

Young farmer empowerment model based on freshwater fishery business in Southeast Sulawesi Province, Indonesia

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Abstract. The youth is one of the fundamental pillars of economic growth, which ensures national development sustainability. However, their role in the fishery sector is currently experiencing a decline, thereby requiring systematic efforts and innovative strategies to promote enthusiasm, innovation, and motivation. Therefore, this study aims to analyze and obtain a model for empowering youth in freshwater fish farming. Data was collected through direct surveys of business actors involved in freshwater fish farming at the cultivator and entrepreneur levels and experts from the Department of Marine and Fisheries and academia. The information was analyzed using the Exponential Comparison Method (ECM) to achieve the desired objectives. The results show that (1) youth should take part in marketing, cultivation, and the provision of fish production facilities in freshwater fish farming, (2) the government, families, and universities are the important actors with the most significant actors supporting the youth empowerment process through mentoring programs, dissemination, and comparative study, (3) the best form of institutional support are the cooperatives and farmer groups, (4) sources of funding are banking and the government, and (5) optimization of social media networks, community networks of fishery business actors, and family networks, are necessary for developing marketing network.

Key Words: cultivation, empowerment, fishery, freshwater, youth.

Introduction. Aquaculture is a subsector of the fishery industry that serves as an economic pillar for rural communities. It provides a source of economic activity that produces basic human needs, fulfilling daily consumption needs and creating employment opportunities in rural areas. Aquaculture production in 2020 in Southeast Sulawesi Province reached 381,690 tons with a value of 292,668,851 US\$ (Statistics Center Agency of Sultra 2022). At the macro level, the fisheries sector's contribution to the national economy is shown through the Gross Regional Domestic Product (GRDP). In 2021, the agriculture, forestry, and fishery sector had the highest GRDP, totaling 2,172,369,401 US\$. Furthermore, the fisheries sector's contribution amounted to IDR 1,058,649,948 US\$ (Statistics Center Agency of Sultra 2022).

The fisheries sector development is essentially a fundamental effort towards poverty alleviation, improving the living standards of communities, and promoting national development. Furthermore, this contributes to job creation, especially in rural and coastal areas (Perkins & Zimmerman 1995). Muthalib et al (2015) stated that the factors contributing to poverty in coastal communities include the lack of empowerment, low education levels, consumptive lifestyles, and low entrepreneurial spirit. Poverty is one of the indicators of the community's inability to access or manage economic resources (Musadar 2021).

This sector's development in rural areas aims to reduce the mass migration of productive individuals seeking employment in urban areas. Therefore, empowerment programs are very important in improving the communities' abilities through formal and non-formal activities, including developing fisheries and micro, small, and medium

enterprises (MSME). According to Murdani et al (2018), MSME drives national economic growth, contributing 87% to business development and absorbing 85% of the workforce. However, community empowerment in the fisheries industry can not be easily implemented. The various problems often encountered while implementing these programs include low levels of education, low entrepreneurial spirit, and the age factor of business actors who feel comfortable and satisfied with their knowledge, making it difficult to adopt and accept new information. Additionally, habits related to capital ownership, technology mastery, market access, and management governance by the community are not easy to change or eliminate (Supriatna 2000). As a result, breakthroughs are needed to ensure the sustainability of the fisheries industry while facilitating the absorption and application of new technologies. This is because community empowerment aims to increase participation and development from a powerless or less powerful state to being powerful to achieve a better future (Harry 2001).

Empowerment is the ability to access productive economic resources that provide opportunities for communities, especially vulnerable groups, to increase their income (Murdani et al 2018). This can be accomplished through youth empowerment. Young farmers are considered more innovative, productive, and receptive to adopting science and technology changes. In the European Union countries, the renewal of the generation in the agricultural sector is perceived as very important to ensure long-term sustainability. Additionally, younger farmers show consistent involvement in environmental issues (Hamilton et al 2015).

