

Analysis of the Blue Economy Concept in Improving the Living Standards of Fishermen Through the Existence of Village-Owned Enterprises in Tanjung Batu Village, Berau District

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ABSTRACT

Berau District has potential for demersal fisheries such as grouper, snapper and octopus. Demersal fish are fish that usually live in a demersal zone, such as the bottom of a sea or lake. This fish is an important economical fish in Berau City. However, with so many requests, fish supplies are depleting over time, so firm efforts are needed to bridge the supply and demand issues with sustainable and eco-friendly blue economy activities. The aims of this study are (1) to analyze the implementation of the blue economy in the fishing village of Tanjung Batu, Berau district. (2) To see the income level of traditional fishermen from going to sea in the village of Tanjung Batu, Berau Regency, (2) to find out the comparison of the income level of traditional fishermen with the existence of BUMDes in Tanjung Batu village, Berau Regency. The results of the study show that as a form of implementing blue economy activities, the Regional Government of Berau Regency is active in socializing fishermen with regulations so that fishermen also have a role in protecting fishery resources in their fishing activities. The Regional Government of Berau Regency also provides subsidies for environmentally friendly nets as a form of fishing gear revitalization aimed at protecting the ecosystem as a form of zero waste implementation in the blue economy. The existence of BUMDes in the Tanjung Batu fishing village in terms of providing business capital to fishermen, is able to provide positive results by increasing the catch of fishermen. Fishermen are able to increase their income in one catch while sailing. Fishermen can afford to buy modern tools to help when sailing, such as technological tools in the form of GPS and fish finders to make it easier to find fish.

Keywords: Blue Economy, Coastal Fishermen, BUMDes

INTRODUCTION

In order to recover and transform the economy after the Covid-19 pandemic, Indonesia needs to have a new approach and look for new sources of economic growth that are more inclusive and sustainable. Blue Economy is one of the answers, with economic potential that needs to

be optimized, considering that Indonesia is an archipelagic country with 65 percent of Indonesia's total area in the form of sea. The Joint Statement of the Minister of National Development Planning/Head of Bappenas Suharso Monoarfa with Swedish Minister of Environment and Climate Per Bolund and Swedish

Minister of Infrastructure Thomas Eneroth signed in Stockholm, Sweden, expressed the commitment of cooperation in carrying out the Blue Economy in Indonesia.

This commitment continues in the Sweden-Indonesia Sustainability Partnership Week through the launch of the *Blue Economy Development Framework for Indonesia's Economic Transformation* Book. This book was compiled by the Ministry of National Development Planning/Bappenas together with the *Organisation for Economic Co-operation and Development* (OECD) as a reference for stakeholders in defining the blue economy as a new engine of sustainable and inclusive Indonesian economic growth. The potential of the Blue Economy is estimated to reach USD 1.33 billion and is able to absorb 45 million jobs," according to Minister Suharso.

This Blue Economy Development Framework is an elaboration of the mandate of Indonesia's National Long-Term Development Plan (RPJPN) 2005-2025, especially realizing Indonesia as a sovereign, developed, and resilient archipelagic country through the implementation of sustainable development, as well as the Indonesian National Medium-Term Development Plan (RPJMN) 2020-2024 which emphasizes the importance of good marine management to achieve the sustainable development agenda. The Blue Economy Development Framework also supports global initiatives in achieving the 2030 Agenda on Sustainability Development Goals (SDG's).

The preparation of the Blue Economy Development Framework applies an integrated and

comprehensive approach, considering that this blue economy covers various sectors and across actors. Therefore, the development of the blue economy requires synergy between actors and sectors to be able to address several opportunities and challenges in achieving a balance between conservation and utilization of marine and coastal resources to create more sustainable and inclusive prosperity.

