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Collaboration among an Academic Institution, Local Communities, and Local Government Units in Protecting Wildlife and Forest Habitats in Southwestern Negros Island, Philippines

A community-based forest resource protection program was established in Cauayan and its adjacent areas in southwestern Negros from 2001-2007. The program was preceded by research done by an academic institution, the results of which were used as a basis for establishing the Cauayan watershed reserve, a 6,000ha area that includes the forests of two *barangays* (villages), Pinamayan and Inayawan. This paper presents the processes employed in establishing a community-based forest protection program and some strategies used to mitigate illegal activities, to improve biodiversity awareness among the stakeholders, and to promote community and local government participation.

INTRODUCTION

One of the major responsibilities of academic institutions is research. In fact, universities or institutions of higher learning started as institutions concerned with generation of new knowledge and critical review of existing knowledge. Outstanding universities of the world place premium on research activities and publication of research results in forms suitable for wide dissemination. The 2006 listing of the top 500 universities of the world, for example, illustrates the primary role of research in the academia; all those listed have significant research programs supported generously by funding agencies mostly outside the universities. In the Philippines, by educational policy, research together with teaching and extension define the functions of higher education institutions (Commission on Higher Education, 1998).

The results of research serve to stimulate more investigations that throw light or offer solutions to specific issues and problems or find applications in various aspects of human affairs and human development. Research data have served as basis for technology, including educational technology that benefits society in a number of ways. For example, research findings may be fed back to teaching, making it relevant to particular local, regional, national and global situations.

The Commission on Higher Education (CHED), the Philippine government office responsible for charting the directions of higher education, is mandated by law (R.A. 7722) to promote excellence in teaching, research and extension. Thus far, the Commission has established various zonal centers of excellence in research and teaching and actively promotes research and scholarly activities through a system of incentives such as grants and awards for excellence in research and travel support for scholars presenting papers in professional meetings. Universities all over the country, irrespective of the nature of their governance structure as private or public institutions, can avail themselves of these incentives (CHED, n.d.).

The research agenda of Silliman University is effectively demonstrated in a project undertaken by one of its research centers, the Silliman University-Angelo King Center for Research and Environmental Management (SUAKCREM), from 2001-2007. The project, known as the Pinamayan conservation project, deals with local partnerships between the University and local stakeholders in protecting the rainforest and promoting biodiversity conservation in southwestern Negros Island. This paper presents the approach used to effect this partnership and highlights the positive contributions of the project during the six years of its implementation.

Silliman University research agenda

As an institution of higher learning, Silliman University has engaged in the natural and social science research particularly on various aspects of biodiversity since its status as Institute was changed to University in 1935. From studies on ant behavior and taxonomy by James W. Chapman, its research program has moved on to vertebrate studies, first on birds and mammals beginning in late 1940s by D. S. Rabor, to amphibians and reptiles beginning in the mid-1950s by A. C. Alcalá, to the pioneering studies on the Philippine Eagle by Professor Rodolfo Gonzales during the 1960s, and to marine biology beginning in the mid-1970s by A.C. Alcalá and others (A. C. Alcalá, personal communication). Except for the study on ants, all of these research programs are still ongoing and are currently carried out by several young investigators at the Biology Department, the Institute of Environmental and Marine Sciences, the Silliman University-Angelo King Center for Research and Environmental Management, and the Center for Tropical Conservation Studies, in collaboration with colleagues from the USA and Australia.

Many of these research studies have found applications in successful

coastal and marine resource management, conservation and protection of endangered terrestrial species and their habitats, and in tourism activities that have increased incomes of local coastal communities. Other benefits of the Silliman research programs are the feedback to teaching with the use of research data as teaching material and the publication of numerous peer reviewed articles authored by Silliman professors of the natural and the social sciences.

The track record of Silliman University in biodiversity research has been widely acknowledged and has earned some national awards such as the recognition as academic center for excellence in biodiversity research and conservation from HARIBON Foundation and the Best Research Program in Higher Education Institutions Award for 2006 from the Commission on Higher Education.

Description of the Pinamayan project and project site

Pinamayan is a rugged forest village situated in Barangay Camalandaan, town of Cauayan in Negros Occidental province in southwestern Negros Island. It contains the last remaining lowland limestone forest in that part of Negros. The forest is composed of several fragments that were spared from past logging operations but are still continuously threatened by timber poaching. The forest fragments are dominated by the "molave" (*Vitex parviflora*) trees and are interspersed with trees in the Family Dipterocarpaceae forming partially closed canopies ranging from 30-47 % (Paalan, Alcala & Averia, 2003; Alcala, Alcala & Dolino, 2004; and Alcala, Paalan, Averia & Alcala, 2004). The forest patches form part of the Greater Calatong Watershed, which supplies water to some 4,000 farmers in the areas of Cauayan municipality and Sipalay City.

