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Regional Case Study

Urban-Rural Innovation of the ABCD-based Mangunharjo Mandiri Sejahtera (MAMISERA) Program by Pertamina AFT Ahmad Yani

lklima Nur Respati[1*], Agus Riyadi[1], Suprihatiningsih[1], Muhammad Rinaldy Putra[2], Hadna Trie Winastu[2]

[1] Islamic Community Development Study Program, Faculty of Da'wah and Communication, Universitas Islam Negeri Walisongo, Semarang, Indonesia
[2] Pertamina Patra Niaga Aviation Fuel Terminal Ahmad Yani
* Corresponding Author, email: iklimanurrespati@gmail.com

Abstract

The MAMISERA program by PT Pertamina Patra Niaga AFT Ahmad Yani in Mangunharjo Village addresses environmental and economic issues using the Asset-Based Community Development (ABCD) approach. Since 2020, it has focused on fish farming, production units, savings and loans, and waste processing. The program enhances local assets, including natural and human resources. Economically, the Trengginas Jaya Abadi cooperative, managed by 14 members, boosts income through milkfish product management. Environmentally, it converts milkfish waste into organic fertilizer and fish feed, reducing waste by 150 kg/year. Mangrove planting improves the marine ecosystem, cutting CO_2 emissions by 0.0057 tons/year, while LPG-fueled feed machines reduce emissions by 0.00468 tons/year. This program integrates urban-rural synergy for sustainable development.

Keywords: Urban-rural; corporate social responsibility; mamisera

1. Introduction

The increasing urbanization in Indonesia has created complex challenges in development, including the gap between urban and rural areas (Batubara et al., 2023). According to data from the Central Statistics Agency (BPS), in 2023, the urbanization rate in Indonesia reached 57.6% and is projected to continue to increase to 66.6% in 2045. This phenomenon has resulted in significant socio-economic disparities, with rural areas often lagging behind in access to infrastructure, education, and basic services (Wilonoyudho et al., 2017). An innovative approach is needed that integrates urban-rural development holistically by prioritizing strengthening human resource capacity, developing local economies based on regional potential, and providing equitable infrastructure (Chen et al., 2022). Collaboration between the government, private sector, and communities is key to creating synergistic connectivity between urban and rural areas in order to achieve inclusive and sustainable development (Zhu et al., 2024).

PT Pertamina, as the largest oil and gas company in Indonesia and a State-Owned Enterprise (BUMN), shows its commitment not only to the business sector but also to environmental preservation and the welfare of the surrounding community. AFT Ahmad Yani pays special attention to the Mangunharjo area as one example of the CSR program's implementation. This support is realized through good environmental management, strengthening community capacity, and providing adequate facilities to support the welfare of the local population. These steps align with PT Pertamina's vision of creating a positive impact on the community while maintaining environmental sustainability. With synergy between business operations and social responsibility, Pertamina strives to be a role model in realizing

sustainable development that connects the urban and rural sectors by the grand vision of inclusive and equitable Indonesian development.

Semarang City is one of the big cities in Indonesia that borders directly on the Java Sea, so it has a fairly large coastal area but is very vulnerable to various hazards, such as flooding, erosion, or a mixture of human factors, including urbanization and climate change so that Semarang City is at risk of experiencing changes in the coastline. Based on the analysis of changes in the coastal area of Semarang City, the coastal area in 2021 increased to 387.94 ha but decreased by 417.32 ha in 2023 (Manik & Wijayanto, 2023). One of the affected coastal areas in Semarang City is Mangunharjo Village, precisely in Tugu District, which faces major challenges related to environmental problems and the impact of urbanization. This area is the location of the Beringin River estuary, one of 18 rivers that flow in the western part of Semarang City, with a length of about 15.5 km (Rachma, Ika Nur, and Widowati, 2020). This river begins in Mijen District and flows into Mangunharjo. Its location in the coastal area makes Mangunharjo very vulnerable to flooding and tidal waves (Hansson & Mokeeva, 2015). This problem is exacerbated by an inadequate drainage system to cope with the high volume of water flowing into this area. As a result, flooding and tidal waves not only cause environmental damage but also significantly impact the community's social and economic order.

