Indigenous knowledge and practices of tribal groups on community-based forest management program: The case of Santol, La Union

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Abstract

This analyzed the perceptions of tribal communities regarding forests and their indigenous management practices in the Community-Based Forest Management Program in La Union, Philippines. It was conducted in two barangays (villages) which were awarded a Community-Based Forest Management Agreement (CBFMA) by the Department of Environment and Natural Resources (DENR) in 1996. Secondary data was obtained from the DENR and primary data was collected through semi-structured household interviews, group interviews, and participant observations. Semi-structured interviews were used to elicit information on household socio-economic characteristics while open interviews described the perceptions on forest resources and their use. Descriptive statistics were used to analyze the data. Findings revealed that local people have several indigenous practices related to forest management especially with regard to the use of forest products and growing trees in their farms. However, these local values and practices are not reflected in the CBFMA, as this program focuses on plantation forestry rather than on integrating forestry in the local land-use system. As a policy recommendation, indigenous knowledge systems must be understood in the light of the interaction of the traditional and modern systems of governance and as having its specific features with respect to both technical and institutional features.

Keywords*: community forestry, indigenous knowledge and practices, perceptions, local values, forest uses and local institutions*

Introduction

Community-based natural resources management (CBNRM) has evolved from experiences in wildlife conservation, development of social forestry and scientific developments regarding common property resources. CBNRM is generally defined as the use and conservation of natural resources on the basis of control over, management of and use of natural resources by local communities with basic assumptions of sustainable resource conservation and improved socio-economic development (Wiersum, 2003).

In the Philippines, community-based resource management (CBRM) is a key factor in reversing the process of environmental degradation within the context of increasing human population exerting more pressure on dwindling resources. CBRM is broadly defined as a process whereby the people themselves are given the opportunity and responsibility to manage their own resources, define their needs, goals and aspirations, and to make decisions affecting their well-being (Sajise et al., 1999). It is inherently evolutionary, participatory and locale-specific and considers the technical, socio-cultural, economic, political and environmental factors impinging upon a community. It stands in contrast to the traditional approach in resource management.

The shift to locally-based or user-based resource management started in the early 1970s with the irrigation sector, followed by the forestry sector in the early 1980s and fisheries and mining towards the early 1990s (Sajise et al., 1999). These shifts were not total devolution but leaned toward co-management where the state and the community, together with other stakeholders, share management responsibility of access, control and benefits on the use of these resources.

Since the late 1970s, several programs to stimulate community involvement in forest management have been undertaken regarding forestry (Figure 1). This approach was strengthened in 1996 through Presidential Executive Order No. 263 adapting the Community-Based Forestry Program (CBFMP) for sustainable forest management. CBFMP consolidates all existing government programs involving community-based resource management. Underlying CBFMP are the principles of social equity, sustainability and community participation in forest management and biodiversity conservation. The immediate task is to create and nurture an enabling environment in which people can manage their resources

in a sustained manner. As such community empowerment, integration of people-oriented forestry projects, deregulation, decentralization, and devolution are the key strategies for promoting CBFMP. In essence, the Philippines has moved from token participation to total involvement of communities in forest resource management by transforming the people from mere partners to managers.

