FINAL TECHNICAL REPORT – PMMR PROJECT

21 AUGUST 2004

Project ID : **069265024**

Project Title : **Building Partnerships for Sustainable Management of Critical Watersheds in the Sierra Madre's PMMR, Nueva Vizcaya, Northeastern Luzon, Philippines**

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Collaborator : **Secretariat, Provincial Council for Sustainable Development-Local Coordinating Unit, ENRO, Capitol Cpd., Bayombong, Nueva Vizcaya, Northeastern Luzon, Philippines**

I. PROJECT BACKGROUND

The project locale is the PMMR - short for the Palali-Mamparang Mountain Range. It is identified falling under the category of very high [VH] priority terrestrial ecosystems of the Northern Luzon Biogeographical Region [Philippine Biodiversity Conservation Priorities, CIP, 2002]. Remarkably important is the role of the PMMR as the ecological bridge between the equally important terrestrial ecosystems of the Central Cordillera and the Balbalasang-Balbalan National Park in the west and the Sierra Madre Mountain Range in the east. The latter is home to a long chain of protected areas and forest reserves, notably the Penablanca Protected Landscapes of the Cagayan Province, the Northern Sierra Madre Natural Park, Isabela Province; the newly established Quirino Protected Landscapes, Quirino Province; the Casecnan Protected Landscapes, Nueva Vizcaya Province as well as the series of 17 watershed forest reserves along the stretch of the Aurora Province. The ecological bridge role makes the PMMR a vital corridor for wildlife to freely amble and ramble sans encumbrance from east to west, *vice versa*, following the flow of evolution sustaining life among interrelated ecoscapes and Biogeographical Zones in these regions.

At the PMMR corridor itself nevertheless, there are problems and issues predisposing conditions for increased threats that lead to the impairment of the natural integrity of watersheds serving as habitats for wildlife as well as stable ecoscapes providing environmental flows that sustain vital habitats and water values.

The existing conditions and indicated trends at the PMMR make the corridor an ecological hotspot in terms of such occurrences as rapid fragmentation of forests, degradation of watersheds, and alarming loss of wildlife population and species. These

consequences are generated by anthropogenic practices like upland agriculture [swidden farming], small-scale mining, wildlife poaching/hunting, and road development being part of continuing infrastructure development aimed at providing access to frontier villages at the PMMR corridor.

The abatement of the current scenario seems not forthcoming with unrelenting heavy in-migration of settlers mostly coming from the Cordillera Region on top of the rapid population growth of the two PMMR municipalities of Quezon and Kasibu, Nueva Vizcaya at 2.53% and 3.88%, respectively. These figures are well beyond the annual average growth rate of 2.36% at the national level.

One contributory factor to rapid population growth in the project area draws from the policy adopted by the provincial government that provides incentives for upland farmers especially in Kasibu and Malabing, Nueva Vizcaya leading to scaling up the rate of establishing citrus monocultures and tropical fruit-tree orchards at the PMMR. It must be noted that the land and microclimate suit the practice. Incentives are provided because of the increasing contribution by the local orchard industry to the economy of Nueva Vizcaya. Besides it also makes the province the growing fruit-tree or orchard capital in the northern Luzon Regions.

The Project Watersheds

The PMMR project watersheds fall within the critical headwaters of 2 main stream tributaries – the Addalam-Diduyon-Tubo River and the Quezon River. The former drains to the east on the side of the Sierra Madre emptying to the upper Cagayan River Basin while the latter drains to the west toward the Magat River Basin, which is also a major tributary of the Cagayan River system.

The total project area encloses 50,713 ha from 3 watersheds, namely: Kasibu Watershed [18,417 ha]; Malabing Watershed [13,115 ha] and Quezon Watershed [19,181 ha] [Please refer to the location map of **ENCLOSURE A**]. The PMMR project watersheds directly support a total population of about 45,000 people or more than 150,000 members if the immediate impact communities in the floodplains of the Addalam River Basin are accounted.