The implementation of the blue economy is an advantage for regions that have large space in the maritime sector. The inability of land areas to support the welfare of the community, especially coastal areas, can be resolved through this concept. The development of the blue economy in Indonesia has been pursued with the issuance of Presidential Regulation Number 16 of 2017 concerning Indonesia's Marine Policy. The regulation includes the blue economy as one of Indonesia's marine policies in addition to being archipelago-minded, sustainable development,

Blue Economy is a symbol of activities, especially the pro-environment fishing industry. Although actually without this concept, fisheries business actors should implement activities that are in accordance with environmental safety standards, and also a concept brought by the Marine and Fisheries Service which is useful for overcoming problems. Problems that exist in the marine sector and support the creation of sustainable development in the marine sector, namely the balance between the economy and marine ecosystems, the creation of concern with the environment and the existence of reciprocal relations between fishermen and the community and the surrounding

environment, and in the implementation of this program is a form of realization of the blue economy concept from regional agencies, it is also expected to improve, maintaining the productivity and welfare of fishermen, as well as keeping the earth blue in the marine sector.

Berau Regency is one of the areas that has high and diverse potential for coastal and marine resources in Indonesia. In the sea area of this district, there are large coral reefs with fairly good conditions. However, in the coastal and marine areas of Berau, there are also various problems such as the destruction of coral reefs, the decline of sea turtle populations, fishing practices that are not environmentally friendly, and so on. With the potential for large coastal and marine resources and their problems, the coastal and marine areas of Berau Regency need to be managed properly and appropriately. This is to maintain the sustainability and running function of these resources so that they can support community welfare and sustainable development.

The fact that the Berau water area has a large and abundant range of marine potential is unfortunately not reflected in the socioeconomic conditions of coastal communities. Many fishermen live below the poverty line with alarming environmental conditions. Limited ability and access to better jobs are some of the reasons fishermen stay afloat. The catch of traditional fishermen is also very limited considering the lack of equipment used when compared to fishing companies that have more sophisticated boats and equipment. Local communities have felt that the

large number of migrant fishermen entering berau waters has also resulted in a decrease in the number of local fishermen's catches.

With limited knowledge and coupled with economic pressures to meet daily needs, ecological aspects have been neglected. The use of fishing facilities and infrastructure, such as bombs, potassium, and tiger trawls, tends to damage biodiversity and marine life.

Tanjung Batu Village is a central fishery for the kecamatan area of Derawan and Maratua Islands. The production of fishing in these two sub-districts reaches 6,737 tons per year, aquaculture production is 1,191 tons per year, the number of fishing vessels is 937 units, the number of tancap and floating charts is 471 units, the number of fish reservoirs is 36 people, the number of marine Fishery Households (RTP) is 887 and the number of aquaculture RTPs is 320 units.

A fisherman is someone who lives on a livelihood of marine products. In Indonesia, fishermen usually live in coastal or coastal areas. Fishing communities are groups of people who make a living of marine products and live in coastal villages (Suratiah 2009). Judging from the fishing equipment technology used, it can be distinguished in two categories, namely modern fishing businesses and traditional fishing businesses. Modern fishing businesses use more sophisticated fishing technology compared to traditional fishing businesses. The measure of modernity is not only due to the use of motors to drive boats, but also the size of the motors used as well as the level of exploitation of the fishing gear used. Differences in the

modernity of fishing gear technology will also affect their operational cruising ability, (Syahyuti, 2007).

The purpose of this study is (1) to analyze the implementation of the blue economy in Tanjung Batu fishing village, Berau Regency. (2) To see the income level of traditional fishermen from going to sea in Tanjung Batu village, Berau Regency, (2) to find out the comparison of traditional nelayan income levels with the existence of BUMdes in Tanjung Batu village, Berau Regency.

METHOD

This research is a descriptive quantitative research with descriptive statistical analysis tools. The research sample is part of the population. Sample survey is a procedure in which only a part of the population is taken and used to determine the desired nature and characteristics of the population (Nazir, 2002). The population in this study is by classifying the strata of the fishing fleet used, namely boats without motors, outboard motorboats and 5-10 GT motor boats totaling 578 capture fleets. Determination of the number of samples based on the Solvin formula with a sampling allowance of 10%. Thus, the size of the study sample was as many as 95 fishermen. Sampling in each sub-district based on the strata of the capture fleet.