The specific objective of this study is to create a youth empowerment model in the development of freshwater fisheries in Southeast Sulawesi Province. Meanwhile, the long-term goal is the development of a progressive and sustainable aquaculture sector with a high ability to adapt to scientific and technological advancement as well as various innovations in the freshwater fisheries business. This, in turn, would improve the welfare of rural and coastal communities while contributing significantly to the region's and country's economic development.

Material and Method

Study location and time. This study was conducted in South Konawe Regency, Southeast Sulawesi Province, in June to December 2022, with a specific focus on two areas, namely Konda and North Moramo sub-districts. The selection was based on the geographical location of these two regions, which are adjacent to Kendari City. Therefore, the development of social and economic behavior in Kendari City, the center of government and Southeast Sulawesi Province's economic hub, could generate biased results. Furthermore, these two sub-districts are centers for freshwater fish farming in South Konawe Regency.

Data collection technique. The data in this study was obtained using direct interviews with parties interested and knowledgeable in the development of freshwater fish farming in Southeast Sulawesi Province, especially in the South Konawe Regency. These parties include freshwater fish farming entrepreneurs, farmer groups, traders, producers, experts from the Marine and Fisheries Office, as well as academic experts from universities. The alternative decisions and criteria proposed for each youth empowerment indicator in the development of fish farming are as follows:

1. Business sector

Alternatives: provision of the production facility, fish farming, fish processing, fish marketing, and employee in a fishery company;

Criteria: potential for success, profitability, business sustainability, flexibility of implementation, and minimum risk of failure.

2. Coach actors

Alternatives: government, universities, non-governmental organizations (NGOs), fishery business actors, and family;

Criteria: the readiness of resources, readiness of technology, ownership of capital, ownership of the policy, and ownership of the experience.

3. Human resources development system
Alternatives: training, mentoring, comparative study, coaching, and dissemination;
Criteria: effectiveness, efficiency, ease of implementation, the potential for sustainability, and suitability to the needs of youths.
4. Business institutional system
Alternatives: cooperatives, farmer groups, independent businesses, and family businesses;
Criteria: effectiveness, ease of implementation, usefulness, and suitability to the needs of youths.
5. Funding sources
Alternatives: banking, government, universities, private financial institutions, and family;
Criteria: ease of access, loan interest rates, the flexibility of loan regulations, the flexibility of repayment, and the ability to provide loans.
6. Networking development system
Alternatives: friendship, family, the business community, and social media networks;
Criteria: effectiveness, efficiency, usefulness, ease of implementation, and suitability to youths' interests.

Statistical analysis. The data obtained in this study were analyzed using the Exponential Comparative Method (ECM) analysis. This tool helps decision-making through a well-defined model design that generates alternative values. The advantage of using this tool is its ability to illustrate priority rankings with larger and more tangible values, thereby reducing potential biases. This decision-making method quantifies an individual's opinion using a specific scale, and scores on each alternative are determined by assigning values based on particular criteria (Marimin 2004). The following exponential comparative method (ECM) formula was used:

$$TN_i = \sum_{n=1}^m (RK_{ij})^{TKK_j}$$

where: TN_i = total score of alternative i ;
 RK_{ij} = degree of importance of relative criteria j on decision i ;
 TKK_j = degree of importance of relative criteria j ;
 n = number of decision alternatives;
 m = number of decision criteria.

The steps involved in the ECM method of decision-making are identifying decision alternatives, arranging decision criteria for assessment, determining the relative importance of each criterion using a specific conversion scale based on the decision maker's preference, assessing the relative importance of each decision alternative, and ranking the values obtained from each decision alternative.

Results and Discussion. The youth empowerment model in freshwater fish farming in Southeast Sulawesi Province involves the analysis of decision alternatives using six main indicators: business sectors, coach actors, human resource capacity building systems, institutional business systems, funding sources, and marketing network development systems. The following shows the analysis results for each of these main indicators.

Business sector. According to the analysis results as shown in Table 1, the best priority business for youth in freshwater fish farming is marketing, followed by cultivation and provision of fish production facilities, respectively.