Important as a wildlife corridor, the PMMR also harbors the critical headwaters of the country's largest Cagayan River Basin that sustains the biosphere and its people of the vast Cagayan Valley Region. Its proper management ensures providing and maintaining adequate environmental flow considered the lifeblood of all ecosystems in these northeastern parts of Luzon Region.

Proper management of the PMMR corridor also means sustaining the productive capacity of agriculture-based regional economy feeding not only a population of about 3 million

people in the Cagayan Valley but also those from the other Regions of Luzon Island having deficit production of the basic staple grains. The Cagayan Valley Region is currently considered as the rice and corn basket of northern and southern Luzon provinces.

Project Watersheds and Wildlife

The basic reasons making the PMMR corridor an important geographic management unit is its role as habitat of wildlife and as watershed haven. Considering wildlife alone, project surveys show considerable number of wildlife species of amphibians, reptiles, birds and mammals not only regarded as important because of their ecological existence, but also because they constitute an essential component of the local food systems among the rural communities in the project area. Traditional hunting among the indigenous ethnic groups is still practiced.

From field transects and key informants' data/information, the wildlife species present in the project watersheds include 9 mammals, 18 birds and several amphibians and reptiles. This study validated the presence of important wildlife species as documented earlier by researchers commissioned by CAMC - a mining concern wanting to operate a copper-gold mining project located at Didipio, Kasibu, Nueva Vizcaya. CAMC data showed there are 8 species of amphibians; 7 reptilian species; 52 birds; and 9 mammal species in the project watersheds. Of these, there are 4 Philippine and 3 Luzon endemic species of amphibians and reptiles and 25 Philippine and 5 Luzon endemic species for birds. Many of the species fall under categories of vulnerable, threatened, near threatened and few endangered ones.

In sum, 64% [42 of the 66 species] are endemic in the Philippines, and 9 are found only in the Luzon Faunal Region. Most species are poorly known in terms of their basic biology, life history and ecology, which make their conservation quite important indeed. Existing forest fragmentation, accelerated slope and soil erosion, watershed degradation and decreasing environmental flows from streams and rivers in the watersheds seem to indicate retrogression contributing to downward spiral for wildlife existence in these watersheds. The scenario seems to indicate a negative trend toward high extinction possibilities unless conservation measures are put in place. These are top priority concerns that the PMMR project would like to pay its attention.

Threats to Watersheds and Wildlife

The major threats mentioned earlier are:

- Accelerated slope and soil erosion from road construction, upland farms and mining;

- Heavy siltation/sedimentation of rivers and streams from upland agriculture, small-scale mining, quarrying and the like;
- Expansion of orchard farms and track gardens pushing the forest frontier deeper into the remaining forest zones;
- Environmental pollution from pesticides and fertilizer applications by orchards/monoculture plantations operators;
- Expansion of settlements and built up areas encroaching into forest resulting from rapid population growth; and
- Road network development to promote access of remote villages and to establish farm-to-market roads supporting the thriving orchard industry on Kasibu villages particularly the Malabing Valley farming households.

II THE PMMR PROJECT

The simultaneous goal of conserving and sustaining ecosystems as well as of promoting livelihoods and income generating activities in a geographic management unit such as the PMMR is challenging enough if not daunting task. However necessity dictates managing the project watersheds for both dual functions as drainage areas needing interventions in order to foster the integrity of the land and as ecosystems supplying collective social goods and values. Complication arises because settlers permanently occupy these watersheds.

The integral condition of the PMMR needs protection in order to provide continuous hydrologic as well as environmental services, lack of which would alter the basic foundations required for sustainable development. This is the core principle guiding the PMMR project in crafting the strategies and activities that were initially implemented during the 3-mo period for which the CEPF provided funds for the project. The same principles will be employed for succeeding interventions to be made.

Noteworthy at this point of time is that there are also other projects and activities being done by member organizations of the PCSD-LCU network complementary to what the FRENDS facilitated for the PMMR project as funded by the CEPF. The Secretariat at the PCSD-LCU takes care of the integration of all activities synchronizing all efforts introduced at the PMMR corridor. There is good sign for more mature collaboration among partners and the opportunity for integration in order to share resources to optimally implement projects and activities addressing pressing issues and problems at the PMMR corridor.