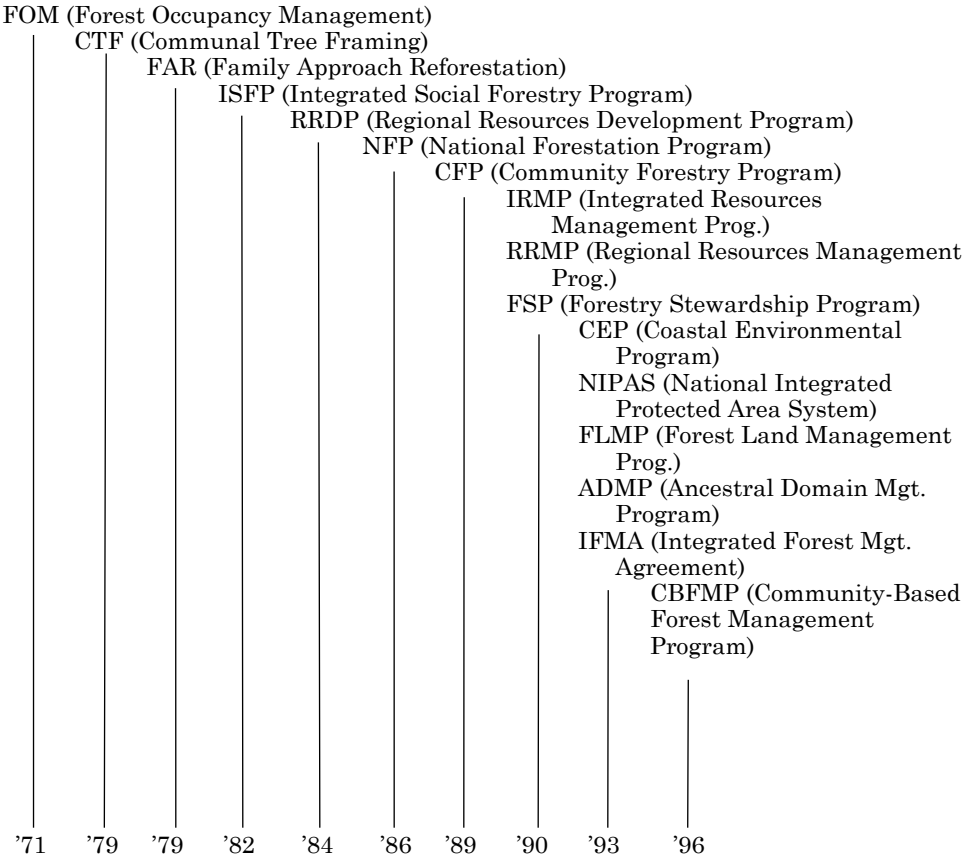

Figure 1. Evolution of Community-Based Forest Management Programs in the Philippines (Patterns of major policies and programs that led to the development of CBFM, adapted from DENR, 1996)

As a result of the experiences gained from the various social forestry projects in the Philippines, it is now recognized that local communities have, in many cases, developed their own indigenous forest management

practices. These practices may offer a good base to further stimulate community-based forest resource management (CBFRM).

It is now generally accepted that programs attempting to intensify forest management and conservation through community participation should try to incorporate indigenous knowledge and practices (Kajembe, 1994). To ignore people's knowledge is almost to ensure failure in development and such failures have been reported widely in literature (Warren, 1991; Salas, 1994; Kajembe, 1994).

Community forestry programs can be tailored to incorporate local people's perspectives, needs and aspirations. Existing community forest management practices reflect a great amount of indigenous knowledge and experiences with respect to the utilization and conservation of forest resources (Wiersum, 1996). These knowledge and practices can be very useful in improving the success of community-based forest management programs in developing countries like the Philippines.

With the implementation of Executive Order # 263 (Community-Based Forest Management Program) in 1996, the Philippine State acknowledges and supports the capacities of local communities and indigenous peoples to protect, rehabilitate, develop and manage forest lands. However, the success of most of the community-based forestry programs in relation to the role of indigenous knowledge and practices needs further assessment (Serra, personal communication)[1]. Given the utmost importance that indigenous knowledge and practices can contribute in the success of community-based forest management programs, it is imperative that detailed and site-specific study of the existing indigenous knowledge and practices has to be conducted.

It is along this line that this study aims to investigate the nature of indigenous knowledge and practices in community-based forest management program in La Union, Philippines. Especifically, it seeks to (a) analyze people's perceptions in terms of their local values and their role in their land use systems; and, (b) find out indigenous local practices related to forest management, and how these are integrated into the community-based forest management program.

Methodology

The main criterion considered in selecting the study site is inclusion in the Community-Based Forest Management Program (CBFMP) of the DENR and recognition by the National Commission for Indigenous Peoples (NCIP) as a cultural/tribal community. The municipality of Santol (Figure 2) was chosen for the study because it is a site of the CBFMP of the DENR. The project is operating in two barangays (villages) namely, Lettac Sur and Ramot.

Within each of the two villages, 35 households were selected at random as respondents. This was accomplished by making a numbered list of all 271 households in the two villages. With a sampling size of 13%, 70 households served as the unit of analysis of data collection, with 35 respondents representing each barangay in the interviews.

The study relied on both secondary and primary data. The former mainly consists of the study of relevant documents such as project reports, annual reports, progress reports and case study reports of the DENR specifically from the provincial and municipal offices. Primary data collection relied on empirical research based on the combination of the following data collection techniques: semi-structured interviews and open group interviews and participant observation. A questionnaire with both open-ended and closed questions was used for the interview. In addition to informal interviews, open-ended interviews were held with groups to elicit background information as well as specific information on forest resources and their uses. Participant observation was used to enable the researcher to form part of the situation under study. This type of observation was useful in crosschecking the data generated by other methods of collection.

