Potential Comparative Study of Eco Fishing Ports in Indonesia (A case study of Belawan, Bitung and Kendari Ocean Fishing Port)

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ABSTRACT

The fishing port is one of the important elements in fisheries management. One of the concepts that will be applied by the FMA (Ministry of Marine Affairs and Fisheries) is the fishing eco port which adopts the concept of European Union countries in managing the commercial port environment for its application in Indonesian fishing ports as one of the efforts made is optimizing capture fisheries activities to the high seas. This research was conducted in June 2021. The method used in this study was a quantitative descriptive method. The number of fisheries production, value production and fishing vessel can be supported the development of eco-fishing port in Belawan, Bitung and Kendari Fishing Port. Furthermore, the existence of basic facilities, functional facilities and supporting facilities at fishing ports is adequate, although upgrading facilities will certainly be important. Fisheries resources and geographic factors are internal factors that can support the development of an eco-fishing port. However, the problem of adapting technology to existing human resources is still a shortcoming that needs to be a concern for policy actors. In terms of external factors, market potential and support from local governments are opportunities that can be exploited even though there are many challenges that still have to be faced, such as pollution, energy supply is limited, IUU fishing, unstable price and implementation of good management product of fisheries is low.

Keywords: - *fishing port, fisheries management area, fisheries management, fishing vessels, fisheries production*

1. INTRODUCTION

The policy direction of the marine and fisheries sector emphasizes the absorption of employment opportunities and increasing value added, which in turn can improve people's welfare and economic growth [1]. One of the efforts made is optimizing capture fisheries activities to the high seas. This is stated in one of the strategic planning approaches of the Ministry of Marine Affairs and Fisheries, fisheries industrialization and fishing trough EEZ [1][2]. This shifts the paradigm of capture fisheries activities that have been concentrated in coastal areas carried out by small-scale fishermen [3]. One program that supports this is the development of an eco-fishing port at an ocean fishing port in Indonesia.

The fishing port is one of the important elements in fisheries management. As stated in Law no. 31 of 2004 as amended by Law no. 45 of 2009 concerning Fisheries and the Minister of Marine Affairs and Fisheries Regulation no. PER.08/MEN/2012 concerning Fishing Ports. One of the concepts that will be applied by the FMA (Ministry of Marine Affairs and Fisheries) is the fishing eco port which adopts the concept of European Union countries in managing the commercial port environment for its application in Indonesian fishing ports. [4] Although the concept

of an environmentally friendly (eco-port) has appeared for the first time since the 90s and several commercial/shipping ports have implemented the concept of Environmental Management and Sustainability (EMS) [5]. However, its implementation has not been fully implemented in Indonesia. The plan to build an eco-fishing port is carried out in several ports in Indonesia, including Belawan Fishing Port, Bitung Fishing Port and Kendari Fishing Port. This study aims to identify the potential comparison of the three ocean ports in supporting the development of an eco-fishing port.

2. METHOD

This research was conducted in June 2021. The method used in this study was a quantitative descriptive method. Descriptive research is research that uses observations, interviews or questionnaires about the current situation. Through this descriptive research, the researcher will explain what actually happened about the current situation being studied. Quantitative descriptive is used to analyze data by describing or describing the data that has been collected as it is without intending to make conclusions that apply to the public or generalizations [6]. The data collected include:

1. Fisheries statistics data at Belawan Fishing Port, Bitung Fishing Port and Kendari Fishing Port
2. Basic facilities, functional and supporting facilities at Belawan Fishing Port, Bitung Fishing Port and Kendari Fishing Port
3. Potential and problems of Belawan Fishing Port, Bitung Fishing Port and Kendari Fishing Port
4. Internal factor evaluation and external factor evaluation Belawan Fishing Port, Bitung Fishing Port and Kendari Fishing Port
5. Potential total allowable catch and maximum sustainable yield of several FMAs in Indonesia
6. Policies and regulations that support eco-fishing port activities
7. Other supporting data

3. RESULT AND DISCUSSION

3.1. Belawan Ocean Fishing Port

According to Saptanto et al. [7] Belawan Fishing Port can be regarded as one of the important centers of fishery industrialization because it is located between the waters of the East Coast of Sumatra (Malacca Strait), the South China Sea and the waters of the Exclusive Economic Zone (EEZ) with relatively large potential for fish resources; as the entry point for the economic activities of several countries in Asia (Indonesia, Malaysia, Singapore, Thailand, and Hong Kong); 3). It is a center for fishery activities including fish landing and marketing and processing of catches for fishing communities, especially fishermen in North Sumatra; 4). Including the outer ring fishing port development area.

