Tenure Reform on Philippine Forest Lands:
Assessment of Socio-economic and Environmental Impacts

Juan M. Pulhin
Josefina T. Dizon
Rex Victor O. Cruz
Dixon T. Gevaña
Ganga Ram Dahal
Tenure Reform on Philippine Forest Lands: Assessment of Socio-economic and Environmental Impacts

Juan M. Pulhin
Josefina T. Dizon
Rex Victor O. Cruz
Dixon T. Gevaña
Ganga Ram Dahal

With assistance from:

Mark Anthony M. Ramirez
Hanna Leen L. Capinpin
Chandellayne G. Cantre
Maricel A. Tapia
EXECUTIVE SUMMARY

This report examines the evolution of tenure reform in the Philippine forest lands through a historical analysis of forest policy from the colonial period to the present with emphasis over the last three decades. It also analyzes the dynamics and impacts of tenure reform and the associated policy and related changes in terms of livelihood, income, forest condition and equity (referred to as the LIFE indicators in this study) based on four case studies representing three different types of tenure instruments, namely: the Community-Based Forest Management Agreement (CBFMA) for CBFM, the Certificate of Ancestral Domain Claim/Title (CADT/CADC) for Indigenous Peoples Rights Act (IPRA), and Co-management agreement for the devolution of forest governance through local government units (LGUs). These tenurial instruments are represented by Banila Community-Based Cooperative (BCBC) and Ngan, Panansalan, Pagsabangan Forest Resources Development Cooperative (NPPFRDC) Community-Based Forest Management; Kalahan Educational Foundation (KEF); and Barobbob Watershed Occupants Association, Inc. (BWOA), respectively.

Prior to tenure reform, the State enjoyed the full bundle of rights in relation to access, withdrawal, management, exclusion and alienation of forest lands. The shift in tenurial status through the above decentralization processes has seen a transfer of these rights to the local communities and individuals living inside the forests. In the case of KEF, the issuance of CADT legalized the rights of possession and ownership of the Ikalahans (indigenous people in the Kalahan area) over their ancestral domains, except for the full alienation rights where the State through the National Commission on Indigenous People has still some degree of control. Meanwhile, CBFMA issued to BCBC and NPPFRDC transferred rights to recipient people’s organizations (POs) in terms of access, use, management and exclusion. These rights, however, are conditional and subject to bureaucratic procedures and requirements. The same is true for the Memorandum of Agreement on Co-management that is issued to BWOA members. It should be noted, however, that alongside the transfer of bundles of rights are several incentives for the POs that are associated with the different policies and programs by which the tenure reform is implemented. These include reforestation support, various livelihood projects, and PO capacity building activities.

The analysis showed that tenure reform in the Philippines has seen some promising socio-economic and environmental impacts through the transfer of bundles of rights to the local communities, with varying impacts depending on the type of the tenure instrument and its corresponding rights granted. All proved to be a better strategy compared to the former TLA system. However, livelihood and income of forest communities have meagerly improved in most cases. More than the tenure itself, it is the financial, technical and livelihood support that is availed of by the POs and usually goes hand-in-hand with the tenure shift that provided greater effects on the livelihood and income of the recipient communities/POs.
Tenure Reform on Philippine Forest Lands

It was found that the issuance of the different tenure instruments has benefited the government more by effectively recruiting local communities to take on forest management and protection responsibilities – tasks which the government was expected to perform before the tenure reform took place. An improved equity within the PO/community, on the other hand, has been achieved through the issuance of tenure, such as greater participation of women and equal access to forest resources and livelihood opportunities among the members of the PO/community. However, the limited transfer of rights by the State has placed some POs in an unequal playing field when it comes to transactions with other stakeholders/players, such as the DENR and buyers, particularly those related to timber utilization. Hence, despite seemingly radical efforts to restructure forest management, the impacts of tenure reform in forest lands in terms of LIFE indicators suggest that the anticipated positive impacts are yet to be fully realized on the ground.

A number of factors were identified to hinder or facilitate the potential of tenure reform in effectively contributing to the improvement of livelihood, income, forest condition and equity at the local level. Policy environment is a key element in ensuring the protection of communities’ bundles of rights over their forest lands and resources. A stable policy is needed to fully realize the associated impacts of tenure reforms so that PO efforts, particularly those related to livelihood, are sustained and not affected by political pressures or whims of whoever sits on the DENR top position. A legislated law that supports CBFM is desirable to stabilize land tenure and resource use policy. Regulatory procedure is also seen to hinder some benefits of tenure reform due to over-regulation, elaborate paperwork, and high transactions costs. The submission of comprehensive management plans and application for resource use permit (RUP), for instance, are technical and tedious processes which are a major challenge among POs. The complexity of procedures has also seen to fuel corruption due to costs incurred in every transaction.

Considering that the CBFM strategy transfers forest management and protection to the local communities which should otherwise been the responsibility of the government, the former should be provided with adequate institutional support system to build their capacity to perform such duties. Market access and opportunities are also limited in upland areas due to their remoteness and high cost of transportation. This makes their products less competitive in prices compared to those produced in lowlands or more accessible places. Lack of market information also makes many upland communities more vulnerable to manipulation of middlemen or lowland buyers who take advantage of their unawareness in market prices. Finally, the ultimate success of the tenure reform is highly dependent on the capacity of local communities to organize themselves and act collectively, mobilize local and external resources towards a common end, and build their capital assets (i.e., natural, social, financial, physical and human). In general, weak capacity limits ability to build capital assets and in turn restricts potentials associated with tenure reforms.
The combined effects of unstable policies and insecure use rights, over regulation and centralized issuance of RUP, inadequate institutional support system from various sectors, and limited community capacities prohibit genuine tenure reform from taking root. These factors thwart the accrual of benefits to the upland poor and may impede the promotion of sustainable forest management in CBFMA areas. Furthermore, highly conditional ‘use rights’ constrict the achievement of full benefits expected from the reform and assign an even greater ‘bundle of responsibilities’ to the communities.

Based on the analysis, it is recommended to secure land tenure and property rights through a legislated policy that would provide more stability and clear direction in implementing and securing incentive systems for participating CBFM communities. There is also a need to simplify regulatory procedures and requirements for CBFM implementation, particularly through the decentralization of the issuance of RUPs. This would help reduce the transaction costs and provide more incentives for the POs.

Improvement of the impacts of tenure reform on livelihood and income of local communities should be given attention. This should take into account appropriate and sustainable livelihood opportunities as well as market support, such as infrastructure, capital, and assistance in product identification and development. Along with this, emerging market opportunities such as payment for environmental services (PES) and the carbon market should be explored and developed. Furthermore, the ultimate success of the tenure reform is highly dependent on the capacity of local communities to organize themselves and act collectively, mobilizing local and external resources and building the capital assets, towards a common end. Hence, the capacity of POs and CBFM federations should be strengthened through investment on continuous leadership and organizational development.

Lastly, CBFM is a multi-stakeholder effort and each partner has a vital role in promoting this strategy towards a more sustainable forest management and improvement of well-being of local communities. The roles of stakeholders should be clarified and strengthened to enhance support to CBFM.
Tenure Reform on Philippine Forest Lands
INTRODUCTION

In the Philippines, all lands in the “public domain” otherwise known as “forest lands” are owned by the state. This framework of state ownership was inherited from former colonial states, since the independent Philippine government relied on colonial legal systems of forestland management in order to use forest resources for national interests (Lynch and Talbott 1995). Until early 1997 prior to the issuance of the Indigenous People’s Rights Act (IPRA), the Philippine government did not acknowledge the tenure rights of forest-dependent communities particularly the Indigenous Peoples (IPs), who had sustainably used forest resources for centuries. At worst, they were criminalized and in some instances evicted from their own ancestral lands by the very government that should be protecting their rights (Dressler 2005). This legal usurpation has caused conflicts between state forest bureaucracies and rural people over resource access and use (Vitug 1992). As in many countries, the State’s centralized control over all forest lands and resources have also contributed to grave inequity in terms of distribution of forest benefits in favor of the privileged few and to the onslaught on these resources on which the livelihoods of millions of forest communities depend (Broad and Cavanagh 1992; Peluso 1992; Vitug 1993; Pulhin 1996).

To prevent the demise of the remaining forest resources and to democratize access to and sharing of forest benefits, policy reform has been instituted to shift the direction of forest management, particularly since the end of Marcos’ dictatorial rule in 1986 (Pulhin and Dizon 2006). The reform involved dismantling the quasi-monopolistic forestry industry, and installing a community-based forest management (CBFM) system. At present, CBFM covers about 5.97 million hectares or around 38% of the country’s total classified forest lands involving more than 690,000 households (FMB 2008). This is a radical departure from the traditional corporate approach to forest management and utilization earlier espoused by the State which had placed around 8.3-10.6 million hectares or 31.5% of the country’s total land area of 30 million hectares in the 1970s under the control of the holders of timber license agreements (TLA).

At the heart of the CBFM system is a reform that provides tenurial security to participating upland communities on terms renewable in 25 year increments. In the case of IPs who have established legitimate claim over their ancestral lands, the tenure instrument issued particularly the Certificate of Ancestral Domain Title (CADT) has no time limit, and

---

1 The Philippine legal system classified all lands into two general categories: “forest lands”, and “alienable and disposable lands”. Forest lands are lands in the public domain, most of which have been the subject of present system of land classification and have been declared as needed for forest purposes, while alienable and disposable lands are those that have been declared as not needed for forest purposes. The term “forest land” is therefore a legal rather than a botanical definition; these areas are not necessarily covered with forest vegetation.
Tenure Reform on Philippine Forest Lands

therefore perpetual. Through the issuance of various types of land tenure instruments, recipient people organizations (POs) in forest communities are given the rights to occupy and cultivate forest lands and harvest the fruits of their labor. In some cases, POs are granted rights to utilize timber from natural forests – a privilege previously given only to TLA holders who constitute the elite sector of Philippine society. Together with these “access and use rights” are the other bundles of rights which should accompany the issuance of these instruments such as the rights for management and exclusion (Schlager and Ostrom 1992). Furthermore, other incentives for the POs come alongside with the bundles of rights, which are associated with the different policies and programs by which the tenure reform is implemented. These include reforestation support, various livelihood projects, and PO capacity building activities. At present, around 4.9 million hectares of the declared “CBFM areas” are covered by various types of tenure instruments while the rest are still without tenure (FMB 2008).

This study was conducted as part of the Center for International Forestry Research (CIFOR) and Rights and Resources Initiative (RRI) global research project on “Enhancing Livelihood and Equity in Community Forestry”. The global study aimed to understand and analyze the impacts of different tenure regimes, regulatory frameworks, institutional arrangement, and market transition to livelihoods, income, forest condition, and equity (otherwise known as LIFE indicators) in the broader context of decentralization processes. The Philippine study examines the tenure reform in forest lands through a historical analysis of forest policies and programs from the colonial period to the present with emphasis on the changes over the last three decades. It analyzes the impacts of the reform in terms of the LIFE indicators based on four case studies representing three different types of forest tenure instruments.

The report is divided into five major sections. Following this brief introduction, Section 2 presents the conceptual framework and research methods that guides the research process. Section 3 examines the historical context of tenure reform in Philippine forest lands by analyzing the evolution of forest policy in the context of who holds the “bundles of rights” in relation to forest lands and resources. The section also examines the main drivers of the tenure reform and the role of the different stakeholders in the reform process. Section 4 explores the impacts of tenure reform in terms of the LIFE indicators based on the four case studies. The section also identifies some key factors that either constrain or facilitate the anticipated positive impacts of the forest tenure reform. Finally, Section 5 provides the conclusions and recommendations derived on analysis of the impacts of tenure reform in the Philippine forest lands.
Land Tenure, Tenure Reform and the Bundles of Rights: Some Key Definitions

There are three major concepts that provide the conceptual frame for this study: land tenure, tenure reform, and bundles of rights. Tenure is derived from a Latin word for “holding” or “possessing”. Hence, land tenure means the conditions on which something is held: the rights and obligations of the holder of the land. According to Bruce (1998), land tenure is “a legal term that means the right to hold land rather than the simple fact of holding the land.” Bruce emphasizes that one may have tenure over the land but not have taken possession of the land. He thus differentiates land tenure from resource tenure, or the rights to land, trees, and other resources. Meanwhile, Maxwell and Wiebe (1998) explained that land tenure “consists of the social relations and institutions governing access to ownership of land and natural resources.” It is usually defined in terms of a bundle of rights which has been described by Bruce (1998) as a specific set of rights to do certain things with land or property. Along this vein, the Philippine Department of Environment and Natural Resources Policy Advisory Group (DENR-PAG 1987) defined land tenure as the bundle of rights that allow individuals and groups to gain access to the productive resources on the land. In this paper, we view land tenure under the definition of the DENR-PAG, but also as social relations between the local communities in forest lands and the institutions governing the bundle of rights associated with these lands and the resources found therein. The nature of this bundle of rights is further explained below.

Tenure systems can either be customary or statutory. “Customary tenure systems are determined at the local level and are often based on oral agreements. Statutory tenure systems are applied by governments and are codified in state law” (Sunderlin et al. 2008: 3).

The other concept is tenure reform. It describes legal reforms of tenure whether by the state or local communities. According to Bruce (1998), tenure reform can be differentiated from land reform in that the latter involves the redistribution of landholdings and changes the agrarian structure while tenure reform leaves people holding the same land, but with different rights. Hence, under the Philippine condition, tenure reform over forest land refers to the changes in the bundle of rights over forest land by the people who have been occupying and/or using these areas as a source of livelihood. In the Philippine uplands, these people constitute the indigenous cultural communities, most of whom are native to the place since time immemorial, and the migrants who moved to the area mostly in the 1980s.
Schlager and Ostrom’s (1992) notion of the *bundles of rights* in relation to a given common-pool resource such as forest lands, appears to be a useful starting point to better understand the complexity of tenure reform associated with the evolution of the Philippine forest policies. According to their conceptualization the bundle of rights may be categorized and described as follows:

1. **Access**: The right to enter a defined physical area and enjoy nonsubtractive benefits (e.g., hiking, canoeing, sitting in the sun).
2. **Withdrawal**: The right to obtain resource units or products of a resource system (e.g., cutting firewood or timber, harvesting mushrooms, diverting water).
3. **Management**: The right to regulate internal use patterns and transform the resource by making improvements (e.g., planting seedlings and thinning trees).
4. **Exclusion**: The right to determine who will have an access right, and how that right may be transferred.
5. **Alienation**: The right to sell or lease management and exclusion rights.

For the purpose of analysis, Meinzen-Dick (2006) grouped the above rights into the following:

1. **Use rights**, such as the right to access and withdraw from a resource;
2. **Control or decision-making rights**, such as the rights to management and exclusion; and
3. **Alienation**, the right to rent out, sell, or transfer the rights to others.

Bundles of rights associated with tenure arrangements may either be *customary*, *de jure* or *de facto*. Customary rights are those that emanate from customary tenure systems and hence are determined at the local level and are often based on oral agreements. Examples of these are the customary rights of the IPs such as the Ikalahans over their ancestral lands. *De jure* rights are rights that emanate from statutory tenure systems that are legally binding and codified in laws or state policies. Examples of these are the bundles of rights associated with the different tenure instruments issued by the government such as Community-Based Forest Management Agreement (CBFMA) and CADT. On the other hand, *de facto* rights are those rights that are “existing in fact, whether legally recognized or not” (Collins English Dictionary and Thesaurus 1993). For the purpose of this report, and to distinguish it from customary and *de jure* rights, *de facto* rights will be confined to “existing rights” of migrants in relation to a given forest land and resources that are not legally recognized by the Philippine government. *De facto* rights therefore become *de jure* after a specific tenure instrument is issued.

---

2 Agrawal and Ostrom (2001) cited the same category in their later work with specific examples as mentioned under each of the five categories above.
Integrating the notion of property rights in terms of “holder of rights” and “bundles of rights” Meinzen-Dick (2006) presents a schematic representation of a classic resource property rights system as shown in Figure 1. We use this representation to serve as an analytical lens by which we further explore tenure reform in the Philippine forest lands.

**Figure 1. Classic property rights system.**

**Analytical Framework**

The CIFOR-RRI project was designed to understand and analyze the impacts of tenure regime, regulatory framework, institutional arrangement and market transition to the LIFE indicators (livelihood, income, forest condition and equity) in the broader context of natural resources decentralization process. The Philippine study adopted a two-level analysis to achieve this objective: national and local levels. At the national level, policy documents, forestry statistics, and other relevant materials were analyzed to provide the historical and political-economic context. The impacts of the policy reform at the local level in terms of LIFE indicators were then examined using four case studies representing three (3) major models of State-initiated decentralization process in the forestry sector. These are Community-Based Forest Management Program (CBFMP), Indigenous People’s Right Act (IPRA), and the devolution of forest governance to local government units (LGUs) through the 1991 Local Government Code (LGC). These models of decentralization are implemented through the issuance of different types of land tenure...
Tenure Reform on Philippine Forest Lands

instruments to the participating local communities, namely: Community-Based Forest Management Agreement (CBFMA) for CBMP; Certificate of Ancestral Domain Claim/Title (CADC/CADT) for IPRA; and Co-management agreement for the devolution of forest governance through LGUs.

Following the CIFOR-RRI research framework, “community” is the unit of analysis at the site level. For the purpose of this study, “community” refers to organized group/groups living within or adjacent to a given forest land – with common interest and sharing common resources – issued with land tenure instrument by the government under the three forest decentralization models. It is otherwise referred to as “People’s Organization” (PO) which is the recipient of the tenure instrument covering a specified area of forest land. Except in the case of the Kalahan Educational Foundation (KEF) where the “community” refers to the entire barangay population living in the KEF reservation, “community” in all the other three sites constitutes only the members of the PO usually representing less than 10% membership of the entire local population.

Consistent with the CIFOR-RRI research framework, this study proposed that the impacts of tenure reform in terms of LIFE indicators are either facilitated or constrained by a number of important factors. These are: the policy environment, forest regulatory framework, institutional support system, market access and opportunities, and local community capacity. Analysis of these factors in relation to the LIFE indicators is therefore crucial to understand the conditions by which tenure may or may not work on the ground and hence an important input for policy interventions. Figure 2 presents the analytical framework which guides the conduct of the study.

Research Activities and Processes

Consistent with the participatory orientation of the CIFOR-RRI project, the research engaged key stakeholders both at the national and local levels during the entire duration of the research process. The engagement of the stakeholders aimed to: 1) ensure the relevance of the research to the different stakeholders; 2) promote efficiency in gathering information; 3) develop ownership and provide legitimacy to the research process and findings; and 4) increase the likelihood of the utilization of the research outputs by the various sectors at different levels.

Site Selection

Four case study sites were selected to determine the impacts of tenure reform on the ground. These sites represent three major tenure regimes such as CBFMA (2 sites),

---

2 Barangay is the smallest political unit in the Philippines and often corresponds to a village or town district.
CADC/CADT (1 site), and Co-management agreement (1 site) under three major types of State-initiated devolution initiatives: CBFM, IPRA, and Co-management with LGUs, respectively. Representation in terms of major types of land tenure instruments in the context of the Philippine forest decentralization process, therefore, served as the main basis for site selection. In addition, the following criteria were used in choosing the specific case study sites:

1) Endorsement from different stakeholders considering the relevance of the site in answering the broader research questions set for the CIFOR-RRI research.
2) Presence of benchmark information that would allow the determination of the impacts of tenure reform on the LIFE indicators.
3) Presence of local partners (e.g., POs, DENR, NGOs, LGUs) willing to participate in the research process and use the research findings and policy recommendations to improve the current situation.
4) Potential for local capacity building during the research process.
5) Sites should preferably be close to one another for cost-effectiveness and efficiency in data gathering.

Figure 2. Framework of analysis.
Based on the five criteria, the following sites were selected:

1. Kalahan Educational Foundation (KEF) ancestral domain area
2. Banila Community-Based Forest Management Area
3. Ngan, Panansalan, Pagsabangan Forest Resources Development Cooperative (NPPFRDC) Community-Based Forest Management Area
4. Barobbob Watershed Co-management Project

The sites were selected from among more than 15 candidates identified during the national and local stakeholders’ meetings as well as during the actual field visits of the University of the Philippines Los Baños (UPLB) Research Team. Figure 3 and Table 1 show the location and general description, respectively, of the case study areas.
Table 1. General description of the case study sites.

<table>
<thead>
<tr>
<th>Description</th>
<th>Case Study Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kalahan Educational Foundation</strong></td>
<td><strong>Banila CBFM</strong></td>
</tr>
<tr>
<td><strong>Type of Tenure Instrument</strong></td>
<td>Special Memorandum of Agreement in 1974 then Certificate of Ancestral Domain Title (CADT) in 2007</td>
</tr>
<tr>
<td><strong>Distinct Characteristic</strong></td>
<td>The most pioneering and successful self-initiated CBFM strategy in the country; the first community tenure instrument issued by the government to IPs that served as basis for the subsequent programs</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Sta. Fe, Nueva Vizcaya (Region II)</td>
</tr>
<tr>
<td><strong>Size of Tenured Area</strong></td>
<td>Initially - 14,730 hectares under MOA No. 1; recently - 30,000 hectares under CADT</td>
</tr>
<tr>
<td><strong>No. of Participants/ Households Involved</strong></td>
<td>679 households in the seven barangays covered by the Kalahan Forest Reserve</td>
</tr>
<tr>
<td><strong>Forests</strong></td>
<td>27% cultivated areas; 19% old-growth forests</td>
</tr>
</tbody>
</table>
HISTORICAL CONTEXT OF TENURE REFORM IN FOREST LANDS

In the Philippines, tenure reform in forest lands developed alongside the evolution of forest policies and programs. Following our earlier periodic classification (Pulhin and Pulhin 2003; Pulhin and Dizon 2006), we divided the history of Philippine forest policy into four periods:

- pre-colonial period;
- colonial period (1500s to 1946);
- post-colonial exploitation (1946 to mid 1980s); and
- shift towards community-based forest management strategy (1986 to present).

This brief review builds on earlier works (Dahal and Capistrano 2006; Guiang and Castillo 2006; Pulhin and Dizon 2006; Pulhin et al. 2007) putting emphasis on the issue of tenure reform in terms of who holds the “bundles of rights” (i.e., access, withdrawal/use, management, exclusions, and alienation) in relation to forest lands and resources. It also examines the roles played by key stakeholders and the main factors that drive the tenure reform process.

Pre-Colonial Period

Prior to colonization by Spain (before 1520s), land ownership in the Philippines was generally communal. Forests were accessible to all and “ownership” was vested in whoever cleared and cultivated them first (Fernandez 1976). Land was never owned in the same way as the present concept of land ownership implies. People possessed “access” rights to occupy the land and to harvest the fruits of their labor (withdrawal rights) without claim of permanent ownership. Thus, it was “common for several people to own a variety of different crops interspersed on a single parcel of land” (Lynch 1984:174).

Everyone had also the right to access and use the different types of natural resources which were still very abundant. Fernandez (1976:99) noted:

*Extensive tracts of virgin and fertile lands were available to all who needed them for tillage and pasture…The hills, mountains and forests were by custom regarded as patrimony and might be resorted to by anyone in quest of game, timber, and various forest products.*

The limited literature available on the pre-colonial period appears to indicate that there was no clear articulation on the “management”, “exclusion” and “alienation” rights in the manner they are conceived by common pool resource scholars today (Fernandez 1976; Lynch 1984). During this period, over 92 percent of total land was under forest cover with naturally grown dipterocarp species such as narra (*Pterocarpus indicus*), mahogany
Section 3: Historical Context of Tenure Reform in Forest Lands

(Swietenia macrophylla), mangrove swamps, pine and mossy forests. Upland dwellers were mainly engaged in hunting wild animals and carving steep slopes to make terraces for rice production. This period is characterized by abundant forest with few users, without much pressure on the forest and governed without formal policies or strategies.

Colonial Period (1500s to 1946)

At the time of the Spanish invasions, the early Filipinos had been developing indigenous property laws and customs for more than 20,000 years (Lynch 1982). When the Spanish colonizers came in the sixteenth century, many Filipinos could read and write an indigenous script. However, the earliest available documentation of indigenous property laws was claimed to have originated from the writings of Spanish chroniclers who were handicapped by ignorance and ethnocentric attitudes (Lynch 1984). As a result, their observations comprised a “parchment curtain” that prevented “the modern Filipino to form a clear picture of his ancestor’s conditions” (Scott 1982).

During the Spanish colonial era (1521-1898), royal decrees were promulgated which placed Philippine land and natural resources under state control and regulation. The Spanish colonizers institutionalized the notion of state ownership of forest land and forest resources through the establishment of a forest bureaucracy and its constituent instruments which allocated proprietary rights for forest use. In 1863, the Inspecion General de Montes (IGM) or the Forest Service was created through a Royal Decree to study forest resources, promulgate rules regulating the use of forest and forest products, construct a schedule of fees for forest utilization, and survey all forest lands (Makil 1982). Such decree and the subsequent ones centralized access and control over forest lands and resources in the hands of the colonial government. Subsequent decrees also allowed the issuance of licenses that granted use rights to forest resources while prohibiting kaingin-making or shifting cultivation, the traditional farming system and major source of livelihood of many indigenous peoples living in hilly and mountainous areas.

Of the different land laws passed during the Spanish colonial period, the Royal Decree of February 13, 1894 (known as the Maura Act) appears to be the most oppressive to the rural poor. The law provided that undocumented property rights would revert to the state and those with land title applications pending had one year to document their claims (Lynch and Talbott 1995). Any land titles issued after April 17, 1895 would have no “force and effect.” The very idea of the documented land title was foreign, and the Maura Act was incomprehensible to the great majority of the rural poor. Thus, many of them lost their lands to influential people who took advantage of the law in their favor. Also, the Maura Act undermined the traditional rights to land ownership as well as other prior claims of indigenous communities to natural resources. Surprised by this legal change, many of the indigenous communities were therefore forced to flee their ancestral lands or become tenants in the process. Two years after its issuance, the Maura
Tenure Reform on Philippine Forest Lands

Act was believed to have spurred the eruption of the first revolution against colonial rule in Southeast Asia initiated by the Filipinos, partly because of the resulting inequitable allocation of legal rights to natural resources (Lynch and Talbott 1995).

The American colonial government also asserted ownership over forests and forest lands when the United States controlled the Philippines beginning in 1898. To justify and perpetuate the expropriations based on the Maura Act of 1894, the US colonial government devised and promoted the legal myth known as the “Regalian Doctrine”. According to this myth, Ferdinand Magellan expropriated all the Filipino ancestors’ sovereignty and property rights in the archipelago when he planted a cross in the small island of Mactan in 1521. At that very time, every native in the still unexplored archipelago technically became squatters, robbed of their legal rights to land and other natural resources (Lynch and Talbott 1995). The 1902 Organic Act and the 1935 Constitution perpetuated the spirit of the Regalian Doctrine by assuming that all forest lands in the entire archipelago belonged to the state. This vested the complete bundles of property rights over forest lands and resources to the state. Consequently, indigenous peoples were considered as squatters in their own ancestral lands and were treated as criminals for practicing traditional shifting cultivation.

