

Stakeholders' Perspective on Forest Management: A Case Study of the Philippines¹

Herman Hidayat and Juan M. Pulhin

Abstrak

Pembalakan hutan di Filipina telah berlangsung selama 40 tahun belakangan ini. Ada dua faktor pembalakan hutan ini. Pertama adalah faktor politik yang memerlakukan hutan sebagai komoditi dan keuntungan politik. Kedua adalah konversi hutan produksi menjadi lahan pertanian, seperti perkebunan sawit, tebu, dan sayur mayur. Di berbagai negara berkembang, seperti di Filipina, lahan hutan menjadi semakin sempit, akibat peningkatan populasi, pemukiman transmigran, khususnya peralihan lahan (*kaingin*) di perbukitan. Dampak pembalakan hutan ini dikritik oleh organisasi non-pemerintah dan akademisi, sebab aktifitas ini dapat menyebabkan bencana banjir, erosi tanah dan tanah longsor. Kerangka teoritis untuk menganalisa isu pembalakan hutan dan program pemulihannya (kebijakan pembalakan hutan, rehabilitasi hutan dan konsesi penebangan) menggunakan ekologi politik yang menggarisbawahi peran para pemangku kebijakan (*stakeholders*).

Hasil penelitian menunjukkan aktifitas pembalakan hutan ini berdampak buruk. Para pengambil keputusan dan pemangku kebijakan yang berasal dari donor internasional mendukung upaya untuk merehabilitasi hutan, mengembalikan lahan hutan, dan reboisasi dengan memberikan konsesi penebangan pada pihak swasta (IFMA/ITPLA), sektor kerjasama, dan individual (SIFMA). Tujuan kebijakan ini adalah untuk meningkatkan produksi hutan dan menjaga area konservasi. Umumnya, organisasi non-pemerintah, petani lokal, dan akademisi merespon baik dan melibatkan diri dalam program ini, sebab aktifitas ini berdampak positif bagi pemulihan kawasan hutan di masa depan.

Kata kunci: pembalakan hutan, rehabilitasi hutan, reboisasi, konsesi penebangan (IFMA dan SIFMA), Forest Management Bureau (FMB), pemangku kebijakan

Introduction

The *Forest Management Bureau* (FMB), a section under DERN (*Department of Environmental and Natural Resources*), is responsible for the management and monitoring of forest management in The Philippines. FMB issues plantation

¹ The paper has been slightly revised from original paper entitled "Review on Forest Policy in Philippines" in Herman Hidayat. 2011. *In Search of Sustainable Plantation Forestry, Pulp and Paper in ASEAN: Political Ecology Analyses on Stakeholders*. Kyoto Working Papers on Area Studies No. 114 (G-COE Series 112), CSEAS-Kyoto University.

concessions for production forestry to the private sector under Industrial Forest Management Agreement (*IFMA*), cooperatives and individuals Socialized Industrial Forest Management Agreement (*SIFMA*) schemes. Besides, forest rehabilitation and reforestation programs in protected and conservation forests are under their authorities. The 1990 Master Plan for Forestry Development estimated previous forest loss based on available information (DENR 1990) between 1934 and 1990 to an amount of 10.9 million hectares of forest cover for the entire country, equaling an average annual loss of 194,000 hectares (Table 1) (Unna Chokkalingam *et al.* 2006: 11-12). Of this area, 10.37 million hectares (95 percent) was converted to other uses, while 0.52 million hectares was damaged from logging. From 1934 onwards, the loss rate increased dramatically until it reached 300,000 hectares per year over the decade 1965-1975. Therefore, the rate of loss of forest cover gradually declined to 100,000 hectares annually from 1985-1990.

Table 1. Forest Cover Loss (in 1,000 ha) from 1955-1990

Description	1955-1965	1965-1975	1975-1985	1985-1990	Average annual loss
Starting cover	13,900	11,600	8,600	6,600	
Less losses due to:					
*Conversion	2,200	2,835	1,880	460	185
**Logging damage	100	165	120	40	9
Total losses	2,300	3,000	2,000	500	194
Final cover	11,600	8,600	6,600	6,100	

Source: Based on secondary data interpretation by *the 1990 Master Plan for Forestry Development*; Cf: Unna Chokkalingam *et al.*, 2006: 12.

* Total forest covers loss.

**Damage out of 5.3 million ha logged.

The Philippines forests have degenerated over the years due to massive logging and conversion to agricultural land, including shifting cultivation. This is mostly due to population growth, therefore, it causes the increasing need for more agricultural land.² This has reduced forest cover from about 21 million hectares (70 percent of the total land area) at the end of the 19th century (Garrity *et al.* 1993; Liu *et al.* 1993), to around 7.2 million hectares or about 23.9 percent of the total land area (FMB, 2004) (Figure 1).³ Of the remaining forest

2 The Philippines population was estimated at 88,574,614 million in 2007 (*National Statistics 2007*), rapidly reaching 97,976,603 million in 2009 (*Wikipedia*). Rural communities still also carry out 'shifting cultivation' (*Kaingin*) in state forest land in the upper regions, which also affect soil erosion, causing flooding.

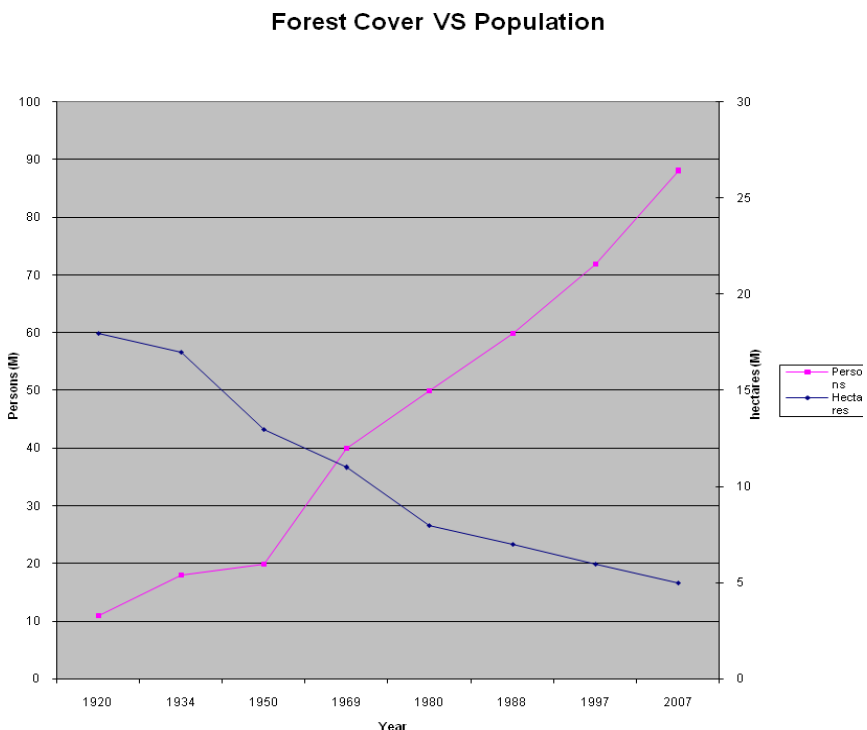
3 Forest cover in the Philippines rapidly declined annually from 7.2 million ha in 2004 to 5.5 million ha in 2008, reaching the highest deforestation rate (2.8 percent) of the ASEAN region. This data is based on several discussions with informants in the Philippines on July 31-August 9, 2009.

cover, less than one million hectares can be considered primary forest (FMB, 2007). The remainder has been logged at least once or has suffered degradation through other activities (Pulhin *et al.* 2007: 866).