3.1.1. Existing facilities

Based on the Information Center of Fishing Port in Indonesia [8] the main facilities, functional and supporting facilities of the Belawan Ocean Fishing port are:

1. The main facilities at the Belawan Fishing Port are breakwaters, revetments, groins, piers, harbor pools, shipping lanes, roads.
2. Functional Facilities that function to carry out operational activities at fishing ports, without functional facilities for fishing port operational activities such as loading and unloading, operating fishing vessels, handling catches, will not work. The functional facilities at Belawan Fishing Port are the management office, TPI (Fish Auction Place), Clean Water Installation.
3. Supporting Facilities supporting facilities at Belawan Fishing Port are in the form of places of worship for Muslims in the form of mosques and fisherman/shop/minimart kiosks.

3.1.2. Production

The existence of Belawan Ocean Fishing Port in FMA RI 571 has a high potential for fish resources. Based on the Regulation of the Minister of Maritime Affairs and Fisheries Number 18/PERMEN-KP/2014 concerning Fisheries Management Areas of the Republic of Indonesia, FMA NRI 571 covers the waters of the Malacca Strait and Andaman Sea. The Malacca Strait Fishery Management Area (WPP) is unique because legally, these waters are under two countries, namely Indonesia and Malaysia so that fisheries management is a shared responsibility (especially for straddling and shared fish stocks). Administratively, the provincial regions that have the authority and responsibility to manage fish resources in FMANRI 571 consist of 3 (three) provincial governments which include Aceh Province, North Sumatra Province, and Riau Province [9].

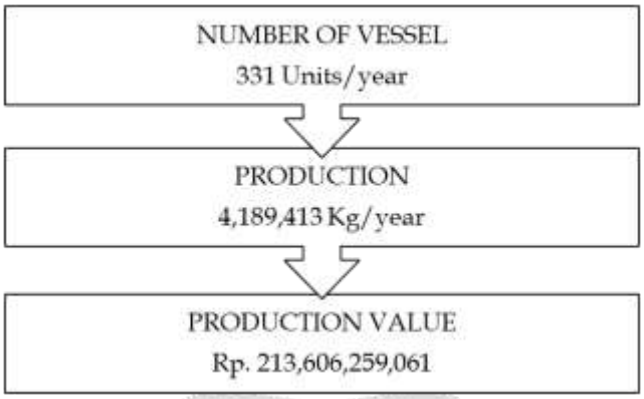

Fig - 1. Fishery production of Belawan Ocean Fishing Port [9]

3.2. Bitung Ocean Fishing Port

The Bitung Ocean Fishery Port (PPS) is one of 22 Fishery Ports of Technical Implementation Units (UPT) managed by the Directorate General of Capture Fisheries. PPS Bitung is located in the waters of the Lembeh Strait, which is directly connected to the waters of the Tomini Bay, the Sulawesi Sea, as well as the Pacific Ocean. The position of the Bitung Fishery port is at 01o 26'42" LU-125 o 12'24" E, in Aertembaga I Village, Aertembaga District, Bitung City, North Sulawesi Province. Development [8] [10].

