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Analysis of the Role of the Mina Samudera Cooperative in Increasing Fishermen's Incomes in Kendari City

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Abstract

This research aims to find out the role of the Mina Samudera Cooperative in increasing the income of fishermen in Kendari City. And to find out the difference in fishermen's income before and after joining the Mina Samudera Cooperative. The selection of the research location was carried out deliberately (purposive sampling) with the consideration that the Mina Samudera cooperative is one of the cooperatives that is still stable in the Samudera Kendari Fisheries Port area that can support the needs of fishermen and their employees. This research was conducted in January-April 2025. The population in this study is every fisherman who is a member of the cooperative in the Mina Samudera Cooperative so that the sample in this study is 10 people. So the method of determining withdrawals is carried out by census. The data analysis in this study used descriptive analysis and the Paired Sample Test t-test. Descriptive analysis is a method used to describe or analyze a research result but is not used to make broader conclusions. The Paired Sample Test or paired data sample is a hypothesis testing method. This test is used to see the difference between a group of data samples that are the same as the same object or person, but get different treatment or measurements. The results of the study show that the Mina Samudera Cooperative plays a very important role in increasing fishermen's income and there is a difference in fishermen's income before and after joining the cooperative

Keyword: The role of cooperatives, fishermen's income

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INTRODUCTION

In the context of Indonesia's economy as a maritime nation, the fisheries sector holds significant potential for increasing community income, particularly among fishermen. The existence of fishing ports as hubs for capture fisheries activities plays a crucial role in maintaining the quality of catches, distribution, and the marketing of fish. This is reinforced by Law No. 45 of 2009 on Fisheries, which stipulates that fishing ports serve as centers for services, supervision, and management of fishery resources from the pre-production stage through to marketing. However, the socio-economic conditions of fishermen, which tend to be vulnerable, demand institutional interventions capable of strengthening their economic position, one of which is through the development of fishery cooperatives.

Fisheries cooperatives serve as a solution to address fishermen's economic challenges, particularly regarding access to capital, marketing, and business management. Cooperatives not only function as savings and loan institutions but also as platforms for strengthening social solidarity and preserving the cultural values of fishing communities. Various government and non-governmental programs have promoted the development of cooperatives as part of poverty alleviation efforts. Fisheries cooperatives are expected to increase members' income by providing business facilities, financing, and collective management of fishery products. Thus, the cooperative serves as a vital instrument in enhancing the sustainable well-being of coastal communities.

One example of a thriving cooperative in the fisheries sector is the Mina Samudera Cooperative, located at the Kendari Samudera Fishing Port (PPS). This cooperative was established in 1991 with members comprising port employees, fishermen, and the surrounding community. Over time, the cooperative has expanded its operations, marked by the addition of business units such as savings and loans, trading, a canteen, services, and facility rentals. In terms of capital, the cooperative has shown significant growth over the past three years (2021–2023), with an average capital of Rp116,591,033. This growth was driven by an increase in the number of members, as well as voluntary savings and financial assistance. However, capital fluctuations still occur, particularly in 2022 due to an increase in mandatory and basic savings, which led to a decline in members' participation in saving.

In addition to these positive developments, cooperative members still face several challenges, such as relatively strict administrative requirements for loan applications and maximum loan limits. This has caused some members to face difficulties in accessing the financing they need. On the other hand, active member participation in cooperative activities is a key factor in determining the cooperative's success in increasing income and collective well-

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being. Therefore, a more in-depth study is needed regarding the role of cooperatives in supporting increased income for fishermen, particularly at the Mina Samudera PPS Kendari Fishermen's Cooperative.

Previous studies have shown that cooperatives play a significant role in improving members' well-being. Astoni's (2019) research found that the Mina Jaya Fisheries Cooperative in Muara Angke contributes to the economic development of fishermen through organizational, business, and capital programs. Virawati (2019) also concluded that cooperatives can significantly increase members' income, with a 69.55% rise in income after joining the cooperative. Additionally, Yanti (2019) demonstrated that village savings and loan programs can boost community income by up to 169.05%. Other studies by Hubairi (2020), Eko (2020), and Anjar et al. (2021) further reinforce that cooperatives play a crucial role in providing capital, fostering business development, and improving community well-being through various productive economic programs.

