

# OVERVIEW OF THE MANSAPA INTEGRATED FISHERIES INDUSTRIAL AREA, NUNUKAN REGENCY

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## ABSTRACT

*Nunukan Regency is a district that is included in the category of Indonesia's national strategic area which is part of the territory of North Kalimantan Province. As a district in a leading geographic position bordering other countries, Nunukan Regency receives special attention. The fisheries sector contributes to the gross regional domestic product (GRDP) in Nunukan Regency. The description of the Mansapa area, Nunukan Regency needs to be used as a reference in a master plan that will be used as a reference for regional development. This study aims to analyze the superior potential of the integrated fisheries industry in Mansapa, Nunukan Regency as a reference for the master plan. The research was conducted on July 28-August 6 2015 in Mansapa, Nunukan Regency. The data used in this study includes secondary data obtained through literature and literature studies in the form of books, reports, and papers related to marine and fisheries resource management strategies. The results showed that Nunukan Regency is an area with the potential to develop both marine and pond aquaculture, where marine aquaculture production is the dominant and superior product, characterized by the highest productivity and production value. The potential for aquaculture development in Nunukan Regency is marine culture and brackish water pond culture. When viewed from the distribution of the number of fishing households and the volume of fishery production, the main commodity that has the potential to be further developed in Nunukan Regency is coastal cultivation. The central capture fisheries infrastructure in Nunukan Regency is the Archipelagic Fisheries Port with a relatively new port development process.*

**Keyword :** Fisheries Potential, Marine Resource Management, Regional Development.

## 1. INTRODUCTION

Nunukan Regency is a district that is included in the category of Indonesia's national strategic area which is part of the territory of North Kalimantan Province. The area of this district is 14,263.68 km<sup>2</sup> at positions 3° 30' 00" - 4° 24' 55" North Latitude and 115° 22'30" - 118° 44'55" East Longitude. The northern boundary is the State of East Malaysia - Sabah, in the east it is bordered by the Makassar Strait and the Sulawesi Sea, in the south it is bordered by Bulungan Regency and Malinau Regency, and in the west it is bordered by the State of East Malaysia - Sarawak.

As a district that is in a leading geographic position bordering other countries, Nunukan District receives special attention. Based on data contained in the Nunukan Central Bureau of Statistics for 2021, the contribution of the fisheries sector in the Nunukan district to the gross regional domestic product (GRDP) is Rp. 721,223.48 million

consisting of capture fisheries worth Rp. 207,249.03 million and aquaculture fishery worth Rp. 513. .974.45 million [1]. Aquaculture fisheries are classified into types of cultivation, namely marine aquaculture, ponds, ponds, cages, floating nets, and paddy fields, while capture fisheries are classified into sea fishing and fishing in public waters [2].

Nunukan Regency with seaweed commodities whose production supplies more than 90% of North Kalimantan's seaweed production or seaweed production from this area can reach 3,000 tons per month [3]. Nunukan Regency has become a center for seaweed production, with a total production of 20,000 tons/month of wet seaweed and 3,000 tons/month of dry seaweed. Seaweed is a biological resource that has been utilized by the people of Indonesia as a source of livelihood, and in some areas it is the main livelihood [4]. Currently, workers drying seaweed still use solar energy, so the weather is a determining factor for smooth production.

Even so, limited access to and from the area, uncertainty in regional jurisdiction, weak packaging of state boundaries, and planning of development budgeting funds that have not fully integrated the development of border areas have resulted in the remoteness of an area. The Master Plan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI) 2011–2025 is one of the guidelines used by the Government to accelerate the development of Indonesia towards a just and prosperous country in 2025. Efforts to realize the achievement of the MP3EI 2025 vision are outlined in 3 (three) missions which is the main focus, namely [5]:

- 1) Increasing added value and expanding the value chain of the production process and distribution of asset management and access (potential) to natural resources, geographical areas, and human resources, through the creation of integrated and synergistic economic activities within and between regions of economic growth centers,
- 2) Increasing the efficiency of production and marketing as well as integration of the domestic market to strengthen the competitiveness and resilience of the national economy, and
- 3) Strengthening the National Innovation System in terms of production, process, and marketing to strengthen sustainable global competitiveness, towards an innovation-driven economy.

