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ANALYSIS AND STRATEGY TO INCREASE THE INCOME OF TRADITIONAL SALAM NET FISHERMAN IN CENTRAL TAPANULI

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ABSTRACT

Central Tapanuli Regency, Andam Dewi District, is an area that has a large water potential area. In this area, many fishing activities are carried out. Based on data on the number of fishermen in the Central Tapanuli area, the number of traditional fishermen in the Andam Dewi area is 1510 fishermen, and the type of fishing gear often used is the salam net. Dependence on using laurel net fishing equipment does not guarantee that fishermen get abundant catches and stable economic income. This research used purposive sampling using 35 salam fishing nets. This research aims to determine the level of welfare of fishermen based on the five livelihood capital approaches, namely natural capital, human capital, physical capital, financial capital, and social capital. The results of this research show the ability of fishermen to access fishing areas in the waters using 23% natural capital, 32% human capital, 18% physical capital, 9% financial capital, and 18% social capital.

Keywords: Strategy, Improvement, Traditional Fisherman, Salam Net, Central Tapanuli.

1. INTRODUCTION

Indonesia is a country with a very large water area and has excellent potential for fishery resources. One of the areas with significant water potential is Central Tapanuli Regency. Fishing activities occur near the coast, and many fish are caught in these waters[1]. Based on data on the number of fishermen in the Central Tapanuli area, it is around 2950 fishermen, and the number of traditional fishermen in the Andam Dewi area is 1510 traditional fishermen[2]. One type of fishing gear traditional fishermen use to catch fish in the Andam Dewi sub-district is the salam net fishing gear. The salam net fishing gear is relatively simple to operate[3].

Salam nets are a selective fishing tool used when carrying out fishing operations because they do not catch small or colossal fish, but they catch fish in a specific length range. For a long time, traditional fishermen have used salam nets as a source of livelihood[4]. However, pockets of poverty still exist among traditional fishing net fishermen[5]. Dependence on this net fishing gear does not guarantee that fishermen will get abundant catches and fishing areas close to the coast when fishing.

Apart from the use of fishing gear that still uses traditional methods, several factors influence fishermen's income in Central Tapanuli, such as capital, season, climate, productivity of fishing gear, and fishing areas[6]. Then, the price and amount of catch obtained by traditional fishermen also affect the income of conventional fishermen[7]. To meet the needs of traditional fishing net families, economic growth is needed to analyze economic development[8].

The low economic activity of fishermen results in low productivity and income received, and the income is unable to

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meet the minimum physical needs, which causes the process of poverty. When fishermen experience a crisis like this, the five livelihood capitals will play a role in the lives of traditional fishermen of the salam net as a way to return to normal conditions[9].

Based on the condition of traditional fishermen in Central Tapanuli, it is said to be quite concerning with the current condition by only relying on their daily lives to catch fish using traditional fishing gear, bay nets, so this study is considered necessary to be carried out to overcome the fulfilment of the needs of traditional bay net fisherman families.

2. RESEARCH METHOD

Time and Place

This research was conducted in September 2024 in Sitiris-tiris Village, Andam Dewi, Central Tapanuli, North Sumatra Province. The study was conducted from September to October 2024.

Table 1. Components of measuring the vulnerability of fishing households in Central Tapanuli

Main Component	Sub-component	Measured Components
Adaptive capacity	Natural Capital	Percentage of household longer sea time
	Human Capital	Percentage head of household graduated from elementary school.
		Percentage number of family members attending school
		A percentage have a side job.
		Percentage aged over 50 years
		Percentage number of working families
	Physical Capital	Percentage of supporting operational facilities.
		GPS/Kompas
		other fishing gear
	Financial Capital	Percentage have savings
		Percentage got a send from family.
		Percentage of other sources of income.
	Social Capital	Percentage of lending money to other fishermen.
		Percentage receive assistance from the government.
		Percentage borrow from others.
		Percentage The selling price is determined by a third-party

Method

The research used in this study is primary data and secondary data. Primary data is obtained through questionnaires and interviews directed at respondents or informants involved in this study. At the same time, secondary data is in the form of supporting data obtained from related agencies to support the problem's objectives and the study's benefits. The population in this study includes all fishermen in the village of Sitiris-tiris, which is approximately 180 traditional salam net fishermen.

Furthermore, to determine the sample, the researcher used the Slovin method. The sample criteria are fishermen whose profession is traditional salam net fisherman. The sample in this study amounted to 35 traditional salam net fishermen. The data obtained in this study used descriptive qualitative statistical analysis. Then, the response determination statistics were carried out using Microsoft Excel 2017.

Data Analysis

Data analysis was carried out to determine the sample using the Slovin formula[10] with the following formula:

$$n \frac{N}{1+Nxe^2}$$

Description:

n = Number of samples,

N = Number of known population,

e = error tolerance.

