The study below is an intiative undertaken under the ADB- Global Water Partnership Southeast Asia Technical Advisory Committee (GWP SEATAC) partnership to document and improve innovative local IWRM initiatives in the Southeast Asia region.

# Integrated Watershed Management through People's Participation in Upper Mae Yom, Phayao Province, Thailand

## Background

This project was proposed by the Coordination Center for Natural Resources and Environment Management (CNEM), a non-government organization based in Chiang Mai, Thailand that was established in April 2000. CNEM's main objective is to address issues especially the growing conflicts over water sharing between highlanders and lowlanders, initially at the Mae Yom watershed. Towards such end, a network of Muang Fai irrigation groups have been established in September 2000, who, in addition to shared concerns over water supply and improvement of irrigation systems, is also conducting activities to improve solid waste management and reduce hazards from agricultural activities, particularly from the use of pesticides, reforestation, and construction of traditional check dams and other soil and water conservation projects.

The objectives of the project were to:

- Create awareness on improving water quantity and water quality, and reducing soil erosion in the Mae Yom watershed;
- Protect and rehabilitate the upper watershed through people's participation;
- Solve deforestation problems in highland areas and upper watershed which have adversely affected highland communities and lowland communities due to resultant soil erosion, floods, and droughts;
- Protect the river bank as a community property, a green area and buffer zone for recreational activities.

## The Project Site

Upper Mae Yom Watershed, with an area of 23,616 $km^2$, is the source of two main streams encompassing two districts in Phayao Province. This major watershed encompasses at least six sub-watersheds: (1) Nam-nguen; (2) Nam Loo; (3) Nam Ngim; (4) Nam Khuan; (5) Nam Nan; and (6) Nam Mao. There are eight irrigation systems and a number of traditional farmers' irrigation systems. The Upper Mae Yom Watershed is officially categorized as a conservation forest, with specific protected areas in Doi Pha Chang Sanctuary, Wienglaw Sanctuary, Phulangka National Park, and Doi Phunang National Park, with some of these areas receiving stricter protection levels (e.g., restricted human activities, etc.) although at least 11 villages are located along and within the national parks and sanctuaries. The less protected areas have been heavily damaged by unregulated human activities (e.g., illegal logging, agriculture, animal production, tobacco factory, etc.). Hill tribes are also located in several parts of

the watershed, and through their own traditional practices have contributed to some level of protection to the natural forests where traditional spirit ceremonies (i.e., offering agricultural and/or animal harvests to forest and mountain spirits) to increase harmony between man and nature, are held.

At the downstream portions of streams flowing from the Upper Mae Yom Watershed, water quality studies have revealed the presence of lead and cadmium, such that the water was categorized as possible for transportation, but not for fishery, sport and conservation of aquatic products. At the Upper Mae Yom, some traces of pesticides were also found along the river and within the irrigation system.

## Project Accomplishments and Lessons Learned

- **Stakeholder Consultations.** While involving all stakeholders in planning and consultation activities is ideal, the Project has learned that basin-wide consultations usually did not work because of the varying availability and interests of the stakeholders. By locating and conducting consultation activities at the center of each irrigation system, more stakeholders were able to come and participated actively in the consultations. With the irrigation systems as the background, local stakeholders were able to recognize and appreciate more fully the importance of adequate water management At least 24 consultation meetings in the six sub-watersheds were successfully completed by the Project.

- **Integration of water and environmental management in local educational curriculum.** Forty-four teachers from local schools attended a seminar and visited the watershed to be oriented on the issues in, and approaches to, water management, towards developing local plans to solve water pollution and improve water management. The activity was likewise a first step towards integrating water management with existing school curricula. The Project hopes that eventually, about 30% of the local educational curricula would be devoted to integrated water resources management.

- **Seminar on solid waste management.** Through partnerships with the local government administrators, the Project conducted a seminar on solid waste management, after which more than 14 villages conducted waste segregation programs and the local governments provided grants of Baht20,000 for each village who implemented the program. This program was aimed at improving the quality of water in local rivers, and at the same time promoted the concept of buffer zones along the river. The buffer zone concept promotes the re-allocation and village maintenance of river banks for common, public use to prevent riverbank degradation and pollution. The project surveyed 50 respondents who owned the land along the river bank in eight villages, and all respondents indicated willingness to turn over the land for public use, if the village headmen would participate actively. This process is presently being pursued by CNEM.

- **Spiritual Ceremony.** The spiritual ceremonies are one way of gathering local water users, and discussing local water issues. In Nam Loo, one spiritual ceremony covered seven irrigation systems and one upper stream village, and enabled local water users

to interact and discuss issues in a transparent, informal manner, and strengthen local associations and camaraderie. The Project provided materials for the construction and setting up of a spirit house and some food items, while local water users provided labor to construct the spirit house and some food items as well. A specific output of the spirit ceremony was a signed, local agreement among the water users to protect the forest and headwaters, including a list of their concerns, which would also be forwarded to the office of the Prime Minister for consideration. The gathered water users agreed to continue holding a spirit ceremony at least once a year.