The description of the Mansapa area, Nunukan Regency needs to be used as a reference in a master plan that will be used as a reference for regional development. Based on this, it is necessary to analyze the superior potential of the integrated fisheries industry in Mansapa, Nunukan Regency as a reference for the master plan.

## 2. RESEARCH METHODS

The research was conducted on July 28-August 6, 2015 in Mansapa, Nunukan Regency. The data used in this study includes secondary data. Secondary data was obtained through literature and literature studies in the form of books, reports and papers related to marine and fisheries resource management strategies. The types of data and information needed in completing this work are presented in the post-harvest fisheries industry, aquaculture industry, capture fisheries industry, geographical conditions, and environmental conditions. The development of the fishing industry area is principally a resource-based development. The data that has been obtained was analyzed descriptively.

## 3. RESULTS AND DISCUSSION

The fisheries potential in Nunukan Regency is very large, considering that Nunukan Regency is one of the locations minapolitan in Indonesia (Decree of the Minister of Maritime Affairs and Fisheries No.KEP.32/MEN/2010). Fisheries potential in Nunukan Regency consists of marine aquaculture and pond aquaculture. In 2013, the contribution of the fisheries sector to the regional economy increased by 30.93% compared to 2012. The development of the Mansapa integrated fishing industrial area is expected to increase the contribution of the fisheries sector to the regional economy. The basic concept for the preparation of the Mansapa Integrated Fisheries Industrial Estate Master Plan was prepared by taking into account the potential of the region through field observations and surveys, secondary data collected from various sources (including area spatial use policies), trends in industrial sector development, and based on the vision and mission of regional industrial area development and the development of the Nunukan Regency area in general. Nunukan Regency with a coast length of 314.6 kilometers has the potential for cultivation areas in coastal waters. Administratively, there are 8 sub-districts included in the coastal area out of 15 existing sub-districts, namely Nunukan, South Nunukan, West Sebatik, Sebatik, East Sebatik, North Sebatik, Seimanggaris and Sembakung Districts [3]. The potential for aquaculture in Nunukan Regency consists of 8,904 hectares of pond cultivation, 61 hectares of paddy fields, 12.95 hectares of ponds, 0.02 hectares of

cages, and 2,210.70 hectares of marine cultivation. Meanwhile, the production and production value of aquaculture is dominated by marine aquaculture, followed by pond aquaculture. In detail, the potential for aquaculture in Nunukan Regency is presented.

Table 1 Potential for the development of aquaculture in Nunukan Regency

Natural Resource Potential	Area (Ha)	Production (ton)	Production Value (million Rp.)
(1)	(2)	(3)	(4)
1. Fishpond*)	8.904,00	824,80	24.074,25
2. Field-pond	61,00	4,8	170,00
3. Pond*)	12,95	12,63	382,00
4. Floating net cages	0,02	-	-
5. Marine aquaculture	2.210,70	250.299,31	185.346.318,40
Total	11.188,67	251.141,54	185.370.944,65
2014	11.188,54	254.135,54	185.370.944,65
2012	10.306,98	150.587.63	112.077.596,00
2011	11.241,48	120.022.38	104.068.865,00
2010	10.656,54	62.294.77	101.112.393,00
2009	10.339,66	43.970.35	80.330.475,00

\*) net area. Source: Nunukan District Fisheries Statistics 2014 [7]

From these data it can be seen that the potential for developing aquaculture in the Nunukan Regency is marine culture and brackish water pond culture. Supporting facilities and infrastructure, both in the form of infrastructure and non-infrastructure, are paved and non-asphalt district/city roads with a length of 134.11 km and 560.87 km, 30 business units/sales of fishery facilities, 1 unit of ice factory, 9 units of fish market, 20 units clean water facilities and a source of electricity from PLN and solar electricity.

The widest area of marine aquaculture is in South Nunukan District, namely 77.5% of the total area of marine cultivation or 15.6% of the total area of fish cultivation, then located in Nunukan District, namely 12.5% of the total area of marine cultivation in Nunukan district. Meanwhile, the widest pond cultivation is in Sembakung District, which is 93% of the total area of pond cultivation or 74% of the total area of fish cultivation, then located in Sei Manggaris District and Nunukan District, namely 4.8% and 1.2% while South Nunukan has an area of 0.3% of the total area of ponds in Nunukan Regency. In detail in Table 2.

