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THE IMPACT OF SEAWEED BUSINESS MANAGEMENT ON INCOME ENHANCEMENT FOR THE MAMMINASAE GROUP IN BERARUE HAMLET, PANCANA VILLAGE, TANETE RILAU DISTRICT, BARRU REGENCY

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ABSTRACT

This study explores the influence of seaweed business management on income improvement for the MAMMINASAE Group in Berarue Hamlet, Pancana Village, Tanete Rilau District, Barru Regency. The research focuses on three key factors: technology adoption, capital investment, and work experience. Findings reveal that technology has a significant positive impact on income, as it enhances operational efficiency and access to information. Capital investment also plays a crucial role, as higher investments lead to improved operational capacity and income growth. Additionally, work experience is vital for the effective management of seaweed cultivation, contributing to increased income levels. The results suggest that improvements in seaweed business management can alleviate the economic burden on the community, reduce unemployment, and foster regional economic development.

Keywords: Seaweed,Business,Management,Technology

A.INTRODUCTION

Indonesia, as a maritime nation, holds immense potential in its marine resources, including seaweed, which remains underutilized despite its significance. Seaweed, a type of macroalgae, thrives in intertidal zones with sufficient sunlight and contributes to various industries, such as food, pharmaceuticals, and cosmetics. However, in Kabupaten Barru, the management of seaweed cultivation is far from optimal. Issues such as inadequate post-harvest processing knowledge, environmental challenges, and limited access to value-added processing methods result in lower economic returns for local farmers. Most seaweed is sold in raw form,

which diminishes its market value and hinders the socioeconomic progress of the community. Addressing these challenges requires a holistic approach that integrates sustainable cultivation practices and innovative management strategies.

Seaweed management involves not only optimizing its cultivation but also enhancing its post-harvest processes to create products with higher economic value. Management, in this context, refers to a structured process of planning, organizing, and monitoring resources to achieve specific objectives effectively. This aligns with the legal framework in Indonesia, such as the Fisheries Law, which supports sustainable aquaculture and the promotion of seaweed as a strategic commodity. Local governments and stakeholders have a crucial role in empowering communities through capacity-building programs, technical support, and access to markets for value-added products.

Previous studies have emphasized the ecological and biological importance of seaweed and its applications in various industries. For instance, Noer Kasanah (2018) discussed the environmental parameters necessary for optimal seaweed growth, while Muhammad Rusman (2018) highlighted the potential of value-added products such as seaweed-based meatballs and nuggets to improve farmers' incomes. However, limited research addresses the specific challenges faced by seaweed farmers in Kabupaten Barru, particularly in Dusun Birarue, where production issues such as diseases, freshwater intrusion, and suboptimal maintenance practices persist.

This study seeks to fill the gap by investigating the factors that hinder seaweed production and exploring innovative solutions to enhance post-harvest processing. It focuses on introducing improved management practices, including technology adoption and training programs, to empower local farmers and small-medium enterprises (SMEs). The novelty lies in combining practical interventions with a sustainable framework, aiming to increase the economic value of seaweed while ensuring its ecological preservation.

By addressing these issues, this research aims to provide actionable insights into improving the productivity and profitability of seaweed farming in Kabupaten Barru. The study contributes to the broader goals of sustainable resource management and community development, fostering a more resilient and economically empowered local industry.

Based on the description in the Literature Review, the author created a research framework as follows below:

