Abstract

Ban Pred Nai Community-based Learning Center Development Project in Trad Province, aiming to strengthen and apply community-based knowledge in integration with scientific knowledge on climate change is the collaboration between the Good Governance for Social Development Institute, Ban Pred Nai Community-based Learning Center, and network of educational institute partners under the main funding from the Thai Health Promotion Foundation (ThaiHealth). The strategy to integrate scientific knowledge from the academic with local wisdom from the communities in order to strengthen the communities to manage natural resource and environment is adopted throughout the project implementation during October 2013-February 2016. The results of project implementation are summarized as follows:

The activities under Ban Pred Nai Community-based Learning Center Development and Capacity Building Project were conducted in many areas such as organizing workshops, trainings, study visit of Learning Center's Committees and members, as well as fostering partnership and networks among relevant external stakeholders, including the government sector and academics. The results seen in the Ban Pred Nai Community Learning Center include a more systematic management, a learning source on energy, a model and a set of recommendations to address coastal erosion problems, mangrove conservation, a wealth of publications disseminating knowledge to community members and visitors in the forms of materials, video, and a 3D model. In addition, the Learning Center has developed its mission in youth capacity development through environmental protection youth camp and young guide activities.

The integration of scientific knowledge with local wisdom under the management of the Learning Center covers 3 areas: renewable energy, biological resources and mangrove ecosystem environment, and integrated coastal resource management in solving coastal erosion. The empirical outcomes of this initiative are resulted in human resource development through the joint knowledge generation between community researchers and project researchers. The community researchers can apply knowledge base into their problem analysis and survey of the areas.

The results of each knowledge aspect are mentioned below:

Renewable Energy: The community members are equipped with increased knowledge and understanding on energy. There are community energy engineers who

can install solar panel system on their own. The community has practically established Learning Center on alternative energy with Strategic Plan on community-based alternative energy. The success has been replicated in the neighboring communities in Huang Nam Khao sub-district. Moreover, in according to the survey and data collection on household energy consumption, the finding indicated that during 2014-2015 the expense on energy has been reduced up to 2.7 million baht which is mostly due to the reduction of diesel, benzene and electricity. The carbon dioxide emission reduction accounting is equivalent to 433 tons.

Biological resources and mangrove ecosystem environment: The activities are focused on the development of data base system and dissemination of knowledge to communities. Due to the importance of information in the management of Learning Center, visitors are equipped with data on mangrove resources. Activities conducted include training on mangrove resource data collection for data base development and mangrove forest registration process so that community can utilize the information for mangrove and community forest planning and management. Furthermore, youth training on tree growth measurement was conducted in order to support the young people with knowledge on mangrove plant species' measurement, mentored by community researchers. The results of these activities include the establishment of data base which community can utilize for mangrove and other relevant resource management, building of networks in the area, and joint mangrove resource management plan.

Coastal erosion solution: The preventive range against coastal erosion that combined the use of tyre dice and bamboo poles was lined up at the edge of mangrove forest. Another outer layer of bamboo range was arranged 50 meters away to weaken the strength of wind wave. This helps pool the sediments behind the inner preventive range and therefore expand the land within the coastal erosion prevention zone. In terms of community researchers' development, they can measure and monitor the sea level change as well as adapt the use of fish trap to catch aquatic animals in order to measure the fertility of coastal resources. This success led to the development of coastal erosion prevention plan with the participation of community through the networks of all villages in Huang Nam Khao sub-district to jointly identify solution in the area.

All activities in the project create results that relate with climate change in terms of GHG emission reduction and community-based adaptation to impacts of climate

change. They also strengthen the community well-being in many fronts. The activities pertaining to mangrove forest ecosystem management are resulted in the conservation and expansion of mangrove areas which therefore serve as the storage of carbon dioxide and a source of food and economic security for the community. The activities for renewable energy contribute to the reduction of GHG emission from fossil fuel consumption and the reduction of household expenses on energy. The activities to mitigate coastal erosion problem bring about the community learning process in response to climate change impacts by preventing mangrove forest range from erosion. The coastal erosion prevention range developed by the community is also a tool to prevent and mitigate social conflict between the artisanal fishery and commercial fishery. All these activities form the common learning process among the community members and across 5 villages in Huang Nam Khao sub-district. They strengthen the capacity of the communities and provide the foundation for adaptation to climate change in the future.

Key words: *Ban Pred Nai Community Learning Center, community knowledge base, climate change, well-being*