

## Community Empowerment Regarding Catfish Cultivation Using the Biofloc Method in Temba Lae Village, Dompu Regency

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### Abstract.

*This activity aims to empower the economy of the residents of Temba Lae Village, Dompu Regency by developing catfish cultivation. The method used in this activity is a participatory approach. This activity involved the So Tolo Pari Farmers Group, totaling 25 people, as partners and research subjects. This study includes steps: socialization, training, mentoring, evaluation, and strengthening. Data was collected through secondary data, direct observation, interviews with key informants, and documents. Data were analyzed using data reduction techniques, data presentation, and drawing conclusions. The research results show that community economic empowerment through the development of catfish cultivation has succeeded in increasing the community's knowledge, skills, economic and social aspects. Factors that influence the success of community empowerment are community support and active participation, stakeholder support and cooperation, availability and suitability of resources, and the application of participatory methods. The long-term impact of community empowerment is as follows: the community can develop an independent, sustainable and competitive catfish farming business, the community is able to improve the quality of life, independence and welfare; The community can contribute to regional development, especially in the fisheries sector.*

**Keywords:** Cultivation; Catfish; Biofloc; Business; Economy.

## INTRODUCTION

Community economic empowerment is an effort to improve community welfare and independence through optimal and sustainable use of existing resource potential. Community economic empowerment can be done through various means such as providing support, training, facilitation or support to the community to improve the skills, productivity and competitiveness of the community Dzulhijjah et al. (2020), Nurhanifa et al. (2020), one potential resource is catfish, a type of freshwater fish that is popular in Indonesia. Catfish has high economic value both in terms of income and nutritional value. Apart from that, catfish farming can also bring social benefits such as increasing skills, knowledge and public health.

Catfish cultivation is one of the promising activities in Indonesia, because catfish have high economic value and are in great demand on the market. Catfish cultivation can also bring social benefits to society such as improving skills, knowledge and health. However, to start a catfish farming business there are several things that need to

be considered, such as choosing a location, preparing the pond, selecting seeds, providing feed, maintaining the pond, processing the results, and so on. Cultivating as many catfish as possible is carried out by several people, such as; Sari et al. (2019); Wijayanti et al. (2020); Rahmawati et al. (2021). Temba Lae Village is one of the villages in Dompu Regency. The problems faced include the fact that Temba Lae Village is one of the villages designated as a stunting locus, with 38 toddlers out of a total of 252 toddlers measured to be suffering from stunting. In addition, there are 399 families with a total of 1,419 individuals who are categorized as extreme poor, resulting in limited access to basic needs, such as nutritious food and health services. Counseling and training on the use of the biofloc system in catfish cultivation is one solution for the community to improve the economy and provide balanced nutrition, which has an impact on reducing stunting rates. Catfish is a type of fish that is popular with many people, especially the lower middle class. Apart from being cheap, catfish are also easy to breed. Catfish also have many advantages, such as fast growth, good

environmental adaptation, delicious taste, and high nutritional elements. (Suyanto, 2006). To support the needs of catfish cultivation, people utilize unused land around their homes with simple cultivation techniques such as using tarpaulin ponds and utilizing channels/drainage around their homes.

Biofloc is a technique that uses heterotrophic bacteria to recycle waste cultivation materials as feed, including catfish cultivation waste (Sholihah, 2019). Catfish (*Clarias sp.*) can be categorized as a freshwater fish cultivation commodity that is delicious, relatively cheap, highly nutritious, fast growing, easy to breed, resistant to poor water quality and disease resistant, and flexible in terms of the type of cultivation media. The demand for catfish continues to increase every year due to the content of commercially valuable animal protein sources (Agil Hermawan, T.E.S, et al., 2014). Many people assume that catfish are not difficult to cultivate. Technically, this statement is true because catfish are a type of fish that is easy to breed, tolerant of poor water quality, resistant to disease, densely stocked and grows quickly. However, practically, not everyone who runs a catfish cultivation business can produce the desired profits (Prihartono, et al, 2010). Catfish production tends to decrease every year because the capacity of farmers is still low. On the other hand, high production costs due to increases in factory feed prices significantly affect the income achieved (KKP, 2013). Thus, mastery of cultivation techniques is very necessary if you want to run a catfish consumption business.