The floods and tidal floods that have continuously hit the Mangunharjo area have resulted in pollution and damage to agricultural land. One of the impacts is that the rice field area that was previously the main source of livelihood for farmers is now mostly submerged by seawater (Septiana, 2013). Based on information from Mr. Adit, one of the village staff, Mangunharjo, used to have a large rice field area, reaching 22 hectares. However, due to repeated flash floods and tidal floods, the area of the rice fields is now only around 10 hectares. The submerged rice fields are slowly being converted into ponds by farmers who are forced to leave their profession as rice farmers. This change reflects the community's efforts to adapt to changing environmental conditions, although it is not always accompanied by adequate support for skills and knowledge. This condition has caused significant changes in the economic structure of the community. Rice farmers who previously depended on rice field yields are now switching to pond cultivation such as shrimp and milkfish. Although the aquaculture business is an alternative livelihood, this shift creates a new dependence on urban markets and technology; limited access to training and business capital makes many farmers face difficulties in carrying out this new profession optimally.

Rapid urbanization in Semarang City has led to increased development activities in upstream areas by exploiting water and land, such as in Mijen District, which is the starting point of the Beringin River. This development often reduces the absorption capacity of the soil so that water flow reaches downstream areas more quickly, including Mangunharjo. As a result, this area faces increasing pressure from the volume of water flowing into the river mouth. In addition, urbanization also has an impact on changes in land use. Land previously functioning as water catchment areas is now widely converted into housing, industrial, and other infrastructure areas.

In addition to environmental issues, urbanization also poses social and economic challenges. Many rural residents migrate to urban areas to find work. However, limited skills and knowledge make it difficult for them to compete in the urban economic sector. Meanwhile, people who remain in Mangunharjo must face the reality that existing resources are decreasing in terms of productive land and infrastructure support. The impact of urbanization has created a growing gap between urban and rural areas, with Mangunharjo in the most vulnerable position.

Changes in the economic structure of coastal communities reflect the dynamics of the relationship between urban and rural areas. Areas that should be buffer zones between urban and rural areas prove how environmental and economic pressures in urban areas can have a direct impact on the lifestyles of rural communities. This condition demands a holistic and sustainable solution. The government needs to take strategic steps to address the impacts of urbanization in upstream areas, such as improving the quality of drainage systems, strengthening coastal protection, and providing training and capital support to the Mangunharjo community. With the right approach, it is hoped that this area

can recover from environmental and economic pressures while utilizing its potential as a productive fishpond area.

In response to these problems, PT Pertamina Patra Niaga Regional Central Java AFT Ahmad Yani launched a *Corporate Social Responsibility* (CSR) program called MAMISERA (Mangunharjo Mandiri Sejahtera) in 2022. This program is designed to address environmental and urbanization problems by utilizing local potential in Mangunharjo Village, especially by providing assistance to pond farmers affected by floods and tidal flooding.

One of the main challenges pond farmers faces is the high price of fish feed, which is IDR 17,000 per kilogram; farmers' limited ability, knowledge, and economic conditions exacerbate this condition. Through the MAMISERA program, PT Pertamina Patra Niaga AFT Ahmad Yani increases community capacity through training, implementation of environmentally friendly innovations, and mitigation to increase community resilience to environmental impacts that must be faced. Based on the above problems, this study examines the community development efforts by CSR Pertamina Aviation Fuel Terminal Ahmad Yani through the MAMISERA program with the ABCD approach which focuses on exploring economic, environmental, and social aspects as well as the social capital of the community to increase resilience in facing geographical challenges.