With the entrance of the American logging companies in the country, the forest industries in the Philippines flourished throughout the American period as use rights over productive forests were transferred by the colonial government to these companies without necessarily the corresponding responsibility to manage the resources. Thus, the boom in the forest industry also prompted a steady loss of forest throughout the era of American rule. In 1941, the country had around 17.24 million hectares of forest cover from the original approximately 20 million hectares when the first American Director of the Philippine Bureau of Forestry took over in 1900 (de la Cruz 1941; Roth 1983). Severe deforestation continued through Japanese rule (1941 to 1945) during the occupation in World War II due to heavy forest exploitation for war purposes.

The entrance of big logging companies also promoted the inequitable access to forest resources in favor of foreign investors and the local elite. Before World War II erupted in the Philippines in 1940, there were a total of 163 sawmill and power logging companies in the country (de la Cruz 1941). Of the more than PhP 30M total capital investment during the period, 40.9% was owned by Americans while 33.5% by Filipino elite. Because of the high investment required to enter the logging/sawmilling business which during that time averaged to about PhP 184,000, economic benefit from timber extraction was captured solely by the well-off sector. Lack of financial capital and technical know-how automatically excluded the rural poor and the indigenous communities from the economic benefits offered by the country’s forest resources.

In summary, the colonial period is characterized by a state-controlled centralized system of forest management, which maintained ownership over the forest lands. The concept
of forestry for industry remained the dominant principle of forest management. Thus, the government always tried to evacuate upland forest dwellers and control kaingin practice. The centralized character of their policies can be understood as an anti-devolution policy thrust.

**Post-Colonial Exploitation (1946-1985)**

After the Philippine Independence in 1946, there was no major change in tenure policies regarding forest lands and resources as the government continued to support the system of property rights promoted by the Regalian Doctrine. Subsequent constitutions of 1973 and 1987 stipulated that all lands in the public domain, meaning all the classified forest lands, belonged to the State. Therefore, the full bundles of rights associated with forest lands and resources remained with the government.

Forest exploitation increased during the post-war period since large-scale logging expanded to meet increased market demands for timber in Japan and the United States. This generated more revenue for the government presumably to help accelerate national rehabilitation and development. However, many politicians and well-connected individuals granted with use rights by the government also amassed wealth from the exploitation of forest resources. In contrast, local communities including the indigenous peoples who were mainly dependent on forest lands and resources continued to be deprived from benefiting from the country's forest resources since they were regarded as squatters on their own ancestral lands. *Kaingeneros* (or shifting cultivators) in particular received the blame for forest destruction which was estimated at the rate of 200,000 hectares per year by the 1960s (Makil 1982). Despite the lack of concrete evidence to rule out that they were indeed the major culprits of forest destruction, punishment for *kaingin*-making became progressively severe with the enactment of new laws. Indeed, the *Kaingin Law* of 1963 enacted through Republic Act (RA) No. 3071 imposed stricter penalties than previous laws. The Forestry Administrative Order No. 4-15, Series of 1967 excluded *kaingin* from the list of activities in pasture areas for which a permit could be acquired.

Several decades of forest exploitation brought about inevitable negative impacts, such as massive deforestation. To address these, the Marcos administration starting in 1969 formulated several forestry laws and programs that involved individuals and upland communities in forest rehabilitation. After the imposition of Martial Law in 1972, the Forestry Reform Code of the Philippines (Presidential Decree (PD) No. 389 of 1974) and its subsequent amendments (i.e., PD 705 of 1975 otherwise known as the Revised Forestry Code of the Philippines as amended by PD 1559 of 1978) all contained provisions for *kaingin* management. A more accommodating stance was provided for in PD 705 that stopped the criminal prosecution for forest occupants who had entered the forest before May 15, 1975 provided they do not increase their clearings and undertake activities under the government management plan.
To implement the laws on forest occupancy and management, several programs were initiated by the Marcos government. Among these were the Kaingin Management of 1969, Forest Occupancy Management (FOM) in 1975, the Family Approach to Reforestation (FAR) in 1976, and the Communal Tree Farming (CTF) in 1978. These programs were progressively recognizing the realities of forest occupancy and more humane in their approach to forest management. However, they did not provide land tenure security to forest occupants. Except for the CTF Program, recipients of both the FOM and FAR were treated as squatters. They were tapped by the government merely as source of cheap labor to rehabilitate and protect the forest resources.

Recognizing the potential role of local people in the management and protection of forest lands and resources, Letter of Instruction 1260 was issued by the then President Marcos on July 28, 1982. This policy consolidated the FOM, FAR, and CTF into one comprehensive program entitled the Integrated Social Forestry Program (ISFP). Unlike the earlier government programs, the ISFP granted stewardship agreements to qualified individuals and communities allowing them to continue occupation (access rights) and cultivation of upland areas (use and management rights), which they were required to protect and reforest in turn. The program provided security of tenure for a period of 25 years, renewable for another 25 years, through a Certificate of Stewardship Contract (CSC) for individuals or a Certificate of Community Forest Stewardship (CCFS) for IPs. ISFP participants have corresponding rights and responsibilities as stipulated in the different policy instruments created to implement the program.

Box 1. Early initiatives towards tenure reform in forest lands as experienced by the Kalahan Educational Foundation.

In 1970, the Ikalahans of Northern Luzon, with the assistance of an American Missionary, Pastor Delbert Rice, filed a case in the court to force the government to recognize their claims over their ancestral lands which was then threatened by the establishment of a big development project named as “Marcos City”. In 1972, the court voided the claims of the outsiders over the Ikalahans ancestral land but no legal land tenure was provided to the indigenous people (Rice 2001). After more than two years of negotiation with the government with the assistance of Pastor Rice, Memorandum of Agreement (MOA) No. 1 was finally signed in 1974 between the government as represented by the then Bureau of Forest Development (BFD) and the Ikalahans represented by their PO, the Kalahan Educational Foundation (KEF). The MOA granted the Ikalahans 25-year tenure security over the land they occupy renewable for the same period. The tenure instrument entitled them to occupy, use, and manage the area without the fear of encroachment from outsiders. The signing of the MOA was a breakthrough in the history of the Philippine forest policy since it represents the state’s earlier recognition of the vested rights of the IPs over their ancestral land. It became the model for the issuance of land tenure instruments under the subsequent CBFM programs initiated by the government. (Further discussion in Section 4.)
The official adoption of “social forestry” as a forest management and development strategy in the Philippine uplands should be understood within the broader socio-economic, political and environmental context of the 1970s and early 1980s. Its emergence and eventual popularity was driven by a combination of international and national factors. The increasing recognition accorded at to the role of forestry in community development at the international level provided the impetus to the popularization of social forestry or community forestry not only in the Philippines but also in many developing countries. Four major international events that happened in 1978 influenced the introduction and wide acceptance of social forestry in the country. These were (Pulhin 1996):

1. the launching of the pioneering publication of the Food and Agriculture Organization of the United Nations (FAO) titled “Forestry for Local Community Development”;
2. the adoption of “Forestry for People” as the theme for the Eighth World Forestry Congress in Jakarta, Indonesia;
3. the release of the World Bank’s influential “Forestry Sector Policy Paper” which indicated its commitment to reformulating its lending program in favor of environmental protection and people-oriented projects; and
4. the establishment of the World Agroforestry Center (ICRAF).

In addition, the early initiatives on social forestry in the Philippines were supported by foreign donors, particularly the Ford Foundation.

As a national program, social forestry was viewed as a response to the worsening poverty and forest degradation in the Philippine uplands. It was conceptualized with three major objectives in mind: 1) to stem the tide of forest destruction by shifting cultivation; 2) to help fight poverty among the forest occupants; and 3) to help rehabilitate the degraded forest environment (Agaloos 1990). Politically, social forestry also arose as a state strategy to control and stabilize the intense political unrest in the countryside during Martial Law period (1972-1981). It was part of the overall rural development counterinsurgency strategy during the Marcos administration (Bello et al. 1982). Furthermore, it was used as an approach to secure rights for rural populations who gain their livelihoods from state-owned lands (Li 2002).

Despite the emphasis on local people’s involvement in forestry activities and the provision of tenurial security to its participants, the first generation of government social forestry projects did not sufficiently depart from the earlier forestry programs. Since they were initiated by the government forestry bureau, it was not surprising that these projects were mostly aimed to “get the trees in the ground rather than to get the household economies of the rural poor off the ground” (Peluso 1992: 242). The primary rationale was forest resource creation and protection to support the national agenda in forest management. Any benefit to local people was just a bonus intended mainly to win their support and involvement in forestry activities.
Tenure Reform on Philippine Forest Lands

The limited coverage of social forestry projects also reduced their impact. The projects were mostly confined to occupied public lands devoid of forest vegetation and excluded timber license areas, national parks and other forest reservations (Rebugio et al. 1987).

Commercial extraction of timber was not included under the ISFP and therefore the benefits of logging remained solely in the hands of the favored timber licensees. Indeed, by the end of Marcos administration in 1986, there were still a total of 159 timber licenses covering a total area of 5.85 million hectares with a total annual allowable cut of 8.5 million cubic meters (FMB 2002). By contrast, the total area under ISFP during the same period was only 446,157 hectares.

The 20-year political reign of Marcos from 1965 to early 1986 had probably the worst record in the history of Philippine deforestation. Records from the 1990 Philippine Master Plan for Forestry Development indicate that when Marcos took office in 1965, the country may still have around 11.6 million hectares of forest cover (DENR 1990). Towards the end of his reign, total forest cover had dropped to 6.1 million hectares. This means that a total of 5.5 million hectares were lost during his 20-year administration or an average deforestation rate of 275,000 hectares per year. This figure is corroborated by recent statistics which show that during the Martial Law period from 1970 to 1980, the Philippines was in the top list of countries with the worst deforestation rates in the Asia-Pacific region (Vitug 2000). Annual deforestation rate during this period was believed to have peaked at 300,000 hectares.

In the last 50 years, the Philippines forestry sector has radically shifted its orientation from a state cum corporate approach with issuance of the TLA towards a more socially oriented people-managed CBFM approach, where some of the functions and authority are devolved from the center to local level.

Policy Shift towards Community-Based Forest Management (1986 to Present)

The later part of the 1980s ushered a hope in terms of the restoration of democratic processes in the Philippines resulting from the overthrow of the Marcos dictatorial rule. This reform permeated the forestry sector which initiated radical actions to restructure forest management and address simultaneously the concerns on social justice and equity, upland poverty, and forest degradation. At the core of these efforts was the crafting of new government policies and programs to institutionalize tenure reform in the Philippine forest lands.

---

4 An exemption of these is those tribal areas issued with Community Forest Stewardship Agreement (CFSA), which could include a considerable portion of forest vegetation. However, CFSA prohibit timber extraction in these areas.
Aquino administration (1986 to 1992)

The restoration of a democratic Philippine government, starting in 1986, placed the issue of social justice and equity at the center of the country’s forest policy agenda (DENR-PAG 1987). The 1987 Constitution incorporates provisions mandating equitable access and distribution of benefits from the country’s natural resources to guard against the inequities of the past monopolistic allocation. Strong clamor from civil society to transform the forestry sector initiated major policy changes by some reformists that joined the government of the Aquino administration (Broad and Cavanagh 1993; Korten 1994). These policies envisioned dismantling the monopolistic forestry industry controlled by a select few, and installing a community-based forest management system that would provide tenurial security to upland communities. Policies were based on the assumption that the ultimate survival of the Philippine forests lies in the hands of millions of smallholders (Ramos 1993).

In 1987, the Aquino administration promulgated a new reforestation policy through the National Forestation Program (NFP) offering market incentives and involving communities, families, non-government organizations (NGOs), and corporations in the management, implementation, and evaluation of reforestation projects. Implemented by the DENR, NFP was a major departure from the traditional “reforestation by administration”. Under this traditional scheme, reforestation was solely implemented and managed by the government. Community members, if ever they were involved, were hired as mere laborers in reforestation activities. The NFP aimed to reforest open lands for plantations and rehabilitate denuded watersheds in order to ensure sustained production of wood and other products for wood-based industries, provide livelihood for upland dwellers, and restore and maintain ecological balance (de Guzman 1993). Phase 1 of the program (otherwise known as “Forestry Sector Project Loan I” or “Contract Reforestation”) was funded through a loan from the Asian Development Bank (ADB) and the Japanese Government. After about three years of implementation, the program paved the way for the issuance of Forest Lease Management Agreements (FLMAs), new 25-year tenurial arrangements that entitled holders to develop the project site and utilize the products therefrom in accordance with stipulated government rules and regulations. In 1995, the Forestry Sector Project Loan II was implemented following the CBFM strategy. Unlike Loan I, the participants were confined to organized communities who were contracted to reforest and were given tenure over the areas they developed under the CBFM Program. Further discussion of this program is provided in Box 2.

In 1989, the issuance of the DENR Administrative Order No. 123 established the Community Forestry Program (CFP). This program aimed to provide upland farmers legal access to forest resources and financial benefits that can be derived therefrom. Further, it also sought to create strong incentives for upland residents to conserve forests, establish multi-use forest management by participating communities, and optimize forest resource use and management (de Guzman 1993). Under the program, tenure is given
One successful example among the hundreds of communities that participated in contract reforestation is the case of the Banila Community-Based Cooperative (BCBC), located in Barangay Banila, Dupax del Sur, Nueva Vizcaya. The Cooperative had its origin as a self-organized volunteer group led by its former Barangay Captain that conducted a reforestation project in 1991 using its own local resources. The main motivations of the initiative were to address the pressing impacts of deforestation on the community’s farmland and water supply, and seize the opportunity to participate in the contract reforestation project of the DENR. After several disapprovals of their requests, the DENR finally awarded the Asian Development Bank-Forestry Sector Project Loan II Project (an ADB Funded reforestation) in 1995 covering an area of 220 hectares. In the same year, the community was organized into the Banila Community-Based Association, Inc. (BCBAI) through the assistance of an environmental NGO called Dupax Ecosystem Builders Association, Inc. (DEBAI). The DENR recognized the good performance of BCBAI in carrying out reforestation projects, and an additional reforestation project covering 200 hectares was awarded in 1996. The DENR then recommended that BCBAI should be re-organized into a cooperative in order to effectively manage its financial and livelihood resources. Hence, four years later, the Banila Community-Based Cooperative was formed. In the same year, an additional 80 hectares reforestation project under the Comprehensive Agrarian Reform Project (CARP) of the Department of Agriculture was awarded. On July 12, 1999, BCBC was awarded an CBFMA, a 25-year tenure instrument covering 225 hectares. Recognizing the capacity of the Cooperative to develop and protect the area, DENR expanded the CBFMA area on December 17, 2001 to cover the entire barangay of Banila with a total area of 2,395 hectares. Section 4 elaborates on the Banila experience focusing on the impacts of tenure reform in terms of the LIFE indicators.
slopes less than 50% steep) plus an additional 5.9 million hectares of “open access” areas would be placed under community forest management over a ten-year period (DENR 1990). Corporate or large-scale operations (e.g., TLAs and timber production sharing agreements) were to be confined to 682,000 hectares or 24% of the total forests allocated for commercial timber harvesting. As a result, community forestry continued to expand during the 1990s with the implementation of various people-oriented forestry programs throughout the country. Its development has been facilitated by numerous agencies providing financial as well as technical support (Pulhin et al. 2007). Among these are Ford Foundation, the United States Agency for International Development (USAID), ADB, World Bank, Japan Bank for International Cooperation, German and Swedish governments, and other agencies. It also stimulated the entrance of new key players in the forestry sector, especially the NGOs, POs, LGUs, the academe and research agencies.

In 1991, RA 7160, otherwise known as the Local Government Code, was passed into law. It devolved certain forest management rights and responsibilities to LGUs. Specifically, the implementation of social forestry and reforestation initiatives, the management of communal forests not exceeding 5,000 hectares, the protection of small watershed areas, and the enforcement of forest laws were devolved to LGUs. This paved the way towards the development of various co-management arrangements between the DENR and LGUs in partnership with the local communities. The arrangements granted certain access, management and use rights to local communities to a given forest land. This case is exemplified by the Barobbob Watershed Co-Management Project (Box 3).

The rights of indigenous cultural communities were also recognized by the Aquino administration. A month before the end of her term, President Aquino signed into law RA 7586, otherwise known as the “National Integrated Protected Areas System (NIPAS) Act of 1992” or the NIPAS Act. The Act encouraged community participation in the delineation of land boundaries and in the management of protected areas. Under this law, organized communities, including the IPs, living in selected zones within or around protected areas may be given a 25-year tenure security provided this does not pose a threat to the environmental integrity of the protected areas. They may also be allowed to harvest non-timber forest products (e.g., rattan, bamboo, vines) in non-restricted zones of these areas.

Ramos administration (1992-1998) to the present

The tenure reform in forest lands initiated by President Aquino was continued under the administration of Pres. Fidel V. Ramos. Six months after he took office, the newly

---

5 Residual forest refers to areas which has been the subject of logging operations under the TLA system.
Tenure Reform on Philippine Forest Lands


One of the pioneering initiatives that attempted to implement this devolution policy is the case of the Barobbob Watershed Co-Management Project located in Barangay Masoc, Bayombong, Nueva Vizcaya. The watershed is important for Nueva Vizcaya being one of the headwater sources of the Magat River whose water is channeled for impoundment at the Magat Multipurpose Dam for irrigation and hydroelectric power generation purposes. It supplies potable water to two municipalities and irrigation water to six barangays and provides settlement to 151 households. Upon signing of the MOA between the Provincial Government of Nueva Vizcaya to the Regional Executive Director of DENR of Region II in support of the implementation of the Local Government Code, the direct management of the 439-hectare watershed area was transferred to the former in 1992. At the same time, 27 DENR personnel working under the ISFP who were devolved to the provincial government formed part of the Provincial Government Environment and Natural Resources Office (PGENRO) that assumed the primary responsibility of the administration of Barobbob Watershed.

In the early part of PGENRO’s administration, its apparent policy was to improve the condition of the watershed in the absence of the local residents. Hence, the PGENRO twice attempted but failed to resettle the residents of Sitio Pawac in 1995 and 1996. As a result the PGENRO shifted to the policy of improving the condition of the watershed with the active participation of the local communities. This led to the organization of the Barobbob Watershed Occupants Association, Inc. (BWOA) in August of 1997 initially consisting of about 40 farmers. With the assistance of the Governance for Local Democracy Program (GOLD), funded by USAID, PGENRO successfully convinced the watershed dwellers to enter into an agreement with the LGU of Nueva Vizcaya. Under the arrangement they were allowed to stay in the area they occupied based on the conditions that they would protect the watershed, prevent entry of migrants and encroachers, develop and implement programs for the rehabilitation of critical areas, among others. In general the agreement provides for the co-management of Barobbob Watershed by the local communities and the provincial LGU. Through the MOA signed in June 1998, 151 farmers were granted conditional property rights over the land they occupy and cultivate for a period of 25 years renewable for another 25 years. Section 4 of this report discusses the impacts of the recognition of property rights among the Barobbob watershed occupants in terms of the LIFE indicators.

appointed DENR Secretary Angel Alcala issued DENR Administrative Order No. 2, Series of 1993. The order stipulates the rules and regulations for the identification, delineation and recognition of ancestral land and domain claims. The policy reasserted the rights of indigenous peoples to their ancestral lands to ensure their economic, social and cultural well-being. Provincial Special Task Forces on Ancestral Domains (PSTFAD)
were mandated to meet with indigenous communities for the purpose of verifying ancestral domain claims and identifying forest boundaries. Once their claims are approved, indigenous communities are granted Certificates of Ancestral Domain Claims (CADCs). Like the other tenure instruments, CADC provides the recipient indigenous communities with access, use, management and exclusion rights for a period of 25 years renewable for the same, subject to existing forestry rules and regulations by the government.

In 1995, President Ramos issued Executive Order (EO) 263, a landmark policy institutionalizing the CBFM Program. Declared as the national strategy to attain sustainable forest management and social justice and equity, CBFM, like ISFP in the preceding decade, integrated all forestry programs under the principle of public participation in local forest management. These include the ISFP, Upland Development Program, Forest Land Management Program, CFP, Low Income Upland Communities Project, Regional Resources Management Project, Integrated Rainforest Management Project, Forestry Sector Project, Coastal Environment Program, and Recognition of Ancestral Domain Claims (Pulhin and Pulhin 2003). With the integration of these various programs, new projects were issued CBFMAs as tenurial instruments, while projects covering ancestral domains/lands were given CADC/Certificate of Ancestral Land Claim (CALC). Just like the other agreements, CBFMA and CADC/CALC have tenure coverage of 25 years renewable for another 25 years. They entitle their holders to occupy, develop, utilize and manage specific portions of forest lands pursuant to approved government regulations and procedures.

To operationalize social equity and community participation in forest resources management, the DENR’s CBFM National Strategic Plan of 1997 has earmarked 9 million hectares of the country’s total classified forest land of 15.8 million hectares for community management by 2008. This represents a drastic departure from the previous forest management approach which placed 8-10 million hectares of forest land (one-third of the country’s total land area) under the control of the powerful elite, particularly the timber corporations (Pulhin and Pulhin 2003). CBFM was the main strategy adopted by the government to put under management forest areas left as “open access” by timber corporations whose license either expired or were cancelled due to violations (See Box 4 for an example on this).

In 1997, after decades of struggle by the IPs and their supporters, the Philippine Congress enacted RA 8371 or the Indigenous People’s Right Act (IPRA), the passage of which is considered a breakthrough in the history of Philippine legislation. Through IPRA, ancestral domain was finally recognized in legislation as private, discrediting the notion of state ownership over all classified forest lands. Under this law, IPs can apply for a Certificate of Ancestral Domain Title (CADT) or Certificate of Ancestral Land Title (CALT) to certify their ownership of the land. However, IPRA prohibits the selling of these lands despite the fact that they are private. In essence, except for the alienation right which is in principle retained by the state, the rights to use, control and exclude others as far as established ancestral domains and lands are concerned have been vested to the IPs.
Box 4. NPPFRDC as an example of CBFM recipient managing forest areas left by a timber corporation.

The Ngan, Panansalan, Pagsabangan Forest Resources Development Cooperative (NPPFRDC), located in the province of Compostela Valley, is managing the second largest CBFM site in Compostela Valley covering an aggregate area of 14,800 hectares and one of the 40 CBFM POs operating in Region XI. The site was formerly a part of the 26,000-hectare concession of the Valderrama Lumber Manufacturers Company, Inc. (VALMA) which operated in the area, from 1969 until its TLA expired on 31 December 1994. To promote the sustainable management of the area, the DENR with the support of USAID’s Natural Resource Management Program organized the people in the three barangays of Ngan, Panansalan, and Pagsabangan to form a Cooperative that would take over the local forest management. NPPFRDC was awarded the CBFMA No. 11 on 4 December 1996, giving them the rights and responsibilities to manage and protect its forest land located in the towns of Compostela and New Bataan.

NPPFRDC has been an active player in the logging industry in Mindanao, having been the source of prime logs in the region which supplies the market in Metro Manila. It was the first CBFM site in Asia, and the only one in the Philippines, to be issued with a Smart Wood Certification that attests to its sustainable management practices. Since 1996, the Cooperative was able to remit more than PhP 8 M to government coffers in the form of forest charges while actively protecting the remaining forest in the province together with the DENR. Despite these accomplishments, the Cooperative continues to face policy-related obstacle that threatens its viability as a small-scale timber enterprise. The experience of NPPFRDC particularly the different impacts of the awarding of CBFMA is further discussed in Section 4.

Since President Ramos completed his term in June 30, 1998, no legislated law or significant forest policy have been issued by the succeeding Presidents (i.e. Estrada and Arroyo) to further advance tenure reform in forest lands. In general, succeeding administrations simply implement the earlier initiatives particularly the adoption of CBFM as the national strategy for promoting sustainable forestry and social justice. In few instances, as the succeeding discussion in Section 4 will indicate, the spirit of the earlier policies and new strategy is even subverted and undermines the achievement of the anticipated positive impacts of tenure reforms.

Figure 4 presents the key events and policies over the last three decades that influence tenure reform in forest lands. The figure depicts the declining trend of TLA coverage as against the present CBFM coverage. It also illustrates the strategic location of the four study areas in the timeline of tenure policies and programs indicating that their emergence represents key historical moments in the overall development of tenure.
reform in the country’s forest lands. In summary, the historical overview indicates that the recent acceptance of local people as forest managers and the increasing recognition of their rights over forest lands and resources through the different land tenure instruments was an outcome of negotiation, accommodation, and contestation among many actors with diverse interests at various levels – international, national and local. The tenure reform was driven by a confluence of political, economic, cultural and environmental factors. Since the historic issuance of KEF’s MOA in 1974, the journey to meaningful tenure reform, important especially to the millions of forest-dependent people, continues, and as the succeeding discussion on the impacts of this reform will show, every step forward can easily be followed by one or more steps in the opposite direction.

**Figure 4.** Key policies, programs and events influencing tenure reform and trends in forest cover, TLA, and CBFM coverage (1969-2005). (Sources: FMB 2005; Pulhin et al. 2006; Pulhin et al. 2007)
IMPACTS OF TENURE REFORM

This section analyses the impacts of tenure reform in the Philippine forest lands in terms of livelihood, income, forest conditions, and equity based on experiences from four case studies representing three different types of tenure instruments under the CBFM strategy. First, we examined the nature and holders of the bundles of rights before the tenure reform and the shift in the holders of these rights resulting from the issuance of the different tenure instruments. We then analyzed the impacts of this shift in rights in terms of the LIFE indicators. Finally, we explored the factors that either facilitate or hinder the anticipated positive impacts from the tenure reform.

Changes in the Bundles of Rights

Prior to the tenure reform, all the four case study areas were viewed by the State as “lands of public domain” and hence state-owned. Thus, the State enjoyed the full bundles of rights in relation to access, withdrawal, management, exclusion, and alienation. Authority of allocation and disposal of these areas in terms of what was deemed by the central government as appropriate use and management rests mainly in the DENR being the State’s representative on all matters pertaining to public lands. Indeed, DENR has been viewed as the biggest landlord of almost 16 million hectares of classified forest lands all over the country.

To execute its duties, DENR has the legal mandate to grant different licenses, permits, and leases that relate to occupancy, use and management of all forest lands (Table 2). These involved the issuance and cancellation of TLAs in the case of NPPFRDC site and Barobbob, and Pasture Lease Agreement (PLA) and TLA in Banila from the late 1950s to early 1990s. Kaingin permits that allowed conditional occupancy in the case of few early Barobbob watershed occupants were also issued in the 1950s. In general de facto forest occupancy was considered illegal in all sites, even in areas occupied by the IPs such as in the KEF and NPPFRDC sites.

Similarly, the State has the sole authority to grant other forms of permits for other resources such as water, through its legitimate government entity. In the case of Barobbob watershed, a MOA was signed between the Provincial Government and the Provincial Waterworks System that enabled the latter to gain the legal rights to tap into the water sources of the watershed and build water system facilities.

In terms of use, DENR had the authority to approve the volume and size of timber to be harvested. It also determined the locations of logging areas and pasture lands. The logging companies and pasture lease holders acquired the right to withdraw or use forest resources based on DENR-approved plans. In the case of TLAs, these included
the integrated area operation plan (IAOP) which provides the detailed plan for the entire logging area and the annual allowable cut (AAC) that specifies the volume of timber to be cut in a year in a specific area.