- **Upstream-downstream stakeholders information exchange and consultation. In** Nam Loo sub-watershed, a consultation workshop between upstream and downstream stakeholders was conducted during the spirit ceremony to enable each sector to understand and appreciate their respective issues, by actually locating the spirit ceremony near a conflict or contended area, so the stakeholders could see for themselves the actual situations. This was also seen as a first step towards addressing upstream-downstream conflicts by providing a forum for open, transparent discussions. Both sectors likewise provided counterpart contributions to convene the consultation activities.

- **Study Tour.** Thirty-eight stakeholders representing farmers, teachers, and community members participated in a two-day tour of Huai Hong Khrai Royal Development Center where they learned new technologies for agro-industrial production, forest protection, and sustainable water management.

- **Reforestation Activities.** Two sites - Nam Loo and upper Nam Ngim - have been identified by the Project as crisis areas in terms of damage to the natural forests due to illegal logging activities as well as severe erosion during the rainy season. Ten small reforestation plots have been identified for reforestation at the onset of the rainy season.

- **Training on Land Use Planning.** Sustainable land use planning concepts have been introduced to local leaders and government officials, who appreciated the need to properly consider the suitability and compatibility of local natural resources with various agricultural, livelihood and development options. In June 2003, faculty members of Chiang Mai University (CMU) visited the site and provided technical assistance in describing and designing landscape options in four villages, as inputs to more comprehensive land use planning in the area.

- **Establishment of Conservation and Buffer Zone Areas for Recreational Activities.** In Ban Don-nguen, the local communities have taken action to create a buffer zone along the river banks to minimize soil erosion and provide space along the river for rest and recreation. This activity builds on the villagers' previous declaration of this portion of the river as an "unkilling zone", i.e., where fishing and harvesting of aquatic products are prohibited, in essence therefore creating a fish sanctuary. This "unkilling zone" used to cover the portion of the river where a Buddhist Temple was located, but has been expanded by the villagers upon observing the impact of the "unkilling zone" on local fishery. To further protect the river banks which have been degraded by local residents crossing the river, a small pedestrian was constructed by the Project upon the request of local residents. The project provided materials for bridge construction, while local residents contributed

labor, food, materials such as sand and stone. The bridge connected the buffer zones along both sides of the river bank, which have been designated as buffer and/or green zones for the recreation and relaxation of local residents, as well as educational area for local schools.

## Lessons and New Knowledge from the Project

- The networks of irrigators associations that were developed by the project across districts have provided an opportunity for farmers and stakeholders to realize the commonalities of their concerns, and that the impacts of unregulated human activities on the watershed are felt by a large segment of the population, and not *only* by the farmers themselves. Moreover, farmers and settlers located at the lower portion of the watershed were able to directly communicate their concerns to those operating upstream.

- The project has facilitated the development of water use and environmental plans through continuous consultation and active coordination of said activities. In the past, farmers had to wait for at least three years and sometimes even more than a decade, just to get official responses to their concerns. The project has empowered local farmers and irrigators associations to discuss water and environmental issues among themselves, but more importantly to openly discuss their concerns with the local government administrators and district officers. Both sides have realized that such open communications could serve as an important tool for devising appropriate and acceptable strategies for more effective water management, although there remains a tendency for local administrators to try to control the farmers by requiring *official* administrative approval before the farmers develop and/or implement workplans.

- Introducing water management technologies are better appreciated and could be more effective if directly linked with livelihood and income generating opportunities.

- The establishment of basin committees provided the institutional backbone and structure for local farmers and other stakeholders to be adequately represented in government decision-making. Current government regulations that allow basin committees to collectively design their own programs and budgetary requirements, have allowed local stakeholders to prioritize decisions and projects according to actual situations and needs in their area. However, there remains a need to further increase stakeholder representation in government planning and decision-making bodies.

- Cultural beliefs and practices, such as the spirit ceremonies, were crucial in bringing people together, catalyzing project initiatives, and influencing social behavior particularly with regard to resource utilization. Such beliefs and practices should continue to be promoted and built-on, rather than neglected and forgotten.

- Stakeholder consultations conducted by the project had pointed to the need to clarify, define, and institute water rights to enable more effective water management. Presently, Muang Fai associations are imposing varying charges for

irrigation water, with new users paying a slightly higher fee compared to older members.

## Next Steps

- Strengthen interaction between and among Muang Fai farmers, irrigators associations, upland farmers, and government agencies (in particular the Department of Water Resources and the Royal Irrigation Department) to provide a venue for sharing of experiences and discussion of water management issues

- Provision of financial and technical support for pilot small-scale livelihood activities according to the indicated preferences and capability of the beneficiaries/community members

- Provision of financial and technical support to continue and enhance the river management and environmental plans that were developed under the project, with focus on strengthening community roles and building capacities for community river management

- Conduct of information and environmental awareness campaigns, including the production of information in Thai language and the importance of traditional cultures and practices in addressing water issues.