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Economic Empowerment Model for Freshwater Aquaculture-Based Communities in South Konawe Regency

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----------ABSTRACT----------
Community empowerment is an effort expected to solve the economic lag of coastal and rural communities, especially the aquaculture communities. This study aims to design an empowerment model for freshwater aquaculture-based communities in South Konawe Regency, Southeast Sulawesi. Data were obtained through a survey involving freshwater aquaculture business players, experts from the Department of Fisheries and Marine Affairs, academics, and community empowerment observers. The survey was related to cultivation systems, sources of business capital, marketing systems, business management development, and forms of business institutions. The survey data were analyzed using an Exponential Comparison Method (MPE) to obtain priority options for decision-making purposes. The analysis results show that the freshwater aquaculture communities require the role and support of various parties and improvement of the business management system to improve the community's economy. The community needs capital support from the banking sector and governing support from the government and universities. Regarding business management, a cooperative is an ideal institution with culinary tourism as the marketing approach. In addition, appropriate technology should be applied in the cultivation system.

KEYWORDS;-Empowerment; Community; Fishery; Freshwater

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I. INTRODUCTION

The fishery sector has a significant role in supporting the economy and national development. This sector produces essential human products that can be directly utilized or further processed as inputs to other sectors, including the industrial sector. In Southeast Sulawesi, as part of the agricultural sector, the fishery sector plays a significant role in supporting regional development and providing business or employment opportunities. In 2019, the highest gross regional domestic product (GRDP) in Southeast Sulawesi was obtained from the agricultural, forestry, and fishery sectors at a total of 30.67 trillion, mining at 27.42 trillion, construction at 17.69 trillion, wholesale and retail trade at 16.50 percent, and processing industry at 8.08 trillion [1] (BPS Sultra, 2020). Meanwhile, the inland general fishery or freshwater aquaculture production in 2019 was 146 tons out of 2,057 tons, while the production of still water fishery in South Konawe Regency was 197 tons at a value of 4,395,837,000 [1].

The development of the fishery sector is conducted to improve the community's living standard and provide wider business opportunities, especially for the coastal and rural communities;thus, reducing unemployment and poverty issues. Poverty, an indicator of the community's inability to access or manage economic resources, remains inherent in coastal and rural communities that work in the agricultural and fishery sectors [2]. The factors that cause poverty in the coastal communities in Southeast Sulawesi are community incompetence, low education level, consumptive lifestyle, and low entrepreneurial spirit [3]. In addition, government programs for poverty alleviation, either top-down or bottom-up, have not achieved maximum results [4].

Community empowerment, including the empowerment of businesses or micro, small, and medium enterprises (MSMEs) in the fishery sector, is critical to improving the community's economy. The MSMEs have a significant role in supporting Indonesia's economic growth, where MSMEs contribute 87% to many business entities in Indonesia. In addition, MSMEs also absorb 85% of labor [5]. Community empowerment also aims to increase the application or introduction of science and technology from research institutions and universities to the community, either through applications of science and technology or the development of human resources. However, applying science and technology to the community is not easy, mainly due to transforming conventional methods into advanced systems and technologies. Habits related to mastery of technology, capital

ownership, access to markets, and society management are not easily removed or replaced [6]. Hence, this is a challenge for the community empowerment program to continue to direct the mindset and habits of the community to be more in favor of business sustainability and community welfare.

The long-term goal of this research is the formation of economically independent individuals and groups of freshwater aquaculture communities. The self-sustainability is marked by the community's independent mindset, decision-making capacities,problem-solving skills, and the ability to make changes to economic development by optimizing internal resources and utilizing external resources. The specific objective of this research is to design an economic empowerment model forfreshwater aquaculture communities.

II. CONCEPTS AND METHODS

Concepts

Community empowerment is a strategy that can potentially improve the community's economy and support social and cultural transformation efforts. The empowerment effort will result in welfare and community-centered development due to significant community roles and direct participation. Community participation can effectively reach the poor through the spirit of self-improvement [7]. In terms of governance, it is necessary to improve fishery facilities, improve human resources in the fishery business, and maintain the quality of the aquatic environment when developing the fishery sector [8].

Community empowerment programs are the best method to overcome development problems. This program is carried out by encouraging entrepreneurship that can play a role, be bold to compete and take risks, and are willing to innovate. Empowerment is the main effort and strategy to increase community participation in development programs. Empowerment efforts can transform the community from less competent to be more capable of achieving a better life [9]. Community development seeks to increase participation and a sense of belonging to the implemented program. Empowerment refers to the ability of a person, especially a vulnerable group, to access productive resources that enable them to increase their income and participate in the development process and decision-making [5].