In 2003, the Barangay Council of Pinamayan passed a Barangay Resolution protecting the seven forest fragments in their area. The resolution was based on earlier research findings by a team of Silliman University biologists that identified several unique and threatened species of plants and animals in the forest. These included the dipterocarps, Philippine tube-nosed fruit bat, Negros tarctic hornbill, and Negros cave frog. This resolution was later adopted by the Cauayan Municipal Council, which expanded the protected area to include the catchment basins of Pinamayan and Inayawan forests in an ordinance known as the Southern Cauayan Municipal Forest and Watershed Reserve (refer to map). The 6,000 hectare reserve is the first of its kind to be initiated in southwestern Negros by a local government unit (LGU) using the Local Government Code as the enabling legal framework and mechanism to establish a large watershed reserve (Alcala, 2006).

Two community-based forest protection projects initiated and coordinated by the Silliman University Angelo King Center for Research and Environmental Management (SUAKCREM) has operated in the area from 2001-2007. The first project, which started in 2001, was initially funded by the

ASEAN Regional Centre for Biodiversity Conservation (ARCBC). It incorporated community work with research and resulted in the establishment of the Cauayan Municipal Forest and Watershed Reserve in 2003. This was followed by a second project funded by the HARIBON Foundation in 2004-2007. Like the first project, it integrated research with community work in promoting forest protection.

General Method and Approach

The Pinamayan project employed the strategy of research and community work to address specific problems and issues related to biodiversity conservation and management. It adopted the resource management framework that identified the academe as initiator and motivator for local communities to manage and protect their resources (Figure 1). Although this framework was originally designed for use in coastal resource management (Alcala, Russ & Nillos, 2006; White, Christie, D'Agnes, Lowrie, & Milne, 2005), the basic elements of sustainable use and protection were also applied to upland communities. In this approach, results of research were used as basis for coming up with an informed decision for the community to adopt forest protection and to pursue the declaration of the forest and watershed reserve of southwestern Negros, particularly Cauayan town. The project provided the hard science for rationalizing forest protection. It underscored the effects of forest fragmentation on wildlife and elucidated the importance of maintaining watersheds that sustain the water needs of farmers and the ecotourism potential of the forest and caves in Pinamayan. This apparently challenged the local government unit to declare its remaining forest, including the surrounding watershed catchment basins, as protected area.

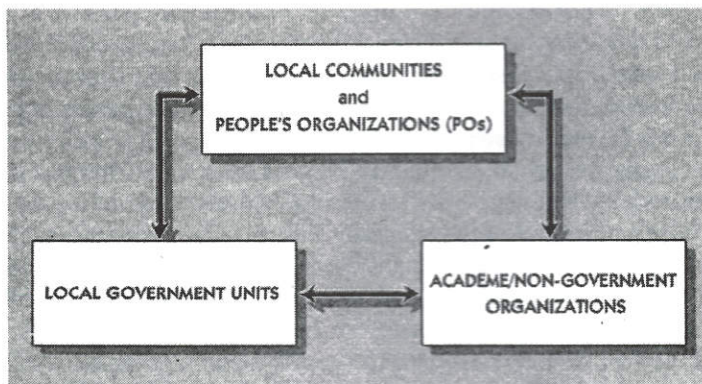


Figure 1. Model of community-based resource conservation: Partnership of local community, local government unit, and non-government organization or academe as initiator (Adapted from Alcala, Russ, & Nillos, 2006).

RESULTS AND DISCUSSION

Forest protection. Protection of the Pinamayan forest was initially carried out by a group of local farmers who felt the necessity to protect the forest that provided them water for irrigation and domestic use and income from sale of forest resources. From a small group of less than ten members, it later grew into an organized body of some 40 members presently known as the Bantay Lasang (BL) or forest guards. Forest protection has been operating with some success over the past ten years even prior to the entry of the present project but has expanded during the past six to seven years.

A characteristic of the Bantay Lasang organization that made it effective is its strong leadership and well-motivated membership that has earned the respect and confidence of the local residents, the local government, and the local Department of Environment and Natural Resources (DENR) office. The leaders bear strong influential traits that command obedience and respect from their community as evidenced by the recent result of the barangay election that propelled several key members to barangay positions, including the "punong barangay" or barangay captain. This strength was a critical factor that the project identified and later cultivated to pursue forest protection. By tapping committed individuals, the project was able to quickly advance forest protection and smoothly implement forest protection programs in the area.