The data needed in this study are primary data and secondary data. Primary data in the form of direct data collected through interviews with respondents and using tools, namely a list of questions (questionnaires) and observations, namely observing directly things related to research, such as boat equipment / motor boats used by fishermen to catch fish, the

social life of the fishing community and also the behavior of the fishermen themselves.

RESULTS AND DISCUSSION

The survey results describe the characteristics of fishermen at the research site, this is considered important in answering research questions.

a. Characteristics of Respondents

Fishermen's characteristics are the circumstances or general descriptions of fishermen in the research area, which include the age, education, dependents of fishermen, and fishermen's experiences. The population of productive age is the population that carries out production from an economic point of view, where all their needs are borne by themselves. The age of the fishermen is included in the productive age, namely with an average age of 35-48 years and the fishermen have an average number of dependents of 4 people. Furthermore, judging from the level of education of fishermen in this research area, the most dominant is elementary to high school graduates. A total of 95 samples of fishermen stated that they had worked for an average of 21 years, which means that the 95 samples had a long enough level of work experience to work as fishermen.

b. Work

In addition to the use of equipment by fishermen, fishermen also have to spend money on the purchase of diesel, food, bait, drinks and snacks when going to sea. The amount of operational costs for boats

without motorbikes in 1 trip costs Rp.350,000, while for motorboats it is Rp.2,300,000 per trip, while for motorboats (< 5 GT) it is Rp.9,400,000,- per trip and for motorboats (5 – 10 GT) of Rp.21,000,000,- per trip.

c. Number of Workers

The use of labor in sea activities is commonly referred to as ABK (Crew). The magnitude of the needs of abk is very adapted to the type of boat used, therefore not all ships use abk or they work alone, this is seen in the type of boat without motors. For boats without motors, the number of crew used is 1 (one) person, motorboats as many as 3-4 (three-four) people, motor boats (<5 GT) as many as 9-11 (Nine-eleven) people and motor boats (<5-10 GT) as many as 12-14 (twelve-fourteen) people.

d. Jumlah day at sea/Long time to go to sea

The duration of sea activities averages 5-6 days per week with a duration of up to 10-12 hours per day. Sea activities are generally carried out in the afternoon and return to the pier or land in the morning with a catch of fish to be traded.

e. Use of Technology

The technology referred to in this study is equipment used by fishermen in carrying out fishing activities such as the use of a global positioning system (GPS) as a directional tool, radio and fish finder (a tool to detect the presence of fish). This type of equipment belongs to modern technology. The results showed that most fishermen who have motorboats ranging from < 5 GT to 5 – 10 GT use *GPS* and *fish*

finder technology, as well as radio as a means of communication. Of the 95 fishermen respondents, 47 respondents have used technology, while the remaining 48 respondents are traditional fishermen.

f. Number of Catches per go to sea

The amount of operational costs in fishing used varies greatly, and the types of fish also vary greatly, each type of boat including the number of catches of types of boats without a motor as much as 47 Kg per trip, with a catch value of Rp.554,600 per trip. For motorized boat types, the number of catches reaches 200 Kg per trip, with a catch value of Rp.2,360,000 per trip. For motor boats 5 – 10 GT, the number of catches reaches 2,890 per trip with a catch value of Rp.34,102,000 per trip.

Based on the data above, researchers will use the SPSS20.0 program to describe change data before and after the existence of BUMDes.

A. Implementation of *Blue Economy* in Berau Regency

Berau Regency is one of the areas that holds good marine economic potential and natural wealth. To sustain its resilience and carrying capacity, natural resources must certainly be explored based on the principle of sustainable development. The concept of the blue economy is considered one of the solutions to bridge the economic interests and sustainability of the marine environment.

Various programs were made by the daerah government as its commitment in the implementation of *blue economy* in Berau Regency, including the provision of environmentally friendly net subsidies as a form of revitalization of fishing gear aimed at maintaining the ecosystem, as well as counseling to supervisory community groups useful for helping to supervise exploitative economic activities, and socialization of regulations so that fishermen also have a role in maintaining fishery resources in addition to that. In order to strive for production results where the local government tries to make fishermen understand fishing routes aims to add insight and be able to maximize fish production in coastal areas, especially in Tanjung Batu Village, Lumbun Ikna area in Berau Regency.