As the first alternative in empowering youth in freshwater fish farming, the marketing sector has the potential to provide better profits, low risk, business

sustainability, and flexible implementation. Therefore, various efforts are needed to shorten the marketing chain and increase the profit that will be received by farmers (Nuryadi et al 2019).

Table 1

Priority of youth-based freshwater fishery business

<i>No.</i>	<i>Alternative</i>	<i>Value</i>	<i>Priority</i>
1	The business of fishery production facility provision	5.335	2
2	Fish farming business	5.322	3
3	Fish processing business	5.319	4
4	Fishery product marketing	5.395	1
5	Become an employee of a fishing company	5.264	5

Coach actors. The analysis of ECM as shown in Table 2, the actors with the greatest potential to empower youth in freshwater fish farming are the government, families, and universities.

Table 2

Coach actors in youth-based freshwater fishery business

<i>No.</i>	<i>Alternative</i>	<i>Value</i>	<i>Priority</i>
1	Government	5.380	1
2	University	5.339	3
3	Non-Governmental Organizations (NGOs)	5.248	5
4	Fisheries business actors	5.306	4
5	Family	5.364	2

The results show that the government has a major role and responsibility in determining the sustainability of fishery development. Anwarudin et al (2020) stated that the agribusiness activities of young farmers could be improved by strengthening external support from the government, family, community, and market. Family support in the form of respectful attitudes, socialization, and inheritance of agricultural business is essential (Joose & Grubbstrom 2017). Also, tangible and virtual community support is very important (Sankaran & Demangeot 2017). Grubbström et al (2014) suggested that parents should play a role in transforming young generations to become successors of agricultural practitioners through socialization and inheritance of agricultural business.

Human resource quality improvement system. The analysis of the human resource quality improvement system as presented in Table 3, reveals that accompaniment, dissemination and comparative study methods are the most prioritized strategies in empowering young people in the development of the freshwater fish farming business.

Table 3

Youth human resource improvement system in the freshwater fishery business

<i>No.</i>	<i>Alternative</i>	<i>Value</i>	<i>Priority</i>
1	Training	5.2275	5
2	Mentoring	5.3060	4
3	Comparative study	5.3091	3
4	Accompaniment	5.3363	1
5	Dissemination	5.3310	2

Improving human resource quality in the fisheries industry is crucial, as the commodities are necessary for consumption. Therefore, fisheries commodities should always be of high quality, able to meet consumer demands, and be competitive. Porter (1990) stated

that in addition to natural resources, the several factors influencing the competitive advantage of these commodities include the availability of human resources, knowledge, capital, infrastructure resources, market demand, quality requirements, the existence of related and internationally competitive industries, as well as relationships and coordination with suppliers, especially in maintaining and preserving the value chain. Soekartawi (2001) stated that human resource quality is one factor that influences the success of the agro-industry.

Accompaniment can be an effective strategy for entrepreneurship and community empowerment development. Community empowerment initiatives considerably reduce poverty and increase income (Rostin et al 2020). According to Anwarudin et al (2020), young farmers have better education and access to information technology than those in the old age category, but they generally lack training and apprenticeship opportunities. Therefore, strengthening the agribusiness of young farmers can be performed through efforts to improve their adaptation, leadership, business management, and cooperation skills.

Institutional system. The information on Table 4 about the institutional system analysis, show that the fisheries industry's most appropriate structures are cooperatives, farmer groups, and family businesses.

Table 4

Institutional system of youth-based freshwater fisheries business

<i>No.</i>	<i>Alternative</i>	<i>Value</i>	<i>Priority</i>
1	Cooperative	5.3458	1
2	Farmers	5.3400	2
3	Independent business	5.2259	4
4	Family business	5.2582	3

The prioritization of cooperatives and farmer groups as the key institutions in empowering youth in the freshwater fishery industry was due to the availability of many tools, resources, and experiences in developing businesses. According to Nuryadi et al (2019), cooperative institutions play a vital role in business development because most young farmers have low motivation and are less interested in agriculture (Wiyono et al 2015). Some reasons for the low motivation include a lack of aspiration and desire to become farmers, low or less profitable agricultural product prices, lack of access, knowledge, and inadequate infrastructure (Ningsih & Syaf 2015; Wiyono et al 2015). Harniati & Anwarudin (2018) stated that successful young farmers in agribusiness are driven by high entrepreneurship capacity. Therefore, youth are expected to be more active in group activities, develop skills, and innovate (Nurlaela et al 2020).