THINKING FRAMEWORK CHART

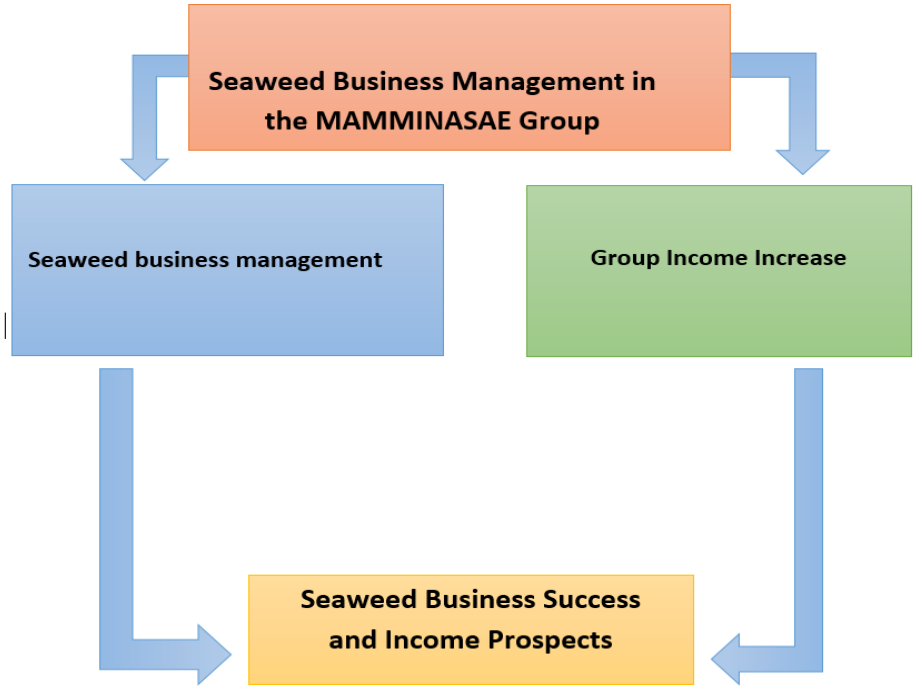

Figure 1 Framework of Thought

- **HYPOTHESIS**

Based on the conditions in Berarue Hamlet, Pancana Village, Tanete Rilau District, Barru Regency, the researcher formulates the following hypotheses:

H_1: The management of seaweed enterprises has a significant impact on increasing the income of the MAMMINASAE group in Berarue Hamlet, Pancana Village, Tanete Rilau District, Barru Regency.

H_0: The management of seaweed enterprises does not have a significant impact on the income of the MAMMINASAE group in Berarue Hamlet, Pancana Village, Tanete Rilau District, Barru Regency.

B.RESEARCH METHODS

This study employs a quantitative research method with a descriptive approach, based on the positivism philosophy (Creswell & Creswell, 2023). Quantitative research aims to investigate specific populations or samples, utilizing research instruments for data collection

and statistical analysis to test hypotheses. The deductive research process begins with the use of theories or concepts to formulate hypotheses, which are subsequently tested through field data. The study systematically and objectively describes the impact of seaweed business management on the income growth of the MAMMINASAE group, providing a factual and measurable analysis.

The research was conducted in Berarue Hamlet, Pancana Village, Tanete Rilau District, Barru Regency, from September 3, 2024, to November 3, 2024. Validity and reliability tests were carried out to ensure the accuracy and consistency of the research instruments. Validity was assessed using Pearson Correlation, with a significance threshold of 0.05, while reliability was evaluated by measuring the stability of responses over time (Saunders et al., 2023). Both tests were performed using SPSS version 17.0, ensuring robust and reliable data. Furthermore, the study employed simple linear regression analysis to determine the influence of independent variables on dependent variables.

The variables examined include marketing, production techniques, management, financial aspects, technology, capital, work experience, and price. Marketing activities encompass promotion, advertising, and delivering products to consumers. Production techniques focus on optimizing processes to achieve efficient outputs. Management involves organizing resources to meet objectives effectively. Financial aspects address resource allocation and fund management. Technological advancements enhance efficiency and productivity (Smith, 2022). Capital is essential for business operations, while work experience contributes to productivity and income growth. Lastly, price represents the monetary value of goods or services, reflecting their perceived worth.

C. RESEARCH RESULTS AND DISCUSSION

- RESEARCH RESULTS

a) Descriptive Statistical Analysis

The descriptive statistical analysis provides an overview of the data by examining the mean, standard deviation, variance, maximum, minimum, and total values (Ghozali, 2011). The independent variables in this study include Business Management (X) and Income Improvement (Y).