Based on the above discussion, it is evident that cooperatives play a strategic role in increasing the income and welfare of fishing communities. However, there are still various dynamics and issues that require further examination, particularly regarding the effectiveness of cooperatives in meeting members' needs. Therefore, this study is important to analyze the role of the Mina Samudera Cooperative in increasing fishermen's income in Kendari City, thereby contributing to the development of more effective and sustainable fisheries cooperatives.

METHOD

This study was conducted at the Mina Samudera Cooperative, located at the Kendari Ocean Fisheries Port (PPS), Jalan Samudera No. 21 Puday, Kendari City, Southeast Sulawesi Province, with the study period spanning April to December 2025. The location was selected using purposive sampling, considering that this cooperative is one of the stable cooperatives that plays a role in supporting the needs of fishermen and employees in the Kendari PPS area. The population in this study consists of all fishermen who are members of the Mina Samudera Cooperative, totaling 10 people; therefore, the sampling technique employed was a census, involving the entire population as respondents. The type of data used is quantitative, while the data sources consist of primary data obtained directly through the distribution of questionnaires to fishermen, as well as secondary data obtained from relevant agencies such as the Central Statistics Agency, journals, and other supporting literature. Data collection techniques included a survey using a structured questionnaire, face-to-face interviews with respondents to gather

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more in-depth information, documentation in the form of data recording and photography during the study, as well as a literature review used to support and strengthen the research analysis.

The method employed in this study is descriptive analysis. Additionally, to examine the difference in fishermen's income before and after joining the Mina Samudera Cooperative, an income analysis was first conducted using the formula (Soekartawi, 1995) as follows:

$$\pi = TR - TC$$

Explanation:
π = Income (Rp)
TR = Total Revenue (Rp)
TC = Total Cost (Rp)

Next, we use *the* Paired *Sample t-Test*. Nuryadi (2017) states that *the Paired Sample t-Test* is a hypothesis testing method. This test is used to examine differences within a sample group of data involving the same subjects or individuals but receiving different treatments or measurements. The formula for *the Paired Sample* t-*Test* is as follows:

$$t = \frac{D}{\frac{SD}{\sqrt{n}}}$$

Where:
Di = X1i– X2i

$$D = \frac{\sum(X1i - X2i)}{n}$$

$$SD = \sqrt{\frac{\sum Di^2 - [\sum Di^2]}{n-1}}$$

Explanation:
X1i = Fishermen's income after joining the cooperative in data set i (Rp/Month)
X2i = Fishermen's income before joining the cooperative in data set i (IDR/Month)
Δ = Difference between X1i and X2i (Rp/Month)
D = Average Di (Rp/Month)
SD = Standard deviation
N = Sample size (People)

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With a confidence level of 0.05 (5 degrees of freedom, or df = N – 1). Hypothesis:

H_0 : X1 = X2 (There is no difference in fishermen's income after and before joining the Mina Samudera Cooperative)

H_0 : X1 ≠ X2 (There is a difference in fishermen's income after and before joining the Mina Samudera Cooperative)

Criteria:

- $H_{(0)}$ is accepted if the t-statistic is less than or equal to the critical t-value, meaning there is no difference in fishermen's income after joining the Mina Samudera Cooperative compared to before joining
- H_0 is rejected if the t-statistic is greater than the critical t-value, meaning there is a difference in fishermen's income after joining the Mina Samudera Cooperative compared to before joining.

The t-test was analyzed using SPSS version 25 with the following criteria:

- If the Sig. (2-tailed) value < 0.05, meaning there is a significant difference in the test results, then the conclusion is that H0 is accepted and H1 is rejected.
- Conversely, if the Sig. (2-tailed) value > 0.05, then H0 is rejected and H1 is accepted, meaning there is a significant difference in the test results

RESULTS AND DISCUSSION

The role of the Mina Samudera Cooperative can be observed through the implementation of the business functions it has developed, namely the savings and loan unit and the grocery trading unit. The savings and loan unit plays a role in providing access to capital for members, particularly fishermen, through savings and loan activities to support fishing activities, ensuring fishermen do not face capital constraints in running their businesses. Additionally, the grocery trading unit serves to meet members' needs by providing various goods, including both basic necessities and fishing equipment such as fish storage containers and nets, thereby facilitating fishermen's activities and ultimately aiming to increase their catch yields and income.