The content of the interviews was coded following a simple coding scheme and then tabulated afterwards. Mostly descriptive statistics was used in the analysis. As the data indicated that the two barangays chosen did not differ with respect to forest-related practices, the two barangays were treated as one case in the study. Therefore, further analysis focused on social stratification only.

Findings

Livelihood & landholding types

Five categories of livelihood sources were identified in the study areas, namely: staple crop production, non-staple crop production, forest products, livestock production and off farm activities. Staple crop production is the dominant source of livelihood among the households in the two barangays, with rice as the major staple cereal crop grown.

There are four categories of landholding, namely: *talon* (wetland), *bangkag* (dryland), *uma* (swidden), and *bakir* (forest). Forest ownership is claimed to be private, even if the forests are located on the public forestlands. Staple crop production is usually located in wetland and swidden, non-staple crop production in dryland and swidden, forest products collection in forest, livestock in dryland and off-farm activities such as renting carabao (water buffalo) for transport, or working as a carpenter.

About 30% of the lands are under public forest while 40 of the respondents are claiming lands within the forestlands. Only the forest plantation maintained under the CBFM agreement is commonly owned. The area covered by the CBFM agreement is 416 hectares, of which 223 hectares are already planted with timber trees like narra, mahogany and yemane.

Local values regarding forest resources

There are five categories of values described, namely: production value, protection value, microclimate value, security value and spiritual value (Table 1). 100% of the respondents revealed that they value the forest in terms of its productive and protective functions. The productive values include source of major and minor forest products while the protective values include soil and water conservation and protecting local irrigation sources and canals.

Role of forest in local farming system

The farmers gave varied answers when asked about the role of the forest in their farming system (Table 2). 90% of the respondents perceived that an important role of the forest is the conservation of soil and water. 80% mentioned that the forest's role is the stabilization of terraces. In sloping lands under swidden cultivation, trees planted along the contours facilitate the formation of natural terraces. 60% responded that the role of the forest is for shade/weed control during fallowing of swidden plots. Figure 3 presents a diagram showing the roles of the forest in farming system. The diagram illustrates how the forest provides different functions to various forms of land use like wetland, dryland and swidden farms.

Role of forests in the collection of products

The various products collected from the forest are presented in Table 3. These products are sources of livelihood of local people which contribute either subsistence needs or much-needed income for survival. Timber, being the major product derived in the forest, obtained 83% from the household response. Timber species like mahogany and narra are used traditionally in constructing houses and shelters for livestock. Fodder collection is mentioned as forest products by 72% of the respondents. Fodder leaves and fruits are usually fed to livestock on a "cut and carry" system. About 76% of the respondents collect non-timber forest products (NTFP) such as bamboo, vines, medicinal plants and wild animals. Almost all products are locally consumed. Only wild mushrooms are sold seasonally.

Local management practices

Controlled utilization practices

According to local regulations, all members of the community have the right to extract trees for their household use from what are considered as private forest plot. Extracting trees to be sold, however, is strictly prohibited. Likewise, residents of other barangays are not allowed to extract trees unless they are originally from Lettac Sur and Ramot.

There are no regulations governing resource use of the forest particularly the volume or species of trees that can be harvested.

The right to cut and sell trees is exclusive to the owner. However, the use of private forest is not limited to the owner. Non-owners are also allowed to use forests as long as they do not cut trees. A common extraction permitted to non-owners is collecting firewood from branches of dead/felled logs.

Protection / maintenance practices

Many of the protection/maintenance practices described are also a means of controlled collection of products from the trees in the forest, dryland, and swidden. Pruning or removal of branches from the trees is sometimes done to achieve two objectives: to shape the tree and to obtain firewood at the same time. Likewise, farmers revealed that pruning of the trees located in field boundaries, especially those that are cropped, minimizes the intensity of shading on the crops.