Based on FAO data (2006), the Philippines had the highest deforestation rate in all of South and Southeast Asia during the 1990s, recorded annually at about 2.8 percent. In comparison, Indonesia and Thailand recorded annual rates of 1.7 and 0.7 percent, respectively. In Vietnam, the forest area expanded by 2.3 percent annually. Between 2000 and 2005, the deforestation rate declined only marginally. Vietnam has certainly benefitted from massive investments in reforestation, while China and Thailand, like the Philippines, have very few forest areas left. The nationwide logging ban imposed in 1989 has curtailed uncontrolled forest conversion to some extent.

In the case of the Philippines, the main causes of deforestation have been attributed to broader structural forces such as political patronage by political elites, poverty, inequitable access to forest resources, and corruption in the forestry sector (Porter and Ganapin 1988; Kummer 1992; Broad and Cavanagh 1993; Vitug 1993).

Figure 1. The Philippines: forest covers development and population growth through the years.



Source: modified data from Cf PCARRD, 2008, pp. 1.

The paper discusses decision makers in the Philippines over the last two decades and their efforts to reverse the downward trend of forest degradation and to address the mounting socio-economic and environmental problems in the Philippine uplands. The paper focuses on land tenure and resource use in the Philippines, also reviewing the two programs launched by the government to revitalize forest resources management: an affirmative program for *rehabilitation* of degraded forest lands and critical land covers with brush or grass and the *reforestation* of state forests in the upper regions, actively engaging local communities through CBFM (*Community-Based Forest Management*) in the 1980s. The CBFM program is well known throughout ASEAN countries as 'community forestry'. On the other hand, two programs for timber concessions have been introduced: *IFMA* concessions (*Industrial Forest Management Agreement*), which actively invites the private sector to conduct logging, and *SIFMA* concessions (*Socialized Industrial Forest management Agreement*) for cooperatives, people organizations (PO) and individuals in state forests. The aim of these programs was to provide 'timber' as a raw material for forestry industries such as plywood, sawn mill, pulp and paper, furniture and construction for real estate and housing.

Methodology and Study Sites

The theoretical framework to discuss the development of plantation forestry in the Philippines is that of *political ecology*, with emphasis on the role of *stakeholders* (central and local government officers, private companies officers, academics and NGOs and local farmers) to understand the complex interrelation between local people, national and global political economies and ecosystems (Blaike and Brookfield 1987). It is widely accepted that debates concerning political ecology refer to the political and economic condition surrounding the causes, experiences and management of environmental problems (e.g. Bryant 1992; Blaikie and Brookfield 1987; Tim Forsyth 2003; Greenberg and Park 1994). A variety of authors over the years have revealed different approaches to the meaning of ecology in political ecology (Tim Forsyth 2003:2-4). Some authors have approached political ecology by explaining environmental problems as the phenomenological interaction of biophysical process, human needs and wider political systems. Blaikie and Brookfield wrote:

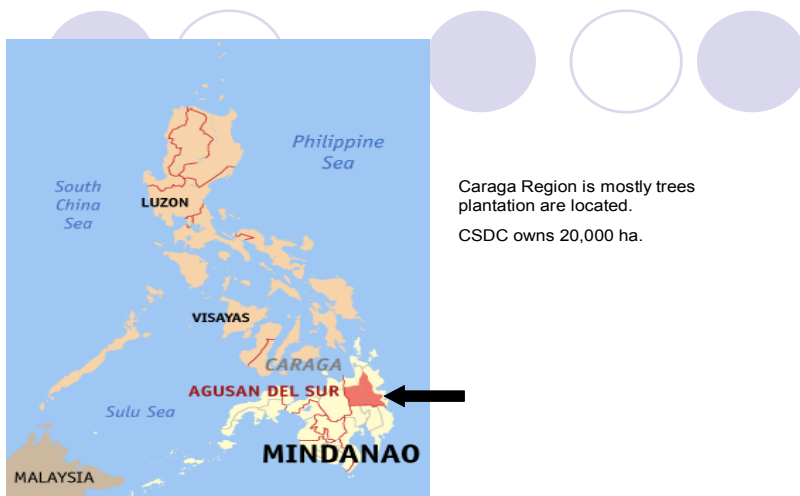
'The phrase "political ecology" combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself (Blaikie & Brookfield 1987: 17). Hence, the use of political ecology refers to general terms of the politics of environmental problems without specific discussion of ecology. Bryant (1992: 13), for example, describes political ecology as an inquiry into

‘the political forces, conditions and ramifications of environmental changes,’ and it may include studies of environmental impacts from different sources; location-specific aspects of ecological changes; and the effects of environmental change on socio-economic and political relationships.

From above description, ‘political ecology’ is a *framework of approach* to the subject of ‘forest management’ for the field research connecting two types of studies by bringing the point of view of politics into the study of environmental disruption. It includes a small-scaled study focusing on local farmers (e.g., *cultural anthropology, applied anthropology*) and a large-scale study of the government and private companies (Pulp and Paper Companies) at national, regional and international levels (e.g., *political economy*). After reviewing existing studies, we decided to adopt a framework focusing on the movements and logic of *stakeholders (actor analysis)* and the role of the government, private companies, academics, NGOs and local farmers in the process.

Interview with stakeholders such as government officer and academics were carried out in Manila and Philippines University (UP-Los Banos), Laguna in July and August 2009. Meanwhile the field study sites were located in Caraga region, San Jose St, Butuan City; Talagon-Agusan Del Sur (Fig.2). It took one hour by airplane from Manila to Butuan City. It was necessary to conduct the field work to observe plantation forestry area and in-depth interview with local farmers, local government and private company (CSDC:*Casilayan Softwood Development Corp*) for data gathering.

Figure 2. Caraga Region is mostly trees plantation are located



Source: Google (Map), 2009.

Land Tenure and Resource Use

It is known that land ownership in the Philippines before the Spanish colonization was generally communal. Forests were accessible to anybody-whoever cleared and cultivated a piece of land first would own that portion. However, under the colonial rule of Spain, this was changed and the ownership was transferred to the government.⁴ The state forests were then owned by the national government after the independence on 4 July 1946, followed by a radical change in land ownership during the Fidel Ramos regime in 1995, when the government recognized and issued thousands of hectares of 'customary rights forest land' for indigenous tribes. This policy encouraged the 'participation' of indigenous people (tribes) who commonly held customary forests in national economic development.⁵ The government also legitimized the rights for allocating, classifying, regulating and managing forests and timberlands, reinforcing massive timber exploitation by the private sector and local communities, through the conversion of lowland forests to pasturelands, agro-forestry and mining. The increasing forest exploitation, therefore, marked the post-war period (Borlagdan *et al.* 2001).