2. Method

This study uses a qualitative approach with a sociological perspective to provide an in-depth explanation of social phenomena and interaction patterns in society. This approach serves to identify various social problems society faces and find the right solution (Ghazali, 2016). In the context of the research mentioned, this approach is used to explore and understand the implementation of the MAMISERA (Mangunharjo Mandiri Sejahtera) program by PT Pertamina Patra Niaga Aviation Fuel Terminal Ahmad Yani in-depth and comprehensively.

The data collection technique in this study was obtained through (1) observations carried out by analyzing community development methods with the ABCD approach (*asset-based community). Development*) in the Milkfish processing business group, (2) interviews using interview guide instruments to obtain direct information from respondents, consisting of members of the MAMISERA program management group and *Community Development officers* from CSR PT Pertamina Patra Niaga Fuel Terminal Ahmad Yani, (3) documentation of community development through the MAMISERA program through the asset-based community development (ABCD) approach which was chosen because it can emphasize strengthening local assets as a basis for community empowerment. This approach does not only focus on community problems or weaknesses but more on the potential possessed by the community. This approach is very relevant in dealing with the impacts of urbanization and environmental damage in Mangunharjo because it is able to create sustainable solutions by empowering the community through the assets they already have. The data analysis technique in this study was carried out systematically through three main stages: data reduction, data presentation, and drawing conclusions. The data reduction stage aims to filter, simplify, and focus the data obtained from the results of observations, interviews, and documentation so that only information that is relevant to the research objectives is retained. The reduced data is then arranged and presented in descriptive narratives, tables, or other visualizations, making it easier for researchers to understand the patterns and relationships between the variables analyzed. The final stage is drawing conclusions, which is done by interpreting data based on the findings that have been analyzed, as well as verifying through data triangulation to ensure the consistency and accuracy of the conclusions produced so that they can describe the impact of the program comprehensively and in-depth.

3. Results and Discussion

Mangunharjo, in its early development, had significant fisheries potential; in 1990, before inflation, Mangunharjo sub-district succeeded in achieving its heyday through marine processed

products, especially the sale of tiger prawns. This is reflected in the majority of the community's profession as fishermen. However, over time, the mangrove plants that grew well were cut down in order to maximize the pond land even though the existence of mangroves in good condition made a great contribution to the marine habitat both in quality and quantity (Natalia Siahaan et al., 2020). This logging actually caused abrasion so that the economic condition of Mangunharjo sub-district declined drastically. This condition caused the community to start abandoning their pond land; the community's inability to manage the pond land led to abandonment and even the sale of land to private companies, one of which was PT Indonesia Permata Usahatama (IPU). This decision caused the community to switch professions to the agricultural sector.

The agricultural potential in the Mangunharjo area has also not been optimally developed. Agricultural land, which is the community's main hope, has experienced decreased productivity due to abrasion, tidal flooding, and saltwater that inundates the Mangunharjo sub-district. From a geographical perspective, the Mangunharjo sub-district is a coastal area that has the potential for ponds and marine catches. The most striking livelihood is in the fisheries sector, where the community receives many benefits from the marine area. This condition is the main foundation for PT Pertamina Patra Niaga AFT Ahmad Yani in implementing the CSR program because this area is still within the scope of ring two. Therefore, the program being run is named MAMISERA (Mangunharjo Mandiri Sejahtera). The potential available, both directly and indirectly, is closely related to the social structure of the local community. This potential is an opportunity to become a source of local welfare (Theofillius Baratova Axellino Kristanto and Aishya Putri, 2021).

The implementation of the MAMISERA program through the *Asset Based Community Development* (ABCD) approach, which is a series of activities to identify community assets, after identifying all local assets, then which assets have the potential to be developed to improve community welfare (Suprihatiningsih, 2023). Asset-based development is owned by the community and assessed as the basic foundation of a developing environment (Ivis Garcia, 1993). Assets consist of human assets, physical assets, natural assets, social assets, and financial assets (Susilawaty et al., 2017). According to (Chinyowa et al., 2017), the ABCD approach is the most effective strategy for community-based sustainable development because communities can explore and identify needs for themselves with their strengths, capacities, and abilities.

