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Strategy of Developing Tomini Bay for Economic Growth of Coastal Community in Central Sulawesi

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Abstract

This research aims to analyze the potential and the strategy of developing Tomini Bay to improve the economic growth of the coastal community in Central Sulawesi. The research is located in four regencies in Central Sulawesi. The method uses the descriptive analysis using SWOT analysis. The research result shows that the potential of fisheries resources in Poso Regency, Parigi Moutong Regency, Tojo Una-Una Regency, and Banggai Regency can support the development of Tomini Bay region based on fisheries in order to accelerate the economic growth of coastal communities in Central Sulawesi. The potential fishery resources that can support the development of Tomini Bay area are the potential of fisheries, marine and coastal infrastructure, social economy and geographic conditions in four regencies. The strategies are building the marketing network for fishery products both the catching and cultivation, improving the fishery human resouce capacity, controlling the fishery product quality, and increasing the social awareness to maintain the ecosystem sustainability. To optimize the utilization of Tomini Bay, it is suggested to improve the involvement of the regional government, the central government, and also the private sector and the whole community.

Keywords: Tomini Bay, Economic Growth, Coastal Community, Central Sulawesi.

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INTRODUCTION

The coastal resources play an important role in supporting the regional and national economic development to increase the foreign exchange revenues, the employment, and the social income. The coastal resource has a comparative advantage because it is available in large quantities and diverse and can be used with a relatively inexpensive cost of exploitation so as to create a competitive demand capacity (Dahuri, 2001). The integrated coastal zone management as a dynamic and continuous process in making the decisions on the utilization, development and protection of the coastal areas and the oceans and their natural resources in a sustainable manner (Cicin- Sain and Knecht, 1998).

The development of the fishery sector in Indonesia is supported by the potential resources and the increasing market demands. The national economic policy oriented on the democratic economy based on fisheries needs to be developed to increase the employment and the economic growth level. The success in the fishery sector development finally has a positive impact for the development of the upstream and downstream fishery industry. Kusumastanto (2003) suggested that the development of sustainable fisheries is an activity of fishery resource management and its environment to meet the present-day needs without reducing the ability of the future generations to meet their daily needs.

Nasution (1999) suggested that the strategies of increasing the competitiveness of the fishery sector in order to enter the era of global markets are as follows: through the restructuring of the fishery economy in a broad sense, the increase in investment, structuring linkages with other sectors, and promoting the participation of government and private. According to Balgos (2005), one of the main purposes of community-based coastal resource management is the empowerment of the disadvantaged communities, covering most of the coastal community and often affected various management issues.

Fernandes et al. (2014) suggested that the socio-economic data is very important for making the management decisions and the regulatory of marine sectors, such as the Maritime Potential Index (MPI). The research result of Evers et al. (2011) found that Indonesia (86.54) has the third largest MPI in Asean after Singapore (100) and the Philippines (96.96). Furthermore Peretomode (2014) found that the development of the maritime industry can reduce the unemployment and can strengthen the nation's economy.

Tomini Bay is the greatest bay in the equatorial region with an area of 59,500 km^2 or ± 6 million hectares, with very large potential natural resources. Tomini Bay in the East borders on the Maluku Sea, while in the Northeast borders on the Sulawesi Sea. In the distribution area of biodiversity, this area is in the zone of Wallacea, which historically is a separate region of the Asia and Australia Continents. Tomini Bay administratively covers three provinces and fifteen regencies / cities in Sulawesi corridor.

As the archipelago in Indonesia, Tomini Bay is naturally endowed by mangrove forests, coral reefs and seagrass beds that are often called the three key ecosystems in the tropical coast. Tomini Bay is potentially loaded with various natural resources as the main capital in improving the economy whether local, regional and national levels. One of the potential of Tomini Bay is for

marine tourism with the beaches and oceans that can be developed as a prospective maritime tourism region for the development of regional and international cooperation and also as the Gateway of Mina Bahari in the Pacific. Besides, it also has the potentials as a transportation line, mineral resources, or non-biological resources that have not been utilized optimally. Tomini Bay area is also a high priority to the resettlement site, economy, tourism, military, transportation, and industry. The high-use activities in the upstream and downstream areas around Tomini Bay need to be integrated and continuously maintained between the center and regions, including the stakeholders in preventing any damage to the environment, with the steps and concrete actions in the controlling.

Furthermore, there is an underwater natural beauty within the Tomini Bay that is very well known that seems to be a paradise for the divers. Besides its beautiful coral reefs, various fish species also live here. The assets of coastal and marine resources of Tomini Bay such as coral reefs are the parts of the world's Coral Triangle and the Marine National Park of Togean Island known as "the Heart of Coral Triangle". Togean Island attracts the international attention because it is a part of the important coral reef ecosystem of the 'Coral Triangle' with the highest coral diversity in the world, covering areas of Indonesia, Philippines, Malaysia, Papua New Guinea, until Microneasia.