The management rights in all three cases where logging operations were practiced (i.e., Banila, NPPFRDC site and Barobbob) were likewise centralized by the State. The DENR had the rights to approve the different management plans and to monitor reforestation projects, logging and pasture activities. It had also the sole right to decide and implement watershed development projects in the case of the Barobbob watershed. The rights vested to logging companies and pasture lease holders were mainly in terms of conducting vegetation improvements such as timber stand improvement and reforestation and maintaining the carrying capacity of the PLA area, as stipulated in their management plans. These plans had to be approved by the DENR as well.

The state also possessed the exclusion rights in all the four cases. For instance, the DENR could either suspend or cancel the TLA and PLA unilaterally, if found necessary. For their part, the logging companies and pasture lease holders also enjoyed a certain degree of exclusion rights since they have the legal mandate under the TLAs and PLAs to protect their own concession/pasture areas from encroachment. On the other hand, the local population practiced their de facto rights, albeit not recognized by the State, in terms of prohibiting others from occupying the land they till or possessed.

Table 2 characterizes the bundles of rights enjoyed by the different stakeholders before the issuance of tenure instruments in the four case study areas. Overall, the transfer of the bundle of rights in terms of access, use, management, and exclusion was generally confined to the elite sector particularly the TLA and PLA holders with the full alienation rights retained by the State. Local population dependent on the forest lands and resources including the IPs were treated as squatters in their own land. This was despite the fact that they have customary tenure systems and indigenous management practices such as the Ikalahlan tribe of the KEF which were found to work and promote sustainable forest management. The non-recognition of the IPs’ customary rights made them very vulnerable to external powerful interests that wanted to claim their ancestral lands as mentioned in the previous section. Thus, they needed a formal recognition from the State to make their rights more legally binding and hence secure their claim over their ancestral lands and resources.

Similarly, the migrants’ forest occupancy and de facto use and management of their claimed resources made them highly vulnerable not only to external forces such as the land grabbers but more so to the exclusionary power of the State. This is best illustrated in the case of the Barobbob watershed occupants who were attempted to be resettled

Section 4: Impacts of Tenure Reform

---

Tenure Reform on Philippine Forest Lands

two times by the Nueva Vizcaya Provincial Government during the early years of the project implementation. This undoubtedly created conflicts between the occupants and the Provincial Government which was later solved with the signing of a Co-management MOA that entitled the former to occupy, use and manage their areas based on approved management plan.

Major changes occurred in terms of shifts in the bundles of rights in the four case study sites with the issuance of the different instruments associated with the tenure reform process. These shifts are best illustrated in Table 3. Of the four cases, KEF has the most progressive experience in terms of transfer of rights from the State to the local communities and individuals initially, through the issuance of Memorandum Order No. 1, and more recently, the CADT. Through MOA No. 1, KEF was granted by the State the “sole and exclusive rights and obligations to supervise, develop, utilize and manage” 14,730 hectares located in the municipality of Sta. Fe, Nueva Vizcaya, “subject to the rights and limitations imposed by the Agreement and the laws of the Republic of the Philippines” (MOA No. 1, 1974: 2). Hence, this early form of tenure provided the KEF legal access, use, and management of the area within the legal bounds of the laws. KEF was also given the right to exclude “third parties” such as land speculators and grabbers as well as non-KEF members or non-bona fide members of the Ikalahan tribe who were not part of the Agreement. However, it was not given the power to transfer ownership. Moreover, since MOA No. 1 was a form of lease to KEF, the transfer of rights was just partial and only for a specified period (i.e., 25 years renewable for the same period) since the land is considered a “government land”. Despite this limitation, the MOA had provided the Ikalahan tribe the legal security over their ancestral lands. Thus, in the performance of its responsibilities, KEF developed internal rules and regulations governing the management and protection of the area. These internal policies honored existing claims and property rights of individual households including customary practices of management and transfer of rights.

The issuance of the CADT on April 21, 2006, legally recognized the rights of possession and ownership of the Ikalahans over their ancestral domains. Except for the full alienation right where the State through the National Commission on Indigenous People (NCIP) has still some degree of control in terms of ensuring that the transfer of rights will be limited to members of the Ikalahan tribe, the full bundle of rights has been transferred to the tribe with the KEF as their official representative. The IPRA Law recognized that officially delineated ancestral lands by the NCIP are by nature “private”. Thus, CADT is not bounded by time unlike MOA No. 1. Also, since IPRA Law recognized the applicability of customary laws governing property rights, the issuance of CADT reinforced the customary rights of the Ikalahans over their ancestral lands. The CADT therefore provides legal legitimacy to the indigenous practices employed by individual Ikalahans as well as to their customary ways of transferring land ownership among tribal members.
Unlike the KEF’s CADT, the other types of tenure instruments do not provide as many rights. In the case of CBFMA, much of the control still remains with the DENR. While in theory, CBFMA allows the transfer of rights to its recipient POs in terms of access, use, management, and exclusion, in reality, these rights are very conditional and subject to bureaucratic procedures and regulations. For instance, the DENR Secretary can cancel CBFMA as experienced in 2006, thus depriving the PO members of the full bundle of rights. Similarly, harvesting of forest products especially timber requires Resource Use Permit (RUP) which is processed within 60 days upon receipt of the application. However, in worse cases, this could take up to six months and involve a lot of transaction costs especially if the PO is located far from the DENR central office in Quezon City, Metro Manila, where RUP application is submitted and processed. The RUP may also be unilaterally suspended or cancelled by the DENR Secretary any time even without due process. Management plans such as the Community Resource Management Framework (CRMF) and Five-Year Work Plan (FYWP) required for CBFMA areas are also very technical and beyond the capacity or comprehension of many POs. Except probably for NPPFRDC whose staff were former employees of logging corporation, many POs have to rely heavily on the expertise of professional foresters and hence need to hire their services in order to comply with technical requirements of the plan. This means additional costs in the part of the POs (Dugan and Pulhin 2007).

In summary, the transfer of rights to POs and individual members is very limited as indicated in the broken line in Table 3 for both the Banila and NPPFRDC cases. Indeed, in cases when resource use rights are withheld or suspended by the DENR as experienced by NPPFRDC for at least three times in the past, what are actually being transferred are less “bundles of rights” but more of “bundles of responsibilities” in terms of forest rehabilitation and protection.

Similarly, the case of Barobbob watershed shows limited transfer of rights (Table 3). In this case, the Provincial Government of Nueva Vizcaya through its PGENRO represents the State in regulating the different rights. On the other hand, the BWOA serves as the intermediary between the Provincial Government and the individual MOA holders since the actual management of specific parcels of land rests in the individual members/households living in the watershed who are the signatories of the contract. In terms of use rights for timber, this case is even more limited compared to CBFMA. This is because commercial timber harvesting even of trees planted by the MOA holders is not allowed as the area is considered as a watershed reservation. This provides disincentives to tree planting. Part of the disincentive may also stem from the perception that an “MOA” is a much “inferior” tenure instrument compared to a “title”. These disincentives

---

7 Under the Ikalahan customary law, ownership of farm lots either in the alienable and disposable land or in the forest zone maybe transferred to KEF/Ikalahan member in exchange for cash or kind which serves as payment for the improvement of the land. Such practice is called damat.
Table 2. Nature and holders of bundles of rights prior to the issuance of tenure instruments (continued next page).
<table>
<thead>
<tr>
<th>Access</th>
<th>Grant TLAs</th>
<th>Occupy forest land based on customary rights (for Mandaya-Mansaka tribe) / de facto (for migrants)</th>
<th>Establish water system facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawal /Use</td>
<td>Approve or grant AAC/IAOP</td>
<td>Kaingin-making and timber extraction based on customary rights / de facto for migrants</td>
<td>Harvest based on the approved AAC/I/AOP</td>
</tr>
<tr>
<td>Management</td>
<td>Monitor area development and logging protection activities</td>
<td>Develop areas by planting agricultural crops and fruit trees based on customary rights and de facto (for migrants)</td>
<td>Develop TLA areas based on the approved management plan</td>
</tr>
<tr>
<td>Exclusion</td>
<td>Cancel/suspend/ terminate TLA</td>
<td>Prohibit encroachment in occupied areas based on customary</td>
<td>Protect TLA concession area against encroachment/ illegal logging</td>
</tr>
<tr>
<td>Alienation</td>
<td>Retained by the State</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NPPRDC**

<table>
<thead>
<tr>
<th>Access</th>
<th>Grant kaingin permit, TLAs and MOA for water system; prohibits/control occupancy within the watershed</th>
<th>Occupy forest land</th>
<th>Establish water system facilities</th>
<th>Establish logging camps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawal /Use</td>
<td>Grant AAC/IAOP for TLAs and permit to tap water</td>
<td>Kaingin-making and timber extraction (de facto)</td>
<td>Tap water supply for domestic use</td>
<td>Harvest timber based on the approved AAC/I/AOP</td>
</tr>
<tr>
<td>Management</td>
<td>Decide and implement watershed development projects</td>
<td>Plant vegetable crops and fruit trees within their occupied areas (de facto)</td>
<td>Reforest and develop infrastructure for sustainable water supply</td>
<td>Develop TLA areas based on the approved management plan</td>
</tr>
<tr>
<td>Exclusion</td>
<td>Prohibit encroachment within the watershed</td>
<td>Prohibit encroachment in occupied areas (de facto)</td>
<td>Prohibit encroachment near the water sources</td>
<td>Protect TLA concession area against encroachment/ illegal logging</td>
</tr>
<tr>
<td>Alienation</td>
<td>Retained by the State</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BWOA**

<table>
<thead>
<tr>
<th>State/DENR/ Provincial Government</th>
<th>Local Communities</th>
<th>Individual/TLA Holder/PLA Holder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Provincial Waterworks (NAWASA)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3. Shift in the bundle of rights resulting from the issuance of tenure instruments (continued next page).

<table>
<thead>
<tr>
<th>Legend</th>
<th>- represents recognition/transfer of rights</th>
<th>- represents limited recognition/transfer of rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access</td>
<td>Withdrawal / Use</td>
<td>Management</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Grant / cancel CBFMA</td>
<td>Grant / suspend / cancel RUP</td>
<td>Approve and monitor reforestation and area development projects based on CRMF/FYWP</td>
</tr>
<tr>
<td>Forest occupancy</td>
<td>Harvest forest products based on approved RUP</td>
<td>Develop areas through reforestation, agroforestry based on CRMF/FWP</td>
</tr>
<tr>
<td>Forest occupancy and cultivation of lots</td>
<td>Harvest timber and agroforest crop individual farms</td>
<td>Develop individual farms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Access</th>
<th>Withdrawal / Use</th>
<th>Management</th>
<th>Exclusion</th>
<th>Alienation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant / cancel CBFMA</td>
<td>Grant / suspend / cancel RUP</td>
<td>Approve and monitor reforestation and area development projects based on CRMF/FYWP</td>
<td>Monitor and implement forest protection activities</td>
<td>Retained by the State</td>
</tr>
<tr>
<td>Forest occupancy</td>
<td>Harvest forest products based on approved RUP</td>
<td>Develop areas through reforestation, agroforestry based on CRMF/FWP</td>
<td>Protect CBFMA and adjacent sites</td>
<td></td>
</tr>
<tr>
<td>Forest occupancy and cultivation of lots</td>
<td>Harvest timber and agroforest crop individual farms</td>
<td>Develop individual farms</td>
<td>Prohibit encroachers to individual lots; transfer of land rights to next of kin</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Access</th>
<th>Withdrawal / Use</th>
<th>Management</th>
<th>Exclusion</th>
<th>Alienation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant / cancel MOA (Provincial Gov't)</td>
<td>Prohibit timber cutting for commercial purposes (DENR); approve water supply development projects/activities (Provincial Gov't.)</td>
<td>Approve and monitor reforestation and area development projects based on CRMF/FYWP</td>
<td>Monitor and implement forest protection activities; facilitate issuance &amp; monitoring of IPR</td>
<td>Retained by the State</td>
</tr>
<tr>
<td>Recognize individual occupancy and cultivation on individual MOA)</td>
<td>Harvest agricultural crops and NTFPs within MOA areas; tap water supply for domestic purposes (DENR); approve water supply development projects/activities (Provincial Gov't.)</td>
<td>Develop areas through reforestation, agroforestry and high value crops production based on MOA and LMP</td>
<td>Prohibit encroachment; to individual lots; transfer of land rights to next of kin or other MOA holders</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section 4: Impacts of Tenure Reform</th>
<th>State/DENR/ Provincial Government</th>
<th>Local Communities</th>
<th>Individual/PO</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOA on Co-Management (BWOA)</td>
<td>Retained by the State</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tenure Reform on Philippine Forest Lands

may partly explain the increasing cases of selling of farm lots in the watershed area which is considered illegal under the MOA. Indeed, by 2008 about 35 out of 151 MOA holders have sold their claimed area. Such acts could also pose socio-economic and environmental impacts in the watershed.

Despite the limited transfer of rights for the CBFMA and MOA holders, land tenure security of local communities in general has improved. In terms of access, the PO members do not have to worry about speculators and land grabbers. Also, except for timber, they can sell agricultural crops and non-timber forest products (NTFPs). The tenure instruments also provide them certain political space to participate in the management of common-pool resource areas such as forested areas which used to be the sole domain of the State and/or TLA holders. Furthermore, they can exclude other parties from their claimed lands and resources.

Impacts of Tenure Reform on LIFE

Following the CIFOR-RRI framework of analysis, this section analyzes the impacts of stronger rights on livelihoods, income, forest condition and equity. A total of 12 separate Focus Group Discussions (FGDs) were conducted in the four sites. A household survey was also conducted in all sites involving a total of 354 respondents to support the FGD results particularly in determining the impacts on income where aggregate figures for the community before and after the tenure reform are not available and cannot be generated through FGD. In addition, Geographic Information System (GIS) maps were generated based on the interpretation of available satellite imageries. All the information and analysis were validated by key stakeholders during local consultations conducted in Bayombong for the three study sites in Nueva Vizcaya (i.e., KEF, Banila CBFM and Barobbob watershed) and in Davao City for the site in Compostela Valley (i.e., NPPFRDC).

Impacts on livelihood

Before CBFM was implemented, commercial logging was a major form of livelihood in the many upland areas. The case of NPPFRDC in Compostela Valley in Mindanao is a typical example. During the peak of logging from 1970s to 1990s, the majority of the residents were employed by the VALMA logging company. Only a few had established piggeries or poultries or ventured in farming since the income from logging was enough to sustain the financial requirements of the whole family. However, when the TLA expired in 1994, many employees lost their jobs. Few sought related jobs outside of the area (i.e., sawmills in adjacent municipalities) while others worked as laborers in banana plantations. Few former employees were noted to have borrowed money from loan sharks or from banks to put up piggeries and poultries but eventually did not prosper.
due to the lack of market. Some planted fruit trees but it did not provide solution to their immediate needs considering the long gestation period before harvest time. Among the local population, the indigenous people (Mandaya-Mansaka tribe) were the most resilient. They reverted back to farming which is their traditional source of livelihood and hence were able to cope.

When CBFM was implemented, timber harvesting was revived and various non-forest based livelihood opportunities were formed. Along with the issuance of the tenure were also several livelihood incentives that the PO was able to avail of. This included swine production, aquaculture, duck raising, poultry, and meat processing. Timber harvesting remained a major forest-based livelihood of the Cooperative until today. Income from this activity is being used by the Cooperative to support its non-forest based livelihood and for forest development and protection activities. However, with the series of national RUP suspensions by three DENR Secretaries as well as the extremely slow and bureaucratic process involved in the RUP approval, most of the livelihood activities became economically unviable due to lack of capital.

Alongside logging, other destructive livelihoods such as kaingin-making, timber poaching and charcoal-making were also common before CBFM was implemented. The case of Banila in Dupax del Sur, Nueva Vizcaya, revealed that all these practices existed in the area before the tenure reform exerting tremendous pressure on the forest resources. Results of FGD show that 128 individuals (90% of the community) were engaged in kaingin-making, 15 households were into timber poaching, 4 households on charcoal-making, and 10 households in gathering NTFPs such as fruits, vines, bamboo, and root crops.

The damage of extensive resource extraction led to the implementation of the two contract reforestation projects in Banila in the early 1990s. This generated employment opportunities in the community through contract labor. Major non-forest based livelihoods were also prominent in terms of lowland rice farming, trading and retailing, employment in government institutions, providing services (transportation, house construction), overseas contract work, and employment in private institutions.

The adoption of CBFM has further improved the livelihood opportunities of local people, again through other incentives or projects that came along with the tenure shift. For instance, the implementation of additional reforestation and agroforestry projects opened up more employment opportunities in the area. The shift to more sustainable livelihood was also evident. A number of families engaged in kaingin-making, timber poaching and charcoal production shifted to newly created livelihoods such as cut-

---

8 Loan shark is a common term for a person who lends money to borrowers at a high interest rate, for instance, at 5% repayment fee above the borrowed capital.
flower production, hog-raising, and agricultural products trade and lending. These non-
forest based livelihood sources remained to date, although there is an increase in the
number of people who are engaged in trading andretailing, farm labor, professional
services (teacher, engineer, midwife) and other services (carpentry, driver, overseas contract
jobs, and employment in private institutions).

The creation of BCBC was also regarded beneficial in ensuring the smooth
implementation of livelihood projects under CBFM. BCBC formed a credit cooperative
where members can avail of loans for purchasing farm inputs on a very low interest. In
addition, the cooperative was able to put up a tiger grass plantation for broom-making
tenterprise providing employment to some of its members. However, very recently,
BCBC reported that their cooperative went bankrupt because of many unpaid loans
brought about by a major typhoon that destroyed their crops. There is also the problem
of poor fund management.

Similar to the NPPFRDC, the DENR has recently granted an RUP to BCBC providing
livelihood opportunities to CBFM participants in terms of employment and financial
return to the Cooperative. However, it was noted that the cooperative lacks both the
financial capital and technical capacity to manage and sustain logging operations. Also,
the high transaction costs involved in processing the RUP rendered the first RUP issuance
financially unviable in the part of the PO.

The case of Barobbob community shared the same experience in terms of the challenge
of sustaining a number of livelihood projects that were introduced by the Provincial
Government of Nueva Vizcaya. Like Banila, Barobbob settlers have been predominantly
engaged in forest-based livelihoods. Of these, upland farming has been and still is the
most common source of livelihood because of the abundance of water and open
lands in the area. Charcoal-making, timber poaching, and collection of non-timber
products also served as major sources of living to a number of families.

Historically, the community recalled that decades before the Co-management scheme
was adopted, commercial logging was the major economic activity in the area. This
created forest-based livelihood opportunities albeit limited to only few community
members since most of the workers were non-residents. With the lean local employment
opportunity available, several maintained kaingin-making which was said to have become
more rampant through time.

The end of the logging operation and the implementation of the co-management MOA
in 1998 led to the transformation of kaingin cultivation from highly erosive to more
conservation-oriented farming system, which was facilitated by the PGENRO along
with the expansion of the practice of agroforestry. This was further enhanced as market
has improved through the construction of the Nueva Vizcaya Agricultural Terminal
(NVAT), a farm trading depot of the Provincial Government. Other livelihood
opportunities introduced by the PGENRO include reforestation, cow fattening, tiger grass production, and production of ipil-ipil (*Leucaena leucocephala*) for fuelwood (Tena 2007).

Timber poaching is now rarely practiced due to stricter law enforcement through self-policing of community members and regular monitoring by the PGENRO. This was also partly because of the shift in livelihood activities of some members who used to depend on poaching to upland farming. To a limited extent, the enhanced capacity of the farmers to send their children to school provided them other employment opportunities after graduation thus reducing the pressure on the watershed.

The reforestation projects of the Provincial Government have provided extra source of income to some people living in the watershed. Some members of the community continue to be involved in these reforestation projects on a rotation basis. With the continuing decline in the budget allocation to the project, however, the sustainability of this livelihood support is threatened. Other livelihood projects also have their share of problems (Tena 2007). Agroforestry crops preferred were not trees but mostly short term agricultural crops. Forest fires damaged the tiger grass production area which was the source of broom-making. There were also some complaints of favoritism in the selection of who are to be employed in reforestation projects. Very recently, the Provincial Government, BWOA and Environmental Governance (EcoGov Phase 2) Project have started working on the mechanism for the implementation of payment for environmental services (PES) which could be a potential source of livelihood for both government and community. This project aims to financially reward the effort of the community in protecting watershed for ensuring the sustainable supply of water in the lowlands. However, with the increasingly becoming rampant practice of selling land rights in the area, the issue of who will benefit from this initiative remains uncertain.

The case of the KEF was exceptional among the four sites studied. Before and during the issuance of MOA No. 1, livelihoods which were closely linked to natural resources in the area were governed by customary laws that are keenly observed by the Ikalahans up to the present. Perhaps, the most important impact of the issuance of the tenure instrument on livelihood is the regulation of the local people’s “open access” to the forest-based resources in the forest reserve. The strict implementation of the rules and regulations on natural resources management, which the KEF itself formulated and approved, was aimed at ensuring the sustainability of the timber and non-timber resources within the watershed for the present and future generations. For instance, swidden farming which has been their source of livelihood was regulated in terms of the size, location, and the manner of preparation. The prohibition of the use of chemicals in the swidden farms, and the encouragement of the use of the indigenous farming technology has also contributed to the maintenance of soil fertility. Hence, farming or gardening continues to be a main source of livelihood.
Just like swidden farming, tree cutting, NTFP collection, and hunting were regulated. Any one cannot just cut a tree; he/she has to have a permit, cut tree from his claimed land, and use it for home consumption. NTFPs can be collected following some requirements in terms of length in the case of rattan poles, and proper collection techniques of fruits. Hunting, which is an important source of protein, is likewise regulated so that the wild animals can maintain their population. Even fishing is regulated by prohibiting the use of chemicals and electricity. Non-residents of the KEF Reserve are strictly prohibited from using the resources within.

Institutionally, the KEF has long experience in organizational management, sustainable way of generating resources at local level, participatory decision-making, conflict resolution and maintaining equity and fairness. With the issuance of a more secured tenure instrument such as the CADT, the KEF was encouraged to identify and generate other livelihood sources. As in the other sites, some of these were not successful (i.e., cattle production, milk processing, vegetable processing and hand-made paper production) hence were abandoned. However, one livelihood activity which has been earning income for the KEF is the fruit processing. This activity employs some KEF members in the processing center while other members earn income from selling collected fruits to the center. According to Rice (2001), approximately 100 families from the Kalahan Reserve and a few from outside of the Reserve earn significantly from selling wild fruits to the processing center. Value adding on the indigenous products through processing has been a successful livelihood venture that KEF has embarked on following the issuance of the tenure instrument.

A self-rating exercise was conducted on the perception of the PO members on the impact of tenure reform on livelihood through a series of FGDs facilitated by the research team in all the four study sites. Based on the PO perception, MOA No. 1 and CADT in KEF have the most favorable impact on livelihood among the different tenure instruments as indicated in Table 4. As will be discussed later, this result may be associated with the strong customary laws and rich indigenous knowledge where the Ikalahans’ livelihoods are tightly anchored. Likewise, the cohesiveness of KEF members in supporting communal livelihoods was regarded as a catalyzing agent imbedded within their unique indigenous identity.

Table 4. POs’ assessment of the impact of tenure on forest and non-forest-based livelihood (through FGDs).

<table>
<thead>
<tr>
<th>Sources of Livelihood</th>
<th>Forest-Based</th>
<th>Non-Forest Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPPFRDC</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Banila</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Barobbob</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>KEF</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

*Scale: 1 = very poor; 2 = poor; 3 = average; 4 = good; 5 = very good*
The NPPFRDC also perceived CBFM to have generally ‘good’ impact on livelihood. It could be recalled that the revitalization of timber harvesting was regarded as a major gain in their tenure reform. Similarly, Banila gave a similar perception in which timber harvesting and reforestation projects were noted beneficial to create more livelihood opportunities. However, sustaining these CBFM livelihoods particularly timber harvesting was noted as a major challenge that the POs are still facing. Likewise, the contention about the ability of the DENR to effectively provide support, considering that livelihood development is not its institutional expertise, remains an important issue.

Among the different tenure instruments, Co-management agreement in Barobbob was perceived by the PO to have poor impacts on livelihood. Notably, the impact on forest-based livelihood was rated as ‘extremely bad’ due to the problems already mentioned as well as the poor and inequitable access of PO members towards livelihood opportunities.

It could be distilled from these cases that one of the more positive impacts of tenure reform was its contribution towards a shift to more environmentally conscious livelihood strategies. In general, the impacts of CBFM strategy include the decline of destructive practices such as logging, kaingin-making and timber poaching, and the increasing efforts towards conservation in terms of reforestation and more sustainable farming technologies like agroforestry. It should, however, be noted that other factors such as the economic growth over the last several years and development funds remitted into the country have also reduced pressure on natural resources.

On the other hand, the reform has created livelihood opportunities that are biased towards primarily improving forest cover without necessarily generating sustainable livelihood opportunities. While the overall rating of the POs regarding the impact of tenure reform may be “average” to “good”, the sustainability of most of the livelihood developed after the reform or provided as part of the tenure reform package are mostly dependent on a number of factors where communities do not have much control of. Reforestation, timber harvesting, upland farming, tiger grass and cut flower production, and livestock production which are the more common livelihood activities in many CBFM sites are highly dependent on financial capital, technical skills, and market availability. In addition, timber harvesting which is very promising especially in resource rich areas like Mindanao is very vulnerable to bureaucratic manipulations and political interest. Indeed, helping the communities to have control over these forces to promote sustainable livelihood remains to be one of the greatest challenges associated with tenure reform.

**Impacts on income**

The impacts of tenure reform on income showed varied results across the cases studied. In the case of NPPFRDC, income during the TLA period was generally higher than
Tenure Reform on Philippine Forest Lands

what the PO members are receiving under the CBFM. This is so as employees or laborers received a regular monthly salary from the logging company compared to the present where the cooperative has very limited income-generating activity and hence staff has no permanent compensation. To handle the situation, household members at present are forced to look for non-forest-based income generating activities which have somehow augmented their income.

During the TLA years, the company paid its employees and laborers with wages that conform to the prevailing labor standard during that time. A logging supervisor could receive as much as PhP 5,000 monthly salary plus other benefits in the 1980s. Today, because of the limited operation especially during slack period when there is no awarded RUP, the workers are contented to receive a “pro-rate” or “per-board foot-salary” just to make ends meet.9

In the 1990s, a tallyman could earn around PhP 145 per day, or around PhP 3,370 a month during regular operation of VALMA. The company also gave benefits to its employees such as Social Security System (SSS), insurance, and hospitalization allowance in time of sickness or accidents. Today, a tallyman could hardly earn PhP 80 per day of work. This measly income is due to the limited volume being awarded by the DENR to the PO for timber harvesting.

Nonetheless, PO members had also experienced few times of abundance during the first few logging operations of the cooperative under CBFM. Between 1996 up to 1998, the cooperative was at its peak of harvesting activities. Members and workers were able to establish retail store, buy carabaos or motorcycles and send their children to schools because of the benefits from timber harvesting in CBFMA area. However, this was prematurely cut off with the first national RUP suspension by the DENR Secretary in 1998 and the subsequent two other suspensions in 2002 and 2005, respectively (Figure 5) (Pulhin et al. 2007).

