Transition to Sustainable Forest Management and Rehabilitation in the Philippines

Authors
Antonio P. Carandang
Juan M. Pulhin
Leni D. Camacho
Sofronio C. Camacho
Floribel D. Paras
Peter Jerome B. Del Rosario
Florentino O. Tesoro

College of Forestry and Natural Resources
University of the Philippines Los Baños

LIST OF ACRONYMS

ARMM	Autonomous Region in Muslim Mindanao
CALABARZON	Calamba-Laguna-Batangas-Rizal-Quezon
CADC	Certificate of Ancestral Domain Claim
CADT	Certificate of Ancestral Domain Title
CBFM	Community-based Forest Management
CBFMA	CBFM Agreement
CENRO	Community Environment and Natural Resource Office/r
CFP	Community Forest Program
CLOA	Certificate of Land Ownership Award
CRMF	Community Resources Management Framework
DAR	Department of Agrarian Reform
DENR	Department of Environment and Natural Resources
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FLUP	Forest Land Use Plan
FMB	Forest Management Bureau
FSP	Forestry Sector Project
FT	Forest Transition
GDP	Gross Domestic Product
GNI	Gross National Income
IFMA	Integrated Forest Management Agreement
IPRA	Indigenous Peoples Rights Act
ISF	Integrated Social Forestry
KII	Key Informant Interview
KOICA	Korea International Cooperation Agency
LGU	Local Government Unit
MATILFAMCO	Mabuhay Timberland Farmers Cooperative
MENRO	Municipal Environment and Natural Resources Office/r
NALCO	Nasipit Lumber Corporation
NCIP	National Commission on Indigenous Peoples
NCSB	National Statistical Coordination Board
NFP	National Forestation Program
NGP	National Greening Program
NIPAS	National Integrated Protected Areas System
NTFP	Non-timber Forest Product
PAGASA	Philippine Atmospheric Geophysical and Astronomical Services Administration
PNRPS	Philippine National REDD-plus Strategy
PO	Peoples Organizations
PSLS	Philippine Selective Logging System
REDD+	Reducing Emissions from Forest Degradation and Deforestation Plus
RUP	Resource Use Permit
SFM	Sustainable Forest Management
SUDECOR	Surigao Development Corporation
TLA	Timber License Agreement
WPP	Wood Processing Plants

CONTENTS

ABSTRACT

The Philippines provides an interesting case for studying transition to sustainable forest management in the tropical world. There were four cases examined in this study representing the situation of SFM in the country, namely: Private Land Tree Plantation in Talacogon, Agusan del Sur; Sustainable Agroforestry Development in Agusan Del Norte in DENR-LGU Co-Management Scheme; The Case of SUDECOR IFMA concerning sustainable natural forest management in Surigao Del Sur; and the Case of Community-based Forest Management Agreement (CBFMA) in Barangay Mabuhay, Municipality of Prosperidad, Agusan del Sur.

These cases manifest the complexity of the forest management systems in the Philippines, cutting across various governance dimensions, including: social, political, institutional, economic and environmental aspects. This study shows that forest cover may have continued to increase over the last decade because of increased reforestation and forest restoration in the past two decades. It should be emphasized however, that increase in forest cover alone is necessary but not a sufficient condition to ensure transition to SFM.

Experiences presented from the Philippine cases exhibit that the transition to SFM is not a linear but a dynamic and complex process. It is influenced by a combination of socio-demographic, economic, politico-institutional, and environmental forces operating at various scales from local to global.

Viewed in the context of the identified key elements of SFM, there are major transition gaps that need to be filled out to improve on and sustain the initial gains in terms of the increasing forest cover which hopefully is a tangible indicator towards the path of SFM in the country. These gaps include among others: the need for enabling policies and incentive systems; capable institutions and stakeholders actively engaged and committed in the pursuit of SFM; appropriate systems, tools and guidelines for SFM; and the practice of good forest governance including effective law enforcement.

CHAPTER 1 BACKGROUND OF THE PHILIPPINES

1.1 Brief Profile of the Philippines

1.1.1 Geography and climate

The Philippines is a country in Southeast Asia nestled between 21°25'N–4°23'N latitude and 116°E–127°E longitude. On the west, it is bounded by the South China Sea; on the east, by the Pacific Ocean; and on the south, by the Celebes Sea.