The Berau Regency Government also continues to socialize Geamarikan (Fish Eating Community Movement) in various elements of the community and organizes the annual event "Irau Manutung Jukut" or a crowded people's party to burn fish. This movement is not only to improve the quality of community nutrition but also to keep the demand for fish high so that in the end it can increase the income of fishermen in Berau Regency.

B. Traditional Fishermen's Income

Tabel 1: Analisis Statistik Deskriptif Peningkatan Pendapatan Nelayan Tradisional

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
N Tradisional	32	100000,00	117500,00	115200,00	111734,508
Valid N (listwise)	32				

Source: Data Primer Diolah, 2022

Berdasarkan data di atas terlihat peningkatan pendapatan nelayan tradisional setelah adanya BUMDes minimum sebesar Rp 100.000,00 sementara data maksimum perubahan peningkatan pendapatan sebesar Rp. 117.500,00 sementara mean atau rata-rata peningkat pendapatan dengan adanya dana BUMDES sebesar Rp 115.200,00.

Table 2: Total Income of Traditional Fishing Communities Using BUMDes Funds

Number of Respondents	Total tapping		Total Upgrades	%
	Before Using BUMDES funds	After Using BUMDES funds		
32	IDR 17,747,200	IDR 21,507,200	IDR 3,760,000	21,19%

Source: Arsip BUMDES Kab Berau

Based on the data above, it can be seen that the total increase in traditional fishermen's income is as much as Rp. 3,760,000 to IDR 21,507,200 or an increase of 21.19% of income before using BUMDES funds. So that it can be known that BUMDES funds play an important role in increasing the income of traditional fishermen.

C. Motor Fisherman's Income

Tabel 3. Analisis Statistik Deskriptif Peningkatan Pendapatan Nelayan Motor

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
N Tradisional	3	20000	50000	67525	421734,85
Valid N (listwise)	3	0,00	0,00	5,00	9

Source: Data Primer Diolah, 2022

Based on the data above, it can be seen that the increase in motorbike fishermen's income after the existence of BUMDes is a minimum of Rp. 200,000.00 while the maximum data changes the increase in income is Rp. 500,000.00 while the mean or average increase in income with the BUMDES fund is Rp. 675,255.00.

Table 4. Total Income of Motorbike Fishing Communities Using BUMDes Funds

Number of Respondents	Total tapping		Total Upgrades	%
	Before Using BUMDES funds	After Using BUMDES funds		
31	IDR 73,160,000	IDR 88,660,000	IDR 15,500,000	21,18%

Source: Arsip BUMDES Kab Berau

Based on the data above, it can be seen that the total increase in motorbike fishermen's income is as much as Rp. 15,500,000.00 to IDR 88,660,000.00 or an increase of 21.18% of revenue before using BUMDES funds. So that it can be known together that BUMDES funds play an important role in

increasing the income of motorbike fishermen.

D. Modern Fisherman

Tabel 5. Analisis Statistik Deskriptif Peningkatan Pendapatan Nelayan Modern

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
N Tradisional	32	2000000,00	5000000,00	7225000,00	6721734,7345
Valid N (listwise)	32				

Sumber: Data Primer Diolah, 2022

Based on the data above, it can be seen that the increase in motorbike fishermen's income after the existence of BUMDes is a minimum of Rp. 2,000,000.00 while the maximum data changes the increase in income of Rp. 5,000,000.00 while the mean or average increase in income with the BUMDES fund is Rp. 7,225,000.00.

Table 6. Total Income of Modern Fishing Communities Using BUMDes Funds

Number of Respondents	Total tapping		Total Upgrades	%
	Before Using BUMDES funds	After Using BUMDES funds		
32	IDR 191,264,000	IDR 322,464,000	IDR 131,200,000	68,6%

Source: Arsip BUMDES Kab Berau

Based on the data above, it can be seen that the total increase in modern fishermen's income is as much as Rp. 131,200,000 to IDR 322,464,000 or an increase of 68.6% of revenue before using BUMDES funds. So that it can be known that BUMDES funds play

an important role in increasing the income of modern fishermen.