Comparing the income of households before and after the issuance of tenure instrument using survey results, the percentage of respondents that received an income of over PhP 30,000 but not over PhP 70,000 rose to 44% at present from 32% during the VALMA time. This explains that while key informants individually assessed that they are better off during the VALMA time, the tenure has actually improved their income in general albeit on a smaller scale. The same holds true for non-forest based income. The

9 Under the “pro-rate” or “per-board foot-salary”, the cooperative assigns a rate per worker (i.e., hauler, sawmill operator, chainsaw operator) on a fraction of a peso (e.g., PhP 0.35/bdft for hauler + PhP 0.50/bdft for sawmill operator +... until it equals to PhP 1.00). The rate will then be multiplied with the production output per day to get the salary of each worker (e.g., 10 bdft X PhP 0.35/bdft=PhP 3.50) and so on.
Figure 5. Effects of national RUP suspensions on NPPFDC's income from timber harvesting (1997-2007) (Pulhin and Ramirez 2005 with recent update).
respondents who did not have an income from non-forest based activities declined from 71% to 44% which means that they have actually diversified to other income generating activities such as sari-sari\textsuperscript{10} store or looked for other income opportunities outside the CBFM area. Overall, NPPFRDC gave CBFMA an ‘average’ impact rating on income (Table 5).

The case of CBFM in Banila showed a more or less opposite result compared to NPPFRDC considering the shift in forest-based livelihood due to stricter forest policy implementation. The study found that the number of households with no income has increased from 6% to 12% after implementation of CBFM. This was attributed to 13 households who abandoned timber poaching and led jobless under CBFM. When asked about changes in income resulting from tenure, 12% of the households observed decrease in their income, 52% said that their income did not change, while 36% perceived an increase in income. Overall, an “average” to “good” (3.5) impact on income from CBFMA issuance was perceived by the PO members interviewed (Table 5). Except for lowland farming and non-forest-based employment, all other income sources were rated “average”.

With regards to the impact of Co-management on income, historical recall made by the BWOA members showed that majority (68.6%) perceived that their income “before Co-management” was “sufficient”, while only 15.7% considered their income insufficient. Roughly 16% consider their income more than sufficient. With the implementation of Co-management, the majority (68%) perceived that their income remains sufficient, but a slight increase in the number of respondents who consider their income insufficient was observed (19.6%).

Comparing the averages in income before and after the Co-management agreement, annual household income was believed to have increased from approximately PhP 89,000 to PhP 95,000. However, it was also perceived that nearly half (49%) of the household believes that their income did not change, while 33% and 10% regards that Co-management has brought ‘slight increase’ and ‘significant increase’ on their income, respectively. Six percent (6%) considers their income to have significantly decreased as a result of the tenure implementation. Overall, Co-management was perceived to have a ‘good’ impact on income particularly from farming (Table 5).

The case of KEF also showed that there was improvement in income in the community with the issuance of tenure instruments. Before the tenure issuance in 1974, the respondents reported that they have limited annual income of not more than PhP 10,000 mostly from forest-related activities. The issuance of tenure has partly contributed to income diversification including non-forest and others sources which led also to the increase of their annual average income.

\textsuperscript{10} Sari-sari store is a variety retail store.
Table 5. POs’ assessment of the impact of tenure on income (through FGDs).

<table>
<thead>
<tr>
<th>Tenure and Community</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBFMA in NPPFRDC</td>
<td>3</td>
</tr>
<tr>
<td>CBFMA in Banila</td>
<td>3.5</td>
</tr>
<tr>
<td>Co-management in Barobbo</td>
<td>4</td>
</tr>
<tr>
<td>MOA No.1 and CADT in KEF</td>
<td>4</td>
</tr>
</tbody>
</table>

Scale: 1 = very poor; 2 = poor; 3 = average; 4 = good; 5 = very good

It can be noted that the number of households who reported of having no income from forest-based sources increased after issuance of tenure. This can be explained partly by the imposition of rules and regulations in the utilization of forest resources, like cutting of timber for commercial purposes, which some residents did before when everybody had open access to the forests. Collection of non-timber forest products was likewise regulated, particularly the collection of orchids.

When asked about income sufficiency, 50% from the community of Baracbac, 54% from Bacneng, 61% from Imugan, and 55% from Malico said that their income was sufficient to meet family needs before the issuance of tenure. Similarly, 90% from Sta. Rosa and 93% from Unib said their income was sufficient. After tenure, a great proportion in Bacneng (92%), Imugan (78%), Malico (91%) said that their income was sufficient to meet family needs. Majority in Imugan (75%) and Unib (64%) mentioned that their income was more than sufficient for their family. Overall, 54% the residents saw an increase in their annual income thus giving the tenure a ‘good’ rating (Table 5).

Impacts on forest condition

Improving the forest cover is among the foremost objectives of tenure reform. Reforestation and protection of natural forests are major components of most CBFM projects. (Please see Annex 6 for a tabular presentation of land use changes overtime in the four study sites.)

The case of NPPFRDC showed that the implementation of CBFM has resulted to the improvement of the overall forest condition. When the PO members were asked about the forest condition before and after the TLA, the members cited several observations. Some observed that during the time of VALMA, the forest was still intact and the water still clear, although some also argued that deforestation was already happening although not a concern during that time. At present, however, there are so many actors (e.g., illegal poachers, illegal loggers) relying on timber that if not checked would result to degradation in the near future. There are also those who argued that despite the present timber harvesting operation, the NPPFRDC is also actively involved in reforesting denuded areas inside the CBFM area thus countering the effects of timber extraction.
In addition, the presence of keystone species, such as the Philippine Eagle, was considered indicative that the forest can still support major wildlife.

The increase in forest cover was perceived as an indication that the cooperative was successful in maintaining or improving the land use of the site. There is uniform perception during FGDs among PO leaders and members that the current forest land use in the area is generally “good” (Table 6). Maintaining suitable land uses likewise retains or improves the productive capacity of the forest. The cooperative practices selective logging to ensure that there are still stocks which they can harvest in the future. The forest productive capacity therefore also receives a “good” rating.

In terms of forest quality and biodiversity, the same species can still be found in the forest according to NPPFRDC officers and members. Majority of the timber in the adequately stocked forest belongs to the Philippine Mahogany\textsuperscript{11} group, same as during the time of VALMA. However, there is a significant increase in the number of fruit trees at present owing to the agroforestry initiatives. These are planted in individual farms and in those areas declared by cooperative as suitable for agroforestry. Forest quality and biodiversity were therefore rated by PO members as ‘good’ (Table 6).

For NTFPs, the volume of rattan is said to be declining because of rampant extraction. But with proper intervention of both the DENR and the cooperative, this could still be averted in the near future according to community members.

Water quality and quantity have received a good rating despite the fact that respondents attest that water in the rivers turns muddy brown during rainy season and a reduction in

\textbf{Table 6.} POs’ assessment of the impact of tenure on forest condition (through FGDs).

<table>
<thead>
<tr>
<th>Sources of Livelihood</th>
<th>NPPFRDC</th>
<th>Banila</th>
<th>Barobbob</th>
<th>KEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest area</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Forest quality</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Forest land uses</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Forest productive</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>capacity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biodiversity</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Water quality</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Soil erosion</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Fire occurrence</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>3.6</strong></td>
<td><strong>4.1</strong></td>
<td><strong>4.1</strong></td>
<td><strong>4.9</strong></td>
</tr>
</tbody>
</table>

\textit{Scale:} 1 = very poor; 2 = poor; 3 = average; 4 = good; 5 = very good

\textsuperscript{11} Philippine Mahogany is the term for first class timber, majority of which belong to Family \textit{Dipterocarpaceae}.\textsuperscript{12}
water volume is being experienced during the dry season. Members regarded the negative effects of gold panning operation upstream which caused the steady increase in water turbidity. Soil erosion, on the other hand, has been reduced due to the forest rehabilitation initiatives of the cooperative which explains the “good” rating given (Table 6).

In view of the land use change, despite the timber harvesting activities of NPPFRDC over the last decade, the closed canopy forest significantly increased during the eight-year period from 1993 to 2001 (Figure 6). From around 2,015 hectares in 1993, the closed canopy forest increased to 2,263 hectares in 2001 as indicated by the comparison of satellite imageries taken during these years. This was mainly attributed to the continued rehabilitation effort being conducted by the cooperative which finally paid off. In general, there is an increase of about 1,672 hectares in forest cover in the area or an average of 139 hectares per year from 1993-2001.

The satellite imageries also indicate that majority of the brushlands were now classified as open canopy forest. Interestingly, the areas of cultivated lands had decreased from 3,109 hectares to 1,706 hectares and were now considered either under open-canopy forest or brushlands. Forest plantations are non-existent in 1993 but there is now a patch of plantation that can be seen in the southwestern portion of the CBFM site. In general, the overall impact of tenure to forest area was given an ‘average’ rating (Table 6).

The case of Banila is similar to NPPFRDC in terms of the impact of CBFM implementation on forest condition. Salient events that have contributed to the improvement of forest cover were shared by the community members. Members recalled that prior to issuance of CBFMA, the local community through the Barangay Council had initiated reforestation activities in order to restore the forest which has been destroyed by logging and kaingin-making. Initially, they planted a 180-hectare with *Gmelina arborea* with the help of 35 community volunteers. Amazed by this local initiative, the DENR Secretary awarded the Banila residents a 220-hectare reforestation contract which included the 180 hectares that they have initially established.

With the issuance of CBFMA, the original reforestation area was expanded to 2,395 hectares, broken down as follows: 540 hectares residual forest; 392 hectares plantation; 638 hectares brushland/grassland; and 725 hectares agroforestry/CSC area. The protection of the residual forest by the community and maintenance of the plantations contributed to the improvement in the forest cover and water resources in the watershed. In the case of the agroforestry area, about 90% (600 hectares) are still open areas needing some investment for development. The PO members also estimated that before CBFM, a total of around 40 hectares were devoted by the local residents to shifting cultivation. With the CBFM, the PO members claimed that kaingin-making is almost non-existent in the area.
The presence of dipterocarps as the dominant species in the area implies that the forest quality has been maintained. However, prior to CBFM implementation, these species were inadequately stocked. With the reforestation efforts, the number of and area planted to these species became adequate, thereby improving biodiversity of the area.

The PO members also observed that the water quality has somehow worsened through the years due to the previous *kaingin* activities and soil movement during road improvement. Cases of soil erosion were observed during typhoons. Fire occurrence has been controlled effectively due to forest protection activities. Moreover, prior to CBFM, fire incidence was high in the pasture areas. But due to the stricter implementation of forest rules and regulations of the BCBC, fire has been controlled. These positive impacts have been appreciated by the PO members as evidenced by the ‘good’ rating they gave to the impact of CBFM on forest condition (Table 6).

In terms of land use change, Figure 7 shows that in 1979, the land use and land cover in Banila was dominated largely by agriculture and various forest types (old growth, residual, mossy and plantation). Forests constitute less than 50% of the total area of the watershed from what was believed to be almost full forest cover before 1940 based on the recollection of the PO members. Most of the remaining natural forest cover (old growth, residual, mossy) was found mostly on the steep ridges and deep ravines of the watershed. In 1979, about a third of the watershed was dominated by agricultural land uses with a total area of more than 1,000 hectares. This may be attributed to vast logged-over areas that were eventually converted to *kaingin* farms.

In 1989, the area of natural forest cover further decreased by more than 500 hectares while land devoted for agriculture increased by more than 200 hectares. It is also conceivable that the expansion of agricultural areas could have encroached into the forest area. The built-up area has also declined by nearly 100 hectares attributable to two possible reasons. First, many settlers have converged to few strategic locations such as along logging roads (now unpaved provincial road) as a result of the termination of commercial logging activities in area. In the previous period, houses were relatively dispersed around the logging areas. The cancellation of TLAs has therefore resulted in the movement of settlers to nearby roads so that they will have greater access to other livelihoods aside from logging. Second, the convergence could be brought about by the incidences of floods and landslides particularly on areas near or within steep slopes. These previous built-up areas became ‘river washed’ hence unsuitable and unsafe to reside and cultivate for farming.

In 2002 the natural forest cover declined by relatively small amount which could be due to the further increase in agricultural areas. As the natural forest cover decreased, it is encouraging to note that the area of plantation has been increasing after 1979 with a big surge in 2002 likely due to the sustained implementation of reforestation projects. Built-up areas continued to become more centralized along the road networks.
The impacts of Co-management agreement on forest condition in Barobbob were likewise perceived by the BWOA members as generally favorable. Specifically, based on FGD results, the area of deforestation was believed to have decreased from 70% before the Co-management agreement to 10% after the implementation of Co-management. This was recognized by the PO members as the reason why their water supply has improved. Similarly, the areas devoted to *kaingin* (roughly 50%) have declined to nil. The significant impact of this change was the perceived improvement of the microclimatic condition in the watershed. Based on the results of land use analysis using satellite images (Figure 8), the increase in forest cover (by more than 150 hectares) between 1989 and 2001 is likely due reforestation and to the conversion of *kaingin* areas into agroforestry farms that happened after the implementation of Co-management in 1997.

Forest quality, to some extent, was also perceived to have improved. The members noted that the key timber and wildlife species before the tenure reform are still found in the watershed today. However, their number has declined because of major land use disturbance brought about by long years of logging, *kaingin* and timber poaching. Nonetheless, the collaborative efforts in rehabilitating the watershed were perceived important in enriching its biodiversity resources. It is important to note, however, that the quality of the species is significantly different from the original vegetation in the watershed due to the use of exotic reforestation species such as Gmelina and Mahogany. The area of agroforestry has also increased occupying about 50% of the watershed as a result of the massive conversion of *kaingin* farms and cultivation of grasslands promoted through IEC, training and provision of ample support services.

Forest productive capacity of timber and non-timber resources was also perceived by PO members to have increased because of the reforestation activities under Co-management. Further, the government’s seedling dispersal project for agroforestry development was perceived to be very helpful in providing additional source of livelihood among BWOA members.

On the impacts to water quality, the members believe that the water in the watershed has generally become quite turbid because of infrastructure development that took place upon the implementation of Co-management. For instance, the construction of the municipal roads was perceived to have created few rills and gullies thus disrupting the continuous flow of water in the rivers. Consequently, high flows became more evident as rivers became silted.

Finally, based on FGD result the frequency of fire occurrence in grassland areas or forest fire in the watershed has declined. It was noted that fire occurrence was very common during summer months before the Co-management. After the implementation of Co-management, forest fires decreased as a result of the establishment of fire breaks and stricter policies to prohibit *kaingin*-making. Overall, the impact of Co-management on forest cover condition was perceived to be good (Table 6).
A land use analysis based on three observation periods depicts the major changes in the watershed (Figure 8). In 1976, the land use and land cover in Barobbob Watershed was dominated largely by residual forest cover, grassland and agriculture of the total watershed area. Forest cover was around 50% of the total watershed area from what was believed to be almost full forest cover before the logging years commenced. Likewise, about 25% of the watershed was dominated by agricultural land uses including *kaingin*.

From 1976 to 1989, the area of forest cover further decreased by more than 100 hectares while land devoted for agriculture increased by almost 150 hectares. Based on the results obtained from the FGD, the notable decrease in forest cover could be largely attributed to illegal logging and timber poaching activities that was most intense from 1982 to 1986. It is also possible that the expansion of agricultural areas could have encroached into the forest area. Further, the leftist group was perceived by some community members to have contributed to the problem by influencing the community to replace old trees with agroforestry crops. Grasslands slightly decreased and could be indicative of the use of these areas for cultivation. The built-up area increased slightly and is likely due to the increase in the area used for settlement purposes.

By 2002 the forest cover apparently increased beyond the level of 1976 which could be due to the sustained implementation of reforestation program and natural regrowth facilitated by improved protection of the forest against illegal logging and further expansion of cultivation. It is also important to note that the area of forest converted to cultivated lands between 1976 and 1989 reverted to forest again likely due to the shift from open cultivation to agroforestry system.

One of the most important impacts of tenure, particularly MOA No. 1, in the case of KEF is the reforestation of degraded areas (See Figure 9). The community perceived that about 50% and 60% of the forest areas in Baracbac and Bacneng, respectively, and the whole area of Malico and Sta. Rosa were deforested before the issuance of tenure instrument in 1974. In Imugan, deforestation was negligible. After the issuance of MOA No.1, deforested areas were planted with trees and other agricultural crops as required by the tenure instrument. Each component *barangay* was required to plant 100 trees every year. According to the key informants, as of 2007, more than 400 hectares of the Reserve have been reforested through enrichment planting and assisted natural regeneration. Under the CADC, KEF was required to submit an Ancestral Domain Management Plan that includes forest rehabilitation activities.

Another important impact of the issuance of tenure is the protection of the watersheds. After the MOA signing, the tribal leaders began working on the protection of the watershed, although this has not been a felt need due to the abundance of water. Protection was done by bringing wildfires under control, and by designating two watershed-sanctuaries within the Reserve. One is in the northwestern part of Imugan with an area of 672 hectares and the other in the southwestern part with an area of 2,487 hectares.
Figure 6. Land use map of NPPFRDC, Compostela Valley in two observation periods (1993 and 2001).
Figure 7. Land use map of Banila watershed in three observation periods (1979, 1989 and 2002).
Figure 8. Land use map of Barobob watershed in three observation periods (1979, 1989 and 2002).
Figure 9. Land use map of the KEF Forest Reserve in two observation periods (1979 and 2002).
All plant and animal resources found therein are protected by a ban in hunting animals and harvesting plants.

The KEF members observed that the same plant and animal species are found within the Reserve before and after the tenure issuance. However, some species like alnus, Benguet pine, Gmelina, mahogany, and narra were added. The KEF staff has identified 1,553 species of plants and animals and more than 150 species of birds in the area (KEF undated). However, some plant and bird species became endangered due to excessive gathering and hunting. For instance, due to the selling of orchids by the Ikalahan gatherers to the lowland merchants, who in turn, sell the flowers at lucrative prices to the urban market, some of the species became endangered. For this reason, the community decided to ban the hunting and gathering of several scarce species of orchids.

The quantity and quality of water in the Reserve has remained the same throughout the years, except for minimal reduction in volume during the summer months. Erosion is minimal if not for the strong earthquake in 1990 which caused massive landslide in the Reserve.

In the past, kaingin-making has caused forest fires within the Reserve. But with the implementation of the KEF Rules and Regulations, forest fires have been controlled. The strict requirement for the establishment of firelines (gaik in the Ikalahan dialect) during clearing of the swidden farm has contributed significantly to the prevention of forest fires.

Based on the perception of the KEF members, tenure has ‘very good impacts’ on the forest condition (Table 6). Further, in support of the positive impacts of tenure on the forest condition, the KEF has started to implement a RUPES (Rewarding Upland Poor for Environmental Services) program which aimed to enhance livelihoods and reduce poverty among the people and at the same time promote environmental conservation through carbon sequestration (Villamor and Lasco 2006). The Ikalahan started collecting data on tree growth in 1994 and now have good basis to justify payments for carbon sequestration that takes place because of their management of the landscape. RUPES-Kalahalan has been pursuing market mechanisms for this environmental service, including biodiversity conservation and watershed services, to provide bundled value that can generate larger incentives for members of the community (World Agroforestry Centre website).

**Impacts on equity**

Drawing from existing literature, equity for the purpose of this study is viewed in terms of six dimensions: 1) distribution of rights among members; 2) participation in decision-making and community forestry activities; 3) access to livelihood opportunities; 4) sharing
of income/benefits; 5) sharing of costs and responsibilities; and 6) access to leadership roles particularly in the PO leadership. In general, equity was perceived to have improved across these dimensions as a result of tenure reforms. However, there were also instances where inequity in some aspects was noted, in which ‘low participation in community forestry activities’ emerged as a usual repercussion.

Looking at the case of NPPFRDC, in terms of employment, those who have logging skills are heavily favored by the cooperative compared to the IPs residing in the area. This, however, was noted understandable especially since sawmill, scaling and other logging activities require precision skills to prevent accidents and minimize log waste. IPs are, in the meantime, targeted as beneficiaries for agroforestry development, which is a major component of CBFM.

Nearly all of the cooperative officers attained at least high school education and have an extensive knowledge of office and logging operation they gained during the VALMA time. They are also fairly represented in terms of gender and ethnicity. However, non-IPs are the ones being hired in the office and sawmilling activities, hence, are the most vulnerable during RUP suspensions.

In terms of decision-making, decisions emanated from the management of VALMA during the TLA time and were described as non-participatory. Employees are expected to follow the orders of their superior. To prevent unrest, the company established women’s group who were pampered with trips to Davao City and provided benefits to employees. Moreover, there was a wide gap between men and women, educated and less educated, poor and well-off, and officers and members during the time of VALMA. The management was patriarchal and biased to those with educational degrees. This outlook was noted obvious because of the corporate image of the company. Through CBFM, members of NPPFRDC were able to address these inequity problems. In recognition of its efforts, the Cooperative earned a national award on most gender sensitive CBFM PO in 2001. Further, various sectors can also freely participate in the decision-making especially during general assemblies where each member can voice out his or her concerns regardless of position, education or gender. This allows them to have a hand and share in the responsibility of planning and implementing the activities of the cooperative, including matters pertaining to livelihood.

A view of the community’s relationship with the external stakeholders showed that NPPFRDC deals with DENR and buyers in an unequal playing field. Since the transfer of rights to the cooperative by the DENR is limited, the latter still has control over the activities of the former particularly those that relate to timber utilization. On the other hand, timber buyers tend to assert their influence through biased pricing system that heavily favors them. A key informant who works as log scaler attests that buyers bring down the grade of the logs just to get a lower price.
Meanwhile, leadership roles in the NPPFRDC, based on its constitution and by-laws, should be occupied by an equal number of IPs and migrants as Board of Directors with an equal number of representatives from the three barangays.

Based on the above, the NPPFRDC members overwhelmingly gave CBFM a ‘good’ rating (Table 7) in terms of equity. They explain that the cooperative gives equal access rights to both IPs and migrant and treat men and women as co-equals. All members can also practice its management and exclusion rights in their claimed lots as well as extract or use the crops that they planted or introduced, except for timber which is subject to very strict rules and regulations. As long as the IPs practice their customs, the cooperative allows them to employ their de facto alienation rights.

The impact of CBFM on equity in Banila was also perceived as ‘good’ (Table 7). According to BCBC members, prior to issuance of the CBFMA, the local people recognized that the government owns the forest land that they utilized. Nevertheless, men and women, educated and less educated, poor and rich people alike had open and somehow ‘fair’ access and use over the resources. The issuance of TLA to a private company by the government in the 1960s excluded the local people from using the resources within the TLA area. With the cancellation of the TLA, the area became open access again which prompted the migration of tribal groups from other upland communities such as the Benguet province. With the issuance of CBFMA, the PO was granted rights to manage and protect the forest resources covered by the Agreement. It also gave the BCBC officers and members the right to exclude outsiders in the use of resources within their area of jurisdiction.

With regards to decision-making prior to CBFMA, the TLA holder had full authority to make decisions within the bounds of laws over the TLA area. Under the CBFMA, the PO members participate not only in the implementation of reforestation activities

<table>
<thead>
<tr>
<th>Dimensions of Equity</th>
<th>NPPFRDC</th>
<th>Banila</th>
<th>Barobbob</th>
<th>KEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution of rights</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Participation</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Livelihood</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Income</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Costs and responsibilities</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Leadership roles</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>Average</td>
<td>4.0</td>
<td>4.3</td>
<td>4.1</td>
<td>4.7</td>
</tr>
</tbody>
</table>

*Scale: 1 = very poor; 2 = poor; 3 = average; 4 = good; 5 = very good*
but also in the decision-making process. Women had the opportunity to participate in the nursery operations.

One of the important impacts of CBFMA is that the local people were given equal livelihood opportunities which were less resource extractive like employment in the reforestation projects, anthurium production, trading, agroforestry, and hog raising. Before the issuance of CBFMA, the men, more educated, well-off, and barangay officials were involved in the non-forest-based livelihood while the women and the poor households were engaged in forest-based livelihood.

Before, the costs and responsibilities in relation to forest management and protection were borne by men, less educated individuals, and the poor people. Under the CBFMA, however, these were equally shared by the men and women, educated and less educated, rich and poor, officers and members of BCBC. When it comes to barangay leadership, men have always been in the forefront even before and after issuance of CBFMA. With CBFMA, however, the women, less educated, and poor individuals were never discriminated as PO leaders.

In the case of Barobbob watershed, equity in terms of distribution of rights yielded varied perceptions before and after implementation of the Co-management scheme. The community perceived that ‘before’, their rights in terms of use, management and exclusion were in favor of male, educated, well-off and officers. Those who have capital are usually the educated members, who also hold official positions in the community as barangay council officers, and have greater influence in terms of access to forest resources.

The adoption of Co-management approach was perceived to have brought improvement in the distribution of rights. In particular, the fairness in the use of forest resources was perceived to have improved because the Co-management agreement granted and affirmed the distinct rights of community and of its individual PO members in their involvement in the management of Barobbob Watershed. However, in terms of management and exclusion rights, members who are educated, well-off and members of PO executive council are still perceived to have greater influence than the less-educated and poor members.

Equity in relation to the level of participation in community forestry decision-making processes (planning, implementation, and monitoring and evaluation) and activities (nursery establishment, reforestation, livelihood projects, and forest protection) have also improved after the implementation of Co-management scheme. The group indicated that before Co-management, the decision-making process is mainly the tasks of the officer, who are usually the educated individuals in the community. On the other hand, community forestry activities are usually the tasks assigned to less-educated, poor and most of the officers.
The community perceived that there is now more community participation in decision-making processes across community stratification based on educational attainment. Likewise, it was perceived that there is now even more participation in the decision-making processes and implementation of community forestry activities. It was noted, however, that PO officers continue to have greater influence than other members of the community in most community forestry activities. Members, nevertheless, view this to be fair because they expect the PO officers to lead the members in achieving the goals of Co-management. As a repercussion, though, low participation in forestry activities was observed from ordinary PO members.

In terms of equity in the distribution of livelihood, the PO officers and members perceived that the access to forest-based livelihood (e.g., employment in logging, reforestation and establishment of firelines) before Co-management was generally inequitable in favor of men, well-off and barangay officers. Most of the livelihoods before Co-management are related to logging hence these groups were perceived to have greater access among others. Access to non-forest based livelihoods (e.g., tiger grass plantation and animal raising project) was also believed to be in favor of the educated and the well-off before because they usually have the capital to create and sustain these livelihoods. The adoption of Co-management was regarded helpful in improving the equity in livelihood access across gender, educational background and economic background. All the local people have the access to forest and non-forest based livelihood trainings and other services provided by Provincial Government and other organizations supporting the Co-management. However, the PO officers were still perceived by some members to have the advantage in gaining access to forest-based livelihood as often they are the ones who are usually employed in Co-management projects.