The role of the cooperative can be seen from the changes in fishermen's income before and after joining the Mina Samudera Kendari Cooperative, as follows:

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Table 1. Income Before and After Joining the Cooperative, 2024

No	Income Before (Rp)	Income After (Rp)
1	35,894,000	48,769,000
2	22,510,500	25,959,500
3	17,072,000	33,912,000
4	13,622,000	20,562,000
5	15,322,000	19,059,500
6	36,316,000	41,216,000
7	19,052,500	22,822,000
8	15,322,000	19,059,500
9	13,622,000	20,562,000
10	22,244,000	39,844,000

Based on Table 1, there is an increase in fishermen's income before and after joining the Mina Samudera Cooperative, with a significant rise observed after joining. For example, the first fisherman's income increased from Rp39,444,000 to Rp47,369,000 after receiving a capital loan from the cooperative, which was used to support fishing activities.

Interview results with 10 respondents indicate that the average catch before receiving the loan was 3,400 kg per fishing trip (minimum 2,000 kg and maximum 7,000 kg), while after receiving the loan, it increased to an average of 4,225 kg (minimum 2,500 kg and maximum 9,500 kg). Of the total respondents, 3 fishermen were able to catch over 5,000 kg, while the remaining 7 were still below that figure, influenced by vessel capacity (5 GT and 10 GT), fish availability, weather conditions, the number of crew members, capital, and the distance traveled at sea. Most fishermen use 20 HP engines with a range of 0–4 miles from the coast; thus, the wider the fishing range, the greater the opportunity to achieve higher catch yields, which in turn increases income.

The role of the Mina Samudera Cooperative is to provide loans to fishermen to support their fishing needs. The loans provided by the Mina Samudera Cooperative must be repaid within the agreed loan period. Loans provided by the Cooperative can be used as capital for future fishing trips or simply to cover vessel operating costs. Typically, when fishermen take out loans, they specify the intended use of the funds. This is illustrated in the following table:

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Table 2. List of Loans to Members of the Mina Samudera Cooperative

No	Occupation	Loan Amount (Rp)	Disbursement Date	Term	Purpose
1	Fishermen	10,000,000	02/20/2023	12 Months	Engine Repairs and Vessel Operations
2	Fishermen	7,500,000	January 16, 2023	12 Months	Purchase Fishing Gear
3	Fishermen	8,000,000	12/14/2022	12 Months	Repairs Ship Engine
4	Fishermen	5,000,000	September 25, 2022	12 Months	Repairs Fishing Gear
5	Fishermen	6,000,000	August 20, 2022	12 Months	Operational Fishing Vessels
6	Fishermen	10,000,000	June 10, 2022	12 Months	Repairs Boat
7	Fishermen	9,000,000	March 15, 2022	12 Months	Engine Repairs and Fishing Gear
8	Fishermen	6,000,000	January 19, 2022	12 Months	Operational Fishing Vessels
9	Fishermen	8,000,000	11/25/2021	12 Months	Repairs Vessel
10	Fishermen	10,000,000	10/13/2021	12 Months	Repairs Ship Engine

Table 2 shows that fishermen borrow money to support their fishing needs.

1. For Respondent 1, the loan was used to repair the boat engine and cover operational costs, with Rp10,000,000 allocated for engine repairs and boat operations, while the remainder was used for the crew's daily necessities such as rice, drinking water, and instant noodles; and some of the crew's protein needs were met from the catch, so this loan was crucial because without engine repairs, fishing activities could not be carried out optimally.
2. For Respondent 2, a loan of Rp7,500,000 was entirely used to purchase fishing gear such as gill nets, fishing rods, and trawl nets, which are key factors in increasing catch yields; this is evidenced by the increase in catch from 2,000 kg to 2,500 kg following the use of this gear.

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3. For Respondent 3, a loan of Rp8,000,000 was used to repair the boat's engine as well as to repair damaged nets using materials such as thread, needles, and rope, thereby supporting the smooth operation of fishing activities.
4. For Respondent 4, a loan of Rp5,000,000 was used entirely to repair fishing gear such as torn nets, broken fishing lines, and hooks, which directly impacted the fishermen's catch yields.
5. For Respondent 5, a loan of Rp6,000,000 was used for vessel operational costs, such as crew rations, purchasing ice blocks, and foam for fish storage, which is crucial for maintaining the quality of the catch to prevent spoilage and ensure it retains high market value.
6. For Respondent 6, a loan of Rp10,000,000 was used for vessel repairs, a vital aspect since vessel damage can endanger safety and hinder fishing activities.
7. For Respondent 7, a loan of Rp9,000,000 was used to repair the vessel's engine and fishing gear that had sustained damage, thereby supporting the smooth operation of fishing activities.
8. For Respondent 8, a loan of Rp6,000,000 was used to cover additional vessel operational costs, primarily for provisions and the purchase of ice blocks to maintain fish quality, preventing rapid spoilage and ensuring high market value.
9. For Respondents 9 and 10, the loans received were used entirely to repair the boat and its engine without any additional costs, as the good condition of the boat and engine is critical for safety and the sustainability of fishing activities, given that damage can lead to significant risks such as the boat sinking or the engine failing in the middle of the sea.