Some fruit trees that are naturally growing in the forest, notably mango which has spread into the forest, are traditionally "smoked" by farmers to initiate flower formation. This is done by burning forest litter under a matured mango tree where the smoke reaches the canopy/ crown of the tree. For fodder trees, like *kakawate* and *ipil-ipil*, lopping is the most common technique to facilitate fodder development. The harvested fodder supplements the feed requirements of livestock when forage grasses are not available especially during dry season. Tending operations such as mulching, soil work and weeding are mentioned as important especially in the initial stages of tree seedling establishment. Soil work usually involves cultivation around the seedling and the farmers believed that this practice facilitates "aeration." Weeds removed are "mulched" around the base of seedling/saplings to conserve moisture and also prevent the soil from being heated under the sun. Farm manure from livestock are used as fertilizer for young fruit and forest trees.

Regeneration activities

Tree regeneration practices are important to ensure the sustainability of tree use activities in the dryland, swidden and forest. Farmers used three major methods for regenerating trees, namely: seeds, wildlings and assisted natural regeneration. Assisted natural regeneration is based on

the ecological principle of plant succession where the basic concept lies in protecting and nurturing tree seedlings and saplings already existing in the site. Assisting the natural regeneration of the site was done by enrichment, i.e., planting of commercial tree species like narra, mahogany and yemane. Farmers collect seeds from mature trees that are healthy and prolific-seeder. Before sowing the seed, viability test is conducted by placing the seeds in a container of water where the seeds that submerge in water are the only ones considered for sowing. Germinated seeds are transplanted to bolo (bamboo species) pots and tended for about five months in the nursery before they are planted in the field. Wildlings are seedlings that naturally grow on the forest floor. To supplement the seedling stock raised in the nursery, wildlings are collected and initially planted in transplant beds. Recovered wildlings are then transferred to potting medium made from banana trunks. Farmers also regenerate their forestlands through assisted natural regeneration. The objective of this practice is to liberate the broad-leafed species from competitors, encourage their growth and therefore facilitate their domination over the site. The various local management practices are not performed in all land use zones. Table 4 summarizes which practices are carried out in which land use zones.

The Community-based Forest Management Program and the Community-based Foresty Management Agreement

There are non-formal institutions that assume an important role in forest conservation. These include *amuyong* (voluntary labor exchange) which is similar to the *bayanihan* concept elsewhere in the country. Planting and harvesting crops, for example, is a cooperative undertaking within the community. It is common for two teams of *amuyong* groups to work within a plot in one day.

Formal institutions are also at work. The Barangay Development Council (BDC) is present in the two barangays. This is an association organized by the National Commission for Indigenous Peoples for tribal communities, with respective officers and members headed by a tribal chieftain and supported by elderly Advisers.

In addition to the BDC, a Tribal Forest Development and Management Cooperative, Inc. (TFDMCI) also exists. TFDMCI is a peoples' organization with a total membership of 93 organized by Ilocana Cooperative Development Foundation, Inc., an NGO, in 1995.

The establishment of the TFDMCI in the study sites has undergone "rough sailing" before it was finally approved in 1996. The approval of the TFDMCI paved the way for its granting of a Community-based Forest Management Agreement (CBFMA) with the DENR to manage 416 hectares of public forestlands. TFDMCI is government-assigned/selected peoples' organization which is comprised of a board of directors, general manager and project divisions. The organization is registered with the government and recognized as a recipient of the government support. A sizeable portion of the public forestlands is leased to the organization for it to manage. The perceived conflict between the barangay captain and the cooperative head resulted eventually in the "dormancy" of the cooperative association. Although the association was instrumental in the initial success of the CBFMP, the maintenance of forest plantations was neglected for the past two years. Negotiations are ongoing to revive the association to maintain existing plantations with the guidance and support of the BDC, tribal leaders and the Community Environment and Natural Resources Office.

In turn, the CBFMA is a production sharing agreement entered into between a community and the government to develop, utilize, manage, and conserve a specific portion of the forest land, consistent with the principles of sustainable development and pursuant to a Community Resource Management Framework (CRMF). This agreement shall have a term of 25 years and be eligible for renewal thereafter for an additional 25 years subject to compliance by the CBFMA holder with the terms of this agreement and other pertinent laws, rules and regulations.

However, group respondents from the staff of the DENR's district, provincial and regional offices, revealed that local values and practices are not reflected in the CBFM Agreement. A CBFMP Specialist mentioned that local values and practices are more spelled out in the vision, mission, goals and objectives of the PO's CRMF. CRMF is a document defining the terms and procedures for access to be consistent with the overall management strategy of the entire watershed area where the CBFMP area is located. It is formulated by the community with the assistance of the PO and the DENR, local government unit and/or private entities. Based from the scrutiny done on the CRMF of the TFDMCI, local values and practices are not explicitly stipulated. It only states in one of the CRMF's specific objectives that development, maintenance and protection of CBFMA areas will be done with use of sustainable and modern technologies. In fact, the CBFMA only refers to the management of the

public lands leased to the TFDMCI and is based on a model of plantation establishment.