Equity on the aspect of cost sharing and responsibility of managing and protecting Barobbob Watershed showed that before Co-management, roles and responsibilities mainly rested with the DENR and its duly authorized users of forest resources (i.e., permittees and licensees). After devolution, the Provincial Government assumed most of the responsibilities of the National Government with DENR providing support. With the advent of Co-management, the community through the BWOA now actively participates in managing and protecting Barobbob. The PO spends money, time and effort on the management and protection of Barobbob, particularly in undertaking the tasks being required of the officers and members to carry out as stipulated in the MOA and BWOA constitution. However, the PGENRO still bears much of the costs in the management of Barobbob spending an average of PhP 100,000 per year although this amount was noted insufficient to effectively support the members. Thus, illegal land rights selling of many occupants became a very pressing problem which further worsens the already inequitable state of resource distribution in the area. Members noted that they lack the capital to develop their farms. Further, there is an enticing opportunity to sell land rights to interested buyers outside the watershed. As a consequence, more
outsiders (non-MOA holders) acquired access to lands inside Barobbob leaving the original holders deprived of the rights.

On leadership roles, the Barangay Council carried most of the responsibilities in implementing regulatory and forest management activities in the watershed. Under the Co-management agreement, leadership roles are meant to be shared with the community taking the lead to increase participation of the usually marginalized members of the community. Hence the leading role was lodged on BWOA instead of the Barangay Council. The results of the study however revealed that access to leadership roles did not improve even under the Co-management set-up. As it turned out, most of the members in the executive council of the barangay are the same persons holding leadership positions in BWOA. These were mostly men, educated and well-off. Consequently, the members of the executive council continued to have greater influence on the decision-making process and enjoyed greater access to the benefits of Co-management than the other members of the community. In general, the impacts of Co-management on equity were rated as ‘good’ to ‘very good’ except for the rating on equity in sharing costs and responsibilities (Table 7).

In the case of KEF, distribution of rights (access, use, management, exclusion, alienation) generally favored the men in all barangays prior to issuance of tenure. This is, however, based on the local people’s customs and traditions. Men, being the head of the family, are given these rights. After issuance of tenure, women share these rights equally with men and as a result, there is an enhanced participation of the former in the management of the Reserve.

The community has the same perception with regard to level of participation in decision-making on community forestry matters. Prior to issuance of tenure, men tended to dominate the implementation of community forestry activities. On the other hand, the educated as well as the less educated, and the poor and the well-off individuals have more or less equal participation in decision-making concerning community forestry. After the issuance of tenure, level of participation became shared fairly between men and women.

There is no significant impact of tenure on distribution of forest-based livelihood and income across gender, education, economic status, and tribal status. This means that even before the issuance of tenure, men and women, the educated and the less educated, the poor and the rich, the elders and the ordinary tribesmen, had already equal opportunities to engage in forest-based livelihood and earn some income. With regards to non-forest-based livelihood, it was only after the issuance of tenure that the local people had the opportunities to engage in these activities. With their interaction with the adjacent lowland communities and with the development of their knowledge and skills through time, they engaged in other economic opportunities such as services and employment in the government.
The community noted that there was no clear arrangement on the distribution of costs and responsibilities in relation to forest management and protection before the issuance of tenure. Their responsibility was focused on their swidden or kaingin farm. After the issuance of tenure, every bona fide resident of the Reserve — whether man or woman, well-off or poor, educated or not educated, KEF officer or member, and elder or ordinary tribesman — shared the costs and responsibilities of managing and protecting the Reserve.

Before the establishment of the KEF, the men were usually elected as barangay captain. After the issuance of tenure, everyone with leadership potentials has equal opportunity to serve in the KEF. Overall, the impact of tenure on equity is remarkably ‘very good’ in KEF.

**Overall qualitative assessment of the impacts of tenure on the LIFE indicators**

An analysis of the impacts of tenure reform in terms of the LIFE indicators across the four study sites representing three different types of tenure instruments provides an interesting picture. In terms of the overall qualitative impacts of different tenure instruments, MOA No.1 and CADT issued to KEF which provide the most secured bundle of rights to the local community got the highest rating (4.75 or nearly “very good”) in all the indicators (Table 8). On the other hand, MOA on Co-management issued to BWOA which is relatively insecure and perceived by the PO members as “much inferior” to land title received the lowest overall rating (3.5 or “average”). Similarly, NPPFRDC and BCBC both issued with CBFMA which also does not provide much tenure security to local communities received the same weighted value in terms of overall rating (3.75 or nearly “good”). It is also worthy to note that the two tenure instruments (CBFMA and MOA on co-management) that do not provide as much security in terms of the bundles of rights provided by these instruments, the recipient local communities nevertheless value their importance and contribution in terms of improving their livelihood, income, forest condition and equity. CBFM and its associated tenure instruments (especially CADT) is still a much improved
Table 8. Summary of the POs’ assessment of the impacts of tenure on the LIFE indicators in the four study areas (through FGDs).

<table>
<thead>
<tr>
<th>Dimension of Impact</th>
<th>CBFMA - NPPFRDC</th>
<th>CBFMA - Banila</th>
<th>MOA on Co-management - Barobbob</th>
<th>MOA No. 1 and CADT in KEF</th>
<th>Average per dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livelihood</td>
<td>4</td>
<td>3.5</td>
<td>2</td>
<td>5</td>
<td>3.62</td>
</tr>
<tr>
<td>Income</td>
<td>3</td>
<td>3.5</td>
<td>4</td>
<td>4</td>
<td>3.62</td>
</tr>
<tr>
<td>Forest condition</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4.25</td>
</tr>
<tr>
<td>Equity</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4.25</td>
</tr>
<tr>
<td>Average per site</td>
<td>3.75</td>
<td>3.75</td>
<td>3.5</td>
<td>4.75</td>
<td>3.93</td>
</tr>
</tbody>
</table>

_Scale:_ 1 = very poor; 2 = poor; 3 = average; 4 = good; 5 = very good

strategy compared to the TLA system when assessed based on the LIFE indicators. It may also be assumed that the relatively high rating that the PO members gave the three sites despite current problems and challenges indicate their optimistic view of the potentials of CBFM strategy and that its impacts may still be improved in the future.

In terms of the different dimensions of impacts, livelihood and income yielded the lowest average values while forest condition and equity got the higher values (Table 8). This reinforces the earlier studies which argue that providing sustainable livelihood (and by implication, improving household income) remains to be the greatest challenge in the Philippines’ CBFM strategy (see for instance Borlagdan _et al._ 2001; Pulhin 2005; Pulhin _et al._ 2007). At the national level, the degree to which socio-economic well-being of communities has been achieved is not uniform (Pulhin 2005). Socio-economic improvement is evident where CBFM received long-term technical and financial support, although the percentage of people who actually benefited may be small. In many areas such as in Banila and Barobbob, short-term external support only provided temporary employment and additional income, which in most cases was not sustained after project completion. In some cases, dependency on external assistance is evident (Pulhin _et al._ 2007). In general, sustaining and spreading benefits to a greater number of the people, particularly the poor, remain a key challenge. Central to this is the need to further develop viable and resilient enterprises and other economic opportunities particularly for forest-dependent communities (Borlagdan _et al._ 2001; Pulhin 2005).

Considering change in forest condition, the government has benefited more by issuing different tenure instruments as can be gleaned in all the four cases. The different tenure instruments serve as a useful mechanism to effectively recruit the local communities in forest development and protection that have significantly contributed in arresting massive deforestation trend and improving forest cover. Indeed, at the national level, there is a
strong indication that the downward trend in forest cover has been arrested with the adoption of CBFM as the national forest management strategy (Please refer back to Figure 4). Similarly, DENR records indicate that over the last ten years, CBFM projects have developed a total of more than 500,000 hectares of agroforestry, tree plantations, and mangrove rehabilitation within the 5,503 CBFM sites. CBFM communities also served as the first line of defense in the protection and management of the forest resources. Accounts of local communities stopping illegal logging and other forest violations are common in many CBFM sites. It was established that the government is able to save at least PhP 127 million annually by allowing the communities to manage and protect CBFM sites, instead of hiring additional forest guards to protect and secure these areas (Tesoro 1999).

Finally, while equity concern leaves much to be desired at the local level (see for instance Miyakawa et al. 2005; Pulhin 2005; Dahal and Capistrano 2006; Miyakawa et al. 2006; Pulhin 2006), this has obviously improved with the issuance of different tenure instruments compared to the TLA years as demonstrated in all the four cases. However, it is obvious that equity in terms of decision-making process between the State and local communities needs significant improvement. The series of national suspension of RUPs by three DENR Secretaries and the recent nationwide cancellation of CBFMAs without due process are solid proofs that decision-making remains centralized in DENR with the local communities not having a voice on important matters that influence their lives. At the local level, there is a need to spread the benefits beyond the PO leaders and the well-off sector of the community as well as to the greater number of the local population outside the PO membership (Dahal and Capistrano 2006; Miyakawa et al. 2006)

**Facilitating and Constraining Factors**

Tenure reform was seen to have significantly contributed in promoting the socio-economic well-being of the local communities and in improving forest condition, as demonstrated by the four case studies. However, a number of important factors were also observed to either facilitate or hinder the potentials of tenure reform to effectively contribute to the improvement of livelihood, income, forest condition and equity at the local level. Some of these factors are discussed below.

**Policy environment**

The full realization of the desired impacts associated with tenure reform requires a stable policy that will ensure the protection of communities’ rights over their forest lands and resources. This is considering the long gestation period involve in forestry unlike in agriculture where there is immediate return from production investments. The
post-Ramos administration, however, did not provide the necessary policy stability that will sustain and multiply the earlier momentum and gains of the CBFM strategy. With the appointment of Secretary Antonio Cerilles under former President Estrada’s administration, the decades of efforts and initial gains of CBFM were almost stalled. With one stroke of a pen, Secretary Cerilles unilaterally suspended the resource use rights of the communities to harvest and sell timber from residual forests through a department memorandum he issued on September 22, 1998 (Mickelwait et al. 1999). Although the suspension was lifted in March 2000, most of the communities started to doubt the sincerity of the government in carrying out its obligations and commitments under the CBFMA (Borlagdan et al. 2001).

Similarly, under the present Arroyo Administration, former DENR Secretary Elisea Gozun suspended the issuance and implementation of RUPs in January 2003 to CBFMA holders nationwide to evaluate the alleged violations of some POs and DENR field personnel in relation to timber harvesting and sale. Likewise, former Secretary Michael Defensor suspended logging and transportation of logs nationwide including those in CBFM areas in December 2004 to contain political pressure from the public resulting from the massive floods and landslides brought about by the strong typhoons that hit the provinces of Aurora and Quezon. More recently in November 2005 and January 2006, Defensor also cancelled CBFMA in 13 of the 17 administrative regions in the country without due process allegedly because of CBFM POs’ non-compliance/violations. However, it was found out later upon evaluation of the performances of these POs that only a handful of them have really committed violations and hence a nationwide cancellation was not legitimate.

Both Gozun’s and Defensor’s actions, similar to that of Cerilles’ cancellation of RUPs, have adverse effects on the livelihood and income as well as the forest protection efforts of most CBFM participants nationwide (see for instance Pulhin et al. 2007; Pulhin and Inoue 2008). They have also contributed to the demoralization and continuous erosion of trust by the local communities as to the sincerity of the DENR to implement an honest to goodness tenure reform program. This is best illustrated in the case of NPPFRDC. The PO had experienced the adverse impacts of the three national RUP suspensions/cancellations as shown in Figure 5. During the second national suspension, for instance, it lost a total amount of PhP 2,402,820 in terms of income, a huge sum that was badly needed by the Cooperative in its livelihood and forest development and protection activities. The impacts of the said cancellation were dreadfully felt in the community (Pulhin and Ramirez 2005). The Cooperative’s livelihood projects were stopped and some sari-sari stores had to close due to limited money circulating in the community. Some of the workers were compelled to sell their properties in order to cope with household expenses. Worse, there were those whose children stopped going to school because of the lost of food allowance. Some were also forced to engage in illegal cutting activities to eke out a living in the absence of alternative sources of livelihood. Moreover, forest destruction was believed to have increased in the area since the
Cooperative can no longer hire permanent forest guards to man the exit points of the illegal loggers. It should be noted, however, that in all of the three suspensions, NPPFRDC was never at fault—it had not committed any violations that will merit RUP suspension. Indeed, at some point after the series of RUP suspensions, PO members have toyed the idea of “returning the CBFMA” to the government due to great disappointment and discouragement having felt the impacts of suspensions but also feeling that they were betrayed by the government in terms of not performing its part of the agreement.

The unstable tenure and resource use policy, however, can be largely attributed to the absence of legislated law that supports CBFM. Since EO 263 is just a Presidential issuance and its implementing rules and regulations (IRR) are issued by the DENR Secretary, the CBFM policy is very vulnerable to political pressures and the whims and wishes of whoever occupies the top DENR position. As the case of KEF’s CADT illustrates, the way to stabilize land tenure and resource use policy is to enact a forestry law that supports tenure security such as the IPRA.

**Regulatory procedures**

Lessons learned in many countries in relation to regulatory procedures indicate general principles for successful implementation of community forestry initiatives (Gilmour et al. 2005). These include the need to:

- Avoid over-regulation so that the partners in implementation, particularly the local communities, are capable of implementing the policies.
- Start simply when commencing initiatives and add complexity based on the ability of partners to adopt increasingly complex tasks.
- Make every effort to minimize transaction costs for all partners.

The above-mentioned principles are clearly violated in the case of the Philippine CBFM strategy and may partly explain why it has not fully realized the anticipated objectives of tenure reform in many cases. CBFM suffers a lot from over-regulation especially in terms of the commercial utilization of timber. Communities have to submit comprehensive management plans such as the CRMF and FYWP which are often beyond the comprehension of the POs. This forces them to hire the services of professional foresters which they cannot afford to pay, or even if they find some means to do so, increases costs. POs also need to apply for RUP which is very tedious process and involves a lot of bureaucratic requirements before they can finally harvest timber. In the case of NPPFRDC, for instance, the entire process of RUP processing and approval can easily take more than six months since its issuance has been centralized to the DENR Central Office in Quezon City, Metro Manila (Figure 10). Total transaction costs can reach as high as PhP 210,000 as recently experienced by the PO in its 2006 to 2007 application. Despite the long, tedious and costly process, the PO can only use its RUP...
for a year reckoned from the end of its last RUP operation. This means that for 2007, NPPFRDC is only left with less than six months to operate since more than six months have been used up in just processing the RUP application. This problem continued to hound the Cooperative in 2008. Similar problem was experienced by BCBC whose RUP approval for plantation species at the DENR Regional Office also took them close to six months and a total transaction costs of around PhP 90,000.

Even assuming that RUP has been issued, and the timber has been cut, regulations to control the transport of harvested timber create additional problems (Dugan and Pulhin 2007). Communities are required to obtain permits for moving timber from the cutting area to the roadside, and another permit to transport the timber from buyers. This again costs unnecessary delays and additional transaction costs especially since the DENR personnel that issue the permit are usually many kilometers away from the forests. Tree farmers who develop plantations in their own private lands have also complained bitterly about the government enforcement of the same transport permits as those originally formulated to monitor and control the removal of timber from natural forests. The
complexity of procedures has fuelled corruption as each permit and requirements create the opportunity to extract money from the communities.

**Institutional support system**

The CBFM strategy transfers the forest management and protection responsibilities to the local communities which otherwise should have been the responsibilities of the government. Considering that the communities lack the necessary technical capacity and resources to perform these responsibilities, adequate institutional support system needs to be provided to realize benefits. Indeed experiences from “old” CBFM sites, e.g., Labo-Capalonga (11 years), Bulolacao (16 years) and Guba (less than 16 years), indicate that given sufficient time, support system and incentives, communities are capable of learning to organize, plan and work towards their own development and sustainable forest management (Borlagdan et al. 2001). However, many field assessments and in-depth case studies attest to the limited institutional support provided to CBFM POs. The major problems include (Pulhin et al. 2007):

- Insufficient number of qualified staff in the DENR, and the LGUs to support CBFM. Exacerbating the problem is the shortage of resources, incentive/reward systems, and logistic support to provide adequate and meaningful assistance to participating POs.
- Progressive policies for soliciting the participation of NGOs, LGUs and other sectors are not fully implemented. Reliable support from different sectors in CBFM implementation is yet to be achieved. In line with this, NGOs’ support on CBFM has significantly decreased due to changing priorities and waning assistance of donor organizations to CBFM.
- DENR monitoring and evaluation usually stops with the expiration of project assistance. The existing management information system (MIS) at DENR was not designed to support decision-making at various levels of DENR to assist local communities and other stakeholders. Moreover, even after more than a decade of the formal adoption of CBFM as a national strategy, there has been no updated database and reliable information about most of the CBFM sites nationwide that can serve as sound basis for decision-making.
- Appropriate mechanisms for community-private sector partnership to promote investments in CBFM areas are still lacking.

Similar lack of government support is constraining the speedy and smooth implementation of IPRA by the NCIP thereby limiting the provision of much needed assistance to many IPs. The NCIP has little government support and receives minimal budget. As a result, majority of its budget is allocated to ancestral domain/land delineation leaving limited funds for providing the more comprehensive package of support that is actually needed. Consequently, only about 0.95 million hectares have been titled to IPs as
domains, while a further 4,800 hectares have been allocated to individuals and families as ancestral land titles. This falls short of the 2.9 million hectares of ancestral land claims that have already been officially registered (Colchester and Fay 2007).

**Market access and opportunities**

Many upland communities have very limited access to market and the economic opportunities it offers due to a combination of factors. Due to remoteness and poor access of many upland areas such as in Banila and some KEF and NPPFRDC baragays, the cost of transporting products in these areas is high. This makes their products less competitive in prices compared to those produced in lowlands or more accessible places. For instance, in Banila, the cost of transporting a cavan\(^{12}\) of unhusked rice (or *palay* in the local language) to the nearest market is PhP 25-30 and PhP 0.80/kilo for vegetables in addition to the PhP 100 transportation fare (round trip) of the person who will be selling the product. This means that the local community members have to increase the price of their products quite significantly to cover for the transportation cost. Lack of market information also makes many upland communities more vulnerable to manipulation by middlemen or lowland buyers who take advantage of their ignorance in terms of fair market prices. Similarly, limited capital and inadequate entrepreneurial capability serve as major hurdles for many upland communities to seize emerging market opportunities and fail to achieve more sustainable sources of livelihood.

It should be mentioned, however, that tenure insecurity is also a major factor that can prevent the POs from taking advantage of market opportunities. This is best demonstrated in the case of NPPFRDC. As noted earlier, NPPFRDC was the first and only timber certified CBFMA holder in the Philippines. Similar to other companies that avail of the certification scheme, one of the major purposes of NPPFRDC was to capture emerging market for timber that is coming from sustainable sources. However, because of the great uncertainty in timber production brought about by the 1998 and 2003 RUP suspensions, the Cooperative was unable to explore foreign market for timber since it neither can sign a long-term contract with a foreign buyer nor can be definite of the volume that it can supply on a regular basis. On the other hand, locally, the Cooperative has to compete extensively with wood imports and products that have been illegally sourced. Since these command a much lower market price, the legally and sustainably harvested produce from NPPFRDC can be difficult to market. As a result, the certification of NPPFRDC has no impact on the timber price and has come with additional costs of certification.\(^{13}\) There have been no apparent economic benefits from SmartWood’s accreditation and hence the Cooperative was forced to terminate its

---

\(^{12}\) One cavan is equivalent to 50 kilos.

\(^{13}\) The accreditation fee and the direct and indirect costs of annual and random audits cost the PO around US$ 500 per year.
accreditation in October 2004. In a letter to SmartWood, the BOD chairperson wrote that although the certification had improved their sustainable forest management practices the Cooperative could not afford the funding needed to continue with the necessary certification audits (Pulhin and Ramirez 2005).

Other than the traditional markets, there are current emerging markets such as PES and carbon trading that some POs such as BWOA and KEF have started to explore. Considering that this is yet in the initial stage, there is still a great uncertainty as to its likely outcomes. However, securing the communities’ rights over their forest resources plays a critical factor in ensuring that they will benefit from this new initiative. Thus, KEF will certainly have a greater advantage than Barobbob since CADT provides more permanent rights to local communities compared to MOA for Co-management.

**Local community capacity**

While the government and the other sectors play an important role in realizing the expected benefits from tenure reform, the ultimate success of the reform process will largely depend on the capacity of the local communities to organize themselves and act collectively, mobilize local resources and external support towards a common end, and build their capital assets (i.e., natural, social, financial, physical, and human).\(^ {14}\) Of the four cases studied, the KEF is the most successful in achieving these requirements. As previously mentioned, faced with the threat of losing their ancestral domain from powerful external interests, the Ikalahans, led by Pastor Delbert Rice, were able to bind themselves together through the establishment of the KEF. This enabled them to legitimately negotiate with the government to honor their rights over their ancestral land and the resources therein through the issuance of MOA No. 1 and more recently, CADT. Also, they were able to draw from their internal resources and capability including the strong social bond that they enjoy as a homogeneous group and members of one tribe to pursue collective action including reforestation and livelihood activities; employ customary system such as the *tontongan* or tribal court to resolve internal conflicts and promote the smooth governance of the Kalahan Reserve; and reinvigorate their sustainable indigenous practices to promote sustainable production and soil and water conservation (Dahal and Adhikari 2008; Dolinen 1997). In addition, through the leadership of Pastor Rice, they are able to “link” and mobilize outside support for their advantage like tapping funding sources from donor agencies such as the Ford Foundation, availing of services from various government, civil society and market institutions, and becoming member of various national and international forums to elevate the profile and credibility of the organization. Through Pastor Rice, KEF had also the opportunity to establish connection with people in power such as the higher government officials from the DENR, and office of the

\(^ {14}\) Please see Pretty and Ward (2001) for a more elaborate discussion on the different forms of capital.
President that provided them political leverage for negotiation and support. Mobilizing both its “internal” and “external” social capital, KEF was able to build its capital assets. These include the following:

- Implementation of effective reforestation and forest protection activities and the effective enforcement of internal rules and regulations that promote sustainable resource management to build its natural capital.
- Nurturing its internal social bond and expanding it outside the community as described above to build its social capital.
- Engaging in various on-farm (e.g., agroforestry) and off-farm livelihood projects and enterprise development activities (i.e., food processing center) to build its financial assets.
- Facilitating the building of access roads, water system, and electricity by working with government agencies to develop its physical assets.
- Establishment of the Kalahan Academy as an alternative to the lowland-biased type of educational system that highlights the importance of the Ikalahan culture and integrates it into elementary and high school curricula as an strategic way of building human capital.

As a result of the above, KEF has claimed as among the more successful community-managed forests in Asia and the Pacific as published in a book, entitled “In Search for Excellence” (Dolom and Serrano 2005). Nationally, its phenomenal success has motivated the politicians and DENR bureaucrats to adopt CBFM as the national strategy for sustainable forest management and social justice in the Philippine uplands.

Unlike the KEF, the three other POs studied will have to work hard towards building their organizational capacity to enhance collective action and build their capital assets. Both BWOA and BCBC have currently weak leadership and organizational capacity to effectively mobilize its resources towards a common goal. BCBC for instance is not able to enforce the necessary rules to demand the repayment of the loan from the Cooperative of the majority of its members. Similarly, BWOA officers are unable to enforce sanctions among its members that sold their land rights to outsiders. All the three POs also have relatively weak external linkages especially among the more powerful sectors. This has prevented NPPFRDC to effectively negotiate with the central DENR bureaucracy for the speedy processing of its RUP application which as of this writing has been with the Office of the DENR Secretary for more than five months. In general, the relatively weak capacity of the three POs has limited their ability to build their capital assets. This in turn contributes in limiting the potentials associated with the tenure reform.
CONCLUSIONS AND RECOMMENDATIONS

This study traces the evolution of forest policy in the Philippines from the colonial period to the present highlighting the trend from a highly regulatory, centrally controlled and industry-biased forest policy towards a more decentralized, participatory and people-oriented approach that has typified the direction of policy formulation over the last three decades. At the core of this policy shift is the tenure reform in the Philippine forest lands. This reform transfers forest management and use rights from TLAs to local communities through the adoption of CBFM as the national strategy for the promotion of sustainable forest management and social justice and equity in the uplands. Central to the CBFM strategy is the issuance of various forms of land tenure instruments by the government to participating local communities.

Tenure reform in the Philippines has seen some promising socio-economic and environmental impacts through the transfer of bundles of rights to the local communities that promote access, use and control of forest resources. Overall, the CADT issued to KEF provided the most secure bundles of rights to the community, as compared to the CBFMAs of BCBC and NPPFRDC, and Co-management by BWOA, with the latter perceived to be the least secure. Nevertheless, all proved to be an improved strategy compared to the former TLA system. This is demonstrated by a general improvement in the LIFE indicators as perceived by the PO members and as seen on the ground. However, the assessment also showed that livelihood and income yielded the least benefits from the reform. More than the tenure itself, it is the financial, technical and livelihood support that is availed of by the POs and usually goes hand-in-hand with the tenure shift that provided greater effects on the livelihood and income of the recipient communities/POs.

The issuance of the different tenure instruments has benefited the government more by effectively recruiting local communities to take on forest management and protection responsibilities – tasks which the government was expected to perform before the tenure reform took place. As shown by DENR records, CBFM projects over the last 10 years have developed more than 500,000 hectares of agroforestry, tree plantation and mangrove rehabilitation within 5,503 sites. An improved equity within the PO/community, on the other hand, has also been achieved through the issuance of tenure, such as greater participation of women and equal access to forest resources and livelihood opportunities among the members of the PO/community. However, the limited transfer of rights by the tenure instrument has placed some POs, particularly that of NPPFRDC experience on timber utilization, in an unequal playing field in terms of dealing with the DENR and buyers. Hence, despite seemingly radical efforts to restructure forest management, the impacts of tenure reform in forest lands in terms of LIFE indicators suggest that the anticipated positive impacts are yet to be fully realized on the ground.
A number of factors were also identified to hinder or facilitate the potential of tenure reform in effectively contributing to the improvement of livelihood, income, forest condition and equity at the local level. Policy environment is a key element in ensuring the protection of communities’ bundles of rights over their forest lands and resources. A stable policy is needed to fully realize the associated impacts of tenure reforms so that PO efforts, particularly those related to livelihood, are sustained and not affected by political pressures or whims of whoever sits on the DENR top position. A legislated law that supports CBFM is desirable to stabilize land tenure and resource use policy. Regulatory procedure is also seen to hinder some benefits of tenure reform due to over-regulation, elaborate paper works, and high transactions costs. The submission of comprehensive management plans and application for RUP, for instance, are technical and tedious processes which are a major challenge among POs. The complexity of procedures has also seen to fuel corruption due to costs incurred in every transaction.

Considering that the CBFM strategy transfers forest management and protection to the local communities which should otherwise been the responsibility of the government, the former should be provided with adequate institutional support system to build their capacity to perform such duties. Market access and opportunities are also limited in upland areas due to their remoteness and high cost of transportation. This makes their products less competitive in prices compared to those produced in lowlands or more accessible places. Lack of market information also makes many upland communities more vulnerable to manipulation of middlemen or lowland buyers who take advantage of their unawareness in market prices. Finally, the ultimate success of the tenure reform is highly dependent on the capacity of local communities to organize themselves and act collectively, mobilize local and external resources towards a common end, and build their capital assets (i.e., natural, social, financial, physical and human). In general, weak capacity limits ability to build capital assets and in turn restricts potentials associated with tenure reforms.