The Cauayan Bantay Lasang set-up is unique in that the organization is directly under the Mayor's Office. Members are deputized by the Mayor and the Provincial Governor, thus making them less subject to bureaucratic problems such as suspension of deputation orders that could interrupt on-going forest protection activities. Moreover, the deputation spared the members from the financial cost of applying at the DENR regional office in Iloilo City, located on another island. This arrangement not only eliminated the DENR bureaucratic procedures but also expedited deputation of forest enforcement officers. In summary, the arrangements were favorable to the project because they allowed rapid recruitment and deployment of volunteer forest enforcement officers (Bantay Lasang).

Forest protection in Pinamayan was readily adopted probably because of the existing community-based forest management (CBFM) program of the government established prior to the present project. Residents in the area are mostly stewardship contract (CSC) holders and had succeeded in forming a closely-knit community organization that overcame political instability, in contrast to another neighboring community that succumbed to destabilizing elements. They were aware of their responsibilities as farming residents living close to the forest. The project used the then existing CBFM program as an opportunity to invite all CSC holders and re-enlist them under the protected forest management system of the Southern Cauayan Municipal Forest and Watershed Reserve. These individuals were also the focus of the Bantay Lasang house-to-

house IEC visits that promoted forest and wildlife protection within the forest reserve.

Although timber poaching sometimes occurred in the protected area, other illegal activities were effectively minimized. The Bantay Lasang had significantly reduced timber poaching by at least 80%, as estimated and validated during a forum. This is indicated by evidence of plant regeneration and reduction of gaps between forest fragments from satellite imagery and ground observations. Abandoned clearings had begun to regenerate into secondary forest.

Community work. Typical of barangays located in far-flung places, Pinamayan is wanting of biodiversity information. This was an apparent gap identified in the Pinamayan project that needed to be addressed prior to the implementation of the forest protection program. This gap is the primary reason for the lack of initiative for local government units to undertake forest protection. A series of information campaign and consultations was conducted to address this gap. A full-time, live-in community organizer with background in biodiversity conservation was employed by the project to promote biodiversity conservation and project acceptance by the local community.

Employing the participatory approach to community work, the project identified all stakeholders in the area and involved several members of the local community in forest protection. Taking this further, the project carefully selected individuals to lead the forest protection program. The selection process was also carefully done with the help of the community organizer and the endorsement of the mayor. Although forest protection existed prior to the present project, full protection of the watershed reserve did not materialize until the project established the implementing rules and regulations for the protected watershed area.

The benefits of community work—including information, education and communication (IEC)—resulted in improved knowledge and appreciation of biodiversity. This became a rallying point for pushing for a municipal ordinance creating the Pinamayan watershed and forest protected area in Cauayan. Concomitantly, there was also a decline in the incidence of timber poaching and wildlife collection in the area.

Information, education, and communication. To enhance forest protection activities, the Bantay Lasang (BL) were trained on wildlife monitoring (bio-monitoring) and paralegal techniques on apprehension and procedural processes leading to litigation. This included actual training and exposure to wildlife surveys dealing with the identification of dipterocarp trees, avifauna, herpetofauna, and mammal species. In addition, BL members were also taught to assess cave habitats in support of the cave laws and ecotourism program of the local government. The project also helped build up the BL capacity to do documentation and prepare technical reports. Several members of the BL were trained to do "secretary work" including encoding of field observations and simple data processing, using a computer provided by the project.

Considering that the terrain was difficult to navigate, the project identified choke points along the forest corridors that were frequently used by timber poachers for their escape route. These entry and exit points were assigned to BL members living close to the area for monitoring. Aluminum signboards were set up along these routes as a reminder that wildlife collection is prohibited in the area. The BL also marked mature trees using paint to deter timber poachers. These marked trees have recorded GPS readings and are checked during their regular bio-monitoring activities.

Providing the BL with communication equipment was also an essential step in improving their capacity to protect the forest patches. They were provided with radio transceivers for effective communication in the area. Because radio transmissions are limited by range and are reduced by mountain barriers, a network of relay communication system was established to allow sufficient coverage of signals in the area. This involved passing communication from one hand-set (radio transceiver) holder to another. The communication system was so effective that even the local government unit (LGU) or the municipality made use of it to communicate to far-flung areas in Cauayan and to adjacent municipalities. Because radio frequency is shared in the transmission, the BL adopted codes to safeguard their official BL messages. The project also invested on aerial antennae to bolster signals and set up a solar panel to charge radio transceivers.

The project involved local schools in the dissemination and promotion of wildlife protection materials. It adopted two primary and secondary schools in its wildlife information program. One primary school was provided with a computer that contained locally-produced software programs on the themes of environment in general and wildlife information. These schools were periodically provided with reading materials, including publications from HARIBON Foundation. As a result of the support from the project, one of the primary schools won an award as one of the best environment-friendly schools in its division.