3.2.1. Facility

Based on the Information Center of Fishing Port in Indonesia [8] the basic facilities, functional and supporting facilities of the Bitung Ocean Fishing Port are:

1. The main facilities are revetments, docks, harbor pools, shipping lanes and roads.
2. Functional facilities in the form of a marketing place for fishery products that have existed since 2003
3. Supporting facilities in the form of fisherman coaching buildings, port management offices and religious facilities

3.2.2. Production

The Bitung Ocean Fishery Port (PPS) has so far been implemented on Land Management Rights (HPL) of the Directorate General of Capture Fisheries with HPL Certificate No. 1 of 1996 with an area of 23,415 m2; Certificate of Use Rights No. 1 in 2011 with an area of 23,000m2; Certificate of Use Rights No. 3 of 2012 with an area of 10,164 m2; Right of Use No. 6 of 2014 with an area of 10,700 m2 and Certificate No. 8 of 2015 with an area of 19,398 m2. So the total area is 86,680 m2 [9].

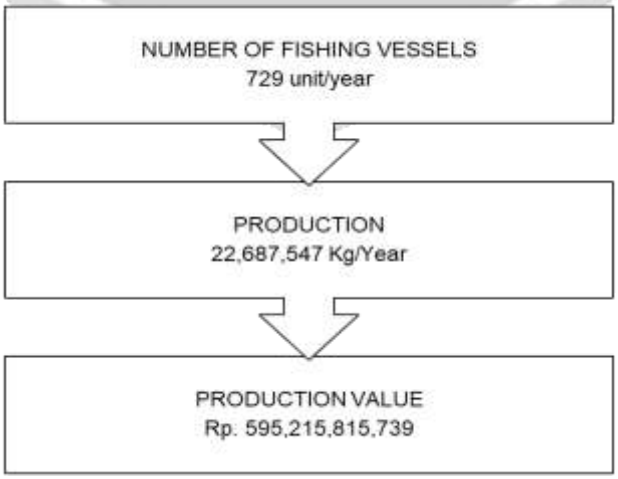

Fig - 2. Fishery production of Bitung Ocean Fishing Port [9]

3.3. Kendari Ocean Fishing Port

Southeast Sulawesi Province is one of the centers of capture fisheries in Eastern Indonesia. This is because of its strategic position directly adjacent to two "Fisheries Management Areas" (WPP) RI, there are FMA-RI 713 and FMA-RI 714. The Kendari Ocean Fishery Port is an integrated fishing industry center in Eastern Indonesia and especially in Sulawesi. Southeast which is located in the Village. Puday, District. Abeli, Kendari City, Southeast Sulawesi Province with a geographical position of 03° 58' 48" latitude and 122° 34' 17" east longitude. Southeast Sulawesi has a lot of fish potential, one of which is skipjack [1].

3.3.1. Existing facilities

Based on the Information Center of Fishing Port in Indonesia [8] the main facilities, functional and supporting facilities of the Kendari ocean fishing port are:

1. The main facilities are revetments, docks, harbor pools, shipping lanes and roads.
2. Functional facilities in the form of a marketing place for fishery products which underwent renovation in 2017
3. Supporting facilities in the form of fisherman coaching buildings, port management offices as well as social and public facilities

3.3.2. Production

Southeast Sulawesi Province is one of the centers of capture fisheries in Eastern Indonesia. This is because of its strategic position directly adjacent to two "Fisheries Management Areas" (FMA) RI, namely FMA-RI 713 and FMA-RI 714. In the "National Fish Logistics System" (SLIN), Southeast Sulawesi Province is included in corridor I logistics fish, where Kendari, in this case the Kendari Ocean Fishery Port (PPS) is a fish collecting center [11].