Catfish cultivation has several advantages, including: 1) it can be cultivated on limited land and water resources with high stocking densities, 2) it is a cultivation technique that is not difficult for the general public to understand, 3) it is relatively easy to trade, 4) low requirements initial capital required, and 5) does not take a lot of time. Apart from that, another problem being faced by catfish farmers is related to the high production costs incurred both for seeds, feed, rearing places, and others, so this research aims to analyze whether the biofloc system is able to minimize production input and maximize output.

## RESEARCH METHOD

Location of PKM activities in Temba Lae Village, Dompu Regency. The target of the activity is the So Tolo Pari farmer group, numbering 25 people. The stages of PKM activities carried out are as follows: Preparation Stage. This step includes: a) coordination with stakeholders, such as local government, community leaders and target groups; b) determine location, time and resources for activities; c) prepare operational tools, such as socialization guides, training, mentoring, assessment and strengthening. The training method is carried out by means of presentations and discussions. Before the counseling is carried out, a pre-test questionnaire is first given to determine the participant's level of knowledge about cultivating catfish using biofloc. Then provided counseling and training material about the benefits and nutritional content of catfish, the advantages of cultivating catfish using biofloc and training on making biofloc for cultivating catfish. After being given the material, a discussion and posttest session was continued to determine the level of understanding of the material that had been given.

## RESULTS AND DISCUSSION

The So Tolo Pari farmer group attended the activity with as many as 25 people. The pretest results showed that the participants' basic knowledge of the extension material was quite good, but there was still a lack of understanding about fish cultivation using biofloc. The aspects measured in PKM activities are:

**Aspects of knowledge and skills.** Residents of Temba Lae Village experienced an increase in knowledge and skills in cultivating catfish after the socialization. This can be seen from the results of the pre and posttests carried out before and after the training. The average pretest score is 40, while the average post-test score is 80.



Figure 1. Pre-Test and Post Test Results

**Economic aspect.** The Temba Lae Village community will experience an economic increase from the results of catfish cultivation. This can be seen from the estimated results of the analysis carried out from the sale of catfish by the community. For example, the average catfish production per cultivation cycle is 90 kg, with a selling price of Rp. 35,000 per kg. Thus, the average community income per cultivation cycle is IDR. 3,150,000. If production costs are deducted, such as feed, electricity and maintenance costs, the average community profit per cultivation cycle is IDR. 1,500,000. Apart from that, the community can also develop a business processing catfish, such as nuggets, meatballs and dumplings, which have added value and a wide market.

**Social aspect.** The Temba Lae Village community experienced social improvement from the results of catfish cultivation. This is manifested in the cooperation, solidarity and independence built by farmer groups; they also hold regular meetings to discuss problems and solutions related to catfish cultivation. The So Tolo Pari farmer group can manage group finances transparently and responsibly, apart from that they can access information and technology related to catfish cultivation, both through online and offline media.



Figure 2. Socialization of Activities



Figure 3. Practice cultivating catfish using the biofloc method



Figure 4. The process of inserting catfish seeds into biofloc

The results of community service activities carried out by the Nggusuwaru University team show that community empowerment through the development of catfish cultivation using biofloc can provide significant benefits for the community, both in terms of knowledge, skills, economic and social aspects. This is in line with several previous studies which also show that community empowerment through catfish cultivation can improve the quality of life, independence and welfare of the community. For example, Wardiyanto et al. (2017) reported that community empowerment through the development of catfish cultivation using biofloc technology in Pinang Jaya Village, Bandar Lampung, Lampung, succeeded in increasing the knowledge and skills of the community in cultivating catfish using biofloc technology. Angga (2018) reported that community empowerment through catfish cultivation in Ngandengan Hamlet, Tegalarjo Village, Selopuro Blitar District, succeeded in improving the community's economy through increasing income, employment and social protection. Imtihan et al. (2020) reported that community empowerment through developing catfish cultivation businesses with the implementation of the Balanced Scorecard after the Covid-19 pandemic in Cipinang Besar Selatan District, East Jakarta increased. Successfully increasing the operational efficiency of catfish cultivation businesses through improving financial conditions. customers, process aspects, business, learning and development.