The ecosystem of Tomini Bay as one of 26 national marine leading areas has the potential of coastal and marine resources that are very abundant for the development of the nautical tourism and the national food. Tomini Bay area includes the ecosystem of coral reefs, seagrass beds and mangrove and coastal tourism and sea ports. Based on the potentials, in 2003 the Central Government has launched Tomini Bay area as a gateway of Mina Bahari and in 2008 has made the launch of the Accelerated Development Program of Tomini Area by the Minister for Regional Acceleration.

Besides, the very strategic location makes Tomini have a potential as a bridging zone for the activities of sea transport linking the Central-North part of Sulawesi with ASEAN countries, the countries in the Pacific region, Australia and other regions in Indonesia. Therefore, the attention of the Government of Central Sulawesi Province related to the problems of pollution, environmental damage and socio-economy that will affect Tomini Bay requires handling together. Many areas of its territory enter or are interested in Tomini Bay, then on one side the area obtains a benefit from the ownership of the high potential of the marine and coastal resource enriched with quite large biodiversity, so this can be used as a locomotive of regional economic development. On the other side, the existence of Tomini Bay is also very vulnerable because many parties have authority and interest to manage and utilize the marine and coastal resources there. That is why the threat of damage and destruction of Tomini Bay will be very real in the absence of differences in interests and conflicts in the management of all or any part of Tomini Bay areas.

The strategic position of Tomini Bay makes it the heart of the world's coral triangle, which is one part of the agreement in the event of the World Ocean Conference (WOC) and the Coral Triangle Initiative (CTI) Summit a few years ago in Manado. This confirms the need for prevention

actions so the damage that has begun to occur in the area can be handled immediately. UNESCO has also determined Tomini Bay as one of the wealth of world that should be protected. Because, in this bay there is a lot of marine potential that is very promising.

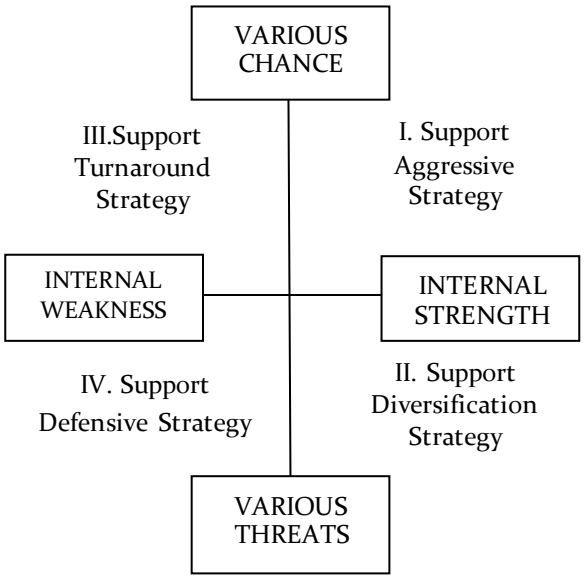
Tomini Bay has the abundant fishery potential, but the potential is inversely proprotional to the social welfare conditions in four regencies in Central Sulawesi Province (Parigi Moutong Regency, Poso Regency, Tojo Una-Una Regency, and Banggai Regency), especially the people in the coastal area of Tomini Bay. Central Sulawesi Province has the second highest poverty level after Gorontalo in Sulawesi corridor amounted to 13.61 per cent (Central Bureau of Statistics, Central Sulawesi, 2015), and generally the poor people live around the coastal area. It shows that the utilization of Tomini Bay is not optimal yet to improve the welfare of people around the area. Puspita (2015) suggested that poverty is a problem that is experienced by many countries around the world. Various efforts have been made, starting from the local scope to the regional, national, and international ones.

Therefore, there is a question of how much potential of fishery resources in Tomini Bay that can be used for the social welfare. To answer the question requires a study about the great potential of fishery resources and strategies to support the development of Tomini Bay area as the center for the production and processing of fishery products in Central Sulawesi in order to accelerate the economic growth of the community, regional and national levels.

RESEARCH METHODS

This is a descriptive research, which describes in details the potential and strategy of developing Tomini Bay in the acceleration of economic growth in coastal communities in Central Sulawesi. This research uses the primary and secondary data. The primary data is obtained from the direct observation in the research location in the form of fishery potential of Tomini Bay, while the secondary data is the supporting data obtained from the Regional Development Planning Agency and the Central Bureau of Statistics, Central Sulawesi Province.