PMMR Project Approach

Innovative approaches were proposed to tackle current and potential issues at the PMMR corridor so as to achieve the goals targeted for the project. These are originally spelled out in the 3-yr full-blown project proposal submitted by FRENDS to the CEPF. Aimed at

providing the foundation for designing the project strategies and activities within a holistic framework toward sound and rational management of the PMMR watersheds, the following approaches were categorically mentioned:

- Provision for integral assessments of watershed resources and services;
- Adoption of generally accepted land use zoning and use allocation at the watershed level;
- Promotion of broad-based participation throughout the project cycle;
- Institutionalizing partnerships optimizing collaborative management options and opportunities;
- Infusion of environmental friendly farming technologies to support viable upland farming systems and livelihoods;
- Scoping for potential and new community-based livelihoods to further provide livelihood opportunities for the locals;
- Building the capability of watershed stakeholders to enable participate actively and effectively in management; and
- Empowerment of local stakeholders being the ultimate actors in realizing harmonious farming systems and practices with watershed management and protection for collective goods and services.

During the crafting of project strategies and activities, appropriate applications of the approaches sought to provide viable interventions both addressing conservation and development goals and objectives of the project. From the assessed alternative strategies, the ones contributing the greatest impacts, thus leading to better achieve the project goals and objectives are given high priorities for implementation.

Project Deliverables

Of the 7 outputs from the full-blown 3-yr project proposal for the PMMR watersheds, 4 elemental deliverables were approved for a 3-mo project period initially funded by the CEPF, to wit:

- Completed biophysical, environmental and socioeconomic profiles for the project watersheds;
- Conducted awareness and training for local government officials, community leaders and watershed users;
- Conducted consultations and dialogues with officials and communities on watershed, environment and biodiversity issues at the municipal levels; and
- Forged stakeholders' partnerships with adoption and affirmation of Memoranda of Understanding.

III BODY OF THE TECHNICAL REPORT

A The Four Major Outputs

1 IEC, awareness generation and training [IAT] conducted

Awareness generation; communicating information and educating the watershed stakeholders; and conducting training were integrated with other activities in pursuit of achieving the 3 other outputs in this project. It means that even during the launching of the PMMR Project or in the process of community dialogues, opportunities for generating awareness are incorporated. Tables 1a and 1b present the details of these activities. The related modules prepared and presented during the facilitation activities are contained, among other documents, in **ENCLOSURE B**.

Participants to the IEC, awareness generation and training activities were the stakeholders of the project watersheds composed of municipal and barangay officials, peoples' organization key members, youth council leaders. In all cases, FRENDS together with most members of the PCSD-LCU network conducted these activities with facilitation support as well as involvement.

The discussions and deliberations centered on why the PMMR was chosen as a project site, why watersheds were used as management unit dealing on integrated natural resources [watersheds, forests, land and soil, biodiversity, etc.], the necessity for creating collaborative partnerships vested with oversight and management authority and responsibilities with respect to watershed development for community livelihoods and conservation fostering habitats and ecosystem integrity.

Basic concepts, principles, approaches and methods for managing watersheds and ecosystems were introduced as a way to provide basic foundations for implementing watershed and natural resources management activities by the stakeholders themselves. Details of the integrated water resources management systems as being carried out in the country were also discussed impressing upon the stakeholder-participants the central position of water when integration considerations must be accounted for in planning and management. The emerging issue of managing environmental flow makes water even much more important in view of its role in maintaining healthy and stable ecosystems providing life support systems and keeping the dynamics of habitats for wildlife resilient and stable. Environmental flow must now constitute one use class together with the traditional water uses such as domestic, irrigation and industrial purposes.

