

Promoting Community-based Resources Management: a Case Study in Nam Oon Dam, Sakon Nakhon Province, Thailand

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The SEAFDEC Training Department (SEAFDEC/TD) has been implementing the six-year project “Enhancing the Compilation and Utilization of Fishery Statistics and Information for Sustainable Development and Management of Fisheries in the Southeast Asian Region: Facilitating Activities on Gathering Fisheries Information through Introduction of Community-based Resources Management/Co-management” since 2013. Supported by the Japanese Trust Fund (JTF), the project necessitates the improvement of the compilation of fisheries data to reflect the importance of small-scale coastal and inland fisheries, and which could be used as a basis for fisheries planning and management. The project has the ultimate objective of supporting the ASEAN Member States (AMSS) through the assessment of problems and constraints in fisheries data collection in small-scale coastal and inland fisheries at national levels. In the process, the key issues in fisheries data collection could be identified and addressed by the countries through regional workshops and on-site trainings on the concept of community-based resources management (CBRM) that could be organized by SEAFDEC/TD at provincial levels in respective AMSS. The project also intends to provide technical assistance to fisheries officers of the AMSS in selected sites to enable them to properly collect and analyze the information gathered from fisheries communities, for policy formulation, and later on, for the development of appropriate CBRM plans for small-scale coastal and inland fisheries. To set off the project, Thailand was chosen as a project pilot site, more particularly the Nam Oon Dam in Sakon Nakhon Province, where the on-site training course on Practical Approach for Enhancing Co-management in Inland Fisheries organized by SEAFDEC/TD in 2013, provided a clearer and detailed perspective on the concept and methodologies on CBRM, and enhanced the skills of the stakeholders in establishing fisheries organizations.

Small-scale coastal and inland fisheries are important source of protein and generate income to support local fishing communities. Small-scale fisheries are usually operated in coastal marine waters less than 3 kilometers from the shoreline, brackishwater lagoons, as well as in freshwater lakes, rivers, and reservoirs (Staples *et al.*, 2004). Small-scale fishing can be done with or without boats and uses gillnet, trap, hook and line, and other simple fishing gears (Kristin and Dearden, 2005), while the catch is usually for household consumption or sold in the local markets.

The open access in fisheries wherein everyone has the right to catch fish and the fishing ground is open to all (OECD, 2007) has however led to overfishing and decline of the fishery resources. This has also greatly affected the small-scale fishers who utilize the fishery resources for livelihood and in the

end, could even lead them to be engaged in illegal fishing. While poor fisheries management due to lack of management oversight, laws, and regulations has long been a problem in the fishing industry (WWF, 2018), such problems in fisheries could be addressed through the promotion of systematic fisheries management.

Community-based resources management (CBRM) or co-management is a fisheries management approach where the resource users and local stakeholders participate in the planning and formulating the regulations that the communities should comply with. CBRM could be facilitated by the local government or other organizations (Senyk, 2005). Basic small-scale fisheries information is necessary for establishing the CBRM for sustainable fisheries. However, in the Southeast Asian region, fisheries statistics and information on coastal and inland fisheries are generally inadequate due to its multi-species nature and large number of small-scale fishers. It is therefore necessary to improve the methodologies in data collection for effective establishment of the appropriate fisheries management plans.

CBRM: Case Study in Nam Oon Dam

In 2014, SEAFDEC/TD collaborated with the Department of Fisheries (DOF) of Thailand to implement a CBRM project in Nam Oon Dam in Pangkhon District, Sakon Nakhon Province in northeast Thailand (Fig. 1). Nam Oon Dam was established in 1981 with water volume of about 520 million m³, used to supply the water requirements of the agriculture sector of the Province. Nam Oon Dam was proposed by the DOF Thailand as the pilot site of the project because many



Fig. 1. Location of Nam Oon Dam in Pangkhon District, Sakon Nakhon Province, Thailand (Source: Google maps)



Fig. 2. Location of the sixteen communities involved in the SEAFDEC/TD project in Nam Oon Dam (Source: Google maps)

outsiders who are not concerned about the need to conserve the fishery resources, fish in Nam Oon Dam.

In addition, illegal fishing has been reported to occur in the Dam, where these illegal fishers use the mechanical giant lift net, a cone shaped stationary fishing gear submerged at a certain depth with the opening facing upwards. Moreover, the local government has deemed it necessary to define the conservation zone in Nam Oon Dam for the sustainability of the fishery resources in the Dam.

Sixteen communities around Nam Oon Dam (Fig. 2), whose members have recognized the need to conserve the fishery resources in the Dam, have been involved in the project. At the onset of the project implementation, a baseline survey was conducted in July 2014 to obtain understanding on the condition of the communities as well as their existing problems by interviewing 139 fishers around Nam Oon Dam. The results showed that most fishers engaged in fisheries were also engaged in agriculture (paddy field, rubber tree, cassava, among others). The main fishing gears used include gill net, hook and line, and fish trap. The major species caught were the Siamese mud carp, Indian river barb, and common silver barb. Most of the catch is intended for household consumption or sold in the local markets.