The combined effects of unstable policies and insecure use rights, over regulation and centralized issuance of resource use permit, inadequate institutional support system from various sectors, and limited community capacities prohibit genuine tenure reform from taking root. These factors thwart the accrual of benefits to the upland poor and may impede the promotion of sustainable forest management in CBFMA areas. Furthermore, highly conditional ‘use rights’ constrict the achievement of full benefits expected from the reform and assign an even greater ‘bundle of responsibilities’ to the communities.

Based on the above analysis, the following recommendations are therefore made:

- **Secure land tenure and property right by legislating CBFM.** Legislated policies provide more stability and clear direction in implementing and securing incentive systems for participating CBFM communities. ‘Soft rights’ embedded in some land tenure systems cannot be defended, can be withdrawn anytime by the DENR Secretary, and do not provide enough incentives for communities.
to invest in human and financial resources into forest management (Gilmour et al. 2005). A legislated policy should also be ‘enabling’ rather than ‘enforcing’ (Gilmour et al. 2005), and should be flexible enough to accommodate varying local conditions, facilitative rather than restrictive, and simple enough for community members to understand and enforce.

- **Simplify regulatory procedures and decentralize issuance of RUP at the DENR field level.** There is a need to simplify regulatory procedures for timber harvesting and transport in CBFM, and the issuance of RUPs should be decentralized to reduce transaction costs and provide more economic incentives for POs in doing sustainable forest management.

- **Give attention to the improvement of the impacts of tenure reform on livelihood and income of local communities.** This should take into account appropriate and sustainable livelihood opportunities as well as market support, such as infrastructure, capital, assistance in product identification and development, market information, etc. Emerging market opportunities such as PES and the carbon market should likewise be explored and developed.

- **Strengthen capacity of POs and CBFM Federations.** Investment on continuous leadership and organizational development is needed so that POs can be self-sustaining. A strengthened capacity would enable them to negotiate for communities’ rights and catalyze community and forest resource development.

- **Clarify and strengthen the role of stakeholders to enhance support to CBFM.** As a multi-stakeholder strategy, each partner should have a clear idea of their respective roles and have the commitment to improve the well-being of local communities while promoting sustainable forest management. A detailed list of recommendations for each CBFM stakeholder is provided for in Annex 7.
REFERENCES


FAO (1978) Forestry for Local Community Development. Forestry Paper 7. FAO Forestry Department, Rome, Italy

Fernandez, P. V. (1976) ‘Custom Law in Pre-Conquest Philippines’, University of the Philippines Law Center, Quezon City, Philippines

Forest Management Bureau (FMB) (2002) Forestry Statistics, Forest Management Bureau, Department of Environment and Natural Resources, Quezon City, Philippines


Guiang, E. S. and Castillo, G. (2006) ‘Trends in forest ownership, forest resources tenure and institutional arrangements in the Philippines: Are they contributing to better forest management and poverty reduction?’, in Understanding Forest Tenure in South and Southeast Asia, Philippines

Kalaham Educational Foundation (2001) Natural Resources Development Program and Agroforestry Rules and Regulations
Kalahan Educational Foundation (Undated) Katutubong pamamaraan ng paglinang sa likas na yaman ng lupaing ninuno ng Kalahan (Indigenous ways of natural resources development within the Kalahan ancestral land)


Annex 1

Memorandum of Agreement No. 1 and CADT: The Case of Kalahan Educational Foundation (KEF), Sta. Fe, Nueva Vizcaya

Executive Summary

The Kalahan Educational Foundation (KEF) is an interesting case study on the impacts of community forestry on livelihood, income, forest condition, and equity in an indigenous community. The KEF experience shows that certain factors are important in bringing about positive impacts of tenure on LIFE which include a strong social capital, forest management based on indigenous knowledge system, and a strong leadership.

There are three periods in which changes in the bundles of rights which the Ikalahans enjoyed took place. These are before the issuance of MOA No. 1 (before 1974), during the implementation of MOA No. 1 (1974-1999), and during CADT (2004-present). From 2000 to 2005, the KEF was issued the CADC-CBFMA which became the precursor of CADT.

Before the issuance of MOA No. 1 in 1974:

1. The State (DENR) had the right to control access and occupancy in public lands. The tribal community, on the other hand, by virtue of customary right had access to their ancestral land while the individual members of the tribe occupied forest land by virtue of tribal membership.

2. The State had the right to control the withdrawal/use of all resources in the public forest. The local people harvested timber and NTFPs based on customary rights while the individual households maintained swidden farms. They were able to cut trees for house construction and other household uses and catch fish in the rivers found within the Reserve.

3. The then Bureau of Forest Development (BFD) was mandated to manage the Reserve implementing some reforestation projects in the KEF Reserve. The Ikalahans also had their customary practices in managing the forests and the individual farmers manage their lots through indigenous practices.

4. The State had the sole authority in determining access and transfer rights over forest/public lands. Meanwhile, the Ikalahans excluded other forest users based on customary laws. It was basically by virtue of this customary right that the Ikalahans fought against the land grabbers who tried to encroach into their ancestral land. At the individual level, right of exclusion was practiced by
protecting the farmlot from encroachment. Claimed land is transferred to next of kin based on customary laws.

5. The State had sole jurisdiction and authority over disposition of the forest reserve. Ownership of individually claimed land is transferred based on customary practice called *damat*.

With the issuance of MOA No. 1 (1974-1999), the State, the KEF, and the individuals had the following rights:

1. The State (BFD/DENR) had the right to grant land tenure while the KEF regulated access within the area covered by the MOA. The individual KEF members’ customary occupancy was reinforced by statutory right.

2. The State granted withdrawal/use rights to KEF. The latter, meanwhile, governed the use/extraction of forest products based on its policies. Individuals harvested timber and NTFPs based on KEF policies.

3. The State bestowed management rights to KEF. The tenure accorded to the KEF the power to manage the Reserve and they did this by formulating the Rules and Regulations in the management and protection of the Kalahan Reserve. The KEF formulated and implemented policies and programs on forest management. The individual KEF members developed forest/individual farm lots through indigenous and introduced technologies.

4. The State provided access and transfer rights to the KEF. Through the Rules and Regulations which they implemented, the KEF was able to exclude non-KEF members or persons who are not bona fide residents of the Kalahan Reserve to harvest or utilize the natural resources within the Reserve. The KEF issued Land Claim Certification to qualified families and each individual family protected their own area from encroachment. The policies which the KEF formulated provided that land can be transferred to bona fide residents of the KEF Reserve.

5. Alienation of public lands has been retained by the State. However, land ownership among tribal members is transferred based on the customary practice called *damat*.

Under the CADT (2004-present), the following were the rights enjoyed by the State, KEF, and individual KEF members:

1. The NCIP granted the Ikalahans their CADT which gave the latter the right to regulate access within the CADT area. Among the individual KEF members,
customary occupancy right over has been reinforced by statutory right through RA 8371.

2. The NCIP had the right to grant withdrawal/use rights to the KEF. By virtue of this right, KEF in turn, is given the right to govern the use/extraction of forest products based on its own policies. Guided by the aforementioned policies, the individual members harvest timber and NTFPs for home and community consumption.

3. The NCIP bestowed management rights to the KEF which enabled the latter to formulate and implement policies and program on forest management and livelihood. The same policies govern the individual KEF members as they developed the forest and their individual farm lots through indigenous and introduced technologies.

4. The NCIP provided access and transfer rights to KEF and the latter in turn, issued Land Claim Certificate to qualified families. This certificate serves as the basis for the individual KEF members in protecting their own area from encroachment and in transferring land to bona fide residents of the KEF Reserve.

5. The NCIP is mandated to prohibit disposition of CADT areas to non-CADT members. It requires proofs of ancestral domain claims before any CADT area can be delineated and awarded to a claimant. Based on this right of the NCIP, the KEF limits disposition of lands among KEF members. Among the individual members, *damat* as a mode of transferring land ownership is upheld.

In summary, there was transfer of rights in terms of access, withdrawal/use, management, an exclusion from the BFD (DENR) to KEF under MOA No. 1, and from NCIP to KEF under CADT. However, under MOA No. 1, the right of alienation was retained by the State while under CADT, there was partial transfer.

An important impact of the tenure shift on livelihood is the regulation of the local people’s open access to the forest-based resources in the Reserve through the implementation of the Rules and Regulations aimed at ensuring the resource sustainability. In essence, because of the tenure, the KEF members enjoy a number of livelihood opportunities in the Reserve. Non-residents of the Reserve are strictly prohibited from using the resources within.

With the issuance secured tenure, the KEF was encouraged to identify and generate other livelihood sources although some of these were not successful and therefore abandoned. Value adding on indigenous products through food processing has been an...
important livelihood venture that KEF has embarked on following the issuance of the tenurial instrument.

Data show that there was improvement in the distribution of annual income from forest-based, non-forest-based, and other sources with the issuance of tenure across barangays. For all income sources, the families were distributed in the different income levels unlike before the tenure issuance wherein they reported to have no income at all or were earning not more than PhP 10,000. It can also be noted that the number of households who reported of having no income from forest-based sources increased after issuance of tenure. This can be explained partly by the imposition of rules and regulations in the utilization of forest resources like cutting of timber for commercial purposes which some residents did before when everybody had open access to the forests. Collection of NTFPs was likewise regulated, particularly the collection of orchids.

When asked about income sufficiency, 50% from Baracbac, 54% from Bacneng, 61% from Imugan and 55% from Malico said that their income was sufficient to meet family needs before the issuance of tenure. However, 90% from Sta. Rosa and 93% from Unib said their income was sufficient. After tenure, majority in Bacneng (92%), Imugan (78%), Malico (91%) said that their income was sufficient to meet family needs. Majority in Imugan (75%) and Unib (64%) mentioned that their income was more than sufficient for their family. Overall, 54% of the residents saw an increase in their annual income.

One of the most important impacts of tenure, particularly MOA No. 1, is the reforestation of degraded areas. After the issuance of MOA No.1, deforested areas were planted with trees and other agricultural crops as required by the tenure instrument. As of 2007, more than 400 hectares of the Reserve have been reforested through enrichment planting and assisted natural regeneration.

Another important impact is on the protection of the watersheds. After the MOA signing, the tribal leaders began working on the protection of the watershed as required in the MOA. All plant and animal resources found therein are protected by banning hunting and catching of animals and harvesting of plants. However, some plant and bird species became endangered due to excessive gathering and hunting prior to the implementation of the forest rules and regulations.

According to the FGD participants, the quantity and quality of water remain the same throughout the years except for the summer months when the volume of water is reduced. Erosion is minimal if not for the strong earthquake in 1990 which caused massive landslide in the Reserve.

In the past, kaingin-making (slash-and-burn) has been the cause of forest fires within the Reserve. With the implementation of the Rules and Regulations, however, forest fires have been controlled.
In general, distribution of rights (access, use, management, exclusion, alienation) favored the men in all barangays prior to issuance of tenure as this is also the local people’s customs and traditions. After issuance of tenure, however, women shared these rights equally with men as a result of enhanced participation in the management of the Reserve. The FGD participants had the same perception with regard to level of participation in decision-making on community forestry matters. Prior to issuance of tenure, men tended to dominate the implementation of community forestry activities. After the issuance of tenure, men and women have the same level of participation.

With regard to equity in the distribution of cost and responsibilities in relation to forest management and protection, the FGD participants explained that before the issuance of tenure they had no formal discussion or arrangement about these concerns. Their responsibility is over their swidden or kaingin farm. After the issuance of tenure, every bona fide resident of the Reserve – whether man or woman, rich or poor, educated or not educated, KEF officer or member, and elder or ordinary tribesman – shared the costs and responsibilities of managing and protecting the Reserve. Previously men were also usually elected as barangay captain, but with the issuance of the tenure, anyone with leadership potentials has the opportunity to serve in the KEF.

The Ikalahan experience strongly shows that local communities can best manage the resources within the ancestral land due to a number of success factors such as having a legal personality through Securities and Exchange Commission (SEC) registration, strong social capital, use of indigenous knowledge systems and practices, self-established projects such as the processing center and the Kalahan Academy, established linkages, and very strong leadership led by Pastor Delbert Rice.

The issuance of the tenure instrument to the Ikalahans over their ancestral land is a recognition that the ancestral lands are state-owned and that the tenure instrument is a mechanism by which the indigenous people can have legal rights over the said land. As a gesture of the government to uphold the rights of the indigenous communities over their ancestral land, the government promulgated the IPRA. However, the government seems to lack the commitment to fully implement the law as shown by the slow rate at which ancestral domain and ancestral titles are being processed (Colchester and Fay 2007). The critics added that the NCIP has little government support and receives a minimal budget. Hence, the agency could not provide the more comprehensive package of support that the IPs need. This inadequacy in the IPRA implementation is seen to stem from its conflict with other existing laws. It was recommended that the DENR and NCIP, the agencies responsible for IPRA’s implementation, coordinate their activities effectively to address this concern.
Annex 2

CBFMA: The Case of Banila Community-Based Cooperative (BCBC) in Dupax del Sur, Nueva Vizcaya

Executive Summary

Community-Based Forest Management project in Banila is one of the interesting cases in the CIFOR-RRI study in the Philippines. Perhaps among other cases, Banila initially emerged as an ‘environmental champion’ even before CBFM was adopted. The success of their ‘self-initiated’ reforestation was remarked as a spring board in which the government has later on took over and bolstered through CBFM. In addition, despite its relatively young experience compared to other CBFM sites, Banila is a recipient of many awards including the Best Cooperative in Dupax del Sur in 2002, Most Outstanding ADB Loan II Project, Model Sustainable Development Project in Nueva Vizcaya for three consecutive years (2000, 2001, 2002), Model Sustainable Development Project in Region II (2000, 2001, 2002), Hall of Fame Awardee – Model Sustainable Development Project in Region II in 2003, and Second Place in Most Gender Responsive Project in 2006. Given these significant achievements and awards, the study regarded it worthwhile to examine how tenure has created shifts in the bundle of rights and impacts on livelihood, income, forest condition and equity.

The community believes that CBFM owes its existence from their self-initiated reforestation in 1991. A historical account of their experience revealed that the major driving forces of this event were to address the pressing impacts of deforestation on the community’s farm and water supply, and seize the opportunity of having a financially supported reforestation project from the DENR. After several disapprovals of their requests, the DENR finally awarded the Asian Development Bank-Forestry Sector Project Loan II (an ADB Funded reforestation) in 1995 covering an area of 220 hectares. In the same year, the community was organized into the Banila Community-Based Association, Inc. (BCBAI) through the assistance of an environmental NGO called Dupax Ecosystem Builders Association, Inc. (DEBAI). DENR recognized the good performance of BCBAI in carrying out reforestation projects, thus an additional reforestation project covering 200 hectares was awarded in 1996. DENR then recommended that they be re-organized into a cooperative in order to effectively manage its financial and livelihood resources. Hence, four years later, the Banila Community-Based Cooperative was formed. In the same year, an additional 80 hectares reforestation project under the Comprehensive Agrarian Reform Project (CARP) of the Department of Agriculture was awarded. In 2002, the Japan International Cooperation Agency (JICA) funded an agroforestry pilot project. At present, the DENR sustains these projects with the whole barangay covered by the CBFM (2,395 hectares).
With the vigorous effort of the community in doing reforestation, landuse has changed. A historical overview of the landuse showed that in 1979, the watershed was dominated largely by more or less permanent forest cover (old growth, residual, mossy and plantation) and by agriculture comprising more than 70% of the total area. During this year, after the peak of logging, the forest cover was reduced to less than 50% from an almost full forest cover during 1940s. A decade later (1989), the area of natural forest has further decreased by more than 500 hectares while land devoted for agriculture has increased by more than 200 hectares. Built-up area has also declined by nearly 100 hectares as many settlers converged in few strategic locations such as along logging roads (now unpaved provincial road) for greater access to other livelihood opportunities and to elude the threats of floods and landslides. In 2002, the area of natural forest cover has also declined which was attributed to the expansion of agricultural areas. Conversely, the area of plantation has increased due to the sustained implementation of reforestation projects.

The shift in the bundle of rights in the case of BCBC from a stated-centered to one favoring the community followed the Philippine historical context. Traditionally, all public land including forests was rightfully owned and managed solely by the state. Communities occupying these lands were regarded as de facto owners and oftentimes considered as squatters and culprits of deforestation. Further, the state’s legal mandate was variedly expressed mainly in terms of granting Timber License Agreement (TLA) and issuing Pasture Lease Agreement (PLA). In terms of the rights to use, the state has the rights to approve the amount of timber, size and location of logging areas and pasture lands. The logging companies and pasture leasers then acquired the rights to harvest based on the approved timber or pasture management plan. On the other hand, the community remained as de facto users and their means of withdrawal were mainly in terms illegal activities such as kaingin and timber poaching.

Likewise, the management rights over the watershed are more centralized within the state. The DENR has the rights to monitor reforestation projects, logging and pasture activities, and prohibit human encroachment in the area. The rights vested to logging companies and pasture leasers were mainly expressed in terms of conducting vegetation improvements such as timber stand improvement and replenishing grass cover, as stipulated in their management plans. The local community remained as de facto managers of the land they occupy. The state also possessed the most of exclusion rights over the watershed. For instance, the DENR can either suspend or cancel/terminate the TLA and PLA unilaterally, if found necessary. The logging companies and pasture leasers, therefore, had limited exclusion rights expressed mainly in terms of protecting their own concession areas from encroachment. Likewise, the community still has limited de facto rights exemplified in terms of prohibiting others from occupying the land they till.

Overall, it could be distilled that before CBFM was adopted, the state relatively has the full grasp of bundle of rights among other stakeholders. Logging companies and pasture
leasers relied mainly on ‘regulated and temporary’ rights provided by the government, while local community remained ‘legally vulnerable’ over their lands because of the lack tenure instrument.

The adoption of CBFM was remarked as a major driving factor in the shift of tenure rights from state-centered to a more participatory approach. The cancellation of TLAs and PLAs in favor of watershed development under the CBFM program gave way to the emergence of three major stakeholders holding certain degrees of rights: the state (represented by the DENR) devolving some its forest management rights and roles to community (Banila Community-Based Cooperative) and CBFM participants.

In terms of access rights, the DENR can grant or cancel CBFM agreement to local community and individuals. The community and individuals will only gain de jure access if the DENR has provided them the Certificate of Stewardship. Similarly, the DENR has the legal mandate to restrict the withdrawal/use rights over the forest resources through the imposition of RUP. Individuals may harvest few timbers for domestic purposes and crops for market if RUP is approved.

Management rights and bundle of responsibilities primarily revolve around the Community Resource Management Framework (CRMF) and CBFM work plans approved by the DENR. The DENR has the rights to ensure that the stipulations in these documents are carefully carried out by the local community. Such provisions include monitoring the success of reforestation activities and area development projects. Consequently, the local community thru BCBC has the rights and responsibility to ensure that there will be active local participation in the reforestation and agroforestry development activities. At the individual level, the central concern of management rights is the ‘development of individual farms for subsistence and commercial purposes’.

The shift in the exclusion rights can be described as limited and indistinct between the DENR and BCBC, while relatively more pronounced at the individual level. The DENR and BCBC share common rights of monitoring and implementing forest protection activities such as prohibiting illegal occupancy in the CBFMA area and adjacent sites. At the individual level, the participants also have the rights to prohibit encroachment on their individual lots, and in addition, they can also transfer their rights to their next of kin. Alienation rights are still retained by the state.

The impact of this shift in terms of livelihood in BCBC has contributed in lessening the kaingin and timber poaching activities in Banila, which were previously the main occupations in the community before CBFM was adopted. About 90% of those previously engaged in shifting cultivation has abandoned this practice following the tenure shift. Sustainable livelihoods emerged such as reforestation projects, agroforestry, agricultural trading, cut-flower production, broom-making and hog raising. Given these shifts, the community perceived the impacts of CBFM on livelihood as ‘good’.
The creation of BCBC was regarded beneficial in supporting the livelihoods of its members. BCBC formed a credit cooperative where members can avail loans for farm input with very minimal interest. Further, it was also able to put up a tiger grass plantation for broom-making business and cut-flower production. However, few years ago, BCBC reported that their cooperative went bankrupt because of many unpaid loans and poor fund management by the previous officers. Livelihood assets such as transportation (vehicle to transport farm produce and farm-to-market roads), livestock (for food and farm work), farm equipment, processing machineries (rice mills and rice dryers), and technical knowledge (indigenous knowledge and skills training) likewise improved as a result of tenure reform.

Very recently, the DENR has finally granted the RUP. This allows the CBFM participants to harvest the timber they planted for commercial purposes. Thus, this also provides opportunities for additional income and livelihood for the organization and its members.

The impact of tenure on income is exemplified by the 6% to 12% increase in income after implementation of CBFM. The results of FGD and household survey revealed that 56% of the respondents consider their income ‘sufficient’ to meet their family needs while 8% mentioned their income is ‘more than sufficient’. Corollary to these, the number of households who said that their income is insufficient and very insufficient had decreased to 28% and 8%, respectively. Overall, the FGD participants gave an average score of 3.5 (average to good) on the impact of CBFM on incomes.

On forest condition, CBFM was perceived to have ‘good’ (4.5) impacts in improving the watershed. Specifically, it has contributed to decrease in destructive practices such as kaingin, timber poaching and charcoal-making. Consequently, forest quality was noted to have improved, which is exemplified by the presence of dipterocarp species that implies a more stable forest cover. Similarly, forest and grassland fires were lessened because of the vigorous forest protection activities of the community.

Lastly, equity has generally improved with the adoption of CBFM. In terms of participation in the decision-making processes, prior to CBFMA, the TLA holder had full authority to make decisions within the bounds of the laws of the land over the TLA area. Under the CBFMA, the PO members participate not only in the implementation of reforestation activities but in decision-making as well. Women had the opportunity to participate in the nursery operations. In terms of access to livelihood opportunities, before issuance of CBFMA, the men, more educated, well-off, and barangay officials were favored. With the CBFM, the access to livelihood opportunities became fair. The costs and responsibilities in relation to forest management and protection were borne by women, less educated individuals, and the poor people. Under the CBFMA, however, these were equally shared by men and women, educated and less educated, rich and poor, officers and members of BCBC. When it comes to barangay leadership, men have always been in the forefront even before and after issuance of CBFMA. With CBFMA,
however, the women, less educated, and poor individuals were never discriminated as PO leaders. Overall, the impact of tenure on equity was perceived to be ‘good’.

Various success factors and major issues in CBFM project implementation were identified. Among the success factors, PO capacity building and technical assistance from LGUs, government offices and NGOs were noted necessary. In addition, the strong interest and commitment of the community members to forest rehabilitation and protection was also recognized as the strength of the community. To enhance this, the local participants proposed that the DENR should sustain its assistance to achieve speedy and timely processing of RUPs and other necessary transactions of the PO. Further, the DENR and LGU should extend their support in equipping the PO of proper financial management skills (e.g., management of cooperative loans) in order to sustain the growth of capital and other investments of the cooperative.

On the major issues observed, ‘poor quality of PO leadership’ was noted an apparent problem of the organization. Specifically, the group believes that the current PO leadership is not sincere and well-equipped to deal with the rigors of PO management. Therefore, ample leadership trainings from the DENR, LGU, government organizations or NGOs are deemed necessary in order to properly direct the path of the organization to a financially sustainable and competitive institution grounded on a strong leadership.

The ‘lack of incentives for the PO officers in performing their duties’ was also considered a potential problem why CBFM project implementation may be unmanaged. In order to address this, a portion of the PO income from the RUP should be properly allocated to reward the officers in performing their duties.

Lastly, the ‘unreliability’ of timber buyers to harvest, process and transport wood on time was regarded as an important issue why PO income on RUPs are being delayed. To help resolve the issue, the participants suggested that the DENR assist in selecting the most appropriate buyers by providing a checklist of criteria/indicators. Further, training on timber resource management is being eyed by BCBC as highly beneficial to maximize the benefits from timber harvesting.
Annex 3

CBFMA: The Case of Ngan, Panansalan, Pagsabangan Forest Resources Development Cooperative, Inc. (NPPFRDC), Compostela Valley, Southern Philippines

Executive Summary

The Ngan, Panansalan, Pagsabangan Forest Resources Development Cooperative (NPPFRDC) is managing the second largest CBFM site in Compostela Valley Province in Southern Philippines covering an aggregate area of 14,800 hectares and one of the 40 POs operating as Community-Based Timber Enterprises (CBTEs) in Region XI. The site was formerly a part of the 26,000-hectare concession of the Valderrama Lumber Manufacturers Company, Inc. (VALMA) which operated from 1969 until its timber license agreement (TLA) expired on 31 December 1994. It was awarded the CBFMA No. 11 on 4 December 1996, giving them the rights and responsibilities to manage and protect its forest land located in the towns of Compostela and New Bataan. The majority of those who handle the day-to-day operation of the cooperative are experienced logging employees of VALMA.

The cooperative has been an active player in the logging industry in Mindanao, having been the source of prime logs in the region which supplies the market in Metro Manila. Since 1996, the cooperative was able to remit more than US$ 186,000 to government coffers in the form of forest charges and actively participated in protecting the remaining forest in the province together with the DENR.

In 2004, the CBFM area of the NPPFRDC had a total population of 8,259 (approximately 2 persons per hectare). Of these, only 324 individuals (or 4% of the total population) are actually members of the NPPFRDC. When combined with their associated household members, this gives a total of 1,051 people (or 13% of the total population) that are actually dependent on the activities of the cooperative. NPPFRDC members come from both the indigenous Mansakaya-Mandaya tribe (constituting 40% of the population in Barangays Panansalan and Pagsabangan) and more recent migrants to the area (constituting 60%).

More recently, the membership expanded to 629 from the original 324 regular members to include an additional 305 associate members. Regular members are those who reside within the CBFM site and active in the cooperative activities while associate members, who are all female, are recipients of loans being given by the Cooperative outside the CBFM area through its micro-lending project.
Of the total area under its management, at least 70% is still covered with trees. This includes the residual (or production) forest and mossy forest (protection area). Mature trees subject for cutting are found in the adequately stocked forest, where there is also an abundance of hardwood from the famous Philippine Mahogany with diameters at breast height (dbh) of at least 30 centimeters. The area also houses a mossy forest in Mt. Alimuyong that is considered as an old-growth where one can find a large number of flora and fauna, including baboy-ramo (wild boar), wild monkeys, and kasili (palos) in rivers.

Skills in logging operation have been the main asset of NPPFRDC. Without the necessary skills, both managerial and technical, it is widely assumed that the forest within the CBFM site had long been gone to illegal activities as shown by several examples of failed CBFM in the country. This human resource together with the abundance of timber in the area has resulted to other material assets that the cooperative and individuals in the community now own and can generate income from.

There are three major stakeholders during the TLA years who hold the bundles of rights in the area: (1) the State through the then Bureau of Forest Development (now known as the DENR); (2) the local communities belonging to the indigenous tribe of Mandaya-Mansaka who are the original inhabitants of the area; and (3) VALMA which was awarded an TLA to extract timber.