The spatial strategic role of catchment areas deserved detailed treatment and was deliberated fully with the majority stakeholders. The catchment areas seem to coincide in location with the watershed zones requiring strict protection, these are the frontier areas, the ridges and steep slopes, the habitats for wildlife; and most importantly, the areas

where water originates and flows downstream. Proper management of upper catchment areas was inculcated in the minds of the participants.

The ubiquity of upland agriculture in all 3 project watersheds undeniably makes the practice the most predominant threat to the resources of the watersheds, the forests being cut down and replaced with monoculture, wildlife species are banished because the forests are gone or fragmented to a degree that renders these ecosystems unfit for habitation by wildlife, among others. Upland agriculture received special treatment for assessment as to its impacts on the watersheds and biodiversity resources and values, water supply and sustainability. Agroforestry land use as an alternative land use system and technology was proposed for adoption in order to improved the ways upland agriculture practices are done in steep slopes and mountainous terrain.

Table 1a. IEC and awareness generation activities at the PMMR project watershed, 2004.

DATE	IEC AND AWARENESS GENERATION	PARTICIPANT
03/11/04	• Socializing the PMMR Project to the PCSD-LCU Partners	PCSD-LCU Partners
03/18-19/04	• Info on the PMMR Project • Brief on PCSD-LCU as collaboration network • Policies, programs, projects & activities on IRM in Nueva Vizcaya • The watershed hydrology • The impacts & threats to watersheds	Barangay officials, PO leaders, youth leaders, Municipal officials of Quezon, Nueva Vizcaya & PCSD-LCU partners
03/30-31/04	• Socializing the PMMR Project to the PCSD-LCU Partners and Kasibu watershed stakeholders	Barangay officials, PO leaders, youth leaders, municipal officials of Kasibu, Nueva Vizcaya. & PCSD-LCU partners
04/19-20/04	• PMMR Project orientation • Brief on the PCSD-LCU mechanism • Brief on world megadiversity countries & hotspots	Key officials of Quezon & Kasibu plus PCSD-LCU partners
04/23/04	• Orientation the PMMR project and its implementation as a collaborative undertaking	NVSU staff & students
05/21/04	• Orienting the-PMMR Project for the PCSD-LCU partners	Local stakeholders & officials of Kasibu, Nueva Vizcaya
06/01/04	• Orienting on the PMMR Project • IWRM premise, principles & elements • Protecting the water source • Agroforestry technologies	Municipal officials, women leaders, PO leaders, youth leaders of Quezon and PCSD-LCU partners wishing to go.
06/02/04	• Principles, concept & practices on watershed management • Basic watershed management methodologies & approaches • Catchment for IWRM practices, approaches & components • Protecting the water source steps & the barriers approach • Agroforestry technologies	Brgy. & Municipal Officials, Women Leaders, PO Leaders, Youth Leaders of the Municipality of Kasibu and PCSD-LCU
06/08/04	• Action planning	BLGUs of Quezon
06/09/04	• Action planning • Agroforestry & organic farming	BLGUs of Kasibu

The range of topics intended to enhance the capability of the stakeholders include, among others, the following topics:

- Participatory community resource management planning and mapping
- Action planning focused to address priority problems in the watersheds
- Composition, structures, and functions/dynamics of watershed ecosystems
- Land use classification and watershed zoning for land use allocation
- Watershed management and protection tools and approaches
- Agroforestry technologies and organic farming including IPM

Table 1b shows the details of carrying out the activities for the duration of the project indicating the participants for each activity.

2 Consultations/Dialogues with LGUs and communities achieved

Consultations and/or dialogues were conducted as a means for socializing the PMMR Project to key watershed stakeholders especially officials and leaders of the municipal and barangay local government units. In conducting these activities, the regular members of the PCSD-LCU network as earlier organized through the effort of the CIP-SMBC Program were also actively involved.

The discussions in these activities centered on the import of the PMMR corridor in providing collective goods and service particularly biodiversity and water values. The need for harmonizing the conservation and development goals and objectives in the management of the PMMR Watersheds as well as the need for integrating the efforts of agencies, instrumentalities, POs, NGOs, civil society, media and the private sector in order to optimize the use of organizational resources through collaboration and complementation were emphasized.