To meet the demand of tropical timber, particularly in Japan, Europe and the United States, large-scale logging concessions were given to private sector companies (Boado 1988). As consequences, logging grew very profitable and generated even greater revenues for the government (Borlagdan *et al.* 2001). The era of President Ferdinand Marcos was recognized as the zenith of logging. Marcos used TLAs (*Timber License Agreement*) to strengthen his political network, dispensing them as rewards to loyal cronies. By using his political patronage, the number of TLAs soared to as many as 400 during his regime (Vitug 2000; Inoue M & Isozaki 2003), leading to the highest *deforestation* rate ever, amounting to as much as 300,000 hectares per year (Pulhin 1996). From 1971 to 1977, TLAs controlled one-third of the country's total land area of 30 million hectares. However, by the late 1980s, TLA areas declined to the present 1.035 million hectares (FMB 1998).

The impacts of *deforestation* eventually grew too great to ignore, following the environmental degradation that caused flooding, soil erosion, landslides, and more, a great loss of agricultural production. Finally, a major milestone in the evolution of people-oriented forestry in the Philippines occurred in 1995 with the enactment of Executive Order No. 263, adopting community-based forest management as a national strategy for sustainable forestry and social equity. It unified and integrated the earlier community-oriented forestry program and projects, and it provided a comprehensive mechanism for their

4 For better understanding of land tenure under the Spanish until Philippine independence, see Juan M. Pulhin and Perlyn M. Pulhin, "Community-Based Forest Management in the Philippines: Retrospect and Prospects", in Inoue, M and Isozaki, H (ed.). *People and Forest-Policy and Local reality in Southeast Asia, the Russian Far East, and Japan*. Kluwer Academic Publisher 2003. pp. 140-145.

5 Interview with informant in University of Philippines, College of Forestry, August 2, 2009.

implementation, thereby institutionalizing CBFM in the country (Pulhin 1997).

Rehabilitation projects have been carried out under the CBFM scheme include stakeholders such as DERN, NGOs, communities, private companies, etc. The CBFM program in the Philippines is considered progressive because of its land tenure and resource use rights features (Utting 2000; Pulhin 2007: 876). The issuance of various tenure instruments under CBFM promotes a "win-win" strategy for both the government and local communities, by granting land tenure terminates the open access nature of forestlands, while devolving the responsibilities of management and protection to the local communities at minimal costs.

A closer analysis of the situation on the ground shows that the potential "win-win" outcome is often not being realized. Local communities continue to experience a strong sense of insecurity over their CBFM areas despite the issuance of rights. This is because of frequent government policy changes regarding timber utilization, when more than 1,000 CBFM agreements were cancelled nationwide by the former DERN Secretary because of irregularities in some areas (Miyakawa *et al.* 2006; Pulhin 2006). Moreover, the associated bundles of rights have never been realized in most areas as a result of unstable policies exacerbated by excessive and tedious bureaucracy associated with timber utilization. Instead of providing rights to local people, different land tenure instruments such as CBFMs, have enhanced government control by limiting the devolution of responsibilities towards forest development and protection to local communities. The authority and rights to resources that local communities manage are often undermined, left unclear or even broken, which can leave people worse off instead of better off (Pulhin: 2006).

Political Factors and Funding Availability

In the 1970s, the political landscape in the Philippines changed from forest extraction to a more friendly rehabilitation program. Major changes in political leadership affected both public and private efforts. Plantings usually peaked when new government administrations were implementing major forestry programs (Unna Chokkalingam *et al.* 2006: 23). For example, the declaration of Martial Law in 1972 was followed by the issuance of the Revised Forestry Code of the Philippines (*PD/Presidential Decree 705*) in 1975. This decree required nationwide 'reforestation' activities with private sector participation. P.D. 705 defined forest lands to be reforested as those with barren, grass or shrub cover, denuded areas within forest concessions, reserves and reservations, critical watersheds, national parks and other protected areas, areas covered by pasture leases needing immediate reforestation and miscellaneous areas such as river banks and roadways.

1. Forest Rehabilitation

The history of national rehabilitation initiatives is divided into three periods: (1) the colonial period (1910-1945), (2) post-war, government initiated projects (1946-mid 1970s), and (3) multi-sectoral efforts (mid 1970s-present). By the end of the 1970s, the private sector, government agencies other than the Bureau of Forestry, local government units and citizens were actively involved in forest 'rehabilitation' efforts as a result of government proclamations issued since 1975. Generally, rehabilitation programs were the planting of local trees species in critical lands of watersheds, protected forests and conservation forests. The purpose of this program was to conserve water and prevent soil erosion and flooding from upstream to the lowlands. A total of 64,541 hectares of trees were planted in 1981 - 33,834 hectares or 52.42 percent was planted by groups besides the Forestry Bureau. Between 1973 and 1979 three 'people oriented forestry' programs were implemented, namely the *Family Approach to Reforestation* (FAR) Program, *Forest Occupancy Management* (FOM) Program, and the *Communal Tree Farming* (CFP) Program. In 1982, a major program known as *Integrated Social Forestry Program* (ISFP) was established through the issuance of *Presidential Letter of Instruction* 1260 (Pulhin 2007: 808) and the *Community Forestry Program* in 1987. ISFP consolidated the three earlier programs, while recognizing the vested interests of the forest occupants through the provision of a 25-year tenure security. This tenure security enabled the upland farmers to farm their land and enjoy the benefits of their labor without fear of being ejected from the government-owned forestlands.

Many of the projects were funded by foreign donors such as the *Ford Foundation*, the *World Bank*, United States Agency for International Development (*USAID*), Asian Development Bank (*ADB*), Japanese Bank for International Cooperation (*JBIC*) and the German Technical Cooperation (*GTZ*), and executed by or in collaboration with *DERN*. These projects tended to be small-scale *agro forestry* and *social forestry* projects targeted at meeting the livelihood needs of farmers and communities and addressing environmental degradation in the uplands.

After the end of the Marcos regime in 1986 and the establishment of the new government of Qory Aquino, the Philippines regained its credibility with international funding institutions, enabling it to access huge financial assistance to conduct forest rehabilitation initiatives (Korten 1994). The major initiatives included the *Forestry Sector Projects* (FSP) I and II established in 1987 and 1995 respectively under the *National Forestation Program* (NFP). The NFP aimed to rehabilitate 1.4 million hectares nationwide from 1987 to 2000, or an average of 100,000 hectares per year (Magno 1994). The long term target was to reforest 6.5 million hectares of denuded lands, including 1.4 million hectares of critical watersheds needing immediate rehabilitation (Umali 1989).