It has a total land area amounting to 343 448.32 sq km and is considered to be one of the largest island groups in the world. As such, it is an archipelago with 7 107 islands where 4 000 are named and about 1 000 are believed to be occupied. The largest island is Luzon (147 947.63 sq km) followed by Mindanao (135 626.85 sq km) and finally, Visayas (59 873.84 sq km). Other major islands include: Palawan, Mindoro, Masbate, Samar, Panay, Negros, Cebu, Bohol and Leyte.

The country has a diverse terrain, ranging from extensive valleys and plateaus with scattered rivers and lakes. It is cusped with numerous soaring mountains and volcanoes throughout its width and length. Due to its various landforms, earthquakes and other volcanic activities are common.

Lying between the Tropic of Cancer and the equator, the Philippines experience a tropical to subtropical climate with two pronounced seasons. First, the rainy season, from June to November and second, the dry season from December to May which can be further subdivided into: cool dry season (December to February) and hot dry season (March to May).

According to the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) the mean annual temperature is at 26.6°C and there is a high relative humidity in the country.

The mean annual rainfall varies from 965 to 4 064 mm annually where Baguio City, Eastern Samar and Eastern Surigao receive the greatest amount of rainfall while the Southern Cotabato experiences the opposite.

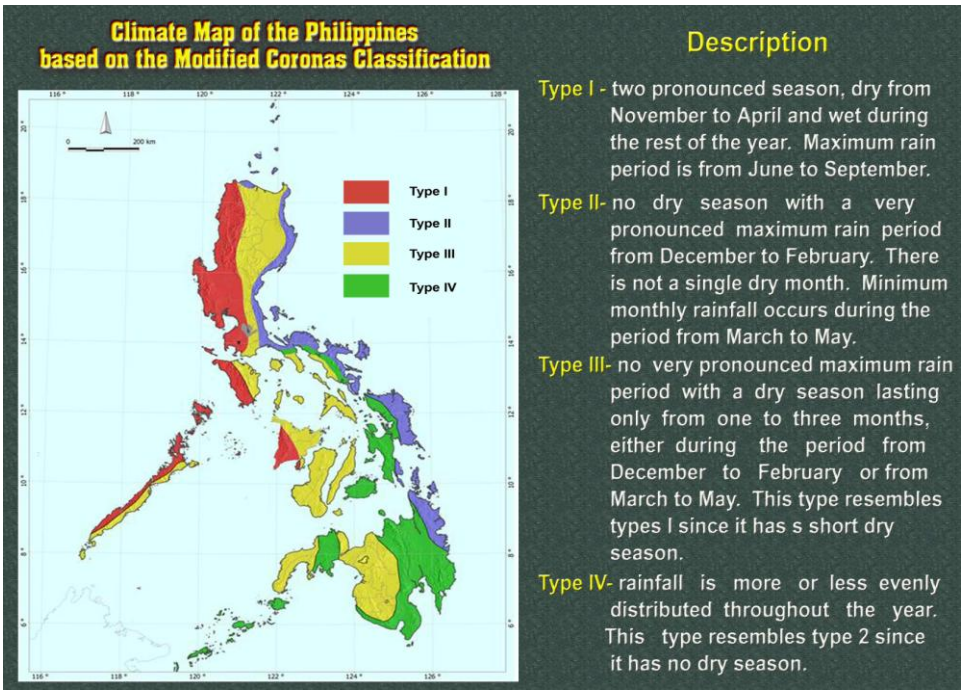

Figure 1. Climate map of the Philippines.
(Source: PAGASA http://kidlat.pagasa.dost.gov.ph/cab/statfram.htm)

Due to the climactic factors of rainfall, humidity and cloudiness, the country is vulnerable to typhoons. Usually, they originate in the region of the Marianas and Caroline Islands of the Pacific Ocean. Following a northwesterly direction, majority of the typhoon affects Luzon and Northern Visayas areas. Annually, an average of 20 typhoons enter the Philippine area of responsibility.

1.1.2 Flora and Fauna

Considered to be one of the 17 mega-diverse countries in the world that is home to about 70 to 80% of the total world biodiversity, there are more than 52 177 described species found here—half of which are endemic. Approximately, there are more than 1 130 terrestrial wildlife species, of which 157 are found to be threatened species (128 are threatened endemic species).

The diversity of flora is just as rich, where between 10 000 to 14 000 species of both vascular and nonvascular plants are found here—half of which are also endemic. The country ranks fifth in the world in terms of plant diversity for it is home to 5% of the world's floral species.