Table 1. Descriptive Statistical Analysis of Variable X

N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation
10	9	13	22	181	18.10	3.178

Source: Processed SPSS Output, Version 17.0

The table above indicates the number of respondents (**N**) is 10. Among these, the lowest score (**minimum**) is 13, and the highest score (**maximum**) is 22. The range, calculated as the difference between the maximum and minimum values, is 9. The total sum of all responses is

181, with a mean score of 18.10 and a standard deviation of 3.178.Since the mean value is greater than the standard deviation, the data's dispersion is considered low. The standard deviation quantifies the spread of the data points and indicates how closely the individual data points cluster around the mean.

Table 2. Descriptive Statistical Analysis of Variable Y

N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation
10	8	11	19	155	15.50	3.028

Source: Processed SPSS Output, Version 17.0

The above table shows the number of respondents (**N**) is 10. The lowest score (**minimum**) is 11, and the highest score (**maximum**) is 19. The range is 8, while the total score (**sum**) is 155. The mean is 15.50, with a standard deviation of 3.028. The mean value being higher than the standard.

b) Validity and Reliability Tests

- **Validity Test**

The validity test measures the precision of an instrument in capturing the intended variables. According to Sugiyono (2009), a correlation value above 0.30 indicates a valid question item. Items with valid scores are retained for further analysis, while invalid items are excluded or revised for future studies.

The validity of the questionnaire items was evaluated using the **Bivariate Correlation** method, determining the strength and direction of the relationship between variables. A question item is considered valid if the calculated correlation coefficient (**r count**) exceeds the table value (**r table**).

Table 3. Validity Test Results for Variable X

Item	r Count	r Table	Conclusion
Item_1	0.709	0.632	Valid
Item_2	0.650	0.632	Valid
Item_3	0.878	0.632	Valid
Item_4	0.829	0.632	Valid
Item_5	0.878	0.632	Valid
Item_6	0.829	0.632	Valid

Source: Processed SPSS Output, Version 17.0

All six items in Table 8 are valid, with **r count** values exceeding 0.632.

Table 4. Validity Test Results for Variable Y

Item	r Count	r Table	Conclusion
Item_1	0.711	0.632	Valid
Item_2	0.977	0.632	Valid

Item_3	0.977	0.632	Valid
Item_4	0.977	0.632	Valid
Item_5	0.661	0.632	Valid

Source: Processed SPSS Output, Version 17.0

Similarly, all five items in Table 9 are valid, as their **r count** values exceed 0.632.

- **Reliability Test**
  The reliability test assesses the consistency and stability of the measurement tool. A Cronbach's Alpha score greater than 0.60 indicates reliability.

Table 5. Reliability Test Results

Variable	Number of Items	Cronbach's Alpha	Conclusion
Business Management	6	0.874	Reliable
Income Improvement	5	0.921	Reliable

Source: Processed SPSS Output, Version 17.0

Both variables have Cronbach's Alpha scores above 0.60, indicating high reliability.

c) Simple Linear Regression Analysis

Simple linear regression examines the linear relationship between an independent variable (**X**) and a dependent variable (**Y**) to determine whether the relationship is positive or negative. It also predicts the dependent variable based on changes in the independent variable.

The formula for simple linear regression is:
Y=a+bXY = a + bXY=a+bX
Where:

- **Y**: Dependent variable
- **a**: Constant value
- **b**: Regression coefficient
- **X**: Independent variable

Table 6. Simple Linear Regression Results

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
Constant	0.728	-	-0.349	0.736
Business Mgmt	0.897	7.874	0.000	

Source: Processed SPSS Output, Version 17.0

The regression equation derived is:
Y=0.728+0.897XY = 0.728 + 0.897XY=0.728+0.897X

The constant (0.728) suggests the value of Income Improvement (**Y**) when Business Management (**X**) is zero. The regression coefficient (0.897) indicates that a 1% increase in Business Management is associated with a 0.897 increase in Income Improvement. The

positive coefficient implies a positive relationship between the variables. With a significance value of 0.000 (<0.05), Business Management significantly affects Income Improvement.