Table 7: Increase in Revenue During BUMDEs

Fisher man	Number of Respondents	Total revenue		Total Upgrades	Percentage
		Before Using funds BUMDES	After Using funds BUMDES		
Traditional	32	17.747.200	21.507.200	3.760.000	21,19 %
Motor	31	73.160.000	88.660.000	15.500.000	21,18 %
Modern	32	191.264.000	322.464.000	131.200.000	68,6 %

Source: BUMDes Berau

Based on the table above, it is known that the percentage of increase in fishermen's income has increased relatively for traditional fishermen and motor fishermen, and there is a significant increase for modern fishermen. The highest increase occurred in modern fishermen who had an increase percentage of 68.6% with an increase of Rp. 131,200,000. Thus, the existence of BUMDes in Berau regency, especially in fishing villages, has a significant positive impact on fishermen's income.

Chart 1 below clearly illustrates that there is an increase in fishermen's income, be it traditional fishermen, motorbike fishermen, or modern fishermen, with the highest total income being in modern fishermen of Rp. 322,464,000, while the lowest income in traditional fishermen is Rp. 21,507,200; this is because there is still limited expertise of traditional fishermen in fishing.

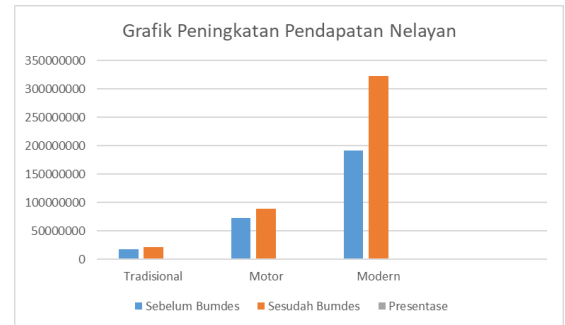


Figure 1 Graph of Increasing Fishermen's Income

In general, coastal areas have several potentials in the fields of fisheries and marine, trade, marine tourism, and the marine industry (Apriliani, 2014). In the national context, the potential and natural wealth collected on the surface, inside, and under the ocean is one of the supporting factors to increase the economic growth rate in Indonesia (Ervianto, 2016). To manage marine resources in a sustainable manner, the blue economy is an attractive alternative to bridge environmental problems and economic interests that often occur in Indonesian waters.

Berau Regency has the potential for demersal fisheries such as grouper, snapper, and octopus. Demersal fish are those fish that usually live in demersal zones, such as the bottom of the sea or lakes. This fish is an important economical fish in Berau City. However, with so much demand, fish stocks are running low over time, so decisive efforts are needed to bridge *the demand and supply* problem with sustainable and *eco-friendly* blue economy activities.

The level of fishermen's welfare is largely determined by the catch or what is commonly called the production of catches. The large

number of direct catches also affects the amount of income received until fishermen are able to meet their daily needs.

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The results of the research where the implementation of the environmentally friendly fishery resource utilization program was carried out by providing environmentally friendly net subsidies as a form of revitalization of fishing gear aimed at maintaining the ecosystem, counseling to supervisory community groups is useful to help supervise exploitative economic activities, and socialization of regulations so that fishermen also have a role in maintaining fishery resources in addition to that in order to strive for production results where agencies trying to make fishermen understand fishing routes aimed at adding insight and being able to maximize fish production

BUMDes is a pillar of economic activity in the village that functions as a social institution and commercial (commercial institutions). The principles of efficiency and effectiveness must always be emphasized in running their business. Thus, it is hoped that the existence of BUMDes will be able to encourage the dynamization of economic life in rural areas, especially for fishermen in coastal areas. BUMDes here play a role in

providing capital loans to business actors in the context of fishermen in helping fishermen improve the level of welfare. This condition is able to increase the productivity of fishermen's catches.