Table 2 Area of aquaculture land by sub-district and type of cultivated land in Nunukan Regency in 2014

No	District	Area per type of cultivated land (ha)					Total (ha)
		Fishpond	Field-pond	Pond	Floating net cages	Marine aquaculture	
1	Krayan	-	61	0,17	-	-	61,17
2	South Krayan	-	-	0,10	-	-	0,1
3	Lumbis	-	-	0,93	-	-	0,93
4	Lumbis Ogong	-	-	0,11	-	-	0,11
5	Sembakung	8.280	-	0,98	0,02	-	8.281,00
6	Nunukan	106	-	0,79	-	275,5	382,29
7	Sebuku	-	-	1,09	-	-	1,09
8	South Nunukan	24	-	3,57	-	1.712,6	1.740,12
9	Sei Manggaris	426	-	0,87	-	-	426,87
10	Tulin Onsoi	-	-	0,17	-	-	0,17
11	Sebatik	-	-	1,06	-	39,9	40,96
12	West Sebatik	40	-	0,34	-	182,7	223,04

No	District	Area per type of cultivated land (ha)					Total (ha)
		Fishpond	Field-pond	Pond	Floating net cages	Marine aquaculture	
13	Sebatik Centre	-	-	-	-	-	-
14	East Sebatik	-	-	2,52	-	-	2,52
15	North Sebatik	28	-	0,25	-	-	28,25
Total		8.904	61	12,95	0,02	2.210,7	11.188,67

The largest marine aquaculture production is in South Nunukan District, namely 68.1% of the total marine aquaculture production or 67.9% of the total aquaculture production in Nunukan district; Subsequent marine aquaculture production is located in Nunukan District, which is 19.3% of the total marine aquaculture production in Nunukan Regency. In detail in Table 3, fisheries production is presented by sub-district and type of cultivated land in 2014.

Table 3 Number of cultivator households (RTP) by sub-district and type of cultivated land in Nunukan Regency in 2014

No	District	Production per type of cultivated land (tonnes)					Total (ha)
		Fishpond	Field-pond	Pond	Floating net cages	Marine aquaculture	
1	Krayan	-	4,8	3,56	-	-	8,36
2	South Krayan	-	-	0,14	-	-	0,14
3	Lumbis	-	-	-	-	-	-
4	Lumbis Ogong	-	-	-	-	-	-
5	Sembakung	804,4	-	-	-	-	804,40
6	Nunukan	3,8	-	3,49	-	48.226,0	48.233,29
7	Sebuku	-	-	-	-	-	-
8	South Nunukan	-	-	1,95	-	170.464,70	170.466,65
9	Sei Menggaris	16,6	-	0,64	-	-	17,24
10	Tulin Onsoi	-	-	2,85	-	-	2,85
11	Sebatik	-	-	-	-	5.547,00	5.547,00
12	West Sebatik	-	-	-	-	26.061,61	26.061,61
13	Sebatik Centre	-	-	-	-	-	-
14	East Sebatik	-	-	-	-	-	-
15	North Sebatik	-	-	-	-	-	-
Jumlah		824,80	4,8	12,63	-	250.299,31	251.141,54

The description above shows that Nunukan Regency is an area that has the potential to develop both marine and pond aquaculture, where marine aquaculture production is the dominant and superior product, this is characterized by the highest productivity and production value. Whereas South Nunukan District in general is a prominent location in the development of aquaculture in Nunukan Regency in terms of production and production value, productivity, number of RTP and area of cultivated land.

When viewed from the distribution of the number of fishing households and the volume of fishery production, the main commodity that has the potential to be further developed in Nunukan Regency is coastal cultivation. Based on statistical data from Nunukan Regency in 2013, the capture fishery production of Nunukan Regency reached 4,329 tons and its aquaculture production reached 208,824.97 tons. Fishery households (RTP) in Nunukan Regency were dominated by FH engaged in coastal aquaculture (1912 RTP). Seaweed itself is a commodity with the highest amount of production in the Regency when compared to other cultivated commodities.