Ultimately the forging of partnerships that would formally institutionalize collaboration and resource sharing efforts among watershed stakeholders was deliberated aimed at putting in place an operational management alliance for each project watershed.

The activities that supported this output are shown in Table 2. Specific module presentations were prepared and used in facilitating the process of orientations and dialogues conducted most of which were onsite at the municipalities. Samples of these documents are contained in **ENCLOSURE B**

Table1b. Capability building activities at the PMMR project watersheds, 2004

DATE	CAPABILITY BUILDING	PARTICIPANT
03/18-19/04	• Community resources management and planning • Land use classification & land zoning • Community action planning	Barangay officials, PO leaders, youth leaders, Municipal officials of Quezon, Nueva Vizcaya & PCSD-LCU partners
03/29/04	• Construction of the PRA instrument	FRENDS technical staff
03/30-31/04	• Community resources management and planning • Land use classification & zoning	Barangay officials, PO leaders, youth leaders, municipal officials of Kasibu, Nueva Vizcaya. & PCSD-LCU partners
04/12/04	• Surveys, assessment methods & profile documentation	FRENDS technical staff
04/19-20/04	• Intro. to watershed ecology • Definitions of ecology and watershed • The watershed climate & hydrology – structure, function & ecological succession • 8 tools of watershed protection in developing areas • Ecotourism potentials	Key officials of Quezon & Kasibu plus PCSD-LCU partners
06/01/04	• Preparation of action plans, Quezon addressing identified & prioritized problems and issues • Protecting the water source • Agroforestry technologies	Municipal officials, women leaders, PO leaders, youth leaders of Quezon and PCSD-LCU partners wishing to go.
06/02/04	• Preparation of action plans on addressing identified and prioritized problems and issues • Basic watershed management methodologies & approaches • Catchment for IWRM practices, approaches & components • Protecting the water source steps & the barriers approach • Agroforestry technologies	Brgy. & Municipal Officials, Women Leaders, PO Leaders, Youth Leaders of the Municipality of Kasibu and PCSD-LCU
06/08/04	• Action planning	BLGUs of Quezon
06/09/04	• Action planning • Agroforestry & organic farming	BLGUs of Kasibu

Table 2. Consultations-dialogues with stakeholders at the PMMR, 2004.

DATE	CONSULTATION/DIALOGUE	PARTICIPANT
04/13/04	• Consultation & coordination	FRENDS key staff
04/27/04	• Dialogue on the implementation of the PMMR project	Municipal development council officials and members of Quezon, Nueva Vizcaya
05/19/04	• Discussion on the watershed partnership and crafting the Memorandum of Understanding [MOU] for the Watershed Partnership	Municipal development council officials and members, people's organization officials and members, community leaders & youth council officials
05/21/04	• Forestland conversion • Loss of forest biodiversity • Mining concerns in the area • Reduction of water supply in rivers/streams • Implementing management strategy & issues	Local stakeholders & municipal officials of Kasibu, Nueva Vizcaya
05/21/04	• Presentation of the MOU to Quezon key stakeholders	Municipal development council & barangay development council officials and members, PO leaders, youth council officials, women leaders, et al.
06/02/04	• Migrant encroachment issues • Mining concerns in the project area & potential socioeconomic impacts	Barangay & municipal officials, women leaders, PO leaders, youth leaders of the municipality of Kasibu and PCSD-LCU partners
06/09/04	• Forestland conversion	Barangay local government unit officials of Kasibu

3 Watershed Profiles Completed

Profiles for the PMMR Watersheds were completed and written in a 55-page document [**ENCLOSURE C**] outlining the biophysical/environmental, socioeconomic and cultural attributes of the watersheds. The data and information used in generating the profiles were drawn from secondary information, earlier surveys and related plans such as the physical framework plans and Comprehensive Land Use Plans [CLUP] of relevant municipalities; from the results of the primary community surveys and transects at the barangay level through conduct of the Participatory Rural Appraisal [PRA]; and from the results of the community resource management planning and mapping [CRMP] exercises done with community leaders, key informants and other stakeholders of the respective watersheds. The corresponding profiles for Kasibu, Malabing and Quezon Watersheds are contained in the PMMR Project Watersheds Profiles.