There is an estimated 359 species of amphibians (101 spp.) and reptiles (258 spp.) that are now known in the country. Adding to this list was the new discovery made by Flora and Fauna International (Catterick 2012) where they reported finding two new frog species belonging in the genus *Playmantis* during their recent expedition in Southern Leyte in April of 2012.

In bird endemism, the country ranks fourth in the world with 576 species of birds present (195 are endemic) and about 45 are classified as either wild, critical or endangered. Finally, there are about 174 mammalian species (111 are endemic) here. However, 50 are classified as threatened species which makes the Philippines rank eighth in the most threatened mammal assemblage.

1.1.3 Governance

The Republic of the Philippines is a democratic country, with the President as its Chief Executive. As of December 2010, the country has 17 regions; 80 provinces; 138 cities; 1 496 municipalities; and 42 025 barangays.

The 1987 Constitution of the Philippines is considered to be the overarching legal document in the country and was ratified on February 2, 1987 during the administration of then President Corazon Aquino.

1.1.4 Economy

For the past year, the Philippines has seen a strong peso where the inflation rate (as of April 2013) is seen at 2.6% (National Statistics Office 2013). As of January 2012, the National Statistical Coordination Board (NSCB) reported that the country had a Gross National Income (GNI) level of P2 064 364. The per capita GNI by industrial origin and expenditure shares from 2012 to 2013 had a growth rate of 7.1% in the first quarter (National Statistical Coordination Board, 2013). Meanwhile, the Gross Domestic Product (GDP) was reported to reach P1 591 195 and a per capita GDP at P16 497 with a growth rate of 3.7% in the same base year.

The Agriculture, Hunting, Forestry and Fishery Sector has a 9.5% total share in the GNI where major products include: palay (rice), coconut, banana, poultry, livestock, etc. The Industry Sector has a 24.7% share in the GNI where major industry contributors include: mining and quarrying (0.7%); manufacturing (17.8%); construction (4.0%); and electricity, gas and water supply (2.2%).

Finally, for the Services Sector, the total percent share amounts to 42.9% in the GNI. The major services and their contribution include: transportation, communication and storage (5.7%); trade and repair of motor vehicles, motorcycles, personal and household goods (13.6%); financial intermediation (5.0%); real estate, renting and business activities (7.7%); public administration and defense, compulsory social security (2.9%); and, other services (7.9%).

1.1.5 Rural population and migration

According to the latest national census (NSO 2013) as of May 2010, the population of the country is at 92 337 852, with an annual average growth rate of 1.9 (2000–2010). A bulk of the population is at the 15–64 years range with 57 374 256; followed by the 0–14 years range with 30 717 524; and the least number in the 65 above range with 4 006 198.

There is a 1.02 sex ratio, where males total 46 459 318 and females are at 45 368 660. The number of households amount to 20 171 899 with an average size of 4.6.

The United Nations Educational, Scientific and Cultural Organization (ESCAP-UNESCO 2012) estimates urban population (as of 2011) at 49.1% of the total population making the country's population density 316.5 (per sq km). Furthermore, they estimate that the net migration rate from 2005–2010 (migrants per 1 000 pop.) is at -2.8.

1.1.6 Major environmental concerns

Since the country lies in the Pacific Ring of Fire and the Typhoon Belt, natural calamities are a frequent occurrence. From 1948–2005 the country experienced an average tropical cyclone landfall of 8–9 per year. Its highest incidence was in 1993 when there were 19 tropical cyclones experienced in a single year, while the least recorded was 4 tropical cyclone landfalls during 1955, 1958, 1992 and 1997 (PAGASA, 2005). Although, it was also noted by PAGASA that while there had been a general increase in the rainfall amounts and number of rainy days during the wettest and driest years of the past decades, there had been no significant trends in the number of cyclones forming or entering the Philippine Area of Responsibility in the past 58 years (1948–2005).

Human-caused environmental damage, however, is the leading issue of the state of environment. The 2003 official forestry statistics showed that the country is left with 7.2 mil ha of forest, losing around 10 mil ha in the last seven decades (FMB 2011). This places the Philippines as one of the countries with the highest deforestation rates in the world, second fastest in Southeast Asia and seventh in the world (NewCAPP 2011).