## CONCLUSION

Based on the results of the community service activities carried out, it can be concluded that: 1) The community service activities carried out by the Nggusuwaru University research team have succeeded in empowering the community. community through the development of catfish cultivation. 2) Community empowerment through the development of catfish cultivation has a positive impact on increasing knowledge, skills and the economy and social status of the community. 3) Factors that

influence the success of community empowerment through the development of catfish cultivation are: a) active support and community participation. b) support and cooperation from stakeholders, such as local government, community leaders and research partners c) availability and adequacy of resources such as water, land, food and equipment d) implementing participatory methods, especially by involving communities as partners and subjects of activities. 4) The long-term impact of community empowerment through the development of catfish cultivation is as follows: a) the community can develop catfish cultivation businesses independently, sustainably and competitively; b) the community has the ability to improve the quality of life, independence and prosperity c) the community is able to contribute to regional development, especially in the fisheries sector.

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## BIBLIOGRAPHY

- Agil Hermawan, T.E.S, dkk. 2014. Pengaruh Padat Tebar Berbeda Terhadap Pertumbuhan dan Kelulushidupan Benih Lele (*Clarias gariepinus*) dalam media bioflok, Fakultas Perikanan dan Ilmu Kelautan, Universitas Diponegoro.
- Fauziah, A. F., Agustina, T., & Hariyati, Y. (2016). Analisis Pendapatan dan Pemasaran Ikan Lele Dumbo di Desa Mojomulyo Kecamatan Puger. *JSEP (Journal of Social and Agricultural Economics)*, 9(1), 20–32.
- KKP. 2010. Kementerian Kelautan dan Perikanan dalam Angka. Kementerian Kelautan dan Perikanan. <http://www.perikanan->

- budidaya.dkp.go.id. Jakarta (16 Maret 2012).
- Muklisin, A., Rochdiani, D., & Setia, B. (2021). Analisis Efisiensi Pemasaran Benih Ikan Lele Di Desa Situmandala Kecamatan Rancah Kabupaten Ciamis. *Jurnal Ilmiah Mahasiswa Agroinfo Galuh*, 8(2), 462. <https://doi.org/10.25157/jimag.v8i2.5285>
- Sri, N., Kamlasi, Y., & Panuntun, F. (2022). Kajian ekonomis perbandingan pembesaran ikan lele sangkuriang (*clarias gariepinus*) menggunakan metode sistem bioflok dan sistem konvensional. *Partner*, 27(1), 1805-1812.
- Rizal, Ahmad., dkk. (2018). Analisis Komparasi Keragaan Usaha Budidaya Ikan Lele Mutiara (*Clarias gariepinus*) Dengan dan Tanpa Sistem Bioflok. Universitas Padjadjaran.
- Septiani, N., Wijayanti, Maharani, Henni., dan Supono. (2014). Pemanfaatan Bioflok Dari Limbah Budidaya Lele Dumbo (*Clarias gariepinus*) Sebagai Pakan Nila (*Oreochromis niloticus*). *eJurnal Rekayasa dan Teknologi Budidaya Perairan*. 2(2).
- Sholihah, M. A., dkk. (2019). Analisis Kinerja Produksi dan Kelayakan Usaha Pembesaran Ikan Lele (*Clarias sp.*) Dengan Sistem Akuaponik Dan Sistem Pergantian Air.
- Soekartawi. (2016). Analisis Usaha budidaya. UI Press, Jakarta.
- Sudaryati, D., Heriningsih, S., & Ruserlistyani, R. (2017). Peningkatan produktivitas kelompok tani ikan lele dengan teknik bioflok. *JPPM: Jurnal Pengabdian dan Pemberdayaan Masyarakat*, 1(2), 109. <https://doi.org/10.30595/jppm.v1i2.1695>.
- Suminto, dkk. (2019). Penguatan Komoditi Unggulan Masyarakat Desa Nyatnyono, Kecamatan Ungaran Barat, Kabupaten Semarang Melalui Teknologi Pembesaran Lele Mutiara Dengan Sistem Bioflok. Universitas Diponegoro.
- Suparno dan Muhammad Qosim, (2016), Pengaruh Pengembangbiakan Bioflok Pada Peningkatan Produksi Dan Kualitas Ikan Lele, *Jurnal Inovasi dan Teknologi*, Vol. 5. No. 1.
- Supriyatin. (2019). Perbandingan Kadar Lemak Pada Ikan Lelementah Jenis Sangkuriang (*Clarias gariepinus*) Dengan Jenis Ikan Lele Phyton (*Clarias sp*) Yang Di Budidaya Di Desa Cempaka Kabupaten Cirebon. *J. An Nasher*, 1(1), 1–8.