By law and as defined by the Constitution of the Philippines, all forest lands are considered as public domain and therefore under the authority of the State. This provides the State de jure use and control rights over these areas. Given the economic growth being pursued by the government at that time, the State granted TLA to companies to log forests for profit. As a result, it transferred its de jure access, use and management rights to TLA holders but retained its hold in the area by keeping the exclusion and alienation rights, the latter being the most powerful of all rights.

To practice its legal rights, it required an Integrated Annual Operation Plan (IAOP) from the logging companies, which defines the volume to be cut and the location of the cutting areas. This is controlled by the State through the issuance of the Annual Allowable Cut (AAC) which governed the withdrawal right of the TLA holder. Without the AAC, the TLA holder could not extract timber in the area. Under the TLA, the government still has the management right to monitor all activities in the area and the exclusion right to terminate, suspend or cancel the TLA if it finds the company liable of any infractions. The TLA holder, on the other hand, has the access right to establish logging camps to support its operation; withdrawal right as defined by the approved AAC; management right to develop and rehabilitate the area; and the some exclusion rights which they effectively handled.
The local communities composed of IPs had also practiced access, withdrawal, management and exclusion rights although only on a de facto or customary level. They are the ones who traditionally occupy the forest since time immemorial. Although it was only the company, by virtue of the TLA, that was authorized to extract timber, the local community had also used the natural resources in the area mainly to survive. In terms of exclusion rights, a clan can subdivide its land to members and in turn, the members of the clan can also transfer it to a relative in case of death. Based on the accounts of NPPFRDC leaders, lands held by the Mansakaya-Mandaya tribe could not be transferred to outsiders except in cases of intermarriages.

The present period has become problematic because of the way the State has practiced its rights. The change in tenure regime, from TLA to CBFM, also changed the playing field. Instead of three, there are only two major stakeholders in the area in terms of forest management. VALMA was gone but it was simply replaced by the NPPFRDC which is composed of members of the local community, both IPs and migrants.

The State’s de jure rights are still the same during the TLA years with the exception of the tenure instrument and the plan that governs the management of the area (from TLA to CBFMA; from IAOP to CRMF). The bundle of rights for the cooperative is also the same with that of VALMA but has become contentious in light of the government’s oscillating policies regarding withdrawal rights. The RUP process is described as too tedious and involves a lot of transaction cost.

The insecure withdrawal right also takes its toll in the management and exclusion rights of the PO. Because the funds for forest development and forest protection rely on its profit from timber harvesting, management activities suffer. Development targets written in the CFRM/FYWP are not being lowered by the DENR in light of suspensions or delays in the RUP approval which exerts unnecessary pressure to the cooperative. In effect, instead of transferring the bundle of rights which is the true essence of CBFMA, what is actually happening is just the transfer of “bundle of responsibilities.”

Survey respondents gave a perfect score of 5 (very good) for forest-based livelihood in Panansalan. The area which is inhabited by IPs was originally a farming community. When the cooperative was formed, members belonging to that area are able to venture into timber harvesting. In Ngan, however, the respondents only rated the impact of tenure on livelihood as average. They say that compared to the VALMA time, timber harvesting activities declined in number at present due to limited resource use being granted by the DENR. On the contrary, the impacts on non-forest based livelihood received a good rating similar with the response of Panansalan. Pagsabangan gave an average rating on the impacts of tenure on livelihood which explains that nothing significantly changed in the past decade since the inception of the cooperative.
The percentage of respondents that received an income of over PhP 30,000 but not over PhP 70,000 rose to 44% at present from 32% during the VALMA time. This explains that while key informants individually assessed that they are better off during the VALMA time, the tenure has actually improved their income in general albeit on a smaller scale. The same holds true for non-forest based income. The respondents who did not have an income from non-forest based activities declined from 71% to 44% which means that they have actually diversified to other income generating activities such as *sari-sari* store or looked for other income opportunities outside the CBFM area.

Based on the perception of the FGD participants in the three *barangays*, tenure has an average to good impacts on forest condition especially in improving the land uses of the CBFM area which obtained a good rating across the *barangays*. The tenure was also contributory in effectively preventing forest fires. These perceptions were actually confirmed by the findings of the satellite imagery which compared the vegetative cover of the site in 1993 and 2001.

Overall, the impact of tenure on forest equity has received a good rating across the *barangays* with Ngan receiving a higher rating. This is understandable as the majority of workers of NPPFRDC, who also participate the most in its activities, reside in Ngan.

The overall impact of tenure on LIFE indicators based on the assessment of the respondents is very promising. Using the average of the results of the FGD rating exercise in three *barangays*, it registered flying colors on all aspects, from average to good, with particular emphasis on equity which notably received the highest rating. This only explains that while there are obviously some weaknesses inherent in the CBFM system, it has at least achieved its purpose of providing some direction in the area. It likewise showed the resilience of the cooperative in weathering the storm caused by the oscillating policies of the national government as well as the problems and issues they experienced at the local level (i.e., illegal logging).

The positive impacts of tenure to LIFE indicators have been attributed by community members to several factors: (1) strong sense of community shared by each member because of a common past, as workers of a logging company, and the subsequent integration of the IPs to communal life; (2) appropriate application of management skills that focuses on community survival rather than individual survival; (3) strong social capital that was built through constant interaction with other stakeholders, LGUs and the local DENR leading to a long-term partnership in forest management; and (5) capacity to use financial resources in the right direction, such as investing in education and small enterprises. They shared that without these factors, even if the cooperative has all the resources at its disposal, they could not attain what they have achieved.

Although the CBFM of NPPFRDC has generally registered encouraging outcomes, there are still issues that needed to be resolved to maximize its full potential. Among the
issues that have been identified are the following: (1) Increasing pressure from the communities means increasing pressure to the forest; (2) Dynamism in power relation requires different approaches; (3) LGUs must assert its position in practicing good environmental governance which will redound to the communities including the surroundings of the CBFM area.

Based on the findings, the following policy implications were arrived at: (1) Issuance of RUP should be decentralized at the DENR field level. The centralization of the issuance of RUP has led to overly bureaucratic procedure, high transaction costs and disruptions in the forest management operations by the PO. Appropriate safeguard mechanism should be installed like the reinvigoration of the multi-sectoral monitoring committee to ensure compliance of the POs and other parties to the provisions stipulated in the CBFM Agreement and the implementation of the CRMF and FYWP; (2) Awarding of tenure should not rest at the PO level. In order to turn the lands into more productive uses, there is a need to implement the awarding of individual property rights (IPR) to bona fide land claimants especially to the IPs; and (3) Institutionalize support mechanism at the LGU level. Both the municipal and barangay LGUs have the budget for forest protection and forest development. This can be sourced out from the Annual Investment Plans (AIPs) of the LGUs or can be given regular funding through the formulation of appropriate ordinances.
Executive Summary

The case of Barobbob is one of the first documented sites that initiated ‘co-management’ to operationalize forest devolution strategy as provided in the 1991 Local Government Code. Unlike other land tenure instruments in forest lands under CBFM, Co-management agreement does not directly involve the DENR. The agreement was entered into by the Provincial Government and the local community where the tenure rights of the community is expressed in a Memorandum of Agreement (MOA) signed by the two parties with DENR serving as the “witness”. This agreement stipulates the rights, roles and responsibilities of the parties in managing the forest resources.

Barobbob watershed is recognized as one of the major watersheds in Nueva Vizcaya serving as one of the headwater sources of the Magat River whose water is channeled for impoundment at the Magat Multipurpose Dam for irrigation and hydroelectric power generation purposes. It covers a total area of 867 hectares with a peak elevation of 979 meters and generally undulating slopes. Soil is very rich consisting of Maligaya clay loam and Sibul clay series. These soil types are found highly suitable for upland farming and orchard development. The mean annual rainfall in the watershed is 2,400 mm, with a dry season from December to April.

Barobbob was dominated largely by residual forest cover, grassland and agriculture during the early 1970s. However, after the peak of logging in 1976, the forest cover was reduced to about 50%, in which the majority of the logged-over areas were converted to kaingin farms. In 1989, the area of forest cover further decreased by more than 100 hectares whereas land devoted for agriculture further increased by almost 150 hectares. This change is largely attributed to illegal logging and timber poaching activities that were most intense from 1982 to 1986. The built-up area also increased slightly and is due to the increase in settlement. By 2002 the forest cover apparently increased beyond the level of 1976 largely due to the sustained implementation of reforestation program and natural regrowth facilitated by improved protection of the forest against illegal logging and further expansion of cultivation under the Co-management program.

Barobbob community was noted to be traditionally dependent on the watershed for their livelihoods. The community was organized into Barobbob Watershed Occupants Association, Inc. (BWOA) which is the legal partner of the Provincial Government Environment and Natural Resources Office (PGENRO) in the implementation of a comprehensive watershed management plan. Currently there are 151 families residing
inside the watershed. Based on accounts of some of these families, as early as 1930s there were already 7 families belonging to 4 ethnic groups (Gaddang, Kalanguya, Ilocano and Igorot) residing in Barobbob Watershed.

Historical highlights of the community revealed that in 1952, Kaingin Permits were issued to 14 families who eventually settled in Sitio Pawac and established their kaingin farms there. In 1956-1958, logging operations in the watershed began which coincided with the installation of the main distribution pipe of the defunct National Water and Sewerage Administration (NAWASA). These likely accounts for the largest population growth in the watershed with much of the skilled labor force brought in by the logging companies from other provinces. In 1970, the Forest Occupancy Management (FOM) was launched by the government allowing the residents in public forest lands to stay in the lands they occupy with strict prohibition to expand their occupied areas. Consequently, the influx of migrants increased during this period that persisted up to 1990 after which the growth of population in the watershed due to migration almost ceased upon the implementation of the Integrated Social Forestry Program (ISFP). Additionally and likely more significantly, the enactment in 1991 of the RA 7160 otherwise known as Local Government Code (LGC) that bolstered the commitment of the provincial government to take control of the management of its natural resources especially of their watersheds, led to the crafting and implementation of Co-management agreement program that was more readily acceptable to the watershed occupants.

On livelihood patterns, Barobbob settlers have been predominantly engaged with forest-based livelihoods. Of these, upland cultivation has been the most common source of livelihood in Barobbob Watershed that can be attributed to the abundance of water and fertile lands that are suitable for farming. Upon the entry of commercial logging, new livelihood opportunities became available albeit limited to only a few of the community members. As a result, kaingin cultivation further expanded. Upon the implementation of the MOA, new livelihood opportunities emerged including tricycle driving, trading of crops, and carpentry. At the same time, the transformation from highly erosive into more conservation-oriented farming system was facilitated along with the expansion of the practice of agroforestry.

Dimension of rights has also evolved together with the biophysical and socio-economic conditions of the community. A historical account of tenure revealed that, forest management can be traced as early as 1930 when the Regalian Doctrine served as an immutable fundamental basis of the legal mandate of the state over all natural resources. Through the years, this legal mandate were variedly expressed in terms of selective divestment of its authority to exploit and manage natural resources to various non-government entities including logging companies, watershed occupants and water utility agency. Some of the occupants particularly those without tenure for a long time were de facto users until more inclusive social forestry oriented policies granted them broader rights to participate in the management of Barobbob Watershed.
Before the Co-management agreement of the watershed was adopted, the state has legal mandate variedly expressed mainly in terms of granting TLA and issuing MOA for water supply system, deciding and implementing watershed development projects, and prohibiting encroachment. The state has also the sole rights of alienation. The rights of the local community residing within the watershed were mainly *de facto* and illegal along with the practice of *kaingin*-making and timber poaching.

The Provincial Waterworks System was a major stakeholder in the watershed before Co-management agreement was adopted. It is under the Provincial Government of Nueva Vizcaya which was tasked to manage and ensure the sustainable supply and distribution of water in the municipalities of Bayombong and Solano. By virtue of a MOA with the Provincial Government, the Provincial Waterworks System gained the legal rights to tap water from watershed and protect it from occupancy.

Logging companies that operated in Barobbob acquired limited access, withdrawal, management, and exclusion rights in the watershed. Such rights were imbedded in the TLA expressed in terms of establishment of logging camps, timber harvesting, reforestation and protection of logging concession areas against encroachment.

The adoption of Co-management agreement through a MOA has created shifts in the bundle rights. However, these shifts are viewed by the community as ‘indirect’, weak and more regulatory in favor of the Provincial Government. The MOA then serves as a reference that demarcates the boundaries of rights and responsibilities that the community has over the watershed.

With the cancellation of TLAs, three major stakeholders shared most of the rights over the management of watershed. These include the state (represented by the Provincial Government, DENR and Provincial Waterworks), BWOA (local community), and occupants. The state retains most of the rights over the watershed. In terms of access and withdrawal rights, the Provincial Government is vested with legal rights to issue or cancel its MOA with the community. Further, the Provincial Government through its Provincial Waterworks System is given the rights to facilitate and regulate infrastructure development in the area.

The BWOA serves as an intermediary organization that assumes the role of the Provincial Government in regulating and guiding land management activities of the individual MOA holders. Particularly, it has the rights to implement and manage reforestation and livelihood development activities, and regulate transfer of land rights among its members. However, the issue of illegal selling of land rights is a persistent problem that BWOA continues to struggle with. BWOA is vested with rights to sequester the land and disqualify membership if the MOA holder is not able to comply with the provisions in the agreement.
The individual MOA holder has limited rights under the Co-management scheme. In terms of access, he/she is given the rights to be recognized as *de jure* occupants of the watershed. Their rights to withdraw resources are limited to upland farming, gathering of non-timber forest products and tapping of water in the watershed that should conform with the Land Management Plans of the Provincial Government, which is a prescribed landuse development pattern. Exclusion rights are also limitedly expressed in prohibiting others from occupying their land, and the transfer of land rights to their next of kin. Alienation rights are still retained by the state. However, illegal buying/selling of land rights with outsiders poses a major problem in the area.

With the Co-management agreement, livelihood in Barobbob was perceived to have improved. For instance, sustainable and less extractive practices such as composting, fallowing and agroforestry are now being practiced. Further, to some extent, many farmers are able to send their children to school thus opening up greater opportunities for the new generation to land a job in the lowlands instead of engaging in erosive upland practices. Sources of non-farm livelihood such as transportation services, trading of vegetable produce, trading and retailing of non-farm goods, overseas employment, carpentry, and many others were also perceived by several community members to have improved. It is however notable that the mix of forest-based and non-forest based livelihoods before and after the implementation of Co-management scheme did not significantly change. Further, there was a little change insofar as the need for the watershed occupants to engage in more than one sources of livelihood to be able to meet their needs. Overall, the impact of Co-management agreement on non-forest based livelihoods was perceived to be ‘average’ compared to forest-based livelihood which was rated ‘very poor’.

Income has slightly improved after the implementation of Co-management agreement. Before, the majority (68.6%) considered their income ‘sufficient’, while only 15.7% considered their income ‘very insufficient’. Roughly 16% consider their income more than sufficient. With the implementation of Co-management, the majority (68%) perceived that their income remains sufficient, but a slight increase in the number of respondents who consider their income insufficient was observed (19.6%).

Forest condition was generally perceived to have significant improvement. Specifically, the area of deforestation has decreased from 70% (before the tenure reform) to 10% (after the implementation of Co-management). Forest cover increased due to the reforestation program implemented and agroforestry development.

The community also perceived that timber and non-timber resources have increased because of the reforestation activities. The government’s seedling dispersal project for agroforestry development was regarded beneficial source of livelihood among BWOA members.
Water quality was perceived to have slightly deteriorated because of infrastructure development that took place upon the implementation of Co-management. For instance, the construction of the municipal road was perceived to have created few rills and gullies, thus disrupts and causes siltation in the rivers.

Frequency of fire in the watershed was noted to have declined. Results of the discussion indicated that fires were observed to be very common in the summer months when there was yet no tenure reform. The implementation of Co-management agreement was perceived as an effective approach in preventing forest fires. Overall, the impact of Co-management agreement on forest cover condition was perceived to be ‘good’ to ‘very good’ except for the average rating on forest productivity.

Finally, in terms of equity, the adoption of Co-management agreement approach was perceived to have brought fairness in the use of forest resources, greater participation of the members in the decision-making processes and implementation of community forestry activities, quite fair access to leadership roles, and quite fair distribution of costs and responsibilities among the members. In general, the impacts of Co-management agreement on equity were rated ‘good’ to ‘very good’.

Overall, the assessment of the Co-management agreement scheme in relation to LIFE revealed some measures that are apparently useful in sustaining the gains and in addressing the current weaknesses of the Co-management arrangement in order to realize its full potential to improve the biophysical condition of the watershed as well as the socio-economic condition of the community. Several issues and concerns such as inequitable access to forest resources and worsening problem of selling land rights are areas for immediate intervention to improve the Co-management agreement scheme.
### Annex 5

**Activities undertaken by the project.**

<table>
<thead>
<tr>
<th>National level</th>
<th>Activities</th>
<th>Processes and Stakeholders Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>National level</td>
<td>Initial consultations with key stakeholders - April to May 2007</td>
<td>Small group meetings with key stakeholders from the Forest Management Bureau, Non-Government Organizations, Environmental Governance Project (Phase 2), and Parks and Wildlife Bureau about the research overview, candidate case study sites, and potential assistance they could provide.</td>
</tr>
<tr>
<td>National level</td>
<td>National inception meeting - May 2007</td>
<td>Two-day workshop was help in Manila with various CBFM stakeholders to streamline the research project, and identify study sites and research partners.</td>
</tr>
<tr>
<td>National level</td>
<td>Finalization of research method and instruments - May to June 2007</td>
<td>Research method and questions were finalized based on the inputs from the above workshop and consultations at the provincial/regional and local levels.</td>
</tr>
<tr>
<td>National level</td>
<td>Data encoding, analysis and writing of site reports - March to May 2008</td>
<td>Information gathered from the field through Focus Group Discussions (FGD), key informant interviews, household survey, and direct field observations were encoded and analyzed by the members of UPLB Research Team to write the four site reports.</td>
</tr>
<tr>
<td>National level</td>
<td>Workshops and writing of country report - May to August 2008</td>
<td>Three in-house workshops and a series of meetings were conducted by the Research Team in the process of writing the country report. Feedbacks from the two local area validation workshops conducted in Bayombong and Davao City and the CIFOR-RRI writing workshop in Cheltenham, England from July 21-25, 2008 served as valuable inputs in writing the country report.</td>
</tr>
<tr>
<td>National level</td>
<td>National policy workshop - 3rd week of November 2008</td>
<td>A large workshop composed of 50-60 people was organized to share the key research findings and policy recommendations and to discuss follow-up actions to implement the recommendations. Stakeholders from national and local levels will participate in this workshop.</td>
</tr>
<tr>
<td>Activities</td>
<td>Processes and Stakeholders Involved</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td>Local Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inception workshops and finalization of research sites - July to September 2007</td>
<td>Concerned DENR, LGUs, local communities/POs, NGOs and other local stakeholders were separately convened in Bayombong and Davao City to orient them about the research project, strategies, expectations, and activities and to finalize the study sites based on the inputs from the national workshop and field visits and initial consultations with DENR, LGUs and local communities/POs. During the workshops, a PRA team of 5-8 members was also formed for each of the four sites representing the different stakeholders (PO, DENR, LGU, NGO/academe, UPLB) and considering gender balance to be involved in the data gathering.</td>
<td></td>
</tr>
<tr>
<td>Training of Participatory Rural Appraisal (PRA) teams - October 2007</td>
<td>All the four PRA teams in the four case study sites underwent a two-day PRA training in Bayombong and Davao City, respectively, to prepare them for the field work. The trainings were also opened to some non-PRA team members from the PO and DENR as part of the capacity building approach of the project. A total of 42 participants attended the two trainings.</td>
<td></td>
</tr>
<tr>
<td>Field work/data gathering - November 2007 to February 2008</td>
<td>Focus group discussions, field observation, community interactions and household surveys were conducted in the four case study sites by the PRA teams and hired enumerators through the leadership of UPLB researchers. The PRA team members also facilitated the gathering of available secondary information on the four case studies.</td>
<td></td>
</tr>
<tr>
<td>Presentation and validation of initial research findings - June 2008</td>
<td>Initial research findings and recommendations were presented in two separate workshops held in Bayombong and Davao City. The workshops were attended by representatives from POs, DENR, LGUs, NGO, and the UPLB research team.</td>
<td></td>
</tr>
<tr>
<td>Regional Policy Forum - November 2008</td>
<td>A regional policy forum was held for the 3 case study sites in Nueva Vizcaya to share the key policy recommendations that may have specific regional implications for Region II.</td>
<td></td>
</tr>
</tbody>
</table>
Annex 6

Land use distribution in the four case study sites.


<table>
<thead>
<tr>
<th>Landuses (in hectares)</th>
<th>1993</th>
<th>2001 Landuses (in hectares)</th>
<th>1993 Total Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Brushland</td>
<td>Closed canopy</td>
<td>Cultivated areas</td>
</tr>
<tr>
<td>Brushland</td>
<td>2,561.64</td>
<td>60.08</td>
<td>141.58</td>
</tr>
<tr>
<td>Closed canopy</td>
<td>45.84</td>
<td>1,832.05</td>
<td>137.18</td>
</tr>
<tr>
<td>Cultivated areas</td>
<td>1,195.99</td>
<td>139.75</td>
<td>1,100.57</td>
</tr>
<tr>
<td>Open canopy</td>
<td>378.26</td>
<td>231.41</td>
<td>326.68</td>
</tr>
<tr>
<td><strong>2001 Total Area</strong></td>
<td>4,181.73</td>
<td>2,263.29</td>
<td>1,706.01</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Landuses (in hectares)</th>
<th>1979</th>
<th>1989</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agroforestry and plantations</td>
<td>328.43</td>
<td>331.00</td>
<td>107.24</td>
</tr>
<tr>
<td>Built up</td>
<td>441.55</td>
<td>207.06</td>
<td>123.83</td>
</tr>
<tr>
<td>Cultivated areas</td>
<td>1,090.76</td>
<td>1,246.88</td>
<td>1,477.05</td>
</tr>
<tr>
<td>Grassland</td>
<td>384.28</td>
<td>611.13</td>
<td>646.74</td>
</tr>
<tr>
<td>Mossy forests</td>
<td>226.88</td>
<td>237.56</td>
<td>212.32</td>
</tr>
<tr>
<td>Old growth forests</td>
<td>960.23</td>
<td>779.20</td>
<td>568.46</td>
</tr>
<tr>
<td>Residual forests</td>
<td>767.17</td>
<td>786.46</td>
<td>1,063.65</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Landuses (in hectares)</th>
<th>1976</th>
<th>1989</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bare or rocky areas</td>
<td>3.15</td>
<td>5.39</td>
<td>4.52</td>
</tr>
<tr>
<td>Built up</td>
<td>35.74</td>
<td>41.23</td>
<td>66.02</td>
</tr>
<tr>
<td>Cultivated areas</td>
<td>102.00</td>
<td>251.27</td>
<td>111.64</td>
</tr>
<tr>
<td>Grassland</td>
<td>225.23</td>
<td>192.34</td>
<td>185.73</td>
</tr>
<tr>
<td>Irrigated lands</td>
<td>85.52</td>
<td>71.57</td>
<td>65.00</td>
</tr>
<tr>
<td>Residual forests</td>
<td>416.92</td>
<td>306.77</td>
<td>435.64</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Landuses (in hectares)</th>
<th>1979</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivated areas</td>
<td>3,403.80</td>
<td>3,753.05</td>
</tr>
<tr>
<td>Built up</td>
<td>459.26</td>
<td>449.02</td>
</tr>
<tr>
<td>Fallow and brush</td>
<td>225.63</td>
<td>1,804.72</td>
</tr>
<tr>
<td>Irrigated lands</td>
<td>831.65</td>
<td>827.68</td>
</tr>
<tr>
<td>Mahogany stand</td>
<td>2,272.23</td>
<td>970.12</td>
</tr>
<tr>
<td>Old growth forests</td>
<td>3,803.16</td>
<td>2,569.71</td>
</tr>
<tr>
<td>Pine forest</td>
<td>2,160.31</td>
<td>1,295.47</td>
</tr>
<tr>
<td>Secondary forests</td>
<td>707.64</td>
<td>2,193.91</td>
</tr>
</tbody>
</table>
Annex 7

Detailed list of recommendations to various stakeholders based on the analysis of tenure reform in the Philippine forest lands:

**Policy Makers and Legislators**

1. **Secure land tenure and property right by legislating CBFM.** Securing land tenure and property rights is a necessary condition for successful CBFM implementation. Legislated policies on CBFM as in the case of KEF’s CADC would provide more stability and clear direction in implementing as well as securing an incentive system for the participating communities. On the other hand, “soft rights” embedded in some land tenure instruments like CBFMA which are not legislated (e.g., Executive Order and Department Administrative Order), and hence cannot be defended and can be withdrawn any time by the DENR Secretary, do not provide sufficient incentive to encourage communities to invest in human and financial resources into forest management (Gilmour et al. 2005). These rights are very vulnerable to political pressures and changes and can easily result to adverse socio-economic and environmental impacts when arbitrarily suspended or withdrawn. Moreover, legislated community forestry policy should be “enabling” rather than “enforcing” (Gilmour et al. 2005). It should be flexible enough to accommodate varying local conditions, facilitative rather than restrictive, and simple enough for community members to understand and enforce.

2. **Develop clear and consistent policies for timber harvesting and other resource use on lands with different legal status and tenure arrangements.** Community forestry has been implemented on various types of forest lands such as timberlands, watersheds, protected areas, using various tenure arrangements. The uniqueness of each of these forest land types necessitates the formulation of clear and consistent policies that will allow timber harvesting and other resource use based on approved development and utilization plan. Such policies should be simple to avoid confusion, misinterpretation and abuse, and enable effective management and legal compliance.

3. **Review of RA 8371 to address the issues on participation and the long and tedious process of the CADT application and approval.** Many IP groups have expressed their concern on this matter. An example is the case of the Kankanay in Bakun, Benguet who had their CADT approved in July 2002 but up to 2006, the IPs refused to accept their CADT. They complained that they were not involved in the boundary delineation conducted by the NCIP such that a large portion of their ancestral land has not been included. Until the present, a number of problems continue to beset the implementation of the IPRA.
DENR

1. **Simplify regulatory procedures and decentralize issuance of Resource Use Permit at the DENR field level.** The adoption of the CBFM strategy requires a whole new set of knowledge, skills, values, and attitudes within the forestry bureaucracy. This means a major departure from the traditional regulatory or policing function which the DENR has been playing for almost a century towards a more supportive and facilitative role to assist communities to improve their livelihoods and the conditions of the forests (Nair 2008). As such, the DENR has to reinvent itself to be able to cope with this new role and maintain its relevance. In terms of governance, this requires devolving not only responsibilities but also authority to local communities, changing outmoded regulatory policies and procedures, and retooling staff to effectively perform negotiation, conflict resolution, extension services, and related developmental skills to better serve the local communities. Specifically, there is a need to simplify regulatory procedures and requirements for timber harvesting and transport in CBFM areas. Also, issuance of RUP should be decentralized to the DENR field to reduce layers to reduce transaction costs and provide more economic incentives for the POs in doing sustainable resource management.