1.1.7 Other Issues

The different initiatives and cooperative agreements made by the country to address these environmental issues include: Philippine Agenda 21 which served as the country's blueprint for sustainable development; participation in the United Nations Framework Convention on Climate Change; ratification Kyoto Protocol; Clean Air Act of 1999; Agriculture and Fisheries Modernization Act of 1997; Solid Waste Management Act of 2000; Philippine Clean Water Act of 2004; and the Climate Change Act of 2009 (Philippine Commission on Women 2009).

The Philippines issued the Revised Forestry Code in 1975 (Presidential Decree No. 705) which created the Bureau of Forest Development (which was reorganized later, creating the office of the DENR); mandated the adoption of multiple use, selective logging system, land classification, and many others; and put more teeth in implementing the Regalian Doctrine and the formalized forestry management in the Philippines (Guiang *et al*. 2006).

In 1992, Philippines has passed into law the National Integrated Protected Areas Act (RA No. 7586) as a legal framework for the preservation of endangered, critical and threatened ecosystems and biodiversity sanctuaries. The law also encourages people's organizations to become part of Protected Area Management Board, a policy-making body for all issues pertaining to protected areas.

Another landmark legislation was the Indigenous Peoples Rights Act of 1997 (RA No. 8371) which grants ancestral domain titles to Indigenous Peoples (IPs) that showed proof of their long-term occupancy over their claimed ancestral land (Pulhin 2002). However, there is still no law enacted that pertains to sustainable forest management despite more than two decades of continuous lobbying and advocacy.

Law-makers in the Philippine Congress continue to be divided in their stand whether to enact a law on total logging ban in natural forests or support sustainable forest management by allowing timber harvesting to provide economic incentives to forest managers especially the forest-dependent local communities.

To curb the effects of logging, President Benigno Aquino Jr. issued Executive Order No. 23 in 2011, "Declaring a moratorium on the cutting and harvesting of timber in the natural and residual forests and creating the anti-illegal logging task force." Met with both contention and praise, the intention of this policy is to uphold the "intergeneration responsibility to protect the environment and to prevent further destruction wrought by natural disasters" (Bendijo 2011).

The President also issued Executive Order No. 26 implementing the National Greening Program (NGP) as a government priority in the same year. The NGP aims to address poverty reduction, resource conservation and protection, productivity enhancement and climate change mitigation and adaptation. It aims to plant 1.5 billion trees (covering 1.5 mil ha) in a period of 6 years from 2011 to 2016. The DENR (2011) reports that NGP has accomplished planting in 221 763 ha with an estimate of about 126 million seedlings planted.

1.2 Current Land Use

Based on the 2011 Philippine Forestry Statistics (FMB), the Philippines' total land area which is about 30 mil ha is largely classified as alienable and disposable land which constitutes 47.32% (details shown in Figure 2). Specifically, the established timberland composed of 33.52%, established forest reserves with 10.90%, national parks, game refuge and bird sanctuaries, and wilderness area with 4.47%, and unclassified forest lands with 2.52%. The last three classifications were civil reservations with 0.55%, military and naval reservations with 0.42%, and fishponds with 0.30%.

