



Empowering Coastal Women through Alternative Livelihoods

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Abstract: Coastal communities are among the most vulnerable groups affected by climate change due to inconsistent fish catches, increasing operational cost of fishermen, changing weather patterns, and increasing long-term economic uncertainty. These challenges directly affect household livelihoods, particularly those reliant on small-scale fisheries. This community empowerment program aimed to strengthen the adaptive capacity of coastal women by developing alternative livelihoods through fishery-based processed products. The program was implemented in Senteluk and Meninting Villages, West Lombok Regency, Indonesia, involving 30 women organized into three community groups within one year period, from March 2024 to February 2025. Activities included participatory planning, focus group discussions, capacity-building workshops, practical training in fish processing, packaging and branding, financial management, digital marketing, and business legalization assistance. The program successfully established three legally recognized women's groups, delivered twelve capacity-building workshops, developed three fishery-based products (*abon ikan*, *stik ikan*, and *kacang ikan*), and facilitated the acquisition of initial business legalization, food safety certification, and halal certification. Social media platforms among participants were utilized as medium support for product marketing. The initiative demonstrates that community-based women's empowerment, combined with local resource utilization, can strengthen household economic resilience while contributing to climate change adaptation strategies in coastal settings.

Keywords: Community Empowerment, Coastal Women, Fish Processing, Climate Change Adaptation, Sustainable Livelihoods.

Introduction

Climate change becomes significant challenges to all aspects of development sectors including marine and coastal sectors worldwide (Malihah, 2022). One of the most affected are particularly those whose livelihoods depend heavily on fisheries and marine resources. Rising sea temperatures, changing oceanographic conditions, and increasingly unpredictable weather patterns have contributed to declining fish productivity and greater economic vulnerability among small-scale fishing households (Budiman et al., 2026; Styawan, 2024). In Indonesia, these impacts are particularly more critical as many coastal families rely on daily fish catches

as their main source of income. Livelihood diversification has been widely seen as critical strategy for enhancing household economies and reducing vulnerability to environmental change, particularly within the context of natural resource governance (Cinner & Bodin, 2010). This means that alternative income-generating activities for coastal households can reduce their dependence on natural resource dependence while improving their adaptive capacity.

Women are recognized as an important determinant, contributing to a sustainable role in sustaining coastal household economies (Rizky et al., 2025). However, they often face challenges related to limited access to productive assets, technical skills,

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financial services, and market opportunities (Budiman et al., 2024). Empowering women through entrepreneurship and local resource-based businesses has been recognized for enhancing women participation, household welfare, strengthen social capital, and foster community resilience (Montiel Méndez et al., 2026; Ogundare et al., 2026).

Small-scale preliminary research that was carried out in a coastal village in Batu Layar District, namely Meninting Village, found that the potential fishery catch in Meninting is not be able to remove fishing families out of poverty. There are several indications that pin this problem, one of which is directly related to the low capacity of the community in managing fish catches into processed products using home-industry approach and technology (Budiman et al., 2024). From the preliminary research, there is a noticeable finding that the coastal community in Meninting village have suffered severely with the impact of climate change. Moreover, there was significant barriers among coastal women to have better access and opportunities for employment due to gender barriers, transportation and lack of capacity.

Recognizing these challenges, Nusa Bio Diversitas Indonesia (NBI), with support from the New Zealand Embassy Head of Mission Fund (HEF), implemented a community empowerment initiative focusing on fishery-based product development among coastal women in West Lombok. The program integrated capacity building, institutional strengthening, business legalization, and market development to create sustainable alternative livelihoods. This paper describes the implementation process and evaluates the outcomes of the program as a community-based climate adaptation strategy.

Method

Study Area and Participants



Figure 1. Program and Participants' Launching

The program was conducted in Senteluk and Meninting Villages, West Lombok Regency, Indonesia

within the duration of project period from March 2024 to February 2025. A total of 30 women from low-income coastal households participated in the program and were organized into three community enterprise groups, each consisting of ten members.

Community Engagement Approach

A participatory community development approach was adopted throughout the program implementation (Connell, 1997). The activities were divided into four stages as described below.

Preparation and Stakeholder Engagement



Figure 2. Stakeholder Engagement

The program started by identifying and recruiting project participants, closely followed by coordination meetings with village authorities and local stakeholders to ensure community alignment. With a strong collaborative foundation in place, the project was officially launched alongside a series of Focus Group Discussions (FGDs) designed to pinpoint specific local needs and opportunities.

Capacity Building

A series of twelve workshops and several practical training sessions were conducted; these are involved within these workshop topics.

- The role of coastal women in climate change adaptation and mitigation;
- Gender Equality, Disability, and Social Inclusion (GEDSI);
- Identifying business opportunities through fishery processing;
- Training session on production of fish floss (Abon Ikan), fish sticks (Stik Ikan), and fish-coated peanuts (Kacang Ikan);
- Organizational management;
- Product packaging and branding;
- Food safety and business certification;
- Leadership and product diversification;
- Digital marketing;
- Human resource and financial management.

Business Development Assistance

To support the growth and compliance of project participants, there were intensive mentoring throughout the key stages of business development. The training initially focused on giving assistance to access the legalization process with the aim to support the business group to get Business Identification Number (NIB) registration and to secure the Home Industry Food Production Permit (PIRT). Additionally, they were guided through the rigorous processes of obtaining Halal certification and conducting mandatory product health and safety testing to guarantee quality control. Finally, to ensure long-term commercial viability, the mentorship extended into digital strategy, providing participants with practical mentorship on how to build and optimize their own social media marketing platforms to expand their market reach.