Methods

The study was conducted in South Konawe Regency, Southeast Sulawesi. The research objects are two villages in two districts, i.e., Cialam Jaya village in Konda District and Mekar Jaya village in North Moramo District. The obtained data were analyzed using an Exponential Comparison Method (MPE). The data include expert opinions from the Department of Marine Affairs and Fisheries, universities, observers of community empowerment, and freshwater fishery business players at the research locations. The data studied are indicators in designing an economic empowerment model for the freshwater aquaculture community. Expert opinions include cultivation systems, sources of capital, marketing systems, business management development, and forms of business institutions. Expert opinionsare based on the following criteria:

1. Cultivation System
    a. Alternatives: traditional system, semi-intensive system, intensive system, super-intensive system, and appropriate technology
    b. Criteria: technology, capital, human resource, infrastructure, and profit potentials
2. Capital Source
    a. Alternatives: business partner, cooperative, banking sector, government, and independent capital
    b. Criteria: ease of transaction, loan interest, loan amount flexibility, and repayment flexibility
3. Marketing System
    a. Alternatives: direct to the customer, through traders, through markets, through restaurants, and culinary tourism
    b. Criteria: selling price, purchase quantity, marketing guarantee and continuity, ease of transaction, and added valuepotentials

c. Business Management Development
    a. Alternatives: government, universities, traders, private institutions, and cooperatives
    b. Criteria: the readiness of human resources and technology, capital ownership, authority in determining policies, and ease of communication and coordination

d. Business Institution System
    a. Alternatives: independent business, joint venture, partnership, cooperative, and family business
    b. Criteria: human resource, presence of infrastructure, capital, technology, and risks

MPE is a method used to determine priorities out of the options in decision-making. This method assists decision-making by designing a well-defined model at a stage that produces option values [10]. MPE analysis can reduce bias because it can clearly describe the priority orders of the existing decision options. The decision-making steps according to this method are (1) determination of decision options; (2) preparation of

decision criteria to be reviewed; (3) determination of each criterion's degree of relative importance using a specific conversion scale according to the wishes of the decision-maker; (4) determination of each decision option's relative importance, and (5) ranking the values obtained by each decision option.

The formula to calculate the score for each option in MPE is as follows:

$$TN_i = \sum_{j=1}^{m} \mathrm{RK}_{\mathrm{ij}}^{\mathrm{TKKJ}}$$

Remarks:

TN_i = total value of option i
RK_{ij} = the degree of the relative importance of the j^{th} criterion on the i^{th} decision choice
TKKj = the degree of the relative importance of the j^{th} decision; TKKj > 0; round
n = the number of decision options
m = the number of decision criteria

III. RESULT VIEW

The model is designed based on the analysis of expert's opinions on predetermined indicators. It includes various solutions and options to produce an ideal economic empowerment concept for freshwater aquaculture communities. The MPE analysis results in theprimaryoptions in empowering freshwater aquaculture communities, including aquaculture technology, capital sources, marketing, institutional forms, and governing institutions. The description of each aspect is as follows:

1. Cultivation System

The results of the MPE analysis on the cultivation systems in the freshwater aquaculture business are listed in Table 1.

Options	Score	Priority Rank
Appropriate Technology System	6.091	1
Semi-Intensive System	4.786	2
Intensive System	4.467	3
Traditional System	3.526	4
Super-Intensive System	3.526	5

Table 1. Priorities for Options of Cultivation Systems

Based on Table 1, the freshwater aquaculture primarilyuses appropriate systems or technology at a score of 6.091, followed by the semi-intensive system at a score of 4.786, and intensive systems at a score of 4.467.

Community-based natural resource management should use knowledge and local community environmental awareness as the basis for its management [11]. The objectives of empowering vulnerable communities using appropriate technology are (1) to accelerate economic recovery, improve and develop productive economic activities, expand employment and business opportunities, and increase productivity and quality of productions; (2) to support regional development by improving the quality of human resources and responsible use of natural resources; thus, resulting in competitive advantages in local, regional, and global competitions; and (3) to encourage the growth of innovations in the field of technology [12].

2. Capital

The results of the MPE analysis on the capital aspect of a freshwater aquaculture business are presented in Table 2.

Options	Score	Priority Rank
Banking Sector	4.333	1
Cooperative	4.063	2
Government	4.063	3
Business Partner	3.611	4
Independent Capital	3.421	5

Tabel 2. Priorities for Options of Business Capitals

Based on Table 2, the primary capital source for freshwater aquaculture is the banking sector at a score of 4.333, followed by cooperatives at a score of 4.063, and the government at a score of 4.063. Various efforts need to be made to increase competitiveness, such as increasing promotions, improving product quality,

encouraging the banking sector to facilitate capital access, and increasing infrastructure development. A competitive and sustainable aquaculture system needs the support of (1) cultivator groups, (2) cooperatives, (3) financial institutions, (4) capital institutions, and (5) governing institutions [13] [14].

3. Marketing

The results of the MPE analysis on the marketing aspect of a freshwater aquaculture business are presented in Table 3.