The strategy of developing Tomini Bay uses SWOT analysis. The SWOT analysis is to identify the various factors systematically to formulate the strategy. This analysis is based on the logic that maximizes the chances but simultaneously minimize the disadvantages and threats. The SWOT analysis compares the external and internal factors (Rangkuti, 2010). The SWOT analysis diagram is as follows:



Source: Rangkuti (2010)

Figure 1. Diagram of SWOT Analysis

RESULTS AND DISCUSSION

Tomini Bay area includes four regencies in Central Sulawesi Province those are Parigi Moutong Regency, Poso Regency, Tojo Una-Una Regency, and Banggai Regency. The Central Sulawesi Province is located between 2°22' North Latitude - 3°48' South Latitude and 119°22' East Longitude - 124°22' East Longitude with a land area width of about 68033.00 km². The Northern part of Central Sulawesi Province is bounded by the Sulawesi Sea and Gorontalo Province, the Eastern part borders to Maluku Province, the Southern part borders to West Sulawesi Province and Southeast Sulawesi Province, and the Western part borders to the Makassar Strait.

Tomini Bay, like other regions in Indonesia, has two seasons, dry and rainy. This situation is closely related to the wind directions in this area, in which from October until March it usually rains because it is influenced by the winds blowing from the West / Northwest that contain a lot of water, while from May until September the dry season usually occurs because it is influenced by the wind direction from the East that contains no much water.

The temperature in a place is determined by throughout the year of 2013, in which the lowest average air temperature of 26.6°C occurred in July and September, while the highest of 28.5°C occurred in March. Most wind directions during 2013 are from the Southwest position, with an average speed of 3.6 knots. The rainfall in Central Sulawesi Province varies each month. The highest average rainfall during the year of 2013 occurred in April about 62.33 mm, while in September the rainfall experienced a low point of only 10.44 mm.In April people have the most rainy days of 21 days.

The wind state in Central Sulawesi Province monitored from Mutiara Palu Meteorological Station shows that the average wind speed ranges from 4.4 to 6.0 knots. The highest wind speed occured in September (6.0 knots) and the lowest one occurred in July (4.0 knots). The air humidity was recorded as 76.40%. Nevertheless, the temperature is also influenced by altitude above the sea level. The higher the location is, the lower the temperature will be, with the calculation that each increment of 100 meters can lower the temperature around 0,6°C.

Figure 2. Administrative Map of Tomini Bay

The unique ecosystems are found in the coastal and tropical marine areas, especially the coral reefs in Tomini Bay area. The coral reef ecosystem has the multi-function characters; besides as a habitat for many types of biota, this ecosystem also functions as the bio-resources, a source of beauty and physical protector of the island. This ecosystem is a seabed ecosystem of tropical marine which communities are dominated by the marine biota producing the lime, especially the stony corals and the calcareous algae. One of the coral reef ecosystems in Tomini Bay can be found along the area of Parigi Moutong Regency and some other also can be found in the areas of Poso Regency, Tojo Una-Una Regency, and Banggai Regency.

The coral reefs in Parigi Moutong Regency are spacious enough and are not included in an overlay, but only in the form of separated small parts (spots). The coral reefs in Parigi Moutong Regency can be found in Ampibabo, Parigi, and Sausu Districts. The distribution of the coral reef conditions in Ampibabo Regency is as follows: Silanga 54% (good), Paranggi 15% (bad), Tomoli 37.5% (medium), Tomoli Island 40% (medium), Pinotu 10% (bad), Labuan 44% (medium) and Pesona 20% (bad). In general, the distribution of coral reef conditions in Ampibabo District is as follows: bad (42.86%), medium (42.86%) and good (14.28%). The percentage is as follows: 7.5% of soft coral cover, 24% of dead coral, and 0.92% of diversity 0.92 (productive). There are 19-27 of the genus and the dominant coral species are Acropora and Porites. Such conditions indicate that the component of living coral is still higher than the dead coral on the reef ecosystem classified as the productive one. Some identified factors that influence the condition of coral reefs are mining, bombs and sedimentation.

The coral reefs in Parigi District can be found in the regions of Toboli, Marantale, Parigi, and Lebo. The percentage of the coral covers ranges between 10% - 73% with an average of 28.25% or medium category. The distribution of coral reef condition per location is as follows: Toboli 73% (good), Marantale 10% (bad), Parigi 17.5% (bad), Lebo 12.5% (bad). Thus, in general, the percentage distribution of coral reefs is bad (75%) and good (25%). The percentage is as follows: 2% of soft coral cover, 10% of dead coral, and 1.03 of diversity (very productive). There are 19 types of genera and the dominant species is Acropora. Such conditions indicate that the component of the living coral is still higher than the dead coral on the coral reef ecosystem classified as the productive one. Some identified factors that influence the condition of the coral reefs are mining, bombs, and sedimentation.