The substance of the community development program as an effort that can be made by the government to develop, make independent, and increase the independence of the community, with the aim that they are able to create changes that focus on improving the quality and utilization of local potential (Habib, 2021). Community development programs can be understood as being designed to improve the quality of life through collaboration that maximizes the potential of the region and community initiatives by identifying needs that are often applied in a program (Zubaedi, 2013). The community is the main actor in their own development process, using their own individual strengths and capacities collectively based on tangible and intangible assets (Ian Cunningham, Juliet Willetts, Keren Winterford, 2021).

Community development through the ABCD asset-based approach in Mangunharjo Village, Tugu District, Semarang City, is a process that is interrelated and integrated. Each stage in community development is outlined in five main steps, namely *discovery*, dream, design, define, and destiny (Dureau, 2013). This framework is the main guideline in implementing the MAMISERA program which focuses on local potential and sustainability. The implementation of the stages using the ABCD theory is carried out through five steps with the following description:

Figure 1. Program implementation steps

3.1 Discovery

Based on Mustoip's research, the main factors inhibiting the progress of a village is due to low awareness of resource utilization and a lack of local asset-based development (Mustoip et al., 2022). The Discovery stage is the initial stage in the ABCD approach; this stage is a strategic effort to overcome village decline. This stage is carried out by exploring the existing potential in depth through *social mapping,* which was carried out in 2022 and supported by data through appreciative interviews. From the urban-rural perspective, this approach emphasizes the importance of integration between villages and cities, where villages act as resource producers and cities as distribution, innovation, and market development. Optimal asset management is not only able to improve the standard of living of rural communities, but also makes a significant contribution to the stability and sustainability of urban systems through consistent resource provision.

By integrating village potential into the urban value chain, this approach encourages inclusive and sustainable development. Village communities can develop into advanced, independent, and prosperous entities, while urban communities benefit and receive support from the village through the supply of raw materials and market services. This relationship creates a foundation for mutually supportive development, creating sustainability for both regions. The assets that are the focus of management in this approach include human assets, physical assets, natural assets, social assets, and financial assets, which will be discussed in depth as follows:

3.1.1. Human Resource Assets

The potential of human resources is reflected in skills, knowledge, ability to work, and health and community strategies to change or switch to different sources of livelihood (Riyanti & Raharjo, 2021). The results of the social mapping carried out showed that the Mangunharjo community considered higher education to be important; 46% of the community stated that it was very important, 45% stated that it was important, and only 9% of the community still considered it unimportant. This reflects the community's positive view of the value of education. In addition, the community highlighted the importance of taking training on the grounds that it can increase knowledge, competitiveness in the job market and income. Most of the community with a percentage of 68% have taken training to develop batik-making training, and 32 have never taken training. Another potential lies in the percentage of housewives 27.27% reflecting the opportunity to manage environmentally friendly processed fish farming businesses so as to increase economic welfare, self-skills, and environmental sustainability. Increasing

the potential of human resources in villages can also strengthen the carrying capacity of cities, reducing the pressure of excessive urbanization.

3.1.2. Physical Assets

Physical assets in the form of physical or infrastructure in Mangunharjo Village are included in the good category, based on the results of the social mapping report data processing, 82% stated that it was good, 14% very good, and 4% not good. There is decent road access, equipped with many public facilities such as Solid Waste Facilities, prayer room, toilet, Guard Post and educational facilities in the form of PAUD, TK, and SD. The availability of good road access can build a network between rural and urban areas that allows for the smooth distribution of pond products and processed products to city markets with a larger consumer scale.

3.1.3. Natural Resource Assets

Mangunharjo Village has a variety of natural resource potentials including biotic components such as animals and plants, as well as abiotic components such as rivers and seas. In addition, it has agricultural land covering 53%, but 43% of the land cannot be used because it is submerged in seawater or an area of 75 Ha, which is used as a pond with the majority of milkfish. Ponds that still have the right to use for medium-term use. Its geographical conditions are close to the sea area, with a wealth of crabs and green mussels. In addition, there are two high-volume rivers that are used as irrigation channels to support pond activities.