Options	Score	Priority Rank
Marketed via culinary tourism system	5.667	1
Marketed to restaurants	4.533	2
Marketed directly to customers	4.000	3
Marketed to traders	3.778	4
Marketed to the market	3.778	5

Tabel 3. Priorities for Marketing Options

Table 3 shows that the main marketing approach for freshwater aquaculture in South Konawe Regency is culinary tourism at a score of 5.667, followed by direct marketing to restaurants at a score of 4.533, and direct sales to customersat a score of 4.00. The poverty in coastal and rural communities is caused, among others, by natural challenges, including the seasons, homogeneous work patterns that depend only on a single income source, and limited control of capital and infrastructure. In addition, socio-economic characteristics that have not focused on service sectors, such as tourism, also play a role [15].

4. Institutional Forms

The results of the MPE analysis on the institutional forms of a freshwater aquaculture business are presented in Table 4.

Options	Score	Priority Rank
Cooperative	4.692	1
Partnership Business	4.067	2
Joint Venture	3.813	3
Independent Business	3.588	4
Family Business	2.652	5

Tabel 4. Priorities for Options of Institutional Forms

Table 4 shows that the ideal institutional form in empowering freshwater aquaculture communities is a cooperative that focuses on the cultivation sector. The analysis shows that cooperatives rank first at a score of 4.692, followed by partnership businesses at a score of 4.692, and joint ventures at a score of 3.813. The community empowerment programs should be more flexible to achieve substantial value and solve poverty issues [16].

5. Governing Institutions

The results of the MPE analysis on the governing institutions of a freshwater aquaculture business are presented in Table 5.

Options	Score	Priority Rank
Government	5.000	1
University	5.000	2
Private Institution and NGO	3.846	3
Cooperative	3.333	4
Trader	3.125	5

Tabel 5. Priorities for Options of Governing Institutions

Table 5 shows that business management development is mainly expected from the government and universities, which both obtained a score of 5.00, respectively. Three pillars must be brought together in the community empowerment process, i.e., the government, the private sector, and the community, which should have a harmonious relationship [17].

Based on the analysis results as presented in Table 1 to Table 5, a freshwater aquaculture community empowerment in South Konawe Regency can be illustrated in Figure 1.

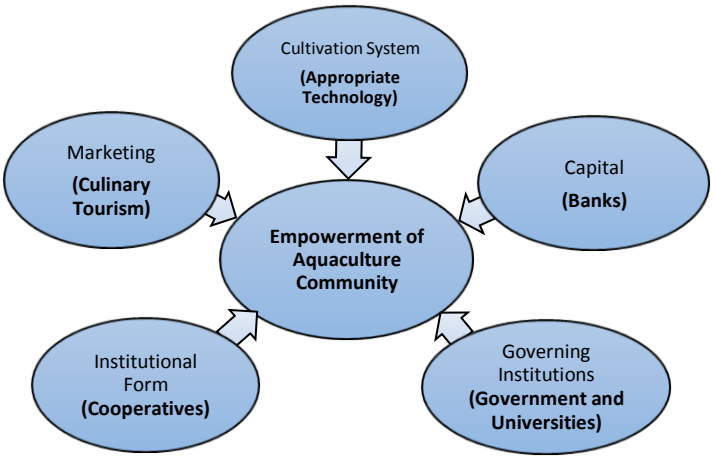

Figure 1. Empowerment Model for Freshwater Aquaculture-Based Communities

Figure 1 shows that empowerment of freshwater aquaculture communities, which aimsto increase income and economic welfare, requires the support of various aspects and parties. The banking sector is needed to fulfill the capital aspect, cooperatives are needed to fulfill the institutional aspect, and government and universities are needed for institutional development. In addition, appropriate technology is required to carry out production, and a culinary tourism approach is needed as the marketing strategy. The result is community economic empowerment and efforts to increase community independence by managing existing potentials. Meanwhile, community empowerment can be inhibited by limited capital, infrastructure, and low community participation [5].

Community empowerment involves the interests of two interrelated groups, i.e., the community as the empowered party and the concerned party as the empowering party [18]. A significant goal of development is the realization of a competent and strong society [19]. The intended strength required to apply principles of empowerment can be viewed from the material and physical aspects, institutional, economic, cooperation, commitment, and shared intellectual strength [20]. Based on astudy, community empowerment in Buru Regency has not achieved a substantial value as demonstrated from the low level of community understanding of the program, overlaps of central and regional programs, and the program's dependence on the budgeting system [20].

IV. CONCLUSION

The economic empowerment model for the freshwater aquaculture communities in the South Konawe Regency requires the banking sector as a capital source and guidance from the government and universities. Regarding business management, an ideal model is a cooperative form with culinary tourism as the marketing approach. In addition, appropriate technology needs to be used in the cultivation system.

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