Conclusion

The people in the study area have several values and practices related to forest management especially with regard to the controlled use of forest products, protecting the forests, and stimulating their regeneration in various land use zones. They also recognized different values of the forest and forest products and their role in the farming system. Traditionally-managed lands are classified into *talon* (wetland), *uma* (swidden), *bangkag* (dryland) and *bakir* (forest). Trees play a role not only in the bakir but also in the uma as well as *bangkag* (forested field boundaries).

While there are no independent local organization for community-based forest management anymore in the area, several informal local regulations still exist. As a result of Philippine policy on public administration and forestry development, the area is incorporated in the state bureaucratic system, including forest management. At this level, efforts have been undertaken to establish interfaces between the official and tribal institutions by establishing the TFDMCI. This organization uses some of the traditional social arrangements.

Indigenous forest management practices persist alongside the traditional decision-making structures, which are still in addition to the introduced structure of the outside agencies. Such reality and dynamic is similarly reported among the Kanakanays and Bontocs in the Cordillera region (Reyes-Boquiren, 1998). However, it is evident that local values and practices are not reflected in the CBFM Agreement. Although such values and practices are in principle accepted as one of the guiding principles of forest development, no clear idea seems to exist yet on how to implement such principles. The CBFMA is still based on a traditional plantation forestry approach and does not recognize the roles of forests in the integrated land use system.

Notes

[1] Serra, S.S. is the Project Leader of the Community-Based Forest Management Program of the DENR in La Union.

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Annexes

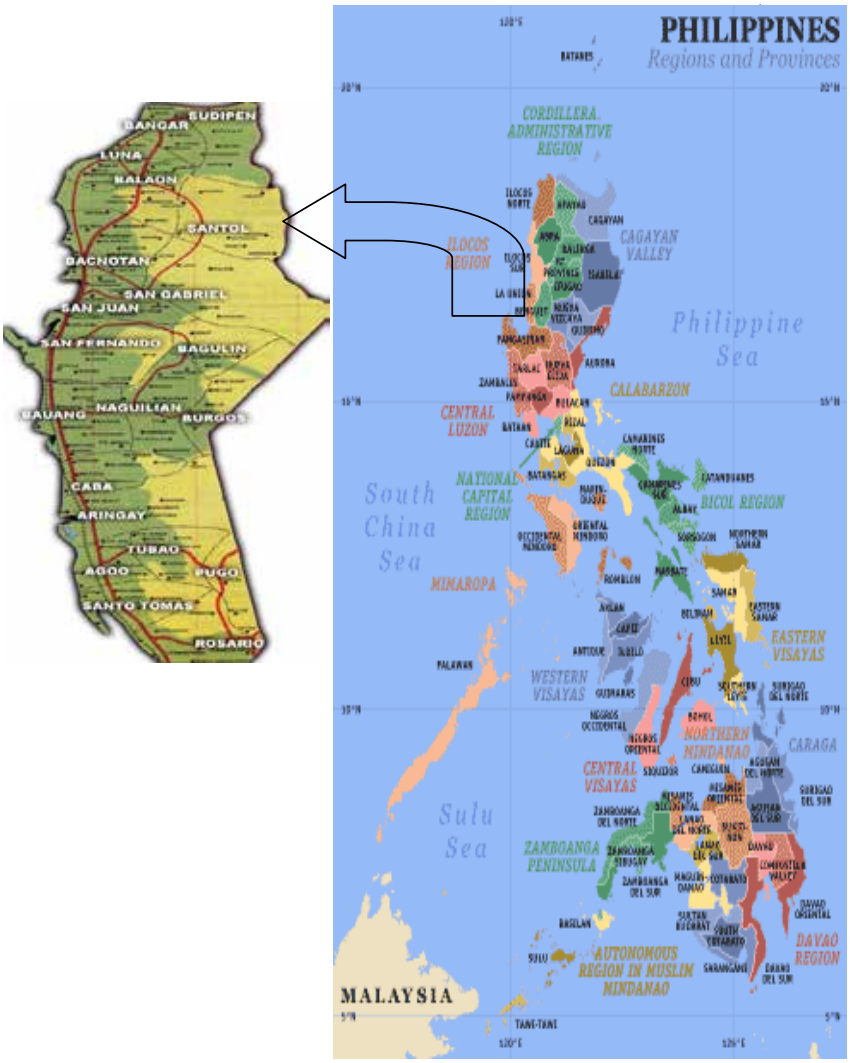

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Figure 2. Location of the study area