The *FSP I* method replaced traditional government-implemented reforestation with 'contract reforestation' involving families, local communities, NGOs, LGUs (*Local Government Unit*) and the private sector. Under the contract reforestation scheme, contractors were paid a fee for reforesting and maintaining a particular area for three years with an expected survival rate of more than 80 percent and an average height of 0.8 m. After the contract period, the area was to be returned to DERN. *FSP I* was funded by a USD 120 million *Asian Development Bank (ADB)* loan with USD 120 million counterpart funding from the *Overseas Economic Cooperation Fund (OECF)* of Japan and USD 43 million from the *Government of the Philippines (GOP)*. *FSP II* was implemented through *Community-Based Forest Management (CBFM)*. Under the scheme, communities were contracted to reforest and then were given tenure over the areas they developed. E.O. 263 (*Executive Order*) in 1995 adopted CBFM as the national strategy for sustainable forest management and social justice. Actually the CBFM program unified all government people-oriented programs and projects, including those implemented in the early 1980s, entrusting local communities with the responsibility for forest rehabilitation, protection and conservation, with the promise of equitable access to forest benefits. *FSP II* was funded by a USD 39.7 million ADB loan, USD55 million JBIC loan and USD 44.57 million GOP counterparts funding. Estimated costs of 20,410.06 pesos for establishing, protecting and maintaining a one-hectare plantation over three years were revised to 43,146 pesos per hectare under the Loan II component funded by *JBIC*. The most recent data from the FMB indicates that from 1987 to 2001, a total of 4,927 million pesos (USD 98.54 million)⁶ was spent under the comprehensive site development component of the *FSP* with 299,000 hectares of trees planted.

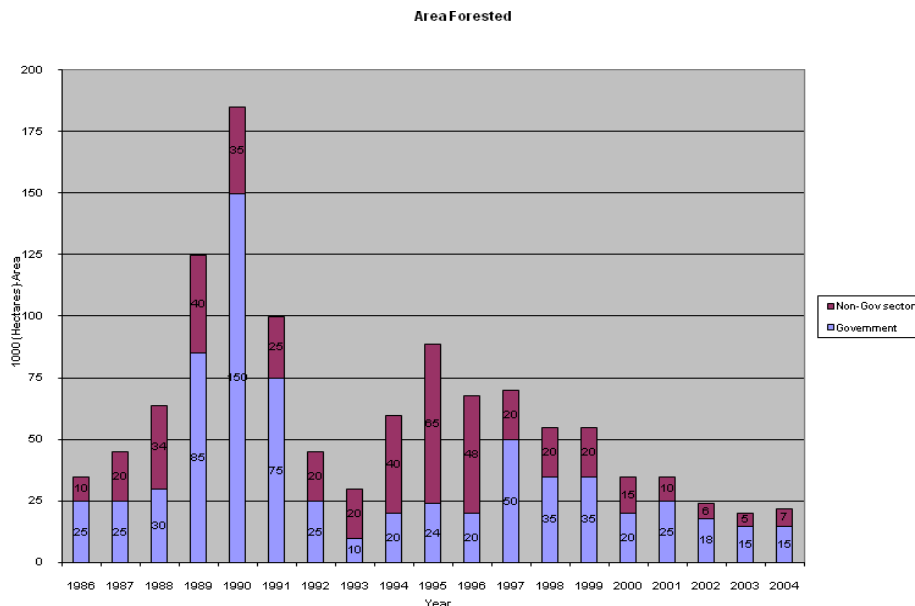
2. Reforestation

Reforestation programs were usually carried out in upper lands and previous production forests belonging to logging concession holders which predominantly occupied critical lands. FMB officers cooperated with local farmers in conducting *reforestation* programs in state forests. The *reforestation* scheme eventually became a win-win solution for both parties: the local farmers could improve their 'income generation' by planting, maintaining and harvesting trees, while the government could ensure that critical lands in the uplands and former previous logging concessions could recover with proper management. Reforestation efforts in the Philippines reached its peak in the 2000s, where a total of 191,663 hectares of land were reforested (Figure 3). The government played a major role in planting 80% of the area and the remaining 20% was replanted by the non-government sector. In 2004, total

6 This excludes the costs of community organizing which is a separate contract under CBFM normally granted to NGOs or assisting professionals to provide technical and social assistance before a comprehensive site development contract is awarded.

reforestation efforts reached 15,088 hectares with 61% of the area-planted by the government and the rest by the non-government sector.⁷ The gap in attaining the average rate of established plantations is a strong reason for further reforestation efforts and the establishment of new plantations.

Figure 3. Area Forested by Government and non-government sector, 1986-2004.



Source: (modified from PCARRD, 2008, pp. 7).

Plantations established under the CBFM program are mainly dominated (80%) by local species such as *Swietenia Macrophylla* (*Mahogany*), *Acacia Mangium*, *Eucalyptus*, *A.auriculiformis*, and *Gmelina Arborea*. Agroforestry was also important, while assisted natural regeneration and enrichment planting played a smaller role. The main objectives were to re-green barren lands, produce timber, enhance watershed services and address upland poverty. The total area reported as planted from 1975-2002 was 1,597,472 hectares, with the bulk (920,962 ha) planted by DERN; 100,485 hectares by LGUs (*Local Government Unit*) and OGAs (*Other Government Agencies*); 410,112 hectares by timber license holders; 93,520 hectares by other private enterprises and leaseholders; and 72,393 hectares by private citizens and civic organizations. FSP I and II contributed to around one-third of the DERN reforestation in this period (Unna Chokkalingam *et al.* 2006: 21).

⁷ For further information about 'reforestation patterns' see The Philippines Recommends for *Reforestation, Tree Farming, and Plantation Development*, PCARRD Philippines Recommends Series No.94. It was published by Department of Science and Technology (DOST), Los Banos, Laguna, 2008, pp. 7.

By the mid 1990s, advocates of CBFM from the government development agencies recognized the need to institutionalize the different people-oriented forestry programs and projects under the one umbrella to ensure their continuity and enhance effectiveness, reach and impact. To effect this institutionalization, President Fidel Ramos issued on 29 July 1995, *Executive Order* (EO) No. 263 "Adopting Community-Based Forest Management as the National Strategy to ensure the Sustainable Development of the Country's Forestland Resources and Providing Mechanism for its Implementation". Section 3 of the order stipulates that local communities can obtain long-term tenurial rights to forestland "provided they employ environmentally-friendly, ecologically-sustainable and labor-intensive harvesting methods. Indigenous people also known as *Indigenous Cultural Communities* (ICCs) could also participate in the implementation of CBFM activities in recognition of their rights to their ancestral domains and land rights and claims (Section 4).