Incentives for forest protection. Incentives were provided to reinforce current policies and were designed not to deviate from the focal objective of forest protection. One incentive impressed on the Bantay Lasang was for them to protect the "mother" trees that produced the seedlings for their reforestation projects and endemic seedling market. In return, they were allowed to collect a certain portion of the naturally generated seedlings for their nursery.

The project helped the community set up two endemic tree nurseries for their "rainforestation" farming, an activity that involved planting of native species. A large nursery was set up near the seed source and served to provide materials for local tree-planting activities. A second smaller nursery was set up at the barangay proper that was more accessible by land vehicles. This nursery served as a distribution center for endemic plant materials sold to customers.

CONCLUSION

As in coastal and marine research and development studies (see Alcala, 1998), the present case study shows that an integrated set of activities (research, IEC, livelihood support, community organizing, technology intervention), with the full participation of the members of the community, can be effective in achieving the project goal, which is—in this particular example—protection of terrestrial biodiversity resources. Research involving the community is important in that the survey results on the biological and community resources were utilized to support informed decisions of the LGU and as primary inputs to forest management planning. The key roles of the academe, which is perceived to be development and conservation oriented as well as fair and neutral with regard to political issues, include initiating activities, providing technical and technological interventions, and helping access funding. However, after all has been said and done, it is the local communities and the local government units that provide sustained support for all conservation and development projects in a setting such as Pinamayan. Although the Pinamayan project has shown evidence of success in forest protection, a long-term and detailed assessment needs to be done to determine its sustainability.

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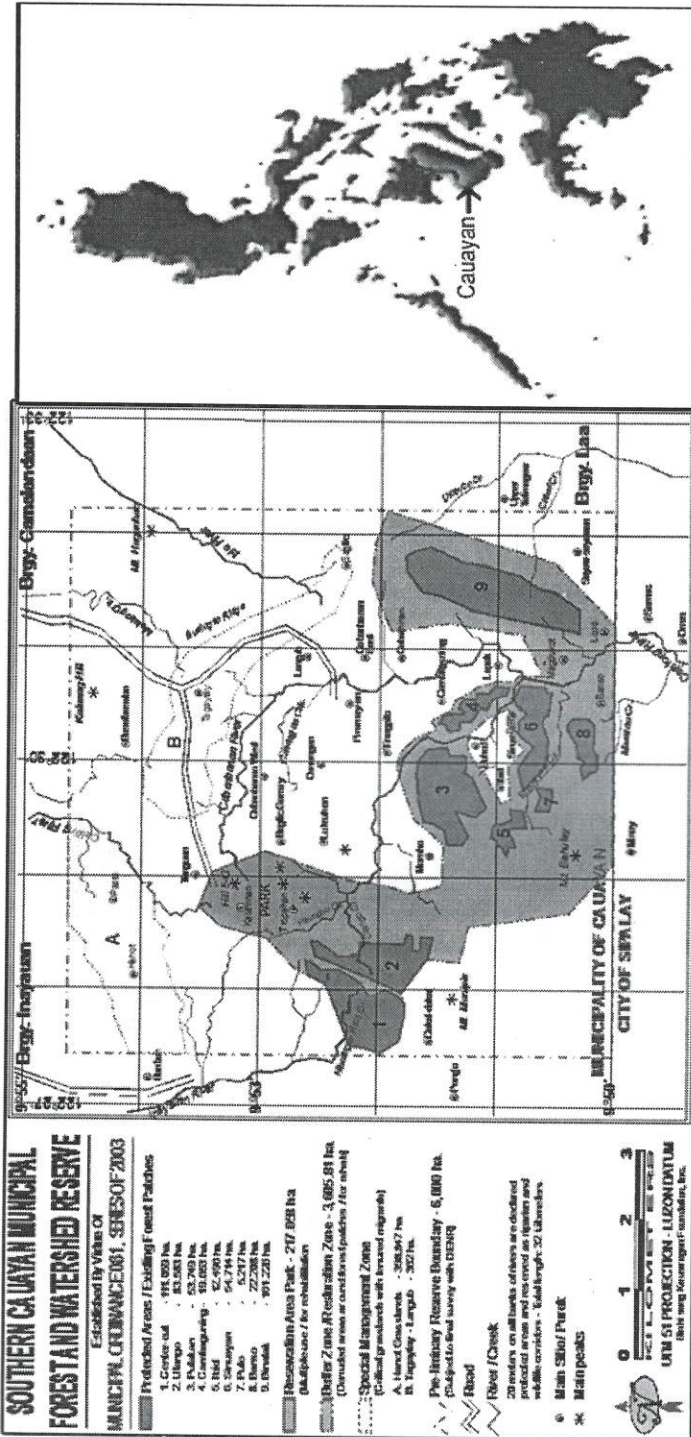


Figure 2. Research Site

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