Some of the processed products produced in Nunukan Regency are seaweed, anchovies and shrimp. Processed seaweed products have been produced by 8 IKM units in Nunukan Selatan Village. Processed seaweed products that have been produced include seaweed dodol, seaweed crackers, and seaweed sweets. Another superior product of processed fisheries is processed anchovy, namely anchovy product. Anchovy products are produced by 5 IKM units that are developing in the Sebatik District and are widely marketed in Malaysia. The next processed product is ebi or dried shrimp, ebi products are developed by 2 business units in the Sebatik area. This fishery commodity needs to be

developed further into fishery products that can compete in local and national and even international markets. This development includes diversification of processed fishery and supporting technology. Diversification is the diversification of the types of processed fishery products from raw materials that have not/already been used while still paying attention to quality and nutritional factors, as an important effort for increasing the consumption of fishery products both in quality and quantity and increasing the sale value [8]. Processed fishery product development activities require synergy from the infrastructure to be developed.

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The main capture fisheries infrastructure in this district is a port with the category of Archipelagic Fisheries Port. According to the Regulation of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia number PER.08/MEN/2012 CONCERNING FISHERY PORTS, ports must meet technical (points 1 to 5) and operational (points 6 and 7) criteria, which include:

- 1) able to serve fishing boats conducting fishing activities in Indonesian waters and EEZ;
- 2) has mooring facilities for fishing vessels of at least 30 GT;
- 3) the length of the pier is at least 150 m, with a pool depth of at least 3 m below sea level;
- 4) able to accommodate fishing vessels of at least 75 units or a total of at least 2,250 GT; And
- 5) utilize and manage the land of at least 10 ha.
- 6) there is an activity for loading and unloading fish and marketing fishery products with an average of 30 tons per day; and
- 7) there is a fish processing industry and other supporting industries.

Based on observations, infrastructure and utilization activities are still far from the criteria due to the fairly new port development process. The development of port activities is largely determined by the existence of business actors, both fishing business actors and fish processors. In addition, there is also a role involved in providing services for catching, trading and processing of fish, as well as transportation services that connect this area with other areas that support capture fisheries and absorb fish products that are landed at the port. With the emergence of collective awareness of each stakeholder, it is hoped that the common goal of developing fishing ports will be realized quickly so as to improve the economy of fishermen and other fisheries business actors [12]. Therefore, the active involvement of all parties in a fishing port is needed to make the fishing port run optimally [13].

The Archipelagic Fisheries Port itself is expected to be a driving force for activities in the post-harvest sector. A number of supporting facilities that have been built by the government in the area, including: fishermen's housing, ice cube factories, and cold storage (capacity of 30 tons of fish). Construction of the port itself has started and the length of the newly constructed port is about 100 meters from the target of 500 meters.

Several functional facilities at the Archipelagic Fisheries Port that need to exist to support post-harvest fishing industry activities, include: 1) a place for marketing fishery products, 2) an adequate source of clean water, either from wells, rivers, or PDAM, 3) water treatment and water reservoirs, 4) ice factories and frozen storage warehouses, 5) sources of energy (electricity), both from generators and PLN engines, 6) laboratories for developing and testing the quality of fishery products, and 7) handling and testing the quality of fishery products. The supporting facilities at the Archipelagic Fisheries Port that need to be available to support post-harvest activities are fishermen training and science and technology kiosks that can become models for the development of various post-harvest fishery products in Nunukan Regency. Revitalization of fishing ports needs to be directed at efforts to

improve port facilities and services so as to provide a multiplier effect, that the existence of coastal fishing ports affects the welfare of the community [14] [15].

#### 4. CONCLUSIONS

Based on the results of the analysis of data and information found, the following conclusions can be drawn:

1. Nunukan Regency is an area that has the potential to develop marine aquaculture and pond cultivation
2. Marine aquaculture production is a dominant and superior product
3. The main commodities that have the potential to be further developed in Nunukan Regency are coastal cultivation commodities.
4. The main capture fisheries infrastructure in Nunukan Regency is the Nusantara Fishery Port with a relatively new port development process.

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