In 2004, President Gloria Arroyo issued Executive Order (E.O) No. 318 entitled: "Promoting Sustainable Forest Management in the Philippines", reiterating the government's confidence in CBFM as a means of achieving sustainable forest management. In the same year, DERN Secretary, Elisea Guzon, issued DERN administrative Order No. 29. The order replaced the 1996 rules and regulations for implementing the CBFM strategy and provides more flexibility to participating communities by reducing some bureaucratic requirements. The CBFM program in the Philippines is considered progressive because of its land tenure and resource use rights features (Utting 2000). In theory, the issuance of various tenure instruments under CBFM promotes a "win-win" strategy for both the government and local communities. Granting tenure to communities terminates the open access nature of forestlands. At the same time, it devolves the responsibilities of management and protection to the local communities at minimal costs (Pulhin 2007: 876).

As mentioned by an informant, the "community forestry" program highlights local farmers as the main actors in reforestation by planting local tree species, with the government, represented by FMB, acting as facilitator of fund rising as well as guarantor for seeds and fertilizer, monitoring and evaluation of the programs. The Philippines, India and Nepal provide excellent models of "community forestry" that actively engage their local farmers and cooperate with other stakeholders (*government, academics, NGOs, domestic and foreign funders*).⁸

The program shows a great support for planting trees. However, farmers face many difficulties in realizing the cutting and transporting trees, because of the long bureaucratic process from local to central areas and the high cost of transportation. It is often complained by small-scale farmers that if there is no 'timber certificate' issued by the FMB officer in Manila, the truck transporting

8 Interview with informant in UP, Los Banos, August 2, 2009.

the timber products will be stopped by the police.⁹ The bureaucratic system for obtaining a 'timber certificate' must be simplified or included into the initial MOU of the reforestation program or every regional DERN office be given the authority to issue the cutting permits.

In summary, from the late 1970s to 2000, a total of US\$ 570 million for forest rehabilitation was invested through both large and small projects, and many different actors were involved. The major funding came from public investment, including foreign loans (93%). Foreign grants and private investment made the remainder. DERN records a total of 5,503 registered CBFM communities or POs (Peoples Organization) from 1975 to the present and around 2,200 registered private initiatives (TLAs, TFs, ITPs, IFMA, and SIFMAs) (Unna Chokkalingam *et al.* 2006: 21).

The Role of the Government in Plantation Development

The Philippines government established a good 'tree plantation' climate for investors. The government gives economic incentives, tax breaks, easy bureaucracy (permissions), and access to limited banking¹⁰ to develop tree plantations and wood processing mills (sawn timber, plywood, veneer, pulp and paper, etc.). There are many schemes available for tree plantation investment, for instance, *IFMA/ITPLA*¹¹ for the private sector and *SIFMA* for the cooperative sector, people's organizations (*PO*), and individuals. The response of the private sector and other stakeholders towards these government facilities are very positive. However, the policy for obtaining banking credit must be approved in the field,¹². Therefore, to realize the efficient establishment of tree plantations, *DERN* cooperates with the private sector who have the technical capacity to provide and develop quality seeds. The local DERN, in Eastern Mindanao, covering Regions 10, 11, and 13 only

9 Interview with E.L. Tolentino, JR on July 31, 2009. He is Associate Professor of Silviculture & Resources Rehabilitation Division, Institute of Renewable Natural Resources, College of Forestry & Natural Resources, and University of Philippines (UP) Los Banos.

10 Actually 'tree plantation' investment is costly, because of the long return on capital and high risk. As a consequence, limited banks provide 'credit' facilities to develop this sector. However, as the forestry sector is a significant contributor to national PDB (*Product Domestic Bruto*) and creates jobs, two national banks (*Land Bank of Philippines and Development Bank of Philippines*) provide access to credit for investors. This policy was launched in the early 2000s and is still relatively new, so the numbers of private sector companies that have received credit from both state banks are still limited. The interview was carried out with FMB Officers in Manila, on August 3, 2009.

11 The government under DERN authority gives tree plantation concession for 25 years to the private sector under the scheme of IFMA or ITPLA (Industrial Tree Planting Lease Agreement) and this can be extended based on their performance. The area of IFMA reaches more than 5,000 ha. Meanwhile, the area of SIFMA is less than 5,000 ha. (Since the early 2000s, ITPLA was changed to become IFMA).

12 The policy of banking and its facilities to provide 'credit' for plantation forestry' is new and positive. Until 2006, the private sector in the forestry sector, whether in tree plantations or wood processing, found it very difficult to obtain 'credit' from government bank, but it was easier to access private banks, with higher interest rates. Therefore, CSDC Company always obtains 'credit' from private bank facilities for expanding plantation forestry and wood processing mill (Interview on August 6, 2009 with CSDC officer).

has about 30 to 50 thousand hectares of forest land licensed for tree plantation development, while eastern Mindanao has been producing 60% to 70% of the national timber requirements and has developed a seedling research center (DERN, 2008: 6-7).¹³ For example, DERN Caraga Region Officer developed quality seeds of 1,200 plant species of *P. falcataria* with a local farmer (Mr. Ulip Sugano) who owned 1 hectare of land in 2001 (Fig.4). The *MOU (Memorandum of Understanding)* states that DERN is obliged to share technical assistance, advice, to provide quality seedlings and consider mother trees (for obtaining new seeds to be planted) as the benefits. The local farmer received benefits from good maintenance, free seedlings, counseling and guidance, and harvesting the trees. Harvesting will occur in 2010 (9 years after planting), when the diameter of the trees has reached 35-45 cm. About 616 trees are still in good condition from a total of 1,200 previously planted *Falcataria* trees. Under the MOU, the local farmer will leave 10 percent of 616 trees to become mother trees, with a diameter of more than 50-60 cm at cutting time after 15 years (2015) (interview on August 7, 2009).

The response from the local farmers was positive. The MOU with DERN, in terms of free seeds, fertilizers and advice in initial planting and maintenance was significant to them.¹⁴ Farmers with privately owned land and customary forest rights in rural areas also appreciate the MOUs. They say that the MOU with DERN and a company with a guaranteed market encourages local farmers to be actively involved in timber plantations, for the following three reasons: firstly, as a long-term investment, as the price of one cubic meter of wood (such as *Acacia* and *Gmelina*) is considered very stable at about 1,000 pesos. Farmers can produce about 15-18 cubic meters with 30-35 cm diameter timber on 1 hectare of land; secondly, timber plantations, especially during planting and harvesting times, create jobs and improve 'income generation' for local farmers in rural areas; thirdly, the social and health impact is significant. For instance, local farmers can then afford to send their children to high schools and colleges, creating better future for their children.

13 DERN Officer in Caraga Region 10 with a budget of 4 million Peso annually in 2008 developed 100,000 different seeds (such as *Falcate*, *Mahogany*, *E. deglupta*, *A. mangium*, *S. macrophylla*, *G. arborea*, etc.), and distributed almost 80% of quality seedlings for local communities, people's organizations, boy scout movements, etc., who would like to plant on their land. This interview with DERN Officer, Caraga Region was carried out in Butuan City, on August 7, 2009.

14 Interview with local farmer in Butuan city and San Luis town, August 6 and 7, 2009.

Figure 4. Eucalyptus Trees around 9-10 years old on a farmer's land in Butuan City.



Source: individual photo document, August, 2009.