3.1.4. Social Assets

Mangunharjo Village has various social forums that actively run various programs, such as tourism awareness groups (Pokdarwis), Village Communication Forum (FKK), and Joint Business Group (KUB) of fishermen. Strong family relationships between residents are able to minimize the escalation of conflict. In addition, the people of Mangunharjo Village are based on mutual cooperation and actively participate in existing forums. This shows good involvement and cooperation among residents and contributes to the creation of high cooperation and solidarity between residents. The existence of social forums such as Pokdarwis and KUB has a role as a bridge between villages and cities, promoting tourism and community-based processed products. Social forums also function as a place to share useful information, such as product exhibitions, comparative studies, skills training, or other positive information. This is a golden opportunity for the community to gain new insights, improve their abilities, and expand their networks so that they can increase their competitiveness in the market. High solidarity and cooperation also strengthen the resilience of the community, allowing them to adapt to change and take advantage of existing opportunities.

3.1.5. Financial/Economic Assets

The life of the Mangunharjo sub-district community in the context of equitable economic conditions is relatively good, as the data obtained from the results of *Social Mapping* carried out in 2022 states that 64% of respondents stated this. Only a few children in Mangunharjo Sub-district, after completing high school or equivalent, immediately want to work to help improve the family economy. Children and parents have planned their education to a higher level well. However, it is undeniable that there are still some children who immediately continue to work after graduating from high school, while the job they are interested in is becoming a factory worker. This phenomenon underscores the importance of creating wider access to higher education opportunities, skills training, and value-added jobs. Thus, after graduating, children can be directed to fill job opportunities in the fisheries or entrepreneurship sectors so that they can provide a greater contribution to village development.

The discovery of potential is not only positive but can also come from negative ones, such as waste; ABCD views it positively so that it can still be utilized; through a feasibility study traced by *social*

mapping, there are areas that are right for targeting community development activities, the CSR team carries out social activities both formally and informally.

3.2. Dream

At the stage of exploring the information obtained in the previous stage, the community is invited to explore their hopes and dreams to think about big things (Setyawan et al., 2022). The Pertamina Aviation Fuel Terminal Ahmad Yani CSR Team conducted *a focus group discussion* (FGD) with the Mangunharjo Village community to identify their desires. The results of the FGD conducted regarding their desires were to have a better spatial plan to respond to urbanization such as increasing green areas so that they can cope with sea waves so that their ponds are safe and do not suffer losses. In addition, the formation of a savings and loan cooperative unit where, which helps them access business capital and financial services provides great opportunities for business actors in Mangunharjo Village. Milkfish cultivation and business groups are also directed at a circular economy by minimizing waste by utilizing it as a new resource. The circular economy-based approach is inclusive, integrating sustainable economic, environmental, and social aspects.

3.3. Design

Designing a program by creating a strategy to achieve goals by making positive community experiences a source of expected changes in the social order. This stage is carried out after *social mapping;* the following is the MAMISERA program design;