Subsequently, a normality test, a paired sample test, and a hypothesis test were conducted to determine whether the research data were normally distributed, to analyze the difference in fishermen's income before and after joining the cooperative, and to test the validity of the research hypothesis regarding the cooperative's role in increasing fishermen's income.

Table 3. Normality Test

One-Sample Kolmogorov-Smirnov Test			
		Income Before	Income After
N		10	10
Normal Parameters [a, b]	Mean	1584000.0000	2,559,000.00
	Standard Deviation	901,248.51672	922,646.55566

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Most Extreme Differences	Absolute	0.193	0.225
	Positive	0.193	0.225
	Negative	-0.108	-0.146
Test Statistic		0.193	0.225
Asympt. Sig. (2-tailed)		,200[c,d]	,161[c]
a. The test distribution is normal.			
b. Calculated from the data.			
c. Lilliefors Significance Correction.			
d. This is a lower bound of the true significance.			

Based on the results of the normality test in Table 3, it can be seen that the significance values for the difference in fishermen's income before joining the Mina Samudera Cooperative and after joining the Mina Samudera Cooperative are 0.200 and 0.161. Therefore, in accordance with the decision-making in the normality test above, it can be concluded that the difference in fishermen's income before joining the Mina Samudera Cooperative and after joining the Mina Samudera Cooperative is normally distributed.

Table 4. Paired Sample Test

Description	**Value**
Income (Before – After)	
Mean	-975,000.00000
Standard Deviation	376,570.78426
Standard Error of the Mean	119,082.13785
95% CI Lower	-1,244,382.51110
95% CI Upper	-705,617.48890
t	-8.188
df	9
Sig. (2-tailed)	0.000

Based on the results of the paired sample test above, it can be seen that the significance value for the variable of fishermen's income before joining the Mina Samudera Cooperative and after joining the Mina Samudera Cooperative is 0.000 < 0.05. Therefore, in accordance with the decision-making criteria in the paired sample test, it can be concluded that there is a significant difference between fishermen's income before joining the Mina Samudera Cooperative and

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after joining the Mina Samudera Cooperative.

Based on the paired sample test table above, it can be seen that the Sig. (2-tailed) value is 0.000 < 0.05, so the result is that Ha is accepted and Ho is rejected. The conclusion that can be drawn from this paired sample test table is that there is a difference in fishermen's income before joining the Mina Samudera Cooperative and after joining the Mina Samudera Cooperative. This indicates that the role of the Mina Samudera Cooperative has a positive impact, as fishermen's income increased after joining the Mina Samudera Cooperative. The cooperative's role in increasing fishermen's income in this study aligns with research conducted by Ketut Anggraeni (2015), which described the cooperative's role in boosting fishermen's income along the Baruna Coast as relatively high. Cooperatives play a significant role in helping fishermen and fish entrepreneurs develop their businesses. This can be seen from the benefits felt by fishermen and fish entrepreneurs regarding the existence of cooperatives—economic institutions that provide convenience for fishermen and fish entrepreneurs

CONCLUSION

Based on the research findings, it can be concluded that the Mina Samudera Kendari Cooperative plays a crucial role in increasing fishermen's income. One of the efforts undertaken by this cooperative is providing cash loans to its members. Based on the results of the paired sample test conducted by the researcher, it can be concluded that there is a significant difference in fishermen's income before joining the Mina Samudera Cooperative and after joining the Mina Samudera Cooperative.

A recommendation from this study is that the government is encouraged to increase support in the form of financial assistance or capital to the cooperative so that it can expand its operations and more effectively address the capital needs of small-scale fishermen. Additionally, fishermen in the Kendari Fishing Port area who are not yet members of the Mina Samudera Cooperative are encouraged to join to gain economic benefits and improve their well-being. For future researchers, it is recommended to conduct similar or relevant studies to enrich the analysis and develop more comprehensive findings regarding the role of cooperatives in increasing fishermen's income.

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