The DERN regional units in Eastern Mindanao set a goal to move away from sourcing timber from remaining natural forests by working towards the development of one million hectares of more productive tree farms and plantations in Eastern Mindanao by 2030 (to date, the Philippines need to reforest 8.8 million hectares of classified forest land).¹⁵ Table 2 presents the current and projected tree planting rates in order to achieve the goal of establishing 1 million hectares of tree plantations, while Table 3 presents the estimated amount of seeds required to meet the annual tree planting targets for the region. The estimated volume of required seeds only represents the requirements for commercial tree plantation establishment intended for timber production. Therefore, to achieve these trees planting rates will require a lot of inputs and investments which neither one public sector organization nor a few timber companies can accomplish separately. This is a real opportunity for small-medium size businesses.

¹⁵ For a better understanding of the policy on tree plantations of DERN in Eastern Mindanao, see 'Small-Medium Business Opportunities on Seed Production, Collection and Trade for the Tree Plantation Programs in Eastern Mindanao, published by DERN, AUSAID, and CSIRO, 2008.

The planting rate for 2009-2010 is based on current DERN targets set for the three regional offices. To meet the tree planting targets of this period alone will require about 1.5 tons of seeds of the five identified priority species (*A. mangium*, *P. falcataria*, *E. deglupta*, *S. macrophylla*, *G. arborea*) being planted in the area every year.

Table 2. Current and projected tree plantation establishment rates to achieve one million hectares of tree plantations for Eastern Mindanao by 2030

Tree Planting Target (in '000ha)							
Species	09	010	011-015	016-020	021-025	026-030	Total
<i>A. mangium</i>	9	9	70	75	45	25	233
<i>P. falcataria</i>	27	27	70	75	45	25	269
<i>E. deglupta</i>	16	16	70	75	60	25	262
<i>S. macrophylla</i>	9	9	25	45	50	30	168
<i>G. arborea</i>	3	3	40	50	50	10	156
Other species	2	2	35	50	50	15	154
Total	66	66	310	370	300	130	

Source: DERN Eastern Mindanao, September 2008.

Table 3. Estimated required amount of improved seeds to meet the target annual tree plantation establishment rates in Eastern Mindanao from 2009-2030.

Seed Requirement (kg)							
Species	09	010	011-015	016-020	021-025	026-030	Total
<i>A. mangium</i>	360	360	2,800	3,000	1,800	1,000	9,320
<i>P. falcataria</i>	1080	1080	2,800	3,000	1,800	1,000	10,760
<i>E. deglupta</i>	5.6	5.6	25	26	21	9	91.70
<i>S. macrophylla</i>	13.5	13.5	38	68	75	45	252.00
<i>G. arborea</i>	2.55	2.55	34	43	43	9	132.6
Other species	3	3	53	75	75	23	
Total	1,465	1,465	5,749	6,211	3,814	2,085	231

Source: DERN Eastern Mindanao, September 2008.

One main reason for the establishment of tree plantations is to fulfill the requirements of the wood-based industry (Carandang, 2000). Unless the establishment of industrial plantations and community tree farms is accelerated and given proper incentives from the government. Wood supply from natural forests would fail to meet the needs of the country. In this sense, plantation trees are the main option for the government of the Philippines and other stakeholders of timber industries in order to ensure the sustainability of

wood supply in the long run. There are at least five considerations highlighted for tree plantations: environmental, economic, availability of land, availability of funding and technical capacities.

Tree Planting Trends in the Philippines

The government, through the authority of the *Forest Management Bureau* (FMB) Officer, gives tree planting concessions to the private and cooperative sectors. For instance, most planting has been conducted by government with TLAs (*Timber License Agreement*) in 1970s-1980s. The private sector reforested large areas in three periods since 1975: from 1977-1984, 1988-1990 and 1994-1996. The total area planted was more than 93,520 hectares. Generally more than 20,000 hectares were planted annually during these periods, while in 1990s TLAs changed to IFMAs (*Industrial Forest Management Agreement*) and SIFMAs (*Socialized Industrial Forest Management Agreement*).¹⁶ The aims of the establishment of IFMA and SIFMA were to revitalize the industrial forest plantation program and generate income for the private sector and smallholders in the local communities. A total of 8,568 hectares of trees were planted under IFMA and SIFMA and 3,963 hectares under TLAs from 2000-2002.

In general planting stocks, Tolentino addresses the significant benefits that could be obtained from seeds, vegetative produced stocks and wildlings, because seeds are the most common source of reproductive material when it comes to tree planting endeavors in the Philippines. The reasons are very obvious. First, seeds of the most popular and commonly planted tree species are abundant and widely distributed in many regions around the country, making them a more economical and practical source of planting stocks. Second, they are generally easier to handle and store for longer periods of time, unlike vegetative produced stocks (E.L. Tolentino, Jr 2007).

Historically, beginning in 1977, the participation of the private sector in tree planting through the years visibly manifested itself. From around 2,000 hectares, the aggregate accomplishments of the *Industrial Forest Management Agreement* (IFMA), tree farms and Agroforestry Farm Areas by 2004 had reached 824,000 hectares (Figure B.2). Bulk planting initiatives contributed by IFMAs (86%), while agroforestry farms and tree farms accounted for 11 and 2%, respectively.

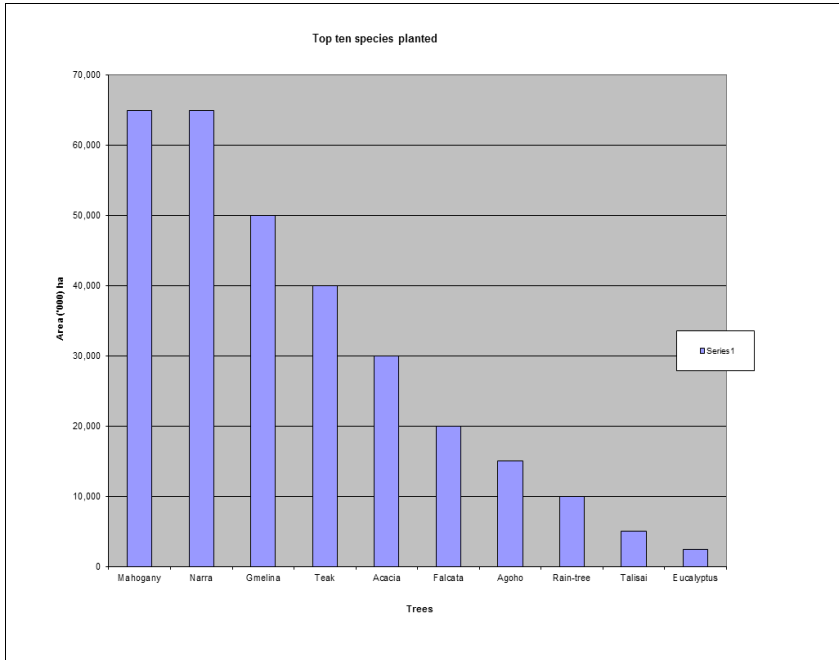
16 Private sector who obtains IFMA concession from FMB officer could manage more than 5,000 ha from state forest land. The concession is given by the government about 25 years and could be extended for second terms based on his performance. Meanwhile, SIFMA for cooperative sector, the area concession below 5,000 ha.

