,420	0,102	0,039
R15	0,224	0,584	0,140	0,052	0,091
Mean	0,227	0,351	0,193	0,229	0,078
Resource aspect					
R1	0,187	0,119	0,039	0,655	0,089
R2	0,634	0,071	0,237	0,058	0,097
R3	0,079	0,049	0,394	0,478	0,089
R4	0,405	0,418	0,121	0,562	0,082
R5	0,119	0,160	0,084	0,636	0,045
R6	0,053	0,276	0,051	0,621	0,069
R7	0,464	0,155	0,089	0,292	0,098
R8	0,150	0,164	0,235	0,452	0,099
R9	0,097	0,619	0,234	0,050	0,094
R10	0,239	0,600	0,118	0,043	0,081
R11	0,141	0,064	0,234	0,561	0,084
R12	0,282	0,574	0,092	0,052	0,085
R13	0,154	0,037	0,485	0,323	0,100
R14	0,207	0,124	0,067	0,602	0,054
R15	0,087	0,056	0,211	0,647	0,065
Mean	0,220	0,232	0,179	0,402	0,082
Disposition aspect					
R1	0,408	0,124	0,060	0,408	0,093
R2	0,558	0,084	0,292	0,066	0,079
R3	0,665	0,117	0,085	0,132	0,079
R4	0,224	0,629	0,074	0,074	0,070
R5	0,165	0,506	0,265	0,064	0,087
R6	0,280	0,045	0,064	0,611	0,099
R7	0,088	0,275	0,047	0,589	0,066
R8	0,190	0,120	0,540	0,150	0,099
R9	0,233	0,077	0,085	0,605	0,099
R10	0,323	0,522	0,097	0,057	0,076
R11	0,094	0,165	0,433	0,309	0,081
R12	0,367	0,500	0,085	0,047	0,085
R13	0,057	0,266	0,604	0,072	0,072
R14	0,678	0,055	0,142	0,125	0,045
R15	0,663	0,178	0,056	0,103	0,093
Mean	0,333	0,244	0,195	0,227	0,081

The implementation of the application of fishing vessel seaworthiness at Nizam Zachman ocean fishing port requires a strategy that supports its implementation because it is mandatory. The government has a strategic role in determining the main determinants of policy changes and resource sustainability, but with so that its capacity is needed to protect the environment [32]. The seaworthiness aspect of fishing vessels is considered to have an influence on the control and management of fishing gear on the sustainability of fish resources. Evaluation of implementation and strategy will provide better and more transparent services [33]. Control of fishing gear is part of managing fishery resources in an effort to optimally utilise them in a sustainable manner [34]. The understanding of the large pelagic purse seiners in Nizam Zachman ocean fishing port's understanding of the policy will have an impact on the implementation strategy implemented on the use of environmentally friendly fishing gear and the use of effective fishing gear in capture fisheries activities. As a preventive measure against illegal, unregulated, and unreported practises, efforts are made to ensure that large pelagic purse seines comply with aspects of eligibility such as the use of fishing vessel sizes, appropriate fishing gear, and correct fishing areas and routes. The conditions that occur at Nizam Zachman ocean fishing port show that the understanding and awareness of ship owners is still lacking, then the implementation

is not yet optimal in the seaworthiness service of large pelagic purse seine vessels so that evaluation needs to be carried out to produce implementation that is effective, efficient, appropriate, carried out responsibly , and can provide benefits to all parties [35].

4. Conclusion

The alternative position of the strategy for implementing the worthiness of large pelagic purse seine fishing vessels at Nizam Zachman ocean fishing port is in Quadrant IV or the S-T strategy, which is an effective strategy by using strength (S) to avoid existing threats (T). The S-T strategy in implementing this strategy is to strengthen the role of Nizam Zachman ocean fishing port in complying with regulations for fishing vessel owners in implementing the worthiness of large pelagic purse seiners. This indicates that Nizam Zachman ocean fishing port must have the strength to supervise compliance and enforcement the rules stipulated on the seaworthiness of large pelagic purse seines in supporting the sustainability of fishery resources.

The sequence of strategic priorities in implementation of the large pelagic purse seine seaworthiness policy at Nizam Zachman ocean fishing port in four aspects of policy implementation is as follows: (0,346), in the form of periodic delivery of information regarding the objectives of the policy on the worthiness of fishing vessels to ship owners; Disposition aspect (0,242), the attitude or tendency of the government as the policy maker and Nizam Zachman ocean fishing port as the executor of the policy targets and compliance with fishing vessel worthiness rules; Resources aspect (0,234), the number of officers who are sufficient and have the expertise to implement a policy, supporting facilities, and understanding in carrying out the worthiness inspection of large pelagic purse seine vessels; Bureaucratic aspect (0,177), the existence of standard operating procedures governing the implementation of the feasibility policy for large pelagic purse seines such as the provisions on the size of the mesh size of the net, the number of lights used, fishing areas, and prevention of pollution at sea.

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