The coral reefs in Sausu District can be found in the regions of Malakosa, Tambu Bay, and Ponindilisa Cape. The percentage of coral cover ranges between 12.5% - 36% with an average of 24.50% that it is included in the bad category. The distribution of coral reef condition per location is as follows: 25% of Tambu Bay (medium), 36% of Malakosa (medium), and 12.5% of Ponindilisa Cape (bad). The percentage is as follows: 1% of soft coral cover, 44.5% of dead coral, 0.70 of diversity. There are 17-22 of the genus and the dominant species is Seriatopora. Such conditions show that the component of the dead coral is higher than the living coral. This indicates that in general the coral reefs in the Sausu District are only quite productive and it should

immediately conduct a management action to rehabilitate/restore the condition of the coral reefs. Some identified factors that influence the condition of the coral reefs are mining, bombs, and sedimentation.

Based on the above results, in general, the condition of the coral reefs in Parigi Moutong Regency is as follows: 46.43% (bad), 32.14% (medium), 21.43% (good) and nothing included in the excellent category. These results indicate that the condition of the coral reefs in Parigi Moutong Regency mostly have been damaged. Therefore it needs to conduct a rescue by making a kind of good management that has no conflict with the interests of the society. The factors that cause the damage to the coral reefs are as follows: catching the fish by using bombs and poisons, the coral mining for various purposes, and the sedimentation from land either through rivers or directly into the sea.

The Fishery Households (RTP) in Tomini Bay is as follows: without a boat (TP), a boat without a motor (PTM), a motorboat outboard (PMT) and a motor ship (KM). The highest number of RTP is found in Banggai Regency (7598 RTP). The number of RTP in Tomini Bay area is presented on Table 1.

The fishing fleet used by the fishermen in Tomini Bay area consists of a boat without a motor (PTM), a motorboat outboard (PMT), and a motor ship (KM). The number of the fishing fleet in Tomini Bay area is presented on Table. 2.

The fishing fleet in the coastal area of Tomini Bay in Poso Regency is spread over in five districts as follows: Coastal Poso, North Coastal Poso, Poso City, North Poso City, and Lage. The number of the fishing fleet based on its types in each district is as follows: Coastal Poso (PTM 380 units; PMT 232 units; KM 2 units), North Coastal Poso (PTM 441 units; PMT 270 units; KM 1 unit), Poso City (PTM 372 unit; PMT 316 units; KM 4 units), North Poso City (PTM 294 units; 229 PMT unit; KM 1 unit) and Lage (PTM 315 units; PMT 190 units; KM 2 units). Thus, the most number of fishing fleet of PTM is in North Coastal Poso District, while of PMT and KM are in Poso City District.

Table 1. A Number of Fishery Households (RTP) of Sea Fisheries in Coastal Area of Tomini Bay, 2015

No.	Regency	Fishing Fleet (RTP)			
		TP	PTM	PMT	KM
1.	Poso	5	565	801	10
2.	Parigi Moutong	-	1.795	1.762	29
3.	Banggai	309	3.463	3.273	553
4.	Tojo Una-Una	495	1.059	1.980	24
	Total	4.775	7.980	8.752	1.087

Source: Central Bureau of Statistics, Central Sulawesi, 2015.

Table 2. A Number of Fishing Fleet in Coastal Area of Tomini Bay, A Year of 2015

No.	Province / Regency	Fishing Fleet (Unit)		
		PTM	PMT	KM
1.	Poso	1.802	1.237	10
2.	Parigi Moutong	1.803	1.762	44
3.	Banggai	2.084	1.031	594
4.	Tojo Una-Una	1.059	1.980	24
Total		6.748	6.010	672

Source: Central Bureau of Statistics, Central Sulawesi, 2015

The coastal area of Tomini Bay in the Parigi Moutong Regency is spread over in nineteen districts as follows: Sausu, Torue, Balinggi, Parigi, South Parigi, North Parigi, Central Parigi, Ampibabo, Kasimbar, Toribulu, Siniu, Tinombo, South Tinombo,

Tomini, Mepanga, Palasa, Moutong, Taopa and Bolano. The number of the fishing fleet based on its type in each district is as follows: Sausu (PTM 45 units; PMT 83 units), Torue (PTM 53 units; PMT 60 units), Balinggi (PTM 28 units; PMT 30 units), Parigi (PTM 140 units; PMT 255 units; KM 7 units), South Parigi (PTM 19 units; PMT 69 units; KM 11 units), North Parigi (PTM 13 units; PMT 73 units), Central Parigi (PTM 18 units; PMT 33 units; KM 5 units), Ampibabo (PTM 138 units; PMT 137 units; KM 6 units), Kasimbar (PTM 66 units; PMT 51 units), Toribulu (PTM 154 units; PMT 119 units), Siniu (PTM 155 units; PMT 112 units ; KM 1 unit), Tinombo (PTM 6 units; PMT 108 units; KM 5 units), Tinombo South (PTM 72 units; PMT 104 units), Tomini (PTM 316 units; PMT 91 units), Mepanga (PTM 80 units; PMT 88 units), Palasa (PTM 244 units; PMT 87 units), Moutong (PTM 110 units; PMT 119 units; KM 4 units), Taopa (PTM 17 units; PMT 41 units) and Bolano (PTM 129 units; PMT 102 unit; KM 5 units). Thus, the most number of fishing fleets of PTM is in Tomini District, while of PMT and KM respectively are in Parigi District and South Parigi District.