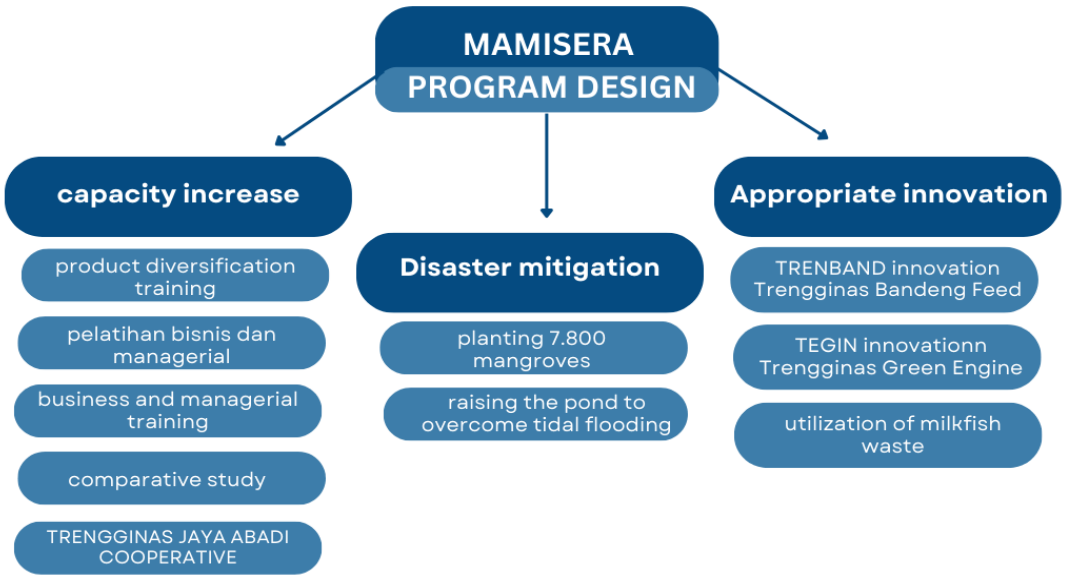

Figure 2. MAMISERA program design

3.4. Define

The define stage is the main key in determining the success of the program to be implemented because, at this stage, the problems and opportunities are clearly formulated based on a comprehensive understanding of the needs, strengths, and assets owned by the community and the region (Setyawan et al., 2022). During the FGD, the CSR team and the community determined the focus of the discussion related to the implementation of the program for the development of processed milkfish products in Mangunharjo Village. The implementation of the FGD has been agreed upon by both parties, both the CSR team and the community, as a step towards program implementation. The community develops activity concepts according to the potential assets they have, both natural and human resources. The concept of activities to realize their dreams is:

3.4.1. Community Capacity Building

The initial stage of this concept is to provide competency-based training designed to improve the technical skills of the community in milkfish cultivation and processing. The training includes efficient production techniques, modern packaging, and marketing strategies. The focus is on providing practical knowledge that can be directly applied to improve product quality and quantity. Entrepreneurial capacity building is also an important part, where the community is taught about business management, finance, and marketing.

3.4.2. Use of Appropriate Innovation

Environmental challenges are no longer seen as obstacles, the community is invited to utilize simple but effective technology in supporting the production process and waste processing. This application is like the innovation of processing fish feed from expired bread, processing milkfish waste into liquid organic fertilizer and milkfish flour, and the creation of LPG-based feed-making machines that have lower emission levels than conventional fuels, thus supporting better processing.

3.4.3. Disaster Mitigation and Environmental Resilience

PT. Pertamina AFT Ahmad Yani invites the community to face environmental challenges with disaster mitigation by planting 7,800 mangrove seedlings as natural protection from sea waves and repairing damaged ponds.

3.5. Destiny (Implementing)

Destine is the most important part of the ABCD approach; in general, there are four stages in the process of implementing or executing the program being carried out; the success of welfare will be achieved if all components of society are involved (Shandy Utama, 2018), the CSR team of Pertamina Aviation Fuel Terminal Ahmad Yani, including:

3.5.1. Problem identification and program socialization stage

The initial stage in implementing the program from the activities was carried out by exploring the problems faced by the Mangunharjo sub-district. Information was obtained during *social mapping*, FGD with the Mangunharjo sub-district community. From the results of the interviews contained *in the social mapping,* several problems faced by the sub-district were revealed, including geographical, economic, environmental, educational, social, security and many other problems. The CSR Team chose two problems from various sub-district problems based on the level of urgency and potential that could be developed. The problems raised by the CSR Team to solve geographical and economic problems, such as poor management of the drainage system and tidal flooding causing agricultural land to sink and requiring farmers to switch professions to become fish farmers, but their knowledge and skills are limited, most of the population does not have skills and high levels of education, limited production of pond land due to capital constraints. The CSR Team then formulated the program and conducted socialization of the program to be carried out.