2. **Redirect CBFM from a purely forest management strategy to an asset building strategy.** While the main objectives of CBFM are twofold, i.e., “to protect and advance the right of Filipino people to a healthful environment” and “promote social justice and improve the well-being of local communities”, the second objective has been very elusive. As a forest restoration strategy, CBFM has been successful in improving the forest condition as also shown in the four cases. However, since CBFM strategy deals not only with trees and forests but more importantly with local communities, it should adopt a new framework of implementation in terms of an asset building strategy. In addition to building natural assets such as the forests, CBFM should therefore provide opportunities for the local people to build up their human, social, financial, and physical assets. It should enhance communities’ knowledge and skills (human assets) that enable them to pursue different livelihood strategies. Similarly, social assets should be developed such as the social capital which includes network and connectedness, relationships of trust, reciprocity and exchanges, upon which people draw in pursuit of their livelihood objectives. Finally, the financial resources that people use to achieve their livelihood objectives should likewise be enhanced. To help bring these about, CBFM should be linked to the broader concern of poverty alleviation and human development to generate more attention and support from the government and donor agencies instead of purely a forest management strategy.

3. **Strengthen capacity of People’s Organizations and CBFM Federations.** People’s organizations serve as avenue for the local people to participate in the
activities that directly affect their lives. But before the people can participate, they should be well-informed and capacitated to undertake the activities related to forest management. The DENR should invest on continuous leadership and organizational development so that the POs can be self-sustaining. In partnership with other sectors particularly the NGOs, LGUs, academe, and the donor organizations, it should support the strengthening of the POs and the different CBFM Federations at the provincial, regional and national levels to be able to negotiate for the communities’ rights and serve as the catalyst for community and forest resource development at the local level. The recent experience with the suspension of more than 1,000 CBFMAs nationwide demonstrates that PO Federations can advocate and push for policy changes at the national level when they managed to mobilize political support from various sectors that compelled the new DENR Secretary to suspend the cancellation order.

4. **Institute dialogues that ensure greater participation of local communities and other legitimate stakeholders on decision-making regarding CBFM matters at different levels.** One of the unique features of forest resources is the multiple stakeholders associated with forests’ multiple uses representing local to global interests. Thus, efforts towards sustainable forest management need to consider these varying interests, without marginalizing the concerns of the local communities especially those whose lives depend on these resources for survival. This calls for the development and institutionalization of social processes that will ensure that local communities and other legitimate stakeholders are able to participate meaningfully in decision-making concerning management of and benefit sharing from forests. An enabling policy environment that will facilitate dialogue among different stakeholders is necessary to move the initial gains of policy reform forward.

5. **Facilitate the scaling-up of successful local initiatives such as that of the Kalahan Educational Foundation.** The case of the Kalahan Education Foundation is a unique one since the major facilitating factors – namely, strong social capital, indigenous knowledge systems and practices, recognized social structure particularly in terms of the role of the elders, and well-respected leadership – were present in the community. However, its experience should be scaled up to improve community well-being and promote sustainable natural resource management. One way to do this is to promote KEF as a national learning site of all CBFM-related initiatives including the IPRA areas. Appropriate incentives and support should be given to KEF to bring this about.
Local Government Units

1. **Institutionalize support mechanism at the LGU level.** Support for the people’s organizations and cooperatives which undertake forest rehabilitation is lacking. This, however, can be provided by the concerned municipal and barangay LGUs which have the authority to allocate budget for forest protection and forest development. This can be sourced out from the Internal Revenue Allotment (IRA) of the LGUs or can be given regular funding through the formulation of appropriate ordinances.

2. **Provide market access and opportunities to local communities.** Maximum benefits from the products harvested from the community forestry farms can be realized if the said products are brought to the market where they can command a high price. Things to consider in marketing include supply and demand trends, marketing channels, and prices.

3. **Clarify and strengthen the role of LGUs to enhance support to CBFM.** Under Section 17 of the Local Government Code, the municipal LGU is authorized to implement community-based forestry projects. Thus, the LGUs should provide supportive social and production-oriented infrastructures such as roads and bridges, farm-to-market roads and nurseries.

4. **Continue providing the local POs training on forest management, marketing, and organizational development.** These aspects are important in capacitating the POs for sustainable forest management and these can be done in cooperation with the DENR and other concerned agencies.

5. **Consider long-term investments in forest land.** The government’s devolution policy has provided the local government units opportunities to co-manage communal forests, watersheds, and other forest areas. Through the co-management scheme, the LGUs can broaden their sources of income from various activities such as eco-tourism (Guiang and Castillo 2006).

Community/People’s Organizations

1. **Strengthen community organizations and network with other communities and agencies to be able to negotiate successfully and safeguard community interests.** The success of community forestry lies on a strong people’s organizations since the latter is the implementer of development projects. The need to network stems from the fact that POs may lack the necessary knowledge, skills, and capabilities to negotiate with DENR and other concerned agencies regarding the implementation of community projects. In addition, PO with the support of the
civil society and the government should strengthen provincial and national Federation to have negotiation power and political leverage on major decisions concerning their forests and socio-economic well-being.

2. **Promote collective action to build local capacity to rehabilitate and sustainably manage the areas.** Sustainable forest management depends to a large extent on the ability of the PO members to work collectively guided by the spirit of participation and cooperation. Local capacity can be enhanced through trainings on livelihood development, PO leadership, PO managerial tasks, and wood harvesting and processing which can be provided by the DENR, NGOs, LGUs, and other stakeholders.

3. **Explore private sector-community partnerships in the marketing of forest products.** The maximum positive effects/impacts of tenure instruments on income can be realized through proper marketing of forest products. Again, the PO may lack the necessary knowledge and skills on this; hence, they should partner with the private sector which will provide them the knowledge on the different aspects of marketing including market availability, prices, channels, etc.

4. **Provide enough incentives for officers performing their management duties.** The lack of incentives for the PO officers in performing their duties was noted as a potential problem why CBFM project implementation may not be sustained. In order to address this issue, portion of the PO income from the RUP should be properly allocated as incentives. Policies on this, however, should be carefully discussed and agreed upon by the PO members.

**NGOs**

1. **Provide technical, marketing, management and financial support to POs and farmers, and help them develop viable livelihood schemes.** Build their capacity in all these aspects and empower them to sustainably manage the forest lands, derive benefits and generate or raise the necessary funds. Strengthen community associations to be able to negotiate successfully and safeguard community interests in the face of disruptive policy changes and other events.

2. **Acknowledge and support the production and income generation functions of forests.** Production is required to meet industrial and household demands, and generate income for impoverished upland communities and funds for managing the area. Not all logging is destructive and forests can be sustainably managed for various goods and services.
3. **Lobby for community/farmer upland rehabilitation and management for multiple benefits.** This is the only model that has a high chance of succeeding in the populated uplands while providing access to resources and income to poor local communities. Political lobbying to curb all logging because of perceived links between forests and major floods could end up destroying local livelihoods and incentives for tree growing along with related environmental benefits.

**Private Sector**

1. **Develop marketing strategies, marketing associations, and market information systems.** With the approval of RUPs, marketing of timber and non-timber becomes a major economic activity of the POs. However, since marketing is a relatively new activity among the forest users, the latter are not very familiar with the marketing strategies and have no access to market information. Although there were forms of marketing before the issuance of RUPs, these were the informal/illegal ones. The formation of market associations is a strategy to consolidate small producers to come up with the volume of products to be marketed.

2. **As part of their corporate social responsibility (CSR), private sector should develop partnerships and share benefits with local communities.** This is particularly true in community forestry areas where there are limited alternative livelihoods during harvesting operations and lean months. Through the CSR other welfare and support services which are lacking in community forestry areas can be provided to the forest communities.

**Donors and Development Agencies**

1. **Support participatory forestry projects benefiting communities or farmers that can be replicated at little cost at the local level and are self-sustaining.** Several cases of success stories on community forestry have been documented, an example of which is the Kalahan Educational Foundation. Lessons from these cases can be disseminated and applied in some forestry projects at the local level. Big CBFM projects should incorporate research component to aid effective implementation and distilled learnings and policy implications.

2. **Have longer project durations for sustained impact.** As experienced in the Philippines, short-term target oriented approaches like 3-year community-based reforestation projects in the absence of adequate social preparation have never been effective in the long run. Donors and development agencies should develop local institutions for long-term management after the project ends and ensure continued financial sustainability through income generation and reinvestment.
3. **Design projects to meet the specific objectives such as improving livelihoods, income, and relevant technical and socio-economic issues in community forestry.** This can be done with prior consultation with the communities to identify the relevant issues related to livelihoods and income, as well as technical and other socio-economic issues. Participatory action-research and technical evaluation of environmental and socio-economic impacts should be part of the project design.

**Universities and Research Institutes**

1. **Provide training to LGUs, DENR field staff, NGOs, POs and the private sector engaged in community forestry.** These trainings can cover participatory methods, and sustainable management, production, marketing, organizational and financial aspects. This can be done through the established extension units/programs of the universities and research institutes.

2. **Incorporate the whole range of forestry issues into the university curricula and produce trained professionals who can provide technical assistance to CBFM project implementers and support agencies.** In addition to technical courses, curriculum should also incorporate “social skills” like effective communication with various stakeholders, community organizing, and conflict management. Policy and institutional dimensions of forest management should likewise be enhanced. Courses should also put emphasis on the value of indigenous knowledge system and its value on enriching the more technical aspects of forest management.

3. **Perform participatory action-research, policy research, and evaluation research on environmental and socio-economic impacts of community forestry and disseminate the information widely.** These researches should provide empirical information for policy discussions and enhance current CBFM implementation. In addition, the University can also take a lead role, in the name of action research, to help strengthen the PO Federations by organizing PO capacity trainings and workshops and spearheading the institutionalization of multi-stakeholders dialogues at different levels to promote support to CBFM implementation.
Published by the College of Forestry and Natural Resources
University of the Philippines Los Baños (UPLB)
College, Laguna 4031, Philippines

© Copyright 2008 by College of Forestry and Natural Resources (UPLB), Center for International Forestry Research, Rights and Resources Initiative

ISBN 978-971-579-057-4

For further information, please contact:

College of Forestry and Natural Resources
University of the Philippines Los Baños
College, Laguna 4031, Philippines
Telefax: +63 (49) 536-3493
Website: http://www.uplb.edu.ph/academics/schools/cfnr

Center for International Forestry Research (CIFOR)
P.O. Box 6596 JKPWB
Jakarta 10065, Indonesia
Tel: +62 (251) 622-622, Fax: +62 (251) 622-100
Email: cifor@cgiar.org
Website: http://www.cifor.cgiar.org

Rights and Resources Initiative
Coordinating Office: 1238 Wisconsin Avenue NW, Suite 204
Washington, DC 20007
United States of America
Tel: +1 (202) 470-3900, Fax: +1 (202) 944-3315
Email: info@rightsandresources.org
Website: http://www.rightsandresources.org

Cover design and layout: Maricel A. Tapia
Photos by: Hanna Leen L. Capinpin and Rose Jane J. Peras

About the authors:
Dr. Juan M. Pulhin is a Professor and UP Scientist II, Dr. Josefina T. Dizon is Associate Professor, and Dr. Rex Victor O. Cruz is a Professor and Dean of College of Forestry and Natural Resources, all from the University of the Philippines Los Baños, Philippines. For. Dixon T. Gevaña is a Research Associate and Graduate Student, also from UPLB. Dr. Ganga Ram Dahal is of the Center for International Forestry Research and coordinates the CIFOR-RRI Research Project for Asia.
Table of Contents

Foreword iii
Acknowledgments v
List of Acronyms vi
List of Tables viii
List of Figures ix

Executive Summary 1

Section 1: Introduction 5

Section 2: Conceptual Framework and Methods 7
  Land Tenure, Tenure Reform and Bundles of Rights:
    Some Key Definitions 7
    Analytic Framework 9
    Research Activities and Processes 10
    Site Selection 10

Section 3: Historical Context of Tenure Reform in Forest Lands 14
  Pre-colonial Period 14
  Colonial Period (1500s to 1946) 15
  Post-colonial Exploitation (1946-1985) 17
  Policy Shift towards Community-Based Forest Management (1986-present)
    Aquino administration (1986-1992) 21
    Ramos administration (1992-1998) to the present 23

Section 4: Impacts of Tenure Reform 28
  Changes in the Bundles of Rights 28
  Impacts of Tenure Reform on LIFE 36
    Impacts on livelihood 36
    Impacts on income 41
    Impacts on forest condition 45
    Impacts on equity 55
  Overall qualitative assessment of the impacts of tenure reform on LIFE indicators 61
  Facilitating and Constraining Factors 63
    Policy environment 63
    Regulatory procedures 65
    Institutional support system 67
    Market access and opportunities 68
    Local community capacity 69

Section 5: Conclusions and Recommendations 71
# References

<table>
<thead>
<tr>
<th>Annexes</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annex 1: Executive Summary of KEF Case Study</td>
<td>81</td>
</tr>
<tr>
<td>Annex 2: Executive Summary of BCBC Case Study</td>
<td>86</td>
</tr>
<tr>
<td>Annex 3: Executive Summary of NPPFRDC Case Study</td>
<td>91</td>
</tr>
<tr>
<td>Annex 4: Executive Summary of BWOA Case Study</td>
<td>96</td>
</tr>
<tr>
<td>Annex 5: Activities Undertaken by the Project</td>
<td>101</td>
</tr>
<tr>
<td>Annex 6: Land use distribution in the four case study sites</td>
<td>103</td>
</tr>
<tr>
<td>Annex 7: Detailed list of recommendations to various stakeholders</td>
<td>105</td>
</tr>
</tbody>
</table>
Foreword

Suddenly, the word “community” is inspiring again.

An election several thousand miles away from our place was won by a former community organizer. The victory of Barack Obama, a former community organizer in the depressed areas of Chicago in the US presidential race, stripped the word “community” of its parochial and underperforming undertones.

In the Philippine context, it was the hard work of institutions such as the UPLB, dedicated non-governmental organizations (NGOs), people’s organizations, dedicated workers from the local government units LGUs and field workers from the DENR that saved the day for community-based forest management (CBFM). For this work, you deserve the gratitude of the nation.

Right now, the Philippine CBFM is one of the most prestigious community-based forestry management programs in the world.

Some breakthrough practices, policies and operational strategies of the CBFM have been hailed as role models for community forestry work worldwide. The Philippines, Nepal and India are now regarded as trail blazers in the area of community forestry.

I believe that the current efforts to improve equity, livelihood and economic opportunities constitute the next phase of the pioneering work of the CBFM. This is precisely the reason why the CIFOR or Center for International Forestry Research has selected the Philippine-based CBFM as one of its partners in the global research on Improving Equity and Livelihood in Community Forestry.

A set of solid policy recommendations will be the product of this research. The recommendations, in turn, will be implemented at ground level with the hope of improving community forestry work at an awesome and amazing degree.

I will not delve so much on the technical aspects of the research work for CIFOR and on how solid institutional arrangements, sound market and economic practices, tenure arrangements and overall reforms will help improve the lives of our community-based forestry groups.

Solid programs and dedicated reform initiatives always enhance livelihood opportunities and social equity. Well-laid programs and dedicated leadership – plus solid institutional linkages – end up all well. These are the inevitable results of good governance and solid program implementation.
It is also a fact that upland communities, which belong to the poorest of the poor communities in the country, will have sustained benefits from the enhanced and strengthened CBFM programs.

I want to express this grand hope that all people involved in institutions doing community-level work will move to the next phase. This is the expansion and replication of the work being done by the CBFM.

In what areas can we make further mark? Where else can we dedicate the expertise, dedication and enthusiasm that we earned at the CBFM?

There are definitely several areas where we can bring our dedication, integrity, training and expertise.

The march to globalization, the shattering of tariff walls, the vanishing borders, the virtual flattening of the globe by strides in information and communication technology have not crushed the initiatives at the level of the community.

Let us explore. Let us expand. Let us move into other frontiers.

The possibilities of what can be done at the level of the community to improve ourselves and the world around us are awesome and endless. May this modest publication be instrumental towards improving the policy and practice of CBFM to enhance local communities’ well-being and sustainable forest management.

Sen. LOREN LEGARDA

An abridged version of the message delivered during the National Policy Workshop on “Improving Equity and Livelihoods in Community Forestry”, held on 17 November 2008, at the Sulo Hotel, Quezon City.
Acknowledgments

This study was part of the global project entitled ‘Improving Equity and Livelihoods in Community Forestry’ implemented by the College of Forestry and Natural Resources, University of the Philippines Los Baños (UPLB) with the Center for International Forestry Research (CIFOR) under the Rights and Resources Initiative (RRI).

The authors would like to express their sincere gratitude to the following institutions, organizations and individuals who have tremendously contributed for the completion and success of this project:

- The case study sites below where this project was conducted, particularly to their chairpersons, officers, PRA Team Members, FGD and survey participants, and representatives in the workshops:
  - Banila Community-Based Cooperative, Dupax del Sur, Nueva Vizcaya
  - Barobbob Watershed Occupants Association, Inc., Bayombong, Nueva Vizcaya
  - Kalahan Educational Foundation, Sta. Fe, Nueva Vizcaya
  - Ngan, Panansalan, Pagsabangan Forest Resource Development Cooperative, Compostela and New Bataan, Compostela Valley
- The Department of Environment and Natural Resources (DENR), particularly the Forest Management Bureau in Quezon City, DENR Region II and DENR Region XI
- Provincial Government Environment and Natural Resources Office (PGENRO) in Bayombong, Nueva Vizcaya
- Provincial Government of Nueva Vizcaya and its municipal units, namely, Bayombong, Dupax del Sur and Sta. Fe
- Environmental Governance (EcoGov Phase 2), Bayombong, Nueva Vizcaya
- FRENDS, Bayombong, Nueva Vizcaya
- International Development and Research Centre (IDRC) of Canada and the Ford Foundation for providing financial support
- University of the Philippines Baños Foundation, Inc. (UPLBFI)

Special thanks are also due to Dr. Doris Capistrano for her valuable technical inputs and prudent leadership during the initial stage of the research and to Dr. Thomas Enters for providing valuable comments as an external reviewer of this book.
### List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAC</td>
<td>Annual Allowable Cut</td>
</tr>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>AIP</td>
<td>Annual Investment Plan</td>
</tr>
<tr>
<td>BCAI</td>
<td>Banila Community-Based Association, Inc.</td>
</tr>
<tr>
<td>BCBC</td>
<td>Banila Community-Based Cooperative</td>
</tr>
<tr>
<td>BFD</td>
<td>Bureau of Forest Development</td>
</tr>
<tr>
<td>BWOA</td>
<td>Barobbob Watershed Occupants Association, Inc.</td>
</tr>
<tr>
<td>CADC</td>
<td>Certificate of Ancestral Domain Claim</td>
</tr>
<tr>
<td>CADT</td>
<td>Certificate of Ancestral Domain Title</td>
</tr>
<tr>
<td>CALC</td>
<td>Certificate of Ancestral Land Claim</td>
</tr>
<tr>
<td>CARP</td>
<td>Comprehensive Agrarian Reform Project</td>
</tr>
<tr>
<td>CBFM</td>
<td>Community-Based Forest Management</td>
</tr>
<tr>
<td>CBFMA</td>
<td>Community-based Forest Management Agreement</td>
</tr>
<tr>
<td>CBFMP</td>
<td>Community-Based Forest Management Program</td>
</tr>
<tr>
<td>CBTE</td>
<td>Community-Based Timber Enterprises</td>
</tr>
<tr>
<td>CCFS</td>
<td>Certificate of Community Forest Stewardship</td>
</tr>
<tr>
<td>CFNR</td>
<td>College of Forestry and Natural Resources</td>
</tr>
<tr>
<td>CFP</td>
<td>Community Forestry Program</td>
</tr>
<tr>
<td>CFSA</td>
<td>Community Forest Stewardship Agreement</td>
</tr>
<tr>
<td>CIFOR</td>
<td>Center for International Forestry Research</td>
</tr>
<tr>
<td>CRMF</td>
<td>Community Resource Management Framework</td>
</tr>
<tr>
<td>CSC</td>
<td>Certificate of Stewardship Contract</td>
</tr>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>CTF</td>
<td>Communal Tree Farming</td>
</tr>
<tr>
<td>dbh</td>
<td>Diameter at Breast Height</td>
</tr>
<tr>
<td>DEBAI</td>
<td>Dupax Ecosystem Builders Association, Inc.</td>
</tr>
<tr>
<td>DENR</td>
<td>Department of Environment and Natural Resources</td>
</tr>
<tr>
<td>EcoGov</td>
<td>Environmental Governance</td>
</tr>
<tr>
<td>EO</td>
<td>Executive Order</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
</tr>
<tr>
<td>FAR</td>
<td>Family Approach to Reforestation</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>FLMA</td>
<td>Forest Lease Management Agreement</td>
</tr>
<tr>
<td>FMB</td>
<td>Forest Management Bureau</td>
</tr>
<tr>
<td>FOM</td>
<td>Forest Occupancy Management</td>
</tr>
<tr>
<td>FYWP</td>
<td>Five-Year Work Plan</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographic Information System</td>
</tr>
<tr>
<td>GOLD</td>
<td>Governance for Local Democracy Program</td>
</tr>
<tr>
<td>IAOP</td>
<td>Integrated Area Operation Plan</td>
</tr>
<tr>
<td>ICRAF</td>
<td>World Agroforestry Center</td>
</tr>
<tr>
<td>IGM</td>
<td><em>Inspeccion General de Montes</em></td>
</tr>
<tr>
<td>IP</td>
<td>Indigenous People</td>
</tr>
<tr>
<td>Acronym</td>
<td>Full Form</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>IPR</td>
<td>Individual Property Rights</td>
</tr>
<tr>
<td>IPRA</td>
<td>Indigenous People’s Rights Act</td>
</tr>
<tr>
<td>IRA</td>
<td>Internal Revenue Allotment</td>
</tr>
<tr>
<td>ISFP</td>
<td>Integrated Social Forestry Program</td>
</tr>
<tr>
<td>ITTO</td>
<td>International Tropical Timber Organization</td>
</tr>
<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
</tr>
<tr>
<td>KEF</td>
<td>Kalahan Educational Foundation</td>
</tr>
<tr>
<td>LGC</td>
<td>Local Government Code</td>
</tr>
<tr>
<td>LGU</td>
<td>Local Government Unit</td>
</tr>
<tr>
<td>LIFE</td>
<td>livelihood, income, forest condition, and equity</td>
</tr>
<tr>
<td>MIS</td>
<td>Management Information System</td>
</tr>
<tr>
<td>MOA</td>
<td>Memorandum of Agreement</td>
</tr>
<tr>
<td>NAWASA</td>
<td>National Water and Sewerage Administration</td>
</tr>
<tr>
<td>NCIP</td>
<td>National Commission on Indigenous People</td>
</tr>
<tr>
<td>NFP</td>
<td>National Forestation Program</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-government Organization</td>
</tr>
<tr>
<td>NIPAS</td>
<td>National Integrated Protected Areas System</td>
</tr>
<tr>
<td>NPPFRDC</td>
<td>Ngan, Panansalan, Pagsabangan Forest Resources Development Cooperative</td>
</tr>
<tr>
<td>NTFP</td>
<td>Non-Timber Forest Product</td>
</tr>
<tr>
<td>NVAT</td>
<td>Nueva Vizcaya Agricultural Terminal</td>
</tr>
<tr>
<td>PAG</td>
<td>Policy Advisory Group</td>
</tr>
<tr>
<td>PD</td>
<td>Presidential Decree</td>
</tr>
<tr>
<td>PES</td>
<td>Payment for Environmental Services</td>
</tr>
<tr>
<td>PGENDRO</td>
<td>Provincial Government Environment and Natural Resources Office</td>
</tr>
<tr>
<td>PhP</td>
<td>Philippine peso</td>
</tr>
<tr>
<td>PLA</td>
<td>Pasture Lease Agreement</td>
</tr>
<tr>
<td>PLMP</td>
<td>Pasture Lease Management Plan</td>
</tr>
<tr>
<td>PO</td>
<td>People’s Organization</td>
</tr>
<tr>
<td>PSTFAD</td>
<td>Provincial Special Task Forces on Ancestral Domains</td>
</tr>
<tr>
<td>RA</td>
<td>Republic Act</td>
</tr>
<tr>
<td>RECOFTC</td>
<td>Regional Community Forestry Training Center for Asia and the Pacific</td>
</tr>
<tr>
<td>RRI</td>
<td>Rights and Resources Initiatives</td>
</tr>
<tr>
<td>RUP</td>
<td>Resource Use Permit</td>
</tr>
<tr>
<td>RUPEES</td>
<td>Rewarding Upland Poor for Environmental Services</td>
</tr>
<tr>
<td>SEC</td>
<td>Securities and Exchange Commission</td>
</tr>
<tr>
<td>SSS</td>
<td>Social Security System</td>
</tr>
<tr>
<td>TLA</td>
<td>Timber License Agreements</td>
</tr>
<tr>
<td>UPLB</td>
<td>University of the Philippines Los Baños</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>VALMA</td>
<td>Valderrama Lumber Manufacturers Company, Inc.</td>
</tr>
</tbody>
</table>
List of Tables

| Table 1 | General description of the case study sites. | 13 |
| Table 2 | Nature and holders of bundles of rights prior to the issuance of tenure instruments. | 32 |
| Table 3 | Shift in the bundle of rights resulting from the issuance of tenure instruments. | 34 |
| Table 4 | POs’ assessment of the impact of tenure on forest and non-forest-based livelihood (through FGDs). | 40 |
| Table 5 | POs’ assessment of the impact of tenure on income (through FGDs). | 45 |
| Table 6 | POs’ assessment of the impact of tenure on forest condition (through FGDs). | 46 |
| Table 7 | POs’ assessment of the impact of tenure on forest equity (through FGDs). | 57 |
| Table 8 | Summary of the POs’ assessment of the impacts of tenure on the LIFE indicators in the four study areas (through FGDs). | 62 |
### List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Classic property rights system.</td>
<td>9</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Framework of analysis.</td>
<td>11</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Location of the four case study areas.</td>
<td>12</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Key policies, programs and events influencing tenure reform and trends in forest cover, TLA, and CBFM coverage (1969-2005).</td>
<td>27</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Effects of national RUP suspensions on NPPFRDC’s income from timber harvesting (1997-2007).</td>
<td>43</td>
</tr>
<tr>
<td>Figure 6</td>
<td>Land use map of NPPFRDC, Compostela Valley in two observation periods (1993 and 2001).</td>
<td>51</td>
</tr>
<tr>
<td>Figure 7</td>
<td>Land use map of Banila watershed in three observation periods (1979, 1989 and 2002).</td>
<td>52</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Land use map of Barobbob watershed in three observation periods (1979, 1989 and 2002).</td>
<td>53</td>
</tr>
<tr>
<td>Figure 9</td>
<td>Land use map of the KEF Forest Reserve in two observation periods (1979 and 2002).</td>
<td>54</td>
</tr>
<tr>
<td>Figure 10</td>
<td>RUP Application process and corresponding transaction cost based on 2006-2007 NPPFRDC experience.</td>
<td>66</td>
</tr>
</tbody>
</table>