In a nutshell, the watershed profiles have shown the 3 project watersheds are at the heart of the PMMR corridor. They are quite vital in many respects, for instance, they are situated at the headwaters of major streams; hence very critical water sources for many indispensable uses. The watersheds also contain the largest block of old growth forests in the whole PMMR corridor accentuated by Mt. Palali [not mentioning its historical importance] the towering green infrastructure for the province of Nueva Vizcaya. Complementing the remaining old growth forests, many unique and special formations of caves, underground rivers and panoramic waterfalls abound in the project area indicating high ecotourism potential at the PMMR.

Particular to Kasibu and Malabing Watersheds, the relatively high locations provide natural endowments with cooler weather conditions suitable to growing orchards and cruciferous vegetables, among others.

It was observed in both Kasibu and Malabing Watersheds that the dominant ethnic group is the Ifugao [45% in Kasibu and 70% in Malabing] culturally possessing unique farming technologies especially for mountainous terrain, e.g. Banaue Rice Terraces. He uses the traditional *muyong* [patch] system sustainably practiced in the province of Ifugao, Cordillera Region. Some aspects of the *muyong* skills have been brought to Kasibu and Malabing Watersheds except that the system now being adopted by the Ifugao in his newfound land has transformed into using one-crop type [monoculture versus diverse-cropped *muyong*], which unfortunately been packaged with intensive technologies relying on heavy use of fertilizers and pesticides. The rapid opening up of citrus farms from cut up forests appears to have been caused by these new upland farming technologies as also now practiced by other ethnic groups in the project watersheds.

The dominant livelihood in the project watersheds is farming with rice and corn as the main crops, complemented by planting of vegetables such as ginger, squash, legumes, etc. In Kasibu and Malabing Watersheds, the main orchard species planted is citrus [Satsuma variety is the most common] touted to yield high return beginning 4th year of growing the crop. Considered as a high-return product, the establishment of citrus farm could accelerate precisely pointing to the direction that requires conversion of forests into monoculture plantation. The need for strict zoning regulations as to land use allocation should regulate indiscriminate citrus farm establishment requiring forest conversion.

Land tenure is one among the problematic issues in the area. Only small proportion of lands within the watersheds is titled to private ownership. Sizable tracts are still within the forest zones but usufruct is a common practice. Noting the fact that most watershed areas particularly in Kasibu and Malabing Watersheds are now under cultivation, it implies that usufruct is the rule rather than the exception. The absence of tenurial instruments has always been the reason for the many boundary conflicts arising between and among the farming community members. Kasibu's 13 barangays are also claimed to belong to the municipality of Nagtipunan and Cabarroguis, Quirino.

Numerous organizations are identified within the project area but with moribund levels of action. Environmental concerns are peripheral to more mundane objects of attention like livelihoods, economic projects, fiesta celebrations, and the like.

The partnership being introduced for managing the watersheds would start not far from square one. Treated as a precious commodity, more than its attribute as an environmental resource - a manifestation of watershed hydrologic processes, water seems to receive growing importance and attention from the stakeholders, so it could be the best starting point for discussing watershed management under collaborative effort by various stakeholders in the watersheds.

Water supply for the community is derived from natural springs, river and streams using communal water system which facilities are constructed with minimum capital.

With profound origins, the *bayanihan* spirit is still alive among cluster of farmers. It could be adopted, enhanced and made to work positively cultivating volunteerism among stakeholders in view of recruiting broad-based support for better management of the watershed resources.