Figure 3. Problem identification and program socialization stages

3.5.2. Knowledge Development Stage

At this stage, the CSR team of PT Pertamina Patra Niaga Fuel Terminal Ahmad Yani provided significant support in holding activities to develop the knowledge of pond farmers and entrepreneurs such as reforestation, adaptation and disaster mitigation by planting 12,000 mangrove seedlings, training in fish feeding management, repairing damaged ponds to facilitate rehabilitation for pond structure management and water management, providing guidance on branding and marketing strategies, training in hygiene and safety of processed products as standard guidelines. Production and improving product quality, business management training and marketing of fish products, visits to the milkfish amplang processing industry in Banyumanik as inspiration for product diversification, and increasing institutional capacity with cooperative socialization by the Semarang City Cooperative and UMKM Service to increase the economic independence of the community.

A

B

Figure 4. (a) Planting 7,800 mangrove seedlings (b) Socialization of cooperatives by the cooperative and UMKM service)

3.5.3. Skill Strengthening Stage

At this stage, the CSR team of PT Pertamina Patra Niaga Fuel Terminal Ahmad Yani provided training to increase the capacity of farmers and fish farm entrepreneurs. Some of the appropriate innovations that were successfully carried out.

3.5.3.1 Product Diversification

This is an extraordinary innovation in processed milkfish products, such as crispy milkfish amplang and presto milkfish, which was then developed into milkfish meatballs, milkfish otak-otak, and milkfish abon, which has succeeded in increasing the variety of flavors and has high selling value.

3.5.3.2 TRENBAND (Trengginas Milkfish Feed)

The problem of high fish pellet prices is a major challenge faced by pond farmers in the Mangunharjo area. A unique innovation that has been implemented as an alternative to overcome this obstacle is the manufacture of fish pellets from expired bread, fish oil, flour, and bran. Fish pellets called TRENBAND have succeeded in providing higher quality than ordinary pellets. The high protein content that has been tested by the laboratory of the Faculty of Fisheries and Marine Sciences, Diponegoro University, reached 31.70182%; here are the details of the product content:

Table 1. Protein content in fish pellet

No	Sample (%)	Protein (%)	Fat (%)	Water (%)	Ash (%)	Kh (%)
1	Feed	31,70182	3,7031	12,7247	14.64317	37,22721

Source: (Laboratory Test Results, 2025)

TRENBAND products have also received official recognition with the issuance of a permit from the Semarang City Fisheries Service, numbered B/905/523/IX/2024. This innovation is able to save the

operational cost of milkfish feed by IDR 3,000/kg; the price of feed, which was initially IDR 13,500/kg, is now only IDR 10,000/kg. This product is not only economically valuable but also beneficial for the growth of quality fish. TRENBAND's innovation that utilizes waste for fish feed contributes to environmental sustainability. Processing milkfish waste into flour, which is one of the compositions of pellets, can reduce environmental pollution by up to 150 kg of milkfish waste per year. The efficiency of the milkfish harvest period, which was initially able to harvest 6 months since using TRENBAND, has increased to only 4 months, thus increasing the milkfish harvest by 2,500 kg/year. This innovation has succeeded in proving not only to increase production efficiency but also to support environmentally friendly fisheries practices.