The coastal area of Tomini Bay in Banggai Regency is spread over in five districts as follows: Bunta, Nuhon, Pagimana, Bualemo, and Lobu. The number of the fishing fleet based on its type in each district is as follows: Bunta (PTM 171 units; PMT 175 units; KM 29 units), Nuhon (PTM 254 units; PMT 178 units; KM 26 units), Pagimana (PTM 980 units; PMT 178 unit; KM 367unit), Bualemo (PTM 492 units; PMT 315 units; KM 140 units) and Lobu (PTM 187 units; PMT 185 units; KM 32 units). Thus, the most number of the fishing fleet of PTM and KM are in Pagimana District, while of PMT is in Bualemo District.

The fishing fleet in the coastal area of Tomini Bay in Tojo Una-Una Regency is spread over in all districts as follows: West Tojo, Tojo, Ulubongka, Ampana Tete, Ampana City, Una-Una, Togean, Walea Islands, and the Great Walea. The number of the fishing fleet based on its type in each district is as follows: West Tojo (PTM 19 units; PMT 59 units), Tojo (PTM 36 units; PMT 95 units; KM 4 units), Ulubongka (PTM 36 units; PMT 97 units), Ampana Tete (PTM 48 units; PMT 49 units), Ampana City (PTM 11 units; PMT 237 units; KM 19 units), Una-Una (PTM 23 units; PMT 426 units), Togean (PTM 89 units; PMT 247 units), Walea Islands (PTM 756 units; 637 PMT unit; KM 1 unit), Great Walea (PTM 41 units; PMT 133 units). Thus, the most number of fishing fleets of PMT and PTM is in Walea Islands District, while of KM is in Ampana City District.

The fishing devices generally used by the fishermen are the pulling trawl, the lifting trawl, the fishing rods, and the stretching nets. So it can be said that in general the people around Tomini Bay still use the traditional ways to conduct the fishing.

Besides the fishing fleet, the fishing devices used by the fishermen around the coastal area of Tomini Bay consists of various types, among others, are as follows in table 3.

Furthermore, the fishing activities in Tomini Bay area are conducted in all regencies. The supporting infrastructure in the fishing activities includes the fishery ports, the fueling stations, and the shipbuildings. The Fishery Ports (PPI) in

Tomini Bay area include: Parigi, Ampana, Pagimana, Malingi, and Togean. The planning of construction and development of the fishing ports in Tomini Bay in 2010-2030 is presented in Table. 4.

Table 3. Types of Fishing Device Used by Fishermen in Coastal Area of Tomini Bay, Year of 2015

No.	Types of Fishing Device
1	Fish Pulling Trawl
2	Single Shrimp Pulling Trawl
3	Framed Pulling Trawl
4	Payang
5	Coastal Trawl
6	Ring Trawl
7	Dogol
8	Floating Nets
9	Circled Nets
10	Other Lifting Nets
11	Raft Board Chart
12	Stucked Chart
13	Serok
14	Anco
15	Tuna Rawai
16	Floating Rawai
17	Regular Rawai
18	Basic Regular Rawai
19	Huhate
20	Rods
21	Tonda Rods
22	Fishing Rods
23	Standing Rods
24	Squid Rods
25	Other Rods
26	Sero
27	Bubu
28	Other Trap
29	Seaweed Collection Tool
30	Scalloop Collection Tool
31	Sea Cucumber Collection Tool
32	Crab Collection Tool
33	Muoroami
34	Stretching Nets
35	Spears/Forks/Others

Source: Primary Data

Table 4. Construction and Development of Fishing Ports in Tomini Bay Area, Year of 2015

No.	Regions	Ports
1	1. Pagimana	PPI
	2. Bunta	PPI
	3. Boalemo	PPI
2	1. Paranggi	PPI
	2. Petapa	PPI
	3. Ogotion	PPI
	4. Sigenti	PPI
	5. Banyoutonngo	PPI
3	1. Gebang Rejo	PPI
	2. Labuan	PPI
	3. Moengko	PPI
4	1. Labuhan	PPI
	2. Malenge	PPI
	3. Bahari	PPI

Source: Central Bureau of Statistics, Central Sulawesi, 2015

Besides the fishing ports (PPI), one of the facilities required for the development of marine capture fisheries is the ice cube factory. The ice cube factory is needed in the process of freezing the fish to be marketed in the form of fresh fish. The number of ice cube factories in Tomini Bay area are as follows:

Table 5. Ice Cube Factories, Tahun 2015

No	Regency	Amount	Expl.
1	Banggai	2	
2	Poso	2	
3	Parigi Moutong	2	
4	Tojo Una-Una	3	
Total		9	

