

Promoting CBRM and co-management: empowering women in fish processing group in the Nam Xouang Reservoir, Lao PDR

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Community-based resources management (CBRM) is a strategy for coastal fisheries resources management with the participation of people in natural resource and environment management (Macfadyen, 2005). CBRM is a form of co-management where responsibility and authority for resource management are shared between the government and local resource users/community (Pomeroy, 1995). Moreover, co-management is a partnership approach where government and resource users share the responsibility and authority for managing a fishery or area (Macfadyen, 2005). Relying on the effectiveness of these management strategies, the SEAFDEC/Training Department (SEAFDEC/TD) implemented the project “Facilitating Fisheries Activities Information Gathering Through Introduction of Community-based Resources Management/Co-management” between 2017 and 2019 with support from the Japanese Trust Fund. The Project was aimed at improving the fishery resources management and livelihood of local people which was aligned with the SEAFDEC Strategy 1 “Securing the sustainability of fisheries to contribute to food security, poverty alleviation and livelihood of people in the region.”

The main activities at the Project pilot site in Nam Xouang Reservoir in Phone Hong District, Lao PDR include 1) establishment of the Fishery Management Committee (FMC), 2) promotion of fishery rules and regulations, 3) strengthening of fishery resources management, and 4) improvement of fish processing techniques. This article highlights the outcomes of the fourth Project activity that supports the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 No. 70 *Strengthen support for the development and application of technologies and best practices that optimize the utilization of catches/farmed products, reduce post-harvest losses and wastes, value-add byproducts and valorize fish waste/trimmings in commercial and small-scale fisheries, aquaculture, and processing operations, through improved processing, facilities and infrastructure development, onboard and onshore handling, and storage, distribution and marketing of fish and fishery products* (SEAFDEC, 2020) to pave the way for women’s participation and decision-making.

In small-scale fishery, particularly inland fisheries, women are involved in both pre-harvesting and post-harvesting tasks such as preparing food for the fishers (their husbands), weaving nets, selling fish, processing fish, marketing fish, and keeping accounts, while the main role of men is harvesting fish (WWF-UK, 2012). Besides, women in Asia are the key persons in the trade of fish and fishery products in 5,000–6,000 fish markets throughout the lower Mekong basin (Monfort, 2015). Although it is widely accepted that women

perform important roles in the fishery value chain, they are still inadequate in capacity such as adding value to fishery products, and have low participation in decision-making in other fishery activities such as being involved in fishery groups and fishery management. Besides, women often have unequal power to access innovative technology, finance, and services in the value chain (FAO, 2020).

The women need support for job opportunities, specifically in fish processing products. It is important to increase their capacity to improve their skills in fish processing and the quality of their products for better market access (USAID, 2018). Zelasney, *et al.* (2021) inferred that women empowerment is the process of enhancing women’s ability to determine their own choices, and their rights and their ability to organize, influence, and participate in change through decision-making for themselves and others. This may be done through training and education, and facilitating access to usable assets, technology, finance, and services.

Nam Xouang Reservoir

The Project pilot site was in Nam Xouang Reservoir located between Phone Hong District and Naxaythong District (**Figure 1**). The reservoir has a 4.5 km length, 9.0 km width, an area of 12.4 km², and 255.5 million m³ water storage capacity, and it is used for irrigation, particularly for the rice paddy field. It is abundant in Nile tilapia and Chitala and the main fishing gear types used are gillnets, cast nets, scoop nets, and hooks.

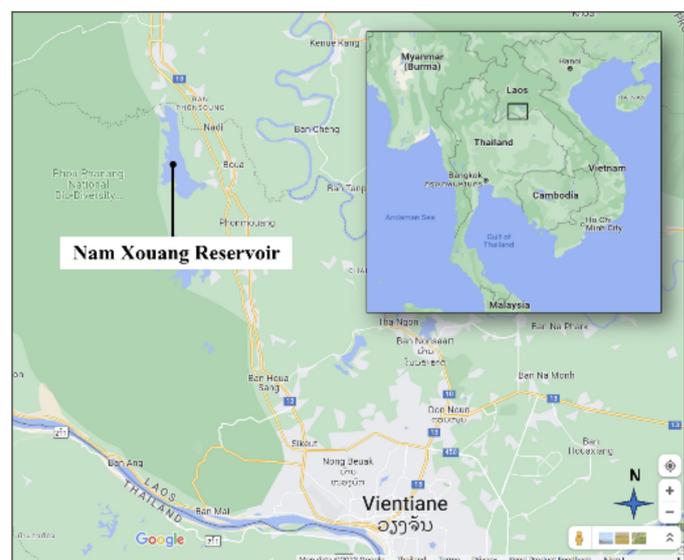


Figure 1. Location of Nam Xouang Reservoir in Lao PDR

The Fishery Management Committee (FMC) in the Nam Xouang Reservoir was established in 2017 in collaboration with the Department of Livestock and Fisheries (DLF) of Lao PDR and SEAFDEC/TD. The FMC developed the fishery management rules, conservation areas, and seasonal closure. Moreover, the women members have been encouraged and become actively involved in the activities including participation in the meetings, data collection, and contribution of ideas and recommendations on appropriate management measures. In 2019, the Project conducted a survey in the three of ten villages of Phone Hong District with 1,056 households including 142 fishing households as well as in all five villages of Naxaythong District including 1,202 households including 79 fishing households. It was found that the people living around the reservoir are mainly engaged in fish processing, livestock raising, labor, agriculture, and fishing. Moreover, the issues and problems related to fishery resources, governance, and human well-being were identified as listed in the **Table**.