3.5.3.3 TEGIN (Trengginas Green Engine)

The need for high-quality fish feed continues to increase, especially in the fisheries industry, which can affect the environmental impact; innovation of environmentally friendly fish feed manufacturing machines is an alternative to using LPG fuel, which is considered clean fuel because it produces lower emissions than diesel, the use of LPG can reduce Nox and PM emissions compared to diesel fuel. The design of the LPG combustion system can increase energy efficiency and reduce emissions. The following are the details of the calculation of fish pellet production emissions:

Table 2. Calculation of fish pellet production emissions

No	Machine Type Pallet Production	Consumption Material Burn	Emission			
			Co2	NOx	PM	HC
1	Gasoline fuel pellet machine	2.69 liters/hour	7.20 kg	6.73 grams	0.673 grams	6.73 grams
2	LPG fuel pellet machine	1.68 liters/hour	2.52 kg	1.35 grams	0.1346 grams	1.35 grams

Source: (Laboratory Test Results, 2025)

Based on the results of the lab test show that TEGIN has succeeded in saving energy by 1.01 liters/hour, so this innovation has succeeded in reducing operational costs by Rp. 10,100/hour; in addition, it is also able to save electrical energy by 0.12 Kwh/hour and reduce emissions by 4.68 kg CO_2-eq or 0.00468 Ton CO_2-eq.

3.5.3.4 Milkfish Waste Processing (GREEN FISH)

Innovation in the utilization of milkfish production waste developed in facing the challenges of environmental pollution, changing milkfish waste into liquid organic fertilizer that can fertilize the soil and plants of the community. The environmental impact is a reduction in waste of 234 kg/year in Mangunharjo Village; waste that was previously disposed of can now be utilized properly which has an added value of Rp. 3,000/kg. Liquid fertilizer is sold cheaper at only Rp. 10,000/liter. Green Fish is not only a solution but also opens up new opportunities for the coastal communities of Mangunharjo.

3.5.3.5 Greening, Disaster Mitigation

The mangrove planting program as a form of reforestation and disaster mitigation in Mangunharjo Village, Tug District, Semarang City, has succeeded in planting 7,800 mangrove seedlings, which help reduce carbon emissions by 5,760.3 grams of C2-eq, thus providing a positive impact on the environment and increasing the resilience of coastal communities.

A **B** **C**

Figure 5 (a) POC Products from milkfish production waste, (b) Training in making Amplang Milkfish (c) TEGIN Machine LPG Fueled

3.6. Monitoring and Evaluation Stage

Monitoring is carried out to observe or find out the development and progress, identify problems and their anticipation or efforts to solve them (Rahmiyati, 2016), while evaluation is a process of measuring the level of achievement so that it needs to be optimized because it is based on input, output, and processes that are expected to be a driver to continue to improve the quality of society. At this stage, the CSR Team conducts FGDs every week with the community to explore whether the knowledge and skills provided are applied, work programs that have not been implemented, and plans and aspirations of the business groups that have been initiated. Monitoring and evaluation are also carried out internally by the management routinely once a month to reflect the development of the cooperative, covering plans, savings and loans, mandatory savings, and performance evaluations. *"Every month, routine meetings with the cooperative management discuss savings and loans for those who borrow, mandatory savings for those who do not borrow, evaluations and meetings to divide the schedule for making milkfish sampling because one-month production is four times,"* explained Mrs. Utami.

A **B** **C**

Figure 6. (a) External monitoring and evaluation with the Pertamina CSR team (b) Internal monitoring and evaluation by management (c) Monitoring of mangroves and built areas

4. Conclusion

Community development initiated by PT. Pertamina Patra Niaga Aviation Fuel Terminal Ahmad Yani through an *asset-based community development* (ABCD) approach in Mangunharjo Village. ABCD has succeeded in helping the community even though they are under massive urbanization pressure but can actually explore the potential in the form of assets owned including natural resources, human resources, physical or infrastructure, social and economic assets. The community's desire to manage the local potential of milkfish into processed milkfish amplang, which has economic value, can be realized after intensive training and mentoring. The CSR team succeeded in forming a business group and the Trengginas Jaya Abadi cooperative, which is expected to be a forum for improving skills, as well as gaining access to capital and financial services so as to provide great opportunities for business actors to develop their businesses for the Mangunharjo Village community. The resulting innovation program not only reduces the negative impacts of urbanization, such as pollution and carbon emissions, but also encourages sustainability from various aspects, including economic, social, and environmental.

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