Funding source. Based on the analysis as shown in Table 5, the result showed that government, banks, and families are the priority funding source for youth empowerment in the freshwater fishery business.

Table 5

Capital source for youth-based freshwater fishery business

<i>No.</i>	<i>Alternative</i>	<i>Value</i>	<i>Priority</i>
1	Banking	5.4303	2
2	Government	5.4322	1
3	University	5.2807	4
4	Private financial institution	5.2700	5
5	Family	5.2989	3

Hajar et al (2017) stated that central and regional government support was needed to optimize the fishery business. This is conducted by using local labor, increasing capital

support, implementing restrictions on imported products, as well as improving infrastructure and human resource support. According to Natalia & Nurozy (2012), to increase competitiveness, it is necessary to increase promotion, enhance product quality, encourage banks to facilitate access to capital, and improve infrastructure development.

Networking development system. The analysis of ECM as shown in Table 6, explains that the most prioritized system is developing marketing network systems through social media and the business community.

Table 6

The capital sources for youth-based freshwater fisheries business

No.	Alternative	Value	Priority
1	Friendship network	5.3636	4
2	Family network	5.3682	3
3	Business community network	5.3793	2
4	Social media network	5.3986	1

The selection of networking system development through social media in the marketing system indicates that the younger generation is familiar with technological advancements. This also indicates that consumers have become very close to social media in seeking various information and fulfilling their daily needs. Prawiranegara et al (2016) stated that farmers' interests could be developed through information and communication technology. Developing a marketing network is important because market orientation significantly affects business performance (Zhou et al 2009).

Based on the descriptions above, a young farmer empowerment model will be produced in the freshwater fisheries business, as shown in Figure 1.

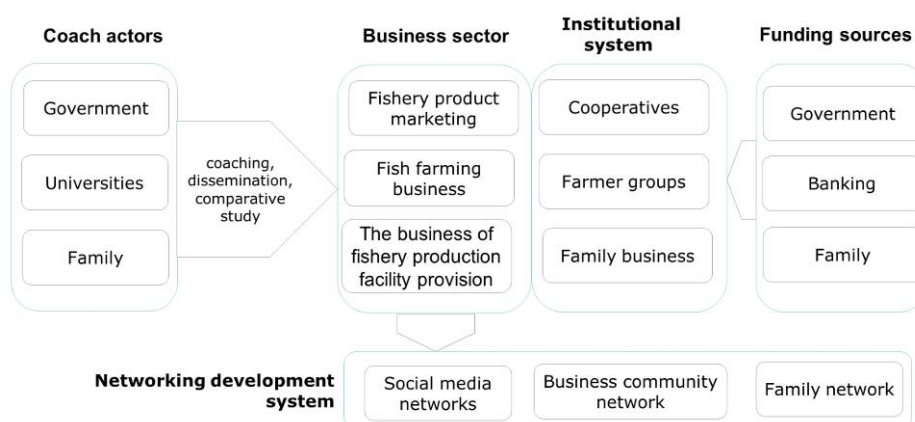


Figure 1. Empowerment model for young farmers in freshwater fisheries business.

Figure 1 indicates the significant roles of the government, universities, and families in empowering youth in the freshwater fishery business. These actors are responsible for improving human resources by facilitating various activities such as comparative studies, access to funding, and marketing, in addition to serving as facilitators and mentors. Lin (2004) and Romer (2012) stated that the driving force of economic growth is the accumulation of knowledge and the continuous flow of technology and innovation in industries. Government support through the Young Agricultural Entrepreneur Development Program has improved the behavior of young generations in performing agribusiness activities. Furthermore, the government is responsible for the workforce, as employment absorption is an indicator that reflects social benefits for society (Krajnc & Glavič 2003; Van den Brink & Van der Woerd 2004).