Source: Central Bureau of Statistics, Central Sulawesi, 2015

The cultivation business conducted in Tomini Bay is the brackish water aquaculture (fish ponds) and the seawater aquaculture (keramba and seaweed). Types of commodities produced from the brackish water

aquaculture (fish ponds) are the milkfish, the other fish, the black tiger shrimp, and the other shrimp. Types of commodities produced from the seawater aquaculture are the seaweed, kerapu, and the other fish. In Table 6 it is presented a number of production and production value of fishery aquaculture in Tomini Bay

Table 6.A Number of Production and Production Value of Fishery Aquaculture, Year of 2015

Regency	Fishery Aquaculture	
	Production (Ton)	Production Value (Rp 1.000)
Poso	2.189,2	32.215.284
Parigi Moutong	196.105,7	651.759.013
Banggai	104.736,2	180.422.510
Tojo Una-Una	67.780,9	490.982.200
Total	370.812	1.355.379.007

Source: Central Bureau of Statistics, Central Sulawesi, 2015

The seaweed aquaculture contributes most to the fishery aquaculture production amounted to 92.2 percent, while the rest are the fishery aquaculture of fish ponds, ponds, keramba, and floating nets respectively of 7.2 percent, 0.6 percent, 0.03 percent, 0.002 percent. Thus, the fishery aquaculture having a great potential to be developed is seaweed. Centers of fishery aquaculture production in Tomini Bay area are mainly in all of the districts in four regencies. Centers of fishery aquaculture production in Tomini Bay are presented in Table 7.

Tomini Bay area has the potential resources of great capture fishery. The number of production and production value of the capture fisheries in Tomini Bay is presented in Table. 8.

Table 7. Centers of Fishery Aquaculture Production, 2015

Regency	Locations of Production Centers (Districts)
Poso	Pamo, Coastal Poso, South Coastal Poso, North Coastal Poso, Poso
Parigi Moutong	Sausu, Torue, Balinggi, South Parigi, Ampibabo, Kasimbar, Siniu, South Tinombo, Moutong, Bolano Lambunu, Taopa
Banggai	-
Tojo Una-Una	Tojo Barat, Tojo, Ampana Tete, Una-Una,

Source: Central Bureau of Statistics, Central Sulawesi, 2015

Table 8.A Number of Production and Production Value of Marine Capture Fishery in Coastal Area of Tomini Bay, 2015

Regency	Amount (ton)	Production Value (RP. 1000)
Banggai	10.839,20	113.874.940
Poso	8.683,24	149.324.065
Parigi Moutong	23.460,38	278.320.012
Tojo Una-Una	8.509,14	88.651.020
Total	51.491,96	630.170.037

Source: Central Bureau of Statistics, Central Sulawesi, 2015

The marine capture fishery production in Parigi Moutong Regency is 45.6%. The results of the fishery production besides sold to the fresh market are also processed by the society in the form of drying and curing. The results of the marine capture fishery production along with the refined results based on the districts are as follows: Sausu (313.57 tons of fresh marketed; 14.69 tons of cured), Torue (142.62 tons are fresh marketed; 56.04 tons are dried), Balinggi (198.75 tons are fresh marketed; 22.68 tons are cured), Parigi (3148.92 tons are marketed; 47.94 tons are dried; 6,40 tons are cured); South Parigi (1054.61 tons are marketed;

Source: Survey Result

Figure 3. Capture Fishery in Tomini Bay Area

44.64 tons are dried), North Parigi (1357.21 tons are marketed), Central Parigi (2185.59 tons are marketed), Ampibabo (3273.73 tons are marketed; 120.21 tons are dried; 224.37 tons are cured), Kasimbar (936.11 tons are marketed; 36.66 tons are dried), Toribulu (1202.55 tons are marketed; 46.68 tons are dried), Siniu (775,25 tons are marketed; 3.73 tons are dried; 2.20 tons are cured), Tinombo (901.63 tons are marketed), South Tinombo (941.60 tons are marketed; 258.60 tons are dried; 61.51 tons are cured), Tomini (924.87 tons are marketed; 359.29 tons are dried), Mepanga (266.83 tons are marketed), Palasa (550.68 tons are marketed), Moutong (1373.89 tons are marketed; 183.98 tons are dried), Taopa (285.11 tons are marketed; 4.58 tons are cured), and Bolano (2231.61 tons are marketed; 1.03 tons are dried). This indicates that all this time the production of capture fisheries are fresh marketed (94%) and the rest (6%) are processed in the form of drying and curing.

The species of fish caught by the fishermen in Tomini Bay consist of pelagic fish, demersal fish, crustaceans and others. The species of pelagic fish commonly caught include bloated fish, kite fish, skipjack fish, tuna fish, and selar fish. The species of demersal fish commonly caught include tengiri fish, sharks and snapper fish. The species of crustaceans commonly caught include black tiger shrimp, prawn and other shrimps. The centers of marine capture fishery production in Tomini Bay are presented in the following table 9.