Monitoring and Evaluation

Program evaluation was conducted through participant observation, documentation review, and continuous monitoring of institutional development, participant engagement, and business outcomes.

Result and Discussion

Establishment of Coastal Women's Groups



Figure 3. Establishment of coastal women' groups

The program successfully established three coastal women's business groups involving thirty direct beneficiaries. The participants were divided into three pilot business groups. Each group received formal recognition through village government decrees, strengthening institutional legitimacy and fostering collective action. This result of institutional recognition framework is legitimated for asset distribution, combined with the links between processes of state formation, state-business linkages and local forms of

social capital (Bebbington et al., 2006). It is recognized from the initiative development of women group as one of key important determinants in livelihoods economies which successful community-based development are characterized by cooperation enhancement, trust, and long-term sustainability (Budiman et al., 2026; Castro-Arce & Vanclay, 2020).

Capacity Building and Skill Development



Figure 4. A series of Capacity Building

Twelve training sessions significantly improved participants' technical and managerial capacities. In addition to fish processing skills, participants developed competencies in organizational governance, bookkeeping, leadership, and digital entrepreneurship. The practical training resulted in the production of three value-added fishery products: fish floss (*abon ikan*), fish sticks (*stik ikan*), and fish-coated peanuts (*kacang ikan*). From this program result, it can be discussed product diversification is an important adaptation strategy because it increases the economic value of local resources while reducing dependence on raw fish sales (Nicolosi et al., 2021; Prospero et al., 2019). Moreover, integrating GEDSI principles into the training curriculum strengthened women's confidence and participation in local economic activities, supporting broader gender equality objectives (Das, Maitreyi Bordia; et al., 2013).

The discussion can be extended to the poverty strategy where most of local and national government agency focused on. It is linked to one way of eradicating poverty by providing assistance for enhancing economic

development capacities. Business development assistance with an inclusive empowerment process is needed as this is critically important to achieve the independence of the coastal women group for long-run small and medium enterprises. Business assistance has a role as an enable where it contributes to placing the community as the subject of development agent (Aryanto & Fitriyah, 2019). The assistant further plays a significant part in improving business competence. Lastly, to create sustainable impacts, the assistant needs to be integrated as an initiative in the formation of a social system in the community as a vehicle for independent problem solving.

Business Legalization and Market Access



Figure 5. Business Products Assistance

One of the major achievements of the program was assisting participants in obtaining essential business certifications, including Business Identification Numbers (NIB), Home Industry Food Production Permits (PIRT), halal certification, and product health assessments. Formal business legality leads to consumer confidence, facilitates market expansion, and increases opportunities for collaboration with government agencies and private sectors. Studies have shown that regulatory compliance and product certification are crucial factors for the sustainability of small and medium enterprises (SMEs) in Indonesia (Khuan et al., 2024; Muhibbin et al., 2026). Moreover, each women's group to use social media platforms as a medium for promoting and marketing their products is an evident for digital adoption within small medium enterprises.

The adoption of digital marketing technologies deals with opportunities to reach broader consumer markets while reducing transaction costs (Spilotro et al., 2025).

Contribution to Climate Change Adaptation

The project aims to diversify livelihood strategies within most vulnerable group of societies. The project demonstrates participants from women group in coastal communities to develop alternative livelihoods as an effective climate adaptation strategy. By developing fishery-based processing enterprises, the program provided women alternative sources of household income that are less dependent on fluctuating fish catches. This means that even when climate change impact to the marine ecosystems and reduces traditional fish stocks, these families can maintain economic stability, reduce their vulnerability to climate shocks, and ensure household food security (Ding et al., 2017; Muthoka et al., 2024). Beyond economic benefits, the initiative strengthened local social networks through partnerships involving village governments, universities, government agencies, and civil society organizations. Such collaborative governance structures contribute to adaptive capacity by improving access to information, resources, and institutional support (Budiman et al., 2026).



Figure 6. Products' Branding for Climate Adaptation

Challenges and Lessons Learned

Several challenges emerged during implementation. Limited financial capital constrained

the scaling-up of production activities after training provisions. Administrative procedures for obtaining business licenses and certifications required considerable time, partly due to bureaucratic transitions in local government. Participation availability among participants also posed challenges because many women had household responsibilities and required family approval to attend activities. Furthermore, the absence of standardized production kitchens limited the ability to fully comply with food safety standards. To address these constraints, NBI provided initial operational support, strengthened stakeholder partnerships, and facilitated partnerships with local government agencies where the women business groups are affiliated as well as a continuous search for sustainable consumers. These experiences highlight the importance of long-term mentoring and institutional collaboration in community empowerment programs.

Conclusion

The community engagement program successfully enhanced the adaptive capacity and economic resilience of coastal women through fishery-based enterprise development. The establishment of three legally recognized women's groups, implementation of comprehensive capacity-building activities, development of fish processing products, and successful acquisition of business certifications demonstrate that community empowerment based on local resources can serve as an effective climate adaptation strategy. Future initiatives should focus on strengthening access to financial capital, expanding market networks, and developing standardized production facilities to ensure the long-term sustainability of community enterprises.

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