The fishery business conducted by the youth is also expected to form an institution in the form of cooperatives, farmer groups, or family businesses. Nuryadi et al

(2019) suggested that cooperation with cooperatives, banks, universities, and the government is needed in business development to obtain accompaniment and innovation improvement. According to Nurlaela et al (2020), there is a significant influence of the role of groups on entrepreneurial behavior. To foster this, training, accompaniment, and counseling tailored to young people's evolving needs and progress can facilitate peer-to-peer learning within groups.

Capital support also greatly influences the success of youth-based freshwater fishery business development, and the ideal funding sources are government, banks, and families. To ensure effective marketing, priority should be given to social media networks, business community networks, and family networks. Porter (1998), Waits (2000), and the World Bank (2002) stated that industrial organizations are very useful in addressing the challenges of globalization, technological developments, demands for decentralization, and encouraging the formation of production and distribution activity networks as well as improving the competitive advantage of the industry.

Conclusions. Based on the results and discussion, it can be concluded that (1) in the freshwater fishery business, youth should take part in marketing, cultivation, and providing fish production facilities, (2) the government, family, and universities play the most critical roles in supporting the youth empowerment process, with coaching methods such as accompaniment programs, dissemination, and comparative study, (3) the best institutions are in the form of cooperatives and farmer groups, (4) the main sources of funding are banks and the government, and (5) in developing networks, it is necessary to optimize the role of social media, the business community, and family networks.

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Conflict of interest. The authors declare that there is no conflict of interest.

References

- Anwarudin O., Sumardjo S., Satria A., Fatchiya A., 2020 [The entrepreneurial capacity of young farmers on agribusiness activities in West Java]. *Jurnal Penyuluhan* 16(2): 267-276. [in Indonesian]
- Grubbström A., Stenbacka S., Joosse S., 2014 Balancing family traditions and business: gendered strategies for achieving future resilience among agricultural students. *Journal of Rural Studies* 35:152-161.
- Hajar I., Muthalib A. A., Nuriadi A. M., Hamka E., Sukarta, Nur M., Sabilalo M. A., 2017 Strategy development of fishery business in the coastal area Bone Bay Southeast Sulawesi Province. *The International Journal of Engineering and Science* 6(10):26-34.
- Hamilton W., Bosworth G., Ruto E., 2015 Entrepreneurial younger farmers and the "young farmer problem" in England. *Agriculture and Forestry* 61(4):61-69.
- Harniati H., Anwarudin O., 2018 The interest and action of young agricultural entrepreneur on agribusiness in Cianjur Regency, West Java. *Jurnal Penyuluhan* 14(2):189-198.
- Harry H., 2001 [Community empowerment strategy]. Humaniora Utama Press, Bandung, 240 pp. [in Indonesian]
- Joosse S., Grubbström A., 2017 Continuity in farming - not just family business. *Journal of Rural Studies* 50:198-208.
- Krajnc D., Glavič P., 2003 Indicators of sustainable production. *Clean Technologies Environmental Policy* 5(3):279-288.
- Lin J. Y., 2004 Development strategies for inclusive growth in developing Asia. *Asian Development Review* 21(2):1-27.