Table 9. Centers of Marine Capture Fishery Production in Coastal Area of Tomini Bay, 2015

No.	Regency	Location of Production Centers (District)
1.	Poso	Coastal Poso, North Coastal Poso, Poso City, North Poso City, Lage
2.	Parigi Moutong	Sausu, Torue, Balinggi, Parigi, South Parigi, North Parigi, Central Parigi, Ampibabo, Kasimbar, Toribulu, Siniu, Tinombo, South Tinombo, Tomini, Mepanga, Palasa, Moutong, Taopa, Bolano
3.	Banggai	Nuhon, Bunta, Pagimana, Bualemo, Lobu
4.	Tojo Una-Una	Tojo Barat, Tojo, Ulubongka, Ampana Tete, Ampana City, Una-Una, Togean, Walea Islands, Great Walea

Source:Central Bureau of Statistics, Central Sulawesi, 2015.

Based on the analysis above, there are some strategic issues related to the development of capture fisheries and aquaculture in Tomini Bay area as follows in table 10.

Based on the potential of fisheries in Tomini Bay above, the strengths, weaknesses, opportunities and threats (SWOT) are formulated for the development of Tomini Bay for the acceleration of the economic growth in the coastal communities in Central Sulawesi. The SWOT identification of Tomini Bay development is as follows in table 11.

Table 10. Strategic Issues on Fisheries in Coastal Area of Tomini Bay

Capture Fisheries
1. There is still the illegal fishing practice in Tomini Bay Area
2. The destructive fish capture damages the marine biodiversity
3. The value added result of fish capture has not been optimal
4. There is damage to the aquatic ecosystem along the coastal area Tomini Bay
5. The quality of human resources (HR) of fishermen reflecting their knowledge and skills in catching fish is still low
6. The mastery of technology by fishermen is still low
7. The market access is still weak due to the lack of control of market information
Fishery Aquaculture
1. The qualified seed for fishery aquaculture is still difficult to obtain
2. The ice disease often affects the seaweed aquaculture
3. The continuity of supplying the raw materials for the industry, the implementation of a quality management system are not in accordance with the standards, the agro-industry expected to provide the additional value to the potential commodities is not developed as expected
4. The post-harvest technology including the packaging has not been utilized adequately, the existing processing industry has not varied and has not been innovative
5. There is still the processing system that is not in accordance with the provisions of the quality standards
6. There are the lack of promotion intensity and the low participation of stakeholders in developing the promotional programs of value-added fishery products
7. The raw material for the fish industry has not been standardized because most of the fishery business are produced by the small-scaled fishermen
8. The types of products and the development of value-added products have not been optimally developed and has not been popular although the study and utilization of research results are widely available, but the mass production cannot be realized because of the availability of infrastructure, high cost of equipment, lack of technology and problems continuity of supplying raw materials
9. The quantity of waste that goes into the coastal and marine ecosystems in Tomini Bay any time continues to increase, the rivers flowing into the bay area are all functioning well as the industrial and domestic waste disposal, these rivers pass through many regions, and flow into coastal and marine areas

Source: Primary and secondary data (processed)

Table 11.SWOT Matrix of Tomini Bay Development

Strengths	Weaknesses
The fishery potential is very large (skipjack fish, stone fish, baubara fish baubara, tuna fish)	The low quality of human resources of the fishermen
The fishery aquaculture potential is very large (seaweed, scallops, kerapu fish, teripang)	The lack of ice cube factory facilities
Amount of RTP is great enough	The unworthy facilities of PPI
Amount of fishing fleets are adequate	The high illegal fishing
	The absence of fish processing industry
	Lack of working capital and access to capital
	Limited access to marketing of fishery products
	Low attention of the local government to the development of fisheries and of maritime
Opportunities	**Threats**
The existence of the Asean Economic Community	The high competition between the producing areas of fish (fish quality)
The high demand for fishery products and maritime	The government regulations
The free market	The global issues of the sustainability of the ecosystem or friendly-to-environment
MP3EI	
The national or international events such as Sail Tomini	

Source: Primary Data (processed)

Based on the identification of strengths, weaknesses, opportunities and threats, there are some strategies that can be formulated by using the strengths to utilize the opportunities, using the strengths to solve the threats, strengthening the weaknesses by utilizing the strengths and minimizing the weaknesses and overcoming the threats. The formulation of the development strategy of Tomini Bay is as follows in table 12.

The strategies are applied by involving all relevant parties, among others: the local government, the private sectors and the communities around Tomini Bay. The involvement of these parties will create a synergy to develop Tomini Bay as the fishery area to improve the social economy with regard to the sustainability of the ecosystem in Tomini Bay through the model of of fishery area development in Tomini Bay in a sustainable manner. The model of fishery area development in Tomini Bay in a sustainable manner is as follows in figure 4.