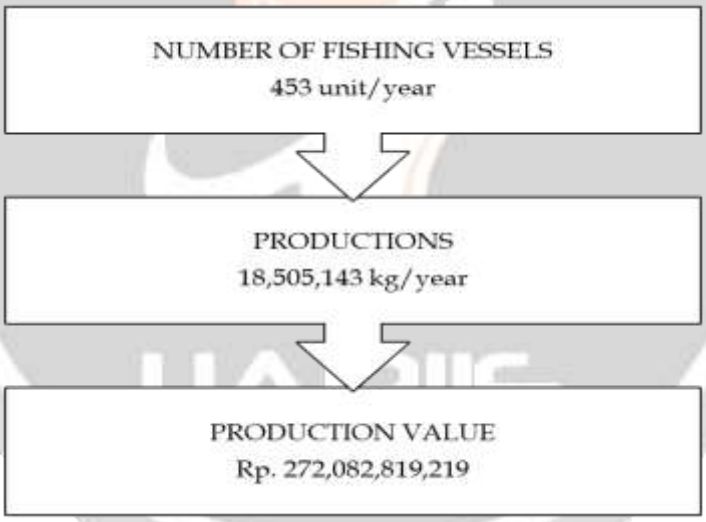

Fig - 3. Fishery production of Kendari Ocean Fishing Port [9]

3.4. Internal and External Factor Analysis

The stages of Internal and External Factor Analysis in the preparation of strategic planning are the stages of data collection are divided into internal factors and external factors. Internal data obtained from the environment in the business of processing fishery products in the form of strengths and weaknesses and external data obtained from the external environment in the form of opportunities and threats. This factor is made in the form of an EFAS (External Factor Analysis Summary) matrix and an IFAS (Internal Factor Analysis Summary) matrix [12]. SWOT analysis is used to identify and evaluate internal and external factors, which are based on logic to maximize Strengths and Opportunities, but simultaneously minimize Weaknesses and Threats [13].

Internal/External Factor	Belawan	Bitung	Kendari
Strength	•Human resources competitiveness •Increase efforts to process natural resources in the fisheries sector •High Potential Resources	•Human resources competitiveness •Increase efforts to process natural resources in the fisheries sector •High Potential Resources	•The location of PPI Kendari is in the FMA 714 and 715 areas •High commitment from central and local government •The authority and duties and functions of the port are getting wider and clear. •Infrastructure that continues to develop •Available PPP support
Weakness	•Lack of understanding of technology •The availability of infrastructure is inadequate •Low quality of human resources •Lack of training for HR	•Lack of understanding of technology •The availability of infrastructure is inadequate •Low quality of human resources •Lack of training for HR	• Human resource management is inadequate • The facility does not yet support landed fish • Limited operating costs
Opportunity	•export potential •Local government support	•export potential •Local government support	• Growing business climate • Increase in the value of foreign currencies • Increased market share
Threat	•Pollution •Energy supply is limited •Illegal Fishing •unstable prices	•Pollution •Energy supply is limited •Illegal Fishing •unstable prices	• IUU Fishing • Bad weather and climate change • The implementation of CPIB by fishers is low • The role of local governments in operations is still small

Fig - 4. Internal and External Factor Analysis Between Belawan, Bitung and Kendari Fishing Port [1]

This analysis is carried out by examining aspects of human resources, aspects of fish resources, technological adaptation, availability of infrastructure (facilities and infrastructure), government and policies, as well as environmental and social factors of the three fishing ports. In determining the appropriate port, apart from having adequate fish resources, infrastructure, facilities and technology, sustainability and pollution management are also important factors to consider.

In general, fish resources and geographic factors are internal factors that can support the development of an eco-fishing port. However, the problem of adapting technology to existing human resources is still a shortcoming that needs to be a concern for policy actors. In terms of external factors, market potential and support from local governments are opportunities that can be exploited even though there are many challenges that still have to be faced, such as pollution, energy supply is limited, IUU fishing, unstable price and implementation of good management product of fisheries is low.

4. CONCLUSIONS

The number of fisheries production, value production and fishing vessel can be supported the development of eco-fishing port in Belawan, Bitung and Kendari Fishing Port. Furthermore, the existence of basic facilities, functional facilities and supporting facilities at fishing ports is adequate, although upgrading facilities will certainly be important. Fisheries resources and geographic factors are internal factors that can support the development of an eco-fishing port. However, the problem of adapting technology to existing human resources is still a shortcoming that needs to be a concern for policy actors. In terms of external factors, market potential and support from local governments are opportunities that can be exploited even though there are many challenges that still have to be faced, such as pollution, energy supply is limited, IUU fishing, unstable price and implementation of good management product of fisheries is low.

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