1. Species Selection in Plantations

To provide excellent tree species for tree plantations is very important. Species commonly used in reforestation are surprisingly few, considering the abundance of commercially valuable species used by the timber industry. The popularity of exotic trees in the Philippines as a reforestation species dated back to when reforestation started early in the 20th century. Apparently, of the top ten species planted in reforestation projects around the country, eight are exotic and only two are ITS (Indigenous Tree Species) (Figure 5). Mahogany (*Swietenia macrophylla*) and Gmelina (*Gmelina arborea*) are among the dominant exotic trees planted. Narra (*Pterocarpus indicus*), a common ITS, comes a close second. Another ITS, Agoho (*Casuarina equisetifolia*) ranked seventh among the commonly planted species (E.L. Tolentino, Jr 2008: 321-322).

Reports on the plantations of private concessionaires showed a similar pattern: *Paper Industries Corporation of the Philippines (PICOP) Resources Inc.* (Surigao del Sur, Mindanao) have plantations of more than 40,000 hectares, mainly *Paraserianthes Falcataria*, *Eucalyptus Deglupa* and *Acacia Mangium*. *Nasipit Lumber Company (NALCO)* (Agusan del Norte) has more than 4,000 hectares of exotic tree plantations. The main species planted are: *P. falcate*, *G. arborea*, *Acacia auriculiformis*, *A. mangium*, *Pinus caribaea*, *Swietenia macrophylla* and *Tectona grandis*. *Provident Tree Farm Inc (PTFI)* (Agusan del Sur) has planted another 6,000 hectares of plantations dominated by exotic trees like *A. mangium* and *G. arborea* (Ecosystems research and Development Bureau, 1998). The *Bukidnon Forest Inc.*, an industrial tree plantation in Malaybalay (Mindanao), has successfully planted 6,367.32 hectares of assorted exotic trees. The major species planted are: *A. mangium*, *Eucalyptus urophylla*, *E. deglupa* and *P. caribaea*. Some native species have been planted, including: *Pinus Kesiya*, *Casuarina equisetifolia*, *Lagerstroemia speciosa*, *Pterocarpus indicus var.echinatus* and *shorea contorta*. It was claimed that most of the native species are slow growing with high mortalities which increases plantation costs, therefore, undesirable to management (Cuevas 1999).

Figure 5. Top ten species planted in reforestation projects in the Philippines (Forest Management Bureau, 2000; Cf. E.L. Tolentino, Jr 2008)



Another study conducted among 50 smallholder tree nursery operators in Cebu, Bukidnon, and Misamis Oriental reinforced the predominant practice of raising exotic trees. Seedlings in the forest nurseries studied were composed of 59 percent timber species and 36 percent fruit trees. Of the timber species being raised, 35 percent are indigenous and 65 percent are exotic. Bagras (*Eucalyptus deglupa*) was ranked as the most popular species being raised in 48 percent of the nurseries studied. Other popular species include large leaf mahogany (*S. macrophylla*, 35 percent), *A. mangium* (21 percent), Black wattle (*albizzia lebekkoides*, 19 percent), *Eucalyptus robusta* (19 percent), *E. Torrelliana* (17 percent), narra (*P.indicus*, 17 percent, and *Yemane or gmelina* (*G.arborea*, 15 percent). All, with the exception of *narra*, are exotic (Tolentino *et.al.* 2008:322).

The use of exotic species is not an exclusive silvicultural preference in the Philippines. In Southeast Asia, countries like Indonesia, Thailand, and Vietnam have developed extensive plantations of exotic trees like *S.macrophylla*, *P. falcataria*, *A. mangium*, *P. caribaea*, *Eucalyptus spp*, and *Casuarino spp* (FAO Forestry Database). Even in Brazil, another country with active plantation activities, data as early as the 1900s revealed an inclination towards the exotic eucalyptus over Brazilian timber species (Nararro de Andrade 1941). In fact,

as of 2005, Brazil has estimated 3.2 million hectares of eucalyptus plantations (Neto 2005), the most abundant exotic species of the country's plantation program (Mc Nabb 2005).

The following section are some of the main reasons for why exotic trees dominate the country's tree planting program (Tolentino, JR, 2008: 323-324):

2. Environmental Considerations

There is a current concern for global warming in the world. The role of tree plantations in the removal of atmospheric CO₂, for the build-up of their biomass during the process of photosynthesis is significant. The planting of trees to sequester atmospheric CO₂ has been considered to be the most effective long-lasting means and a significant approach to address the problem of increasing amounts of CO₂ in the atmosphere.

Also, the planting of trees significantly promotes environmental protection of watersheds in the production of water for domestic, irrigation, industrial, hydropower, and other important uses. Leaves and branches of planted trees intercept rainfall, thus reducing their erosive energy. The plants' roots and litter improve the soil structure and enhances infiltration of rainfall (PCARRD 2008: 3). Trees not only minimize the amount of eroded soil, but they also retard the rate of runoff. Erosion and subsequent sedimentation have a direct impact of watershed's water yield and quality. Trees also give better flood protection than a natural covering of undesirable brush and grass species.

3. Economic Considerations

The development of timber industries such as sawn mill, plywood, veneer, lumber, furniture, construction for real estate and pulp and paper industries, have rapidly increased in the Philippines. Based on the Forestry Statistics (2006), demand for timber annually reaches 13.5 million metric tons. However, the consumption of wood for timber industries is higher than the supply. Hence, the establishment of forest plantations provides an attractive and profitable undertaking for income 'opportunities' and 'employment' generation, while fulfilling the expected scarcity of wood from natural stands. Large volumes of round wood were being produced in the Philippines annually for various end products used by the wood-based industries (Table 4).

A ready market for wood-based products, whether for domestic consumption or for export, is assured for those who want to invest in forestation. There are big markets for logs for lumber and construction, veneer and plywood, wood chips for pulp and paper production, poles and piles,

furniture, fruit and vegetable crates, woodcrafts and wooden accessories, panel products (particle boards), wood wool cement board and firewood.

Table 4. Round Wood Production: 1994-2004 (in '000' m³)

Year	G.Total	Total	Log			Fuel wood	
			Sawn log	Pulp-wood	Poles	Upland	Charcoal
2004	934	768	410	355	3	38	128
2003	699	506	349	151	6	39	144
2002	541	403	288	106	9	28	110
2001	713	571	319	241	11	58	84
2000	912	800	384	400	16	33	79
1999	860	730	568	160	2	49	81
1998	690	634	546	82	6	34	22
1996	804	771	400	365	6	33	-
1994	1,063	957	805	149	3	104	2

Source: Philippine Forestry Statistics (2004).

G.Total: Grand Total.