Watershed problems dominating the landscapes are as follows:

Kasibu & Malabing Watersheds

- Inadequate IEC and training activities for local community members
- Depletion of forests, riparian buffers and wildlife; and loss of biodiversity
- Absence of watershed [forest and biodiversity related] ordinance to provide rules for enforcing natural resource protection actions by LGUs
- Ineffective enforcement of existing forest laws relative to forest uses
- Inadequate potable water supply for local community consumption
- Inadequate irrigation systems providing water supply to farms
- Low price of agricultural products and lack of markets
- Poor conditions of farm to market roads
- Poor health and sanitation facilities
- Poor peace and order condition

Quezon Watershed

- Indiscriminate establishment and expansion of slash and burn agriculture
- Illegal poaching of timber and freshwater fishery resources
- Occurrence of wildfire on grasslands/open lands in summer
- Aggravating water pollution from small-scale mining
- Air pollution from poultry projects

The penultimate part of the watershed profiles outlines the envisioned direction and goals for more rational management of the watersheds and allied resources. Common fabrics of visions and goals for the 3 watersheds are sustainability, healthy watershed, ecosystem and habitat, clean water, productive land/soil, viable livelihoods, progressive local economy, among others.

Goals and objectives nicely matched with the ones this project earlier formulated relative to watershed and ecosystem management. Additionally and quite understandable, are watershed objectives that relate to providing more livelihoods, technical training and awareness generation and, of course the basic infrastructure development like farm to market roads needed to transport agricultural products to the market.

The items proposed by the communities constituting as watershed projects include:

- Affordable communal irrigation systems
- Community-based ecotourism development
- Regeneration of forests and water resources
- Protection of water source catchments
- Conduct of IEC and capability building activities
- Conduct training on income generating projects/enterprises
- Networking and linking with markets
- Conduct of workshops on forest and environmental protection, upland agricultural technologies, and integrated waste management
- Protection and conservation of unique and aesthetic areas for ecotourism uses
- Formulation of environmental policies at the local levels

4 Watershed partnerships at the municipal levels forged

Two partnership councils were formed, the first corresponds to the Kasibu Watershed Management Partnership [KWMP] for the Kasibu and Malabing Watersheds and the second is the Quezonian Watershed Management Board [QWMB] for the Quezon Watershed.

Forming the councils consisted of series of awareness/IEC seminar-workshops as well as consultations/dialogues conducted with municipal officials and barangay leaders including people's organizations and community cooperatives with the constant involvement by the PCSD-LCU partners from the national government agencies, non-government organizations, the private sector and media, et al. In all the activities it was impressed upon the participants the importance of building watershed alliances that would provide the organizational arrangements to work for the streamlining of management interventions for the PMMR watersheds.

These activities resulted in the creation of municipal-level Watershed Management Boards for Quezon and Kasibu, Nueva Vizcaya. The partnerships assumed the names: Quezonian Watershed Management Board for the Quezon Watershed and Kasibu Watershed Management Partnership for the Kasibu and Malabing Watersheds. Communities of the Kasibu and Malabing Watersheds opted for a common board having common members at the municipal administrative level. Partners to the 2 Watershed Boards adopted the corresponding roles and responsibilities of each partner as stipulated, *inter alia*, in the Memoranda of Agreement formulated by the partners themselves and affirmed by signing the MOU documents [Please refer to **ENCLOSURE D**]. On the signatories to the MOUs, the number of partners is 32 for QWMB and 49 for KWMP; the higher number for the latter is attributed to more barangay representations coming from Kasibu and Malabing Watersheds.

B Some observations

For the short period that the PMMR project was implemented, some observations mostly related to community processes are worth mentioning:

1. Community consultations/dialogues can easily flare up into rhetoric when unguided participants are not reined in and they would ramble into open-ended discussions and strayed perorations.

2. Some inclinations or tendencies for participants vested with authority or influence to monopolize discussions and pre-empt free exchange of ideas and opinions. Political inclinations at times color the essence of deliberations so that achieving common understanding among participants seems farfetched and would make issues difficult to resolve. On the lighter side, open dialogue conducted in a free exchange of ideas and opinions would result into resolutions and solutions the group would agree and adopt with ease.