- Marimin, 2004 [Techniques and application of making decision with multiple criteria]. Gramedia Widayarsana Indonesia, Jakarta, 197 pp. [in Indonesian]
- Murdani, Widayani S., Hadromi, 2018 [Community economic development through empowerment of micro, small and medium enterprises (study in Kandri Village, Gunungpati District, Semarang City)]. *Jurnal ABDIMAS* 23(2):152-157. [in Indonesian]
- Musadar, 2021 Economic empowerment model for freshwater aquaculture-based communities in South Konawe Regency. *The International Journal of Engineering and Science* 10(11):1-6.
- Muthalib A. A., Nuryadi A. M., Almanan L. A., 2015 Poverty alleviation through community empowerment based farming ponds in coastal areas Southeast Sulawesi. *The International Journal of Engineering and Science* 4(10):32-40.
- Natalia D., Nurozy, 2012 [Competitiveness performance of Indonesian fishery products in the global market]. *Trade Research and Development Scientific Bulletin* 6(1):69-88. [in Indonesian]
- Ningsih F., Sjaf S., 2015 [Factors determining the involvement of rural youth in sustainable agriculture activities]. *Jurnal Penyuluhan* 11(1):23-37. [in Indonesian]
- Nurlaela S., Hariadi S. S., Raya A. B., 2020 The role of young farmer horticulture group on improving entrepreneur behavior in the Special Region of Yogyakarta Indonesia. *Annual International Conference on Social Sciences and Humanities (AICOSH 2020), Advances in Social Science, Education and Humanities Research*, volume 452, pp. 108-112.
- Nuryadi A. M., Sara L., Rianda L., Bafadal A., 2019 A model for developing seaweed agribusiness in South Konawe, Southeast Sulawesi, Indonesia. *AAFL Bioflux* 12(5): 1718-1725.
- Perkins D. D., Zimmerman M. A., 1995 Empowerment theory, research, and application. *American Journal of Community Psychology* 23(5):569-579.
- Porter M. E., 1990 The competitive advantage of nations. *Harvard Business Review*, March-April, pp. 73-91.
- Porter M. E., 1998 Clusters and the new economics of competition. *Harvard Business Review* 76(6):77-90.
- Prawiranegara D., Sumardjo S., Lubis D. P., Harijati S., 2016 [Effect of information quality based on cyber toward vegetable farmers capability to manage innovation in west java]. *Sosiohumaniora* 18(2):166-172. [in Indonesian]
- Romer D., 2012 *Advanced macroeconomics*. Fourth edition. The McGraw-Hill Series in Economics, University of California, Berkeley, 736 pp.
- Rostin, Muthalib A. A., Nuryadi A. M., Baso J. N., Saenong Z., Wawo A. B., Adam P., Utu L., Azisi M. I., Azis D., 2020 The impact of entrepreneurship development and community empowerment on poverty alleviation in coastal areas of Southeast Sulawesi, Indonesia. *International Journal of Innovation, Creativity and Change* 14(3):431-442.
- Sankaran K., Demangeot C., 2017 Conceptualizing virtual communities as enablers of community-based entrepreneurship and resilience. *Journal of Enterprising Communities: People and Places in the Global Economy* 11(1):78-94.
- Soekartawi, 2001 [Introduction to agroindustry]. PT Raja Grafindo Persada, Jakarta, 152 pp. [in Indonesian]
- Supriatna T., 2000 [Development and poverty strategy]. Rineka Cipta, 277 pp. [in Indonesian]
- Van den Brink T. W. M., Van der Woerd F., 2004 Industry specific sustainability benchmarks: an ECSF pilot bridging corporate sustainability with social responsible investments. *Journal of Business Ethics* 55(2):187-203.
- Waits M. J., 2000 The added value of the industry cluster approach to economic analysis, strategy development, and service delivery. *Economic Development Quarterly* 14(1):35-50.
- Wiyono S., Sangaji M., Ahsan, Ulil M., Abdullah S., 2015 [Farmer regeneration, factors influencing interest in becoming a farmer in rice and horticulture farming families]. [Study of the People's Coalition for Food Security], pp. 1-46. [in Indonesian]

- Zhou K. Z., Brown J. R., Dev C. S., 2009 Market orientation, competitive advantage and performance: a demand-based perspective. *Journal of Business Research* 62(11): 1063-1070.
- *** Statistics Center Agency of Sultra, 2022 [Southeast Sulawesi Province in Figures]. [Central Bureau of Statistics of Southeast Sulawesi Province]. 661 pp. [in Indonesian]
- *** World Bank, 2002 Local economic development. LED Quick Reference Urban Development Unit. The World Bank, Washington DC., 21 pp.

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