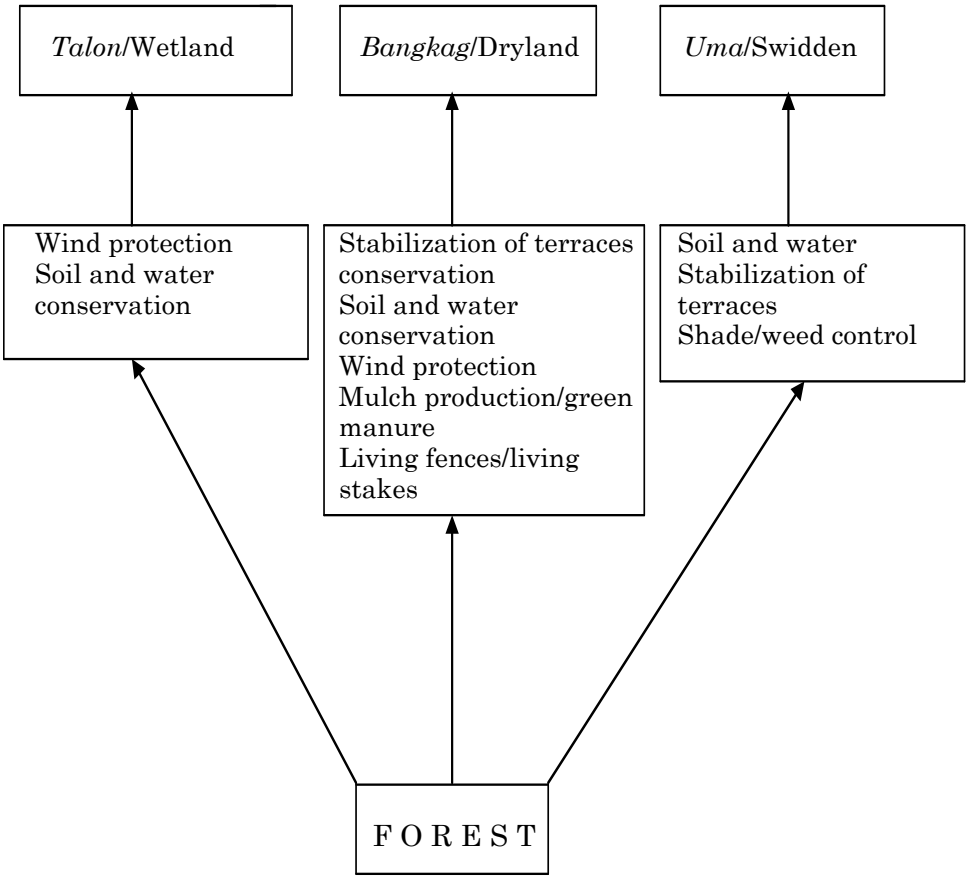

Figure 3. Diagram of the perception of the role of forest in farming system

Table 1. Local values regarding forest

Category	% of responses
Production value	100%
Protection value	100%
Microclimate value	50%
Spiritual value	24%
Security value	12%

Table 2. Role of forest in farming system

Role of forest	**% of responses**
Soil and water conservation (SWC)	90%
Stabilization of terraces	80%
Shade/weed control	60%
Wind protection	72%
Mulch production/green manure	63%
Live fences/living stakes	54%

Table 3. Products derived from the forest

Products	**% of responses**
Timber	83%
Fuelwood	94%
Fodder	72%
Food	64%
Others*	76%

* Includes non-timber forest products (NTFP) such as bamboo, vines, etc.

Table 4. Local management practices in various land use zones

	Local management practices		
	Controlled utilization	**Protection/ maintenance**	**Regeneration/ propagation**
Land use zones			
Field boundary/ dryland	casual gathering/ collecting	tending operations, lopping, pruning	Seedlings and wildlings
Uma/swidden	swidden selection exclusive to owner	agroforestry, mixed cropping	Fallowing in 2-3 years
Forest	only timber harvest by owner	thinning	assisted natural regeneration, enrichment planting