Table. Issues and problems related to fishery resources, governance, and human well-being in the Nam Xouang Reservoir, Lao PDR

	Issues and problems
Fishery resources	<ul style="list-style-type: none"> Decreasing fishery resources because of illegal fishing Unclear conservation areas and fishing seasons for preserving aquatic resources and habitats
Governance	<ul style="list-style-type: none"> Weak enforcement of fishery management measures Absence of fishery management groups Low participation and decision-making of women in social groups because they do not have enough confidence, knowledge, and ability
Human well-being	<ul style="list-style-type: none"> Difficult transportation access to the capital, Vientiane, for job opportunities Increasing number of fishers because of few job opportunities Fewer job opportunities for the local people especially for women Women have low income due to low capacity and skills, inadequate capital, and lack of technologies to improve processed fish products

Establishing the fish processing group

The women in the Nam Xouang Reservoir in Phone Phong District had long been producing processed fish products for household consumption and sold the excess products in the neighborhood. They wanted to have additional income from fish processing but had limited skills and knowledge of doing business and improving their products. With guidance from SEAFDEC/TD and DLF, the women established the fish processing group with 12 members including 10 women and 2 men in 2019 (**Figure 2**). The group members agreed on the rules and responsibilities of the members such as preparing materials, cleaning fish, filleting fish, selling, and accounting.



Figure 2. Meeting of the members of the fish processing group in Nam Xouang Reservoir in Phone Phong District, Lao PDR

The group members then indicated that their products could be sold in the neighboring villages, local markets, and nearby canteen for soldiers.

Capacity building

In order to enhance their skills in fish processing, the group members went on a study trip in Vang Vieng District in 2019 and trained in fish processing from preparing ingredients to packaging (**Figure 3**) and learned how to process the



Figure 3. Study trip and training of members of the fish processing group in Vang Vieng District, Lao PDR



Figure 4. Traditional processed fish products of Lao PDR (*top row: fermented sour fish wrapped in banana leaves, fermented ground fish, fermented sour fish; bottom row: fermented fish dip, dried fish, fermented salted fish*)

traditional processed fish products of the country (**Figure 4**). Some of the group members never had the chance to go outside their community for training; thus, it was deemed a good opportunity for them to gain knowledge, learn new skills, and share ideas.

Starting up the business

To start the business of the fish processing group, SEAFDEC/TD provided support with a budget of USD 330 for capital as well as materials (fish and ingredients) and equipment (blender, knives, chopping blocks). Applying the knowledge and skills they obtained from the study trip and training, the group members agreed to produce the products that have a high market demand in the Nam Xouang Reservoir, namely: fermented sour fish wrapped in banana leaves, fermented fish dip, dried fish, and fermented salted fish. The group members discussed the procedures and schedules for fish processing and decided to use the courtyard of the group leader's house for fish processing because of its large area. They planned to work at least two times per week and would depend on the availability of raw materials and orders from customers.

For the first round of production, they distributed their processed fish products for free to their neighbors for feedback. Subsequently, the customers liked the taste of their products, especially the fermented sour fish wrapped in banana leaves which was ordered the most. They sold their products first in the village and canteen for soldiers and after a month, they got orders from outside of their village. Besides, they could sell the fermented sour fish wrapped in banana leaves in the Vientiane morning market which is the big market in the capital. They gained a profit of about USD 61 after four rounds of production in 2019.

Thriving business

In 2022, SEAFDEC/TD followed up with the progress of the fish processing group and found that their business went well and they produced two additional products, namely: fermented sour fish wrapped in banana leaves and fermented salted fish (**Figure 5**). They sold their products daily and directly in the markets wholesale and retail. For every production cycle, the production cost of fermented sour fish wrapped in banana leaves, which is the main product, was LAK 600,000 (USD 31) with the selling price of LAK 1,820,000 (USD 93). Their estimated profit per month was LAK 1,720,000 (USD 99) where 95 % was distributed among the group members and the rest was allotted for the group's operation. The group members could now gain additional income which made them feel more confident to continue the fish processing business and planned to produce more types of products. The strong leadership of the head of the fish processing group and the commitment of local fisheries officers were crucial to the success of the group.



Figure 5. Members of the fish processing group in the Nam Xouang Reservoir in Phone Phong District, Lao PDR in 2022 earn higher income from the processed fish products they produced

Nonetheless, microfinance and credit services would be needed by the group to purchase the equipment to improve their products such as grinder machines and vacuum sealers to enhance their products in terms of packaging and sanitation to obtain certification standards. The group also needs to expand the market of their products including other marketplaces and platforms. The group members would welcome and appreciate study visits by other groups to exchange experiences and learn more techniques to produce new products.

Conclusion and Way forward

CBRM and co-management are considered effective ways for sustainable fisheries management where the government and the fisheries community are working together. Moreover, gender also should be considered and integrated into the implementation of policies or projects at all levels to ensure that women have equal access to the fisheries value chain. The Project successfully engaged and empowered the women at the pilot site in the Nam Xouang Reservoir who now have enhanced their knowledge and skills in fish processing and earn higher incomes. The following are the recommendations that should be considered in sustaining the activities of CBRM and co-management as well as of the fish processing group at the Project pilot site. At the same time, the applicability of these recommendations in other fisheries communities should be also considered.

- Promote CBRM and co-management by establishing community groups such as Fisheries Management Committee (FMC) and fish processing group specifying the rules and duties of the members
- Conduct gender analysis to identify the issues and opportunities for women's empowerment
- Increase the capacity and knowledge of the members of the fish processing group through study trips and training
- Provide funding support to start and sustain the business of the fish processing group
- Explore various marketing channels (e.g. online platforms, special markets, etc.) to sustain the business
- Conduct regular monitoring and evaluation to improve or maintain the activities of the fish processing group

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