Capital in the economic sense of resources is goods that have been produced but are used as a tool to produce goods and services that are directly used in business fields such as boats, nets, fishing rods, where these equipment will produce goods and services. Capital is an important factor needed to develop business activities. Fishermen in developing their business often experience difficulties, namely the limited capital they have. on the contrary, the fishermen are also quite profitable. In addition to being able to do his job with adequate income, there is also a wide possibility to have his own fishing facilities, such as boats, nets and some of them. The socioeconomic life of fishermen is quite stable, their average income is higher than the average income of farmers or daily workers in plantations. Social mobility occurs, especially vertical mobility upwards among juragan and bandega. They will get a higher socioeconomic position if they manage to pay off their debts. Together they later became full owners of the boats they operated. The sea juragan established its new status as a full sea juragan, independent of land juragan, and the pandega got its new status as well, as a pandega that had an owner's share of the boats operated.

In addition to service income from bumdes lending businesses, it can also trigger the growth of other

informal sectors and can encourage the creativity of the entrepreneurial spirit of the community in their work. The profits from the businesses formed by BUMDes are in accordance with the potential that exists in the village, so as to maximize the benefits and benefits that will have an impact on the surrounding community so that it can be used as a source of income for the community who manages BUMDes businesses.

Based on the results of the analysis that has been carried out as many as 95 fishermen samples that with the existence of BUMDes in terms of providing business capital to fishermen, it is able to provide positive results by increasing fishermen's catches. Fishermen are able to increase their income in one catch when sailing. Fishermen can afford modern tools to help when sailing such as technological tools in the form of *GPS* and fish *finders* in making it easier to find fish.

Then what the fishermen feel is that when they apply for loans, disbursement of funds, and installment refunds are sometimes carried out by fishermen out of place even though all transactions are still recorded in the books of BUMDes. Ease of loans and family services are indeed the main goals of BUMDes, but it would be better if a BUMDes has restrictions so that administrative order will be created, which will also trigger payment order by its customers.

CONCLUSION

To manage marine resources sustainably, the blue economy is an attractive alternative to bridge

environmental problems and economic interests that often occur in Indonesian waters.

However, with so much demand, fish stocks are running low over time, so decisive efforts are needed to bridge the demand and supply problem with *sustainable* and *eco-friendly* blue economy activities. The level of fishermen's welfare is largely determined by the catch or what is commonly called the production of catches.

Various programs were made by the daeah government as its commitment in the implementation of blue conomy in Berau Regency, including the provision of environmentally friendly net subsidies as a form of revitalization of fishing gear aimed at maintaining the ecosystem, as well as counseling to supervisory community groups useful for helping to supervise exploitative economic activities, and socialization of regulations so that fishermen also have a role in maintaining fishery resources in addition to that seeking production results where the local government tries to make fishermen understand fishing routes aims to add insight and be able to maximize fish production in coastal areas, especially in Tanjung Batu Village, lumbun ikna area in Berau Regency.

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helping fishermen improve the level of welfare.

Capital in the economic sense of resources is goods that have been produced but are used as a tool to produce goods and services that are directly used in business fields such as boats, nets, fishing rods, where these equipment will produce goods and services. Fishermen in developing their business often experience difficulties, namely the limited capital they have. On the contrary, the fishermen are also quite profitable. In addition to being able to do his job with adequate income, there is also a wide possibility to have his own fishing facilities, such as boats, nets and some of them. They will gain a higher socioeconomic position if they manage to pay off their debts.

The profits from the businesses formed by BUMDes are in accordance with the potential that exists in the village, so as to maximize the benefits and benefits that will have an impact on the surrounding community so that it can be used as a source of income for the community who manages BUMDes businesses. Based on the results of the analysis that has been carried out as many as 95 fishermen samples that with the existence of BUMDes in terms of providing business capital to fishermen, it is able to provide positive results by increasing fishermen's catches. Fishermen are able to increase their income in one catch when sailing. Fishermen can afford modern tools to help when sailing such as technological tools in the form of GPS and fish *finders* in making it easier to find fish.

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