The above figure shows that the Tomini Bay area in Central Sulawesi consists of four regencies those are Parigi Moutong Regency, Poso Regency, Tojo Una-Una Regency, and Banggai Regency. The four regencies are the areas of capture fishery producers that will be supplied to the Togean islands (Una-Una) to be processed and then marketed. The marketing of the fishery products can be conductd with various types of products, whether the semi-finished products, the finished products, and the fresh fish products to be marketed in the domestic areas and to the foreign countries.

Table 12. Matrix of Development Strategy of Tomini Bay

Strategies of using the strengths to utilize the opportunities	Strategies of strengthening the weaknesses and utilizing the opportunities
• Opening the product marketing network of capture fisheries and aquaculture • Establishing the fish processing industry • Establishing the seaweed processing industry • Creating the marine fishery aquaculture areas, particularly seaweed	• Increasing the capacity of human resources in fishery • Increasing the number of ice cube factories to meet the needs of ice blocks in Tomini Bay area • Performing the maintenance and rehabilitation of PPI • Conducting the law enforcement against the illegal fishing • Providing the working capital facilities and the access to the capital • Improving the partnership cooperation between the local government and the fishermen.
Strategies of using the strengths to face the threats	**Strategies of minimizing the weaknesses and facing the threats**
• Performing the quality control of the fishery products • Creating the local regulations on fisheries for structuring Tomini Bay • Controlling the waste and the use of fishing device that may damage the environment	• Making the quality standard of the fishery product • Creating the network of fishery product marketing in domestic areas and foreign countries • Increasing the public awareness of the importance of the sustainability of the ecosystem or friendly-to-environment

Source: Primary Data (processed)

Source: Primary and Secondary Data (processed)

Figure 4. Model of Fishery Area Development in Tomini Bay

CONCLUSION

Based on the above discussion, it can be concluded that the potential of fishery resources in Poso Regency, Parigi Moutong Regency, Tojo Una-Una Regency, and Banggai Regency can support the development of Tomini Bay fishery-based area in order to accelerate the economic growth of the coastal communities in Central Sulawesi.The potential fishery resources that can support the development of Tomini Bay area are the potential of fisheries, the marine and coastal infrastructure, the social economic, and the geographic conditions in four regencies. The strategies used are as follows: opening the network of capture fishery product and aquaculture, improving the human resource capacity in fisheries, performing the quality control of fishery products, and increasing the social awareness on the importance of the sustainability of the ecosystem or friendly-to-environment. In optimizing and sustainably utilizing the potential of Tomini Bay, it needs to involve the participations of the local government, the central government, the private sectors, and the society.

REFERENCES

Badan Pusat Statistik. (2015). *Sulawesi Tengah Dalam Angka*. Palu: Badan Pusat Statistik Provinsi Sulawesi Tengah.

Balgos, Miriam C. (2005). *Integrated Coastal Management and Marine Protected*. Areas in the Philipines: Concurrent Developments.

Cicin-Sain, B. & R. W. Knecht. (1998).*Integrated Coastal And Ocean Management: Concepts And Practices*. Island Press: Washington D. C.

Dahuri, R.(2001). *Pengelolaan Sumberdaya Wilayah Pesisir Dan Lautan Secara Terpadu*. PT. Pradnya Paramita , Jakarta.

Evers, Hans-Dieter, Azhari Karim (2011). The Maritime Potential of ASEAN Economies. *Journal of Current Southeast Asian Affairs*, 30, 1, 117-124.

Foley N. S, Escapa M., Fahy F. (2014). Developing a Comparative Marine Socio-Economic Framework for the European Atlantic Area. *Journal of Ocean and Coastal Economic.* December 2014.

Kusumastanto. (2003). *Ocean Policy dalam Membangun Negeri Bahari di Era Otonomi Daerah*. Gramedia Pustaka Utama, Jakarta

Nasuition A. H. (1999). *Perencanaan Dan Pengendalian Produksi*, Guna Widya, Jakarta

Peretomode V. F. (2014). The Role of the Maritime Industry and Vocational and Technical Education and Training in the Economic Development of Nigeria. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)* Volume 19, Issue 5, Ver. V (May. 2014), PP 45-50 e-ISSN: 2279-0837, p-ISSN: 2279-0845.

Puspita, Dita Wahyu. (2015). Analisis Determinan Kemiskinan di Provinsi Jawa Tengah. *Jurnal Ekonomi dan Kebijakan (JEJAK)* Volume 8, Nomor 1, Semarang-Maret 2015 hal 83-88.

Rangkuti, Freddy. (2010). *Analisis SWOT Teknik Membedah Kasus Bisnis.* Jakarta: PT Gramedia Pustaka Utama.