Moreover, the inland fisheries management committee for Nam Oon Dam was established while the committee members were selected and trained to build their awareness on the importance of CBRM and the need to promote the conservation of fishery resources in Nam Oon Dam. The committee consists of two representatives from each community together with government fisheries officers. The committee has been responsible in developing the fisheries management plan for Nam Oon Dam.

A workshop for the inland fisheries management committee of Nam Oon Dam was organized in November 2014 to define the

fisheries management measures and enhance their knowledge on inland fisheries management and the fisheries law. The workshop was also used as an avenue for the development of regulations on fishing gears and methods, as well on fishing grounds and conservation area, and closed season. As a result of the workshop, some fishing gears such as the giant lift net, use of air compressor for diving fishing gun as well as light luring for collecting juvenile fish, had been banned in the Dam. The fishing ground and conservation zone had been increased and clearly defined. On the other hand, long line fishing has been allowed during closed season, and fishing is allowed on the 10th, 20th, and 30th day of each month. The closed season is imposed during the fish spawning season from 16 April to 15 August.

The fisheries management measures developed by the committee were announced through signboards that were put up in the communities around Nam Oon Dam (Fig. 3), considering that signboards are effective communication materials where the communities could easily perceive the information displayed. Measuring 1.2 m x 2.4 m, the signboards contain the map of Nam Oon Dam, closed season period, the allowed date for fishing, prohibited fishing gears, conservation zone, and fishing gears allowed to be used in open and closed season. Local meetings were regularly organized to explain the fisheries management measures that were displayed in the signboards that have been set up by the management committee with the involvement of the community members.



Fig. 3. Signboards put up in the communities around Nam Oon Dam

The appropriateness of fisheries management measures was monitored through the satisfaction surveys that were conducted in November 2015. Questionnaires were used to interview 123 fishers about the status of fishery resources after the closed season, while the performance of DOF, Thailand in implementing the CBRM project was also rated. The results showed that more than 80% of interviewed fishers were satisfied with the CBRM approach adopted in Nam Oon Dam.

For the continued monitoring of the status of the fishery resources, a local meeting was organized in February 2015 to train the volunteer fishers on how to record the fish catch



Fig. 4. Measuring the body length and weight of fish samples by a volunteer fisher in Nam Oon Dam

in the logbook developed by SEAFDEC/TD. The resource assessment and data collection were initiated in March 2017 in four selected communities, namely: Ban Dong Khampho, Ban Kudtakap, Ban Klang, and Ban Nachuak. The body length and weight of each fish sample were measured (Fig. 4). The analyzed catch data indicating the current status of fishery resources in Nam Oon Dam would be shared to the fishers for feedback and to be used as scientific reference for the development of the fisheries management measures.

Based on the agreement among the communities for habitat restoration and protection of fishery resources, the conservation zone in Nam Oon Dam was designated. Covering an area of about 1,028,800 m² and located between Ban Dong Khampho and Ban Nachuak, the conservation zone would be marked using the 15 buoys provided by SEAFDEC/TD, which were installed in May 2016 (Fig. 5). These buoys would not only provide markers for the conservation zone but also indicate the border between the two communities.



Fig. 5. Installation of buoys to mark the area of the conservation zone and the border between Ban Dong Khampho and Ban Nachuak in Nam Oon Dam

Key Findings and Way Forward

During the implementation of the project in Nam Oon Dam starting in 2014, it was found that one of the important factors in implementing CBRM is the strong collaboration between the resource users and government fisheries officers, which could facilitate the development and effective implementation of the desired fisheries management measures. As a result,

illegal fishing which has been a common problem in Nam Oon Dam, could be eventually decreased. In addition, recording of fish data in logbook by volunteer fishers was the most cost effective approach, as the active participation of the fishing community in all activities could create in them a sense of belongingness and responsibility, and raise their awareness on the need to conserve the fishery resources. As envisioned, the fisheries management measures developed from this case study, would be improved and extended to other fishing communities not only in Thailand but also in other Southeast Asian countries. Results of the research works on CBRM in coastal and inland fisheries would also be used to identify the most effective fisheries management model that is applicable to small-scale fisheries in the Southeast Asian region. Meanwhile, for the project site in Thailand, activities in the future would include a workshop in 2018 to review the effects of the fisheries management measures in Nam Oon Dam. Collection of catch data will continue for resource assessment, the results of which would be used to develop a research paper that could serve as basis for the promotion of CBRM in other sites in the Southeast Asian region.

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