- DISCUSSION

a) The Effect of Technology on Seaweed Income

This study found that technology has a significant ($p = 0.000 < 0.05$) and positive influence on the income levels of seaweed farmers in Berarue Hamlet.This aligns with the reality faced by seaweed farmers in the area, where the use of technology is essential. Simple tools are utilized in seaweed cultivation, and leveraging information technology enhances the operational performance of seaweed businesses. It also facilitates access to necessary information related to seaweed cultivation.The conclusion drawn from this study is that technology usage significantly impacts the income improvement of seaweed farmers in Berarue Hamlet.

b) The Effect of Capital on Seaweed Income

The study revealed that capital has a significant ($p = 0.000 < 0.05$) effect on income improvement for seaweed cultivation in Berarue Hamlet, Tanete Rilau District, Barru Regency. To achieve greater income growth, it is necessary to increase capital investments proportionately.

This finding is consistent with the experiences of seaweed farmers in Berarue Hamlet. Increased capital serves as a critical driver for operational costs, akin to the fuel or energy required to initiate a motor. This aligns with previous research findings that demonstrate a direct correlation between capital investment and income improvement.

c) The Effect of Work Experience on Seaweed Income

The study also found that work experience has a significant ($p = 0.000 < 0.05$) and positive impact on the income improvement of seaweed farmers in Berarue Hamlet.This finding reflects the reality faced by farmers in the area, where work experience is crucial for managing seaweed cultivation. It requires specific knowledge, specialized techniques, and skills aligned with the nature of the work.

Summary of Findings

The impact of seaweed business management on income improvement for the MAMMINASAE Group in Berarue Hamlet, Pancana Village, Tanete Rilau District, Barru Regency, has shown consistent growth over the years. This underscores the strategic value of seaweed in enhancing regional income.Seaweed cultivation and management significantly contribute to alleviating the economic burden of the community in Berarue Hamlet, Pancana Village. Its high market value helps ease financial strain on households and reduces unemployment in the area.

D. CONCLUSION AND RECOMMENDATIONS

- Conclusion

Based on the findings, it can be concluded that:

1. Technology Usage: The use of technology significantly and positively affects the income of seaweed farmers in Berarue Hamlet. Technology enhances operational efficiency and provides better access to information relevant to seaweed cultivation, leading to improved income levels.
2. Capital Investment: Capital has a significant and positive impact on income improvement. Increased capital enables farmers to cover operational costs and expand their business activities, resulting in higher income.
3. Work Experience: Work experience significantly influences the income of seaweed farmers. It provides farmers with the necessary knowledge, skills, and techniques to manage seaweed cultivation effectively.

Overall, the management of the seaweed business in the MAMMINASAE Group of Berarue Hamlet has consistently contributed to income improvement, helping to alleviate the community's economic burden, reduce unemployment, and boost regional development.

- Recommendations

1. Promotion of Technology Adoption: Farmers should be encouraged to adopt more advanced technologies in their seaweed cultivation processes. Government or local organizations could provide training and access to affordable technological tools to enhance productivity.
2. Access to Capital: Stakeholders should facilitate access to credit or financing for seaweed farmers. Financial institutions and cooperatives could develop tailored loan schemes to support small-scale farmers in expanding their businesses.
3. Skill Development Programs: Training programs should be conducted to improve the skills and knowledge of seaweed farmers. These programs should focus on modern cultivation techniques, efficient resource management, and market dynamics.
4. Policy Support: Local governments should develop policies that support seaweed farmers through subsidies, infrastructure development, and market access initiatives. This would strengthen the seaweed sector and its contribution to the regional economy.
5. Community Engagement: Farmers' groups, such as the MAMMINASAE Group, should foster collaboration and information sharing to improve collective productivity and income.

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