3. IEC cannot accomplish in one stroke of engagement, as it is difficult to move people to act even if they agree on the ideas, principles and means of doing things because of divergent time preference or even due to personal reasons. Once enlightened however, the communities are too impatient wanting to implement them into actions.

4. Watershed and biodiversity terminologies are alien to the locals although they can explain how water flows from the peaks, ridges and headwaters toward foot slopes or downstream, or that water penetrates into the ground. They can also explain why species in the locale are abundant earlier but becoming scarcer due to hunting and gathering for domestic use; but they hardly understand why some wildlife species are banished from the scene [concept of extinction], and gone forever.

5. Training activities enhance the enthusiasm of community members to implement watershed activities that directly positively affect their concerns. From this observation, it would be best to introduce watershed interventions related to water use. In this case projects dealing on sustaining water, increasing income from upland farming, diversifying farm crops to increase aggregate yields, *inter alia*, would be acceptable.

6. The low entry level among participants on the ways for managing watersheds and conserving biodiversity implies more IEC and awareness generation activities as well as training activities should be carried out in order to impart adequate knowledge and skills among the stakeholders.

IV CONCLUSIONS AND RECOMMENDATIONS

The conduct of this 3-mo project was fairly successful in terms of the 4 basic deliverables the project was set up to accomplish. There is much to be desired considering the prevailing development at the PMMR corridor. As stated earlier, the PMMR is an important block of ecoscapes for many reasons but it also serves as cradle for developing a lucrative local orchard industry. Environmental degradation is alarming under present circumstances; hence the need for rationalized interventions to innovate on upland agricultural practices in the same manner as to protect the environment at the corridor.

After the initial phase of bringing the seeds for sustainable management of the PMMR watersheds, opportunities for doing deeper project interventions are opened up. This points to the need for further technical and financial support for continuing activities to be undertaken if only to push the stakeholders of the PMMR corridor pursue the goals of sustainable development they envisioned in their community resource management exercises.

Some recommendations are proposed for possible implementation in succeeding project implementation, namely:

1. Recognizing the importance of the watershed boards as now organized by the local communities for the PMMR watersheds, it is considered urgent to continue awareness and IEC efforts, perhaps focusing on the community official and leaders, not only for the purpose of empowering them carry out watershed projects, but more important, to make the officials and leaders trail-blazing efforts to enact ordinances and local regulations supporting watershed and natural resources management and protection.

2. For water-related projects, perhaps succeeding interventions could focus on water source protection strategies and projects as this is related to providing adequate water supply for the communities while watershed headwaters get protected too.

3. As for upland farming, introduction of agroforestry would best address concerns for diversifying crops, would increase aggregate income while on the side of conservation, ultimately promote biodiversity in the farms.

4. As mostly officials of key agencies and instrumentalities people the watershed boards, they are in the best position to engage LGUs integrate in their development plans [physical framework plans, comprehensive land use plans, etc.] considerations for watershed and biodiversity resources.

5. On the prevailing conflicts of boundaries among community landholders, providing instruments for tenure on these land parcels would be a definitive starting point for resolving issues of boundary conflicts and promote accountability in the community with respect to placing lands under management and proper uses. This eliminates the tragic land degradation issues commonly associated with open-access resources including forests. The uncontrolled entry of migrants in the community would be eliminated once tenurial rights are established and the local government units strictly monitor migrant entry and movements.

6. Zoning of watershed areas into appropriate uses would reduce the problems related to soil erosion, land use and land degradation. A simple maxim states that land zoning when properly enforced and monitored could solve about 90% of land use problems as the remaining fraction be taken care of by management. Each local government unit must prepare its land use plan accounting all potential uses and adopt a zoning ordinance that guides the community allocates the lands.

7. The PCSD-LCU as clearinghouse for integrated natural resource management in the province should further be strengthened to facilitate the integration of project interventions at the PMMR corridor as in any other geographic units in order to promote optimal collaboration and resource sharing mechanisms among stakeholders at the PMMR corridor.

V. FINANCIAL REPORT

Enclosed in this report.