3. RESULT AND DISCUSSION

Overview of Fishing Activities in Central Tapanuli Regency

The fisherman settlement in Sitiris-tires village is located in the Andam Dewi sub-district on the west coast of Sumatra Island; this village is an area that has a stretch of mountains, rivers, beaches, and seas. The community widely uses the coastal waters of Sitiris-tires village for fishing activities and tourism. However, the marine resources in the town have yet to be maximally explored. Therefore, most fishermen are still on the verge of poverty, considering that the village is also far from the city center, making it difficult for fisherman to sell their catch.

Characteristics of Respondents of Traditional Fishing Nets

This study found several physical and non-physical factors that can affect fisherman income. The physical aspects are the environment of the salam net fisherman, fishing technology, fishing gear, fishing location, and capital at sea. The non-physical factors are the length of time at sea, the age (years) of the fisherman, the experience of the fisherman at sea, and the weather in the village of Sitiris-tiris. Based on the age of traditional salam net fisherman, the age of fisherman 20-30 years is 6%, the age of fisherman 30-40 years is 34%, the age of fisherman 40-50 years is 14%, the age of fisherman 50-60 years is 6%, and the age of fisherman 60-70 years is 3%. Based on the age range, it can be seen that traditional fishermen are still productive in carrying out activities as fishermen.

Based on the education level of the salam net fishermen, it was found that the dominant ones were junior high school graduates, as much as 49% (Table 1). By looking at conditions like this, it can be seen that the level of education in the village is very low. If the level of education is high, it will make it easier for fishermen to get jobs other than being fishermen. The low productivity of fishermen is generally caused by low skills and knowledge and the use of simple fishing gear and boats, so the effectiveness and efficiency of fishing gear in its application could be improved.

Table 2. Education-level net fisherman

No	Educational Level	Respondent	(%)
1	Elementary School	10	29
2	Junior High School	17	49
3	Senior High School	8	23
4	College	0	0
	Total	35	100

The income level obtained by the bay net fisherman for one month varies greatly. Their productivity greatly influences the difference in income between fishermen. Several factors or independent variables in the research model cause this.

Based on the analysis data, it was found that there are two fishing seasons: the fishing season and the famine season. From the results, it was found that during the fishing season, the average income of the highest fisherman is IDR 2,500,000 to IDR 3,000,000 per month, around 37%, and the average income of the lowest fisherman every month is IDR 2,000,000 to 2,500,000 as much as 9%. From this income, fishermen get different amounts and types of catches daily. Based on the analysis during the lean season, it is known that the average income of the highest fisherman is IDR 1,250,000 to IDR 1,500,000, as much as 40%, and the lowest income of fisherman is IDR 1,750,000 to 2,000,000, as much as 3%.

Based on the results of the analysis that occurs during the fishing season, it is known that fish income will decrease, and then fish prices will increase. During the lean season, fishermen look for other jobs to increase their income. Fishermen's lives depend heavily on the fishing season in this area. However, fishermen can only go to sea sometimes because many factors need to be

considered, such as weather, sea conditions, etc. This condition often occurs in rural areas where most of the population has a livelihood and depends on abundant natural resources[9].

Table 3. Income of traditional salam net fisherman

No	Description	Number of Traditional Fisherman respondent	Average Income (Month)	(%)
1	Fishing season	7	1.500.000 - 2.000.000	20
		3	2.000.000 - 2.500.000	9
		13	2.500.000 - 3.000.000	37
		12	3.000.000 - 3.500.000	34
		35		100
2	Paceklik	10	1.000.000 - 1.250.000	29
		14	1.250.000 - 1.500.000	40
		10	1.500.000 - 1.750.000	29
		1	1.750.000 - 2.000.000	3
		35		100

Utilization of Capital and Income Strategy of Salam Net Fisherman

The utilization of five livelihood capitals by fisherman households in Sitiris-tiris village has various variations. The utilization of these five livelihood capitals is seen based on several variables. This variable causes differences in the utilization of livelihood capital between the economic layers of fishermen's households. This difference shows the tendency of each economic level to utilize livelihood capital. This is in line with what was explained by Ellis[11], that various assets owned, including natural, physical, human, financial, and social capital, are used to increase income.

The natural capital obtained in this research is in the range of 23%. This means laurel net fishermen catch fish in waters 1 to 2 miles from the shoreline. Based on the results of interviews with fishermen, the condition of the waters in Sitiris-tiris village is still good. However, if fishermen carry out fishing using experience alone, it will not help the family's economy.