The 1950s to early 1970s were characterized by a logging boom in the Philippines. Japan, South Korea, Taiwan and the USA are recorded as major importing countries of the Philippine's logs. The area under *TLAs* (*Timber License Agreement*) more than doubled between 1958 and 1970, from 4.6 to 9.4 million hectares. Consequently, the annual allowable cut also more than doubled from 7.2 to 15.5 million cubic meters. However, timber started to run out in the 1970s, especially in some parts of Luzon. By the mid-1970s, logging areas in central and western Luzon were either abandoned or covered by logging bans (Baodo 1998). As an illustration, in 1974-1975 log exportation from the Philippines peaked at 6.84 million m³ valued at US\$ 283 million. Conversely, log importation rose steadily until 1996 where it reached a maximum of 877,585 m³ valued at US\$ 127.4 million m³ (Tolentino, Jr 2007). Therefore, the imminent timber shortage contributed to 'reforestation' efforts intensifying in the early 1970s. As already mentioned, the government initiated some policies and programs to encourage and support timber production:

- a) P.D 1153 (*Presidential Decree*) known as the "Tree Planting Decree".
- b) The Program for Forest Ecosystem Management that established one municipal nursery for each of the 1,000 municipalities and increased the role of the Bureau of Forest Development in reforestation.
- c) The Energy Farm Program, which required each *barangay* (village) to plant at least two hectares as a community fuel service.
- d) P.D 705 and 1559 and E.O 725 (Executive Order) encouraged the establishment of ITPs, TFs and AFFs, and the reforestation of

- inadequately-stocked forest lands within forest concessions to help supply the raw materials needs of forest-based industries.
- e) The NFP (*National Forestation Program*) provided adequate 'industrial timber' and fuel wood supply in addition to its environmental and socioeconomic objectives (Umali 1989). The NFP thus targeted reforestation 1.4 million hectares from 1987 to 2000 (Unna Chokkalingam *et.al.* 2006: 24-25).

4. Availability of Funding Mechanisms for Prospective Investors

The necessary financial institutional funding for investors in tree plantations is significant. There are banks (e.g., *Development Bank of the Philippines and Land Bank of the Philippines*) that provide loans to investors who would like to venture into reforestation, tree farming and plantation development. At present, there is a growing interest in tree farming and plantation development from domestic and overseas businessmen as well as, for example, SCG (*Siam Cement Group*) from Thailand, because of their bright economic prospects and growing income opportunities.

5. Availability of Tree Farming Technologies

Innovative technology to provide best quality seeds is significant to bolster tree production in the future. There are technologies available, generated through research and development (R&D) by research institutions, academics and the private sector that can be used to enhance the production of forest plantations. Research institutions can be tapped to provide technical assistance in the production of high quality planting materials of forestation species and appropriate development and management techniques to improve survival and increase 'productivity' of forest plantations.

The 2003 Revised Philippine Master Plan for Forestry Development has targeted the establishment of 40,000 hectares of commercial plantations per year or a total of one million hectares over the next 25 years to meet the nation's timber needs.

Concluding Remarks

The Philippines forests have been facing deforestation over the past 40 years and more. From the view point of 'political ecology', which emphasizes *stakeholders*, the role of government in the period of Ferdinand Marcos (1965-mid 1980s) was the peak of 'deforestation'. There were two driving factors causing 'deforestation' in Philippines's forests. First is the political factor that forests are treated as commodities and political interest. Logging concessions were given by Marcos regime to his cronies and political elites supporting his

power. This led to a large scale of deforestation (165,000 hectares annually), because most logging holders did not practice sustainable forest management. Second is the conversion to agricultural land (2.8 million hectares) due to population growth and growth in agriculture in general. In many developing countries - such as the Philippines - there is great pressure imposed on forest lands by increasing populations, relentlessly damaging the ecosystem, especially shifting cultivation (*kaingin*) in the uplands, conservation and protected forests. The impact of the deforestation criticized by NGOs and academics that could impact greater environmental disasters such as flood, soil erosion and land slide occurring since the mid-1980s-1990s.

Observing the above environmental disasters, the Philippines government, especially under Cory Aquino and Fidel Ramos, invited other stakeholders (*academics, congressmen, NGOs, local governments, local people, etc.*) and even donor countries to actively design various programs to protect and conserve the remaining forest by launching 'forest rehabilitation and reforestation'. These programs included the Integrated Social Forestry Program (ISFP), Upland Development Program, National Forestation Program (NFP), Forest Land Management Program (FLMP), Low Income Upland Communities Project (LIUCP), Community Forestry Program (CFP), Regional Resources Management Project (RRMP), Forestry Sector Project (FSP), and finally it revised to the Community-Based Forest Management Program (CBFMP).¹⁷ CBFMP, introduced in 1995, in particular recognized the indispensable role of local people in managing forest resources in the country. Many forest analysts say that the CBFM program, which has been practiced for at least two decades in the Philippines, is the best model of sustainable forest management and has inherently improved the socio-economic situation of many local farmers. The success of the CBFM program is in the active *participation* of other stakeholders such as local people, local government, academics, NGOs and donor countries in the program.¹⁸ The focus and aim of forest management has thus shifted from technical commercial forestry to a more people-oriented social forestry. However, improving the socio-economic condition of the rural populace (*particularly small holders*) remains a great challenge for the Philippine government, because 30-40 percent (*Statistics, 2008*) of Philippines society live in *rural areas*, and are mostly categorized as 'poor' compared with people who live in urban areas. However, the main problem in *reforestation* issues within the CBFM program is that at harvest time. The government is reluctant to provide permissions to farmers to cut and transport their timber, even if it is in the MOU that farmers may cut their trees at harvest time with a cycling cutting system from one block area to another. The argument of the FMB officers is that large cutting of trees by farmers in certain areas (such as

17 See Harrison *et al.* 2005. *Past and Present forestry support programs in the Philippines, and the lessons for the future*. Small-scale Forest Economics, Management and Policy, 3 (3): 303-317.

18 Interview with informant in UP, Los Banos, July 31, 2009.

the uplands) subsequently affects soil erosion and flooding in the downstream areas.

The Philippines government, especially FMB under DERN (*the Department of Environmental and Nature Resources*) should create a political commitment to cooperate with other institutions such as banking institutions to create a strong foundation for the forestry industry, originally based on the *reforestation* programs under the CBFM scheme, where timber plantations to timber processing mills are categorized as a *strategic industry* in the Philippines for the following reasons: firstly, the forestry industry could largely contribute to obtaining foreign exchange earnings and national GDP of the Philippines. Secondly, the forestry sector could create many more jobs in rural and urban areas, creating long-term income generation for local people. Thirdly, it is highly recommended that the government and other stakeholders exercising the sustainable forest management in the Philippines will help to prevent soil erosion, flooding, and excessive negative impacts from typhoons. Therefore, to realize and facilitate the above conditions, the Philippines government should revise the regulation on timber plantations, tax breaks, law enforcement and access to credit from institutional banks. These changes could actively engage stakeholders of the forestry sector to invest and expand their businesses in the Philippines in the future.

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