In this case, most fishermen have other workers and other household members. Like the sons of fishermen who also work at sea to help their parents work. Most fishermen's wives also open side businesses, such as opening stalls to fill the economy. However, in terms of education levels in the village, they are still low. The average education in the village of Sitiris-tiris is primarily junior high school graduates. This is because the family economy is inadequate for education. This low level of education affects the level of skills of fisherman households. Fisherman households need to gain skills outside of activities related to fisheries.

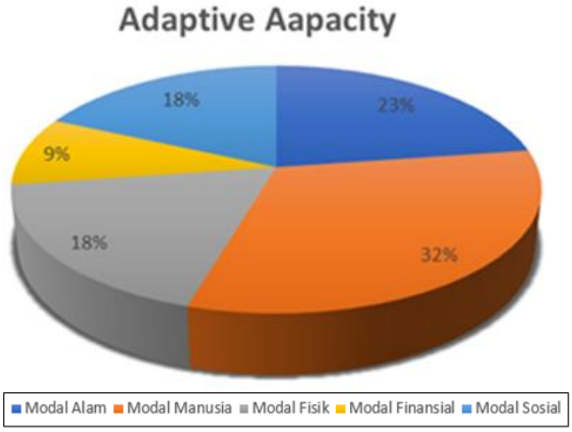

Figure 1. Adaptation capacity of salam net fisherman

The physical capital of fishing households in this study is seen from the ownership of production and non-production assets. Production assets are physical assets used directly by net fishermen to the sea. These assets can be boats and fishing gear. At the same time, non-production assets are valuables in the house, such as electronic goods (TV, AC, washing machine),

communication devices (mobile phones), transportation (motorcycles and cars), and jewellery. Based on the graph above, net fishermen are dominated by having physical assets only in the range of 18%. The economic layer of net fishermen mostly has at most one fishing gear, but in non-production assets, fishermen have several assets, such as motorbikes, televisions, and mobile phones. The financial capital of fishing households shows the lowest value among the five other livelihood capitals based on the graph above. The level of economic capital owned by fishing households is low.

Financial capital is seen from the income of the on-fishing, off-fishing, and non-fishing economies. In addition, financial capital is also seen from the expenditure and saving capacity of fishing households. Financial capital will be of high value if the fisherman's income is above average, has savings, and does not have loans.

Social capital should be capital that fishermen must have. As stated by Bakker et al.[12], social capital is a form that refers to community norms, values , and actions in a community that contribute to social cohesion and community identity. The social capital of the salam net fisherman shows a moderate value of 18%. This is because the fishermen are members of both formal and informal groups. With the existence of groups that have been built, fishermen can survive economic pressures by borrowing from fisherman groups. After the fisherman earns income, they will pay the loan. This system occurs repeatedly from year to year.

Livelihood strategies are activities carried out by fisherman households to survive even in the most challenging circumstances. Household strategies are survival strategies using limited resources and less diverse methods[13]. Calculating livelihood strategies is based on the type of livelihood strategy, from the most to the least. The strategies that are a priority in improving the welfare of fishermen in Andam Dewi District are as follows:

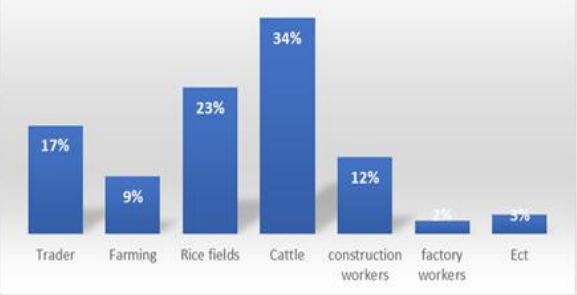

Figure 2. Priority strategies

Figure 2 shows that fisherman households have many livelihood strategies. The most common strategy is raising livestock; factory workers do the least.

4. CONCLUSION

As for the conclusion of the research conducted in the village of Sitiris-tiris, it can be concluded that several factors can affect fisherman income, namely physical and non-physical factors. The physical factors include the coastal environment, fishing technology, location, and capital needed to go to sea. At the same time, non-physical factors are frequency of going to sea, length of time at sea, age of fisherman, experience at sea, and climate. Based on the age range, it can be seen that traditional fishermen with salam nets are still productive in carrying out activities as fishermen. Then, in the village of Sitiris-tires, the most dominant level of education found is junior high school graduates; low productivity of fishermen is generally caused by low skills and knowledge and the use of simple fishing gear and boats, so the effectiveness and efficiency of fishing gear in its application are lacking. Based on the data analysis obtained from the field, it was found that there are two fishing seasons, namely, fishing season and lean season. In this lean season, there are few benefits or positive impacts for the bay net fisherman; this is because most of the residents in the village work as fishermen, so on average, the residents feel that the arrival of the lean season brings more negative impacts.

The strategies fishermen can use to avoid economic difficulties include looking for side jobs by raising livestock, gardening,

rice fields, opening stalls, construction workers, and factory workers.

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