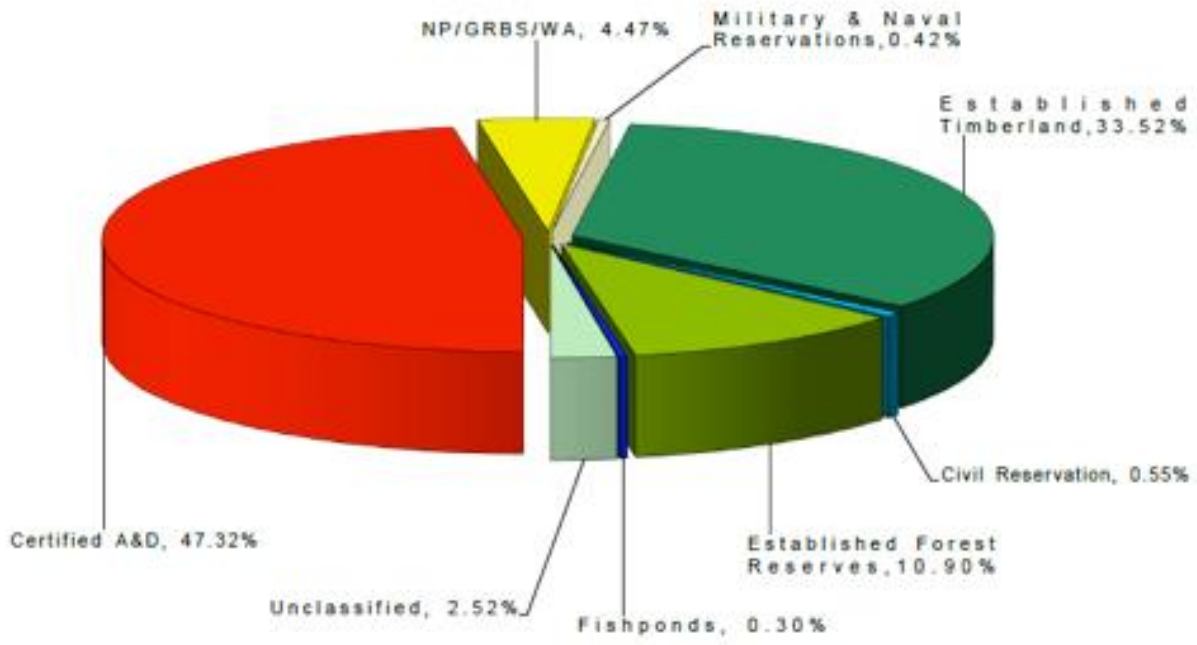

Figure 2. Land Classification in the Philippines. (FMB-DENR 2011)

1.3 Land Tenure Arrangement

Community Based forest management (CBFM) projects integrated all the people-oriented forestry programs in the country using Community Based Forest Management Agreement (CBFMA) as its primary tenure instrument. Based from DENR (2011), CBFMA in the Philippines totaled to 1 790 in 2011 with tenured areas of almost 1.6 mil ha, and 1 790 People's Organizations (and 322 248 households) participating in the project.

Table 1. Forest Tenurial Instruments in the Philippines as of December 2011.

Tenurial Instruments	Number	Area (in ha)
Timber License Agreements (TLAs)	3	177 085
Integrated Forest Management Agreements (IFMAs)	146	1 034 192
Tree Farm Leases (TFLs)	75	6 815
Agroforestry Farm Leases (AFFLs)	8	1 275
Socialized Industrial Forest Management Agreements (SIFMAs)	1 872	35 918
Forest Land Grazing Lease Agreements (FLGAs)	325	89 364
Community-based Forest Management Agreement (CBFM)	1 790	1.6M
Private Forest Development Agreements (PFDA)	91	4 992

Source: DENR 2011

1.4 Land Use Change and Its Drivers

1.4.1 Historical land use change

In 1934, it was estimated that forests covered more than half of the country. Starting with 17 mil ha (57%) the figure went down to only 7.12 mil ha within half a century. The forest area change from 1934 to 1969 worsened. The first national forest inventory, revealed that there has been a decrease of 37.41% (182 000 ha annual loss). But the following years saw the worst forest decline. In 1988, it was reported that there were only 6.46 mil ha remaining (21.5% of total land area), which translates to a decrease of 39.3% or a loss of forests of 210,000 ha annually.

This rapid loss of forest resources was attributed to the heydays of logging and unsustainable forest utilization. Unsustainable logging practices and alleged corruption in the forestry industry has resulted in the highest deforestation rate in the country from the 1950s to the early 1980s.

During the later years of the 1970s, the government employed social forestry programs to mitigate the local forest condition. At first, public and private reforestation efforts were accelerated (Presidential Decree 1153: all able-bodied citizens, 10 years and older, must plant 12 seedlings annually for five consecutive years). This effort was further supplemented with PD 705, the Revised Forestry Code of the Philippines, which is the primary policy in the management and governance in the country.

Other policies that enjoin not only individuals and families but also communities came after, with the paradigm shift in forestry. The new paradigm recognized that forest destruction has its socio-economic and political underpinnings and hence upland poverty and inequitable access to forest benefits have to be addressed to arrest the continuing forest diminution. With this, the country implemented a number of people-oriented forestry programs making upland communities as partners in development. The Integrated Social Forestry Program (ISFPs) launched in 1982 consolidated all upland social development programs related to forestry and natural resource conservation. The next section elaborates more in detailed other people-oriented forestry programs including the specific policies that enabled their implementation.

In 1995, EO 263 was issued adopting Community-Based Forest Management (CBFM) as the country's national strategy for sustainable forest management and for the promotion of social justice in the Philippine forest lands. This strategy updated the ISFPs from the recent years and its implementation through the last two decades has shown improving forest cover in the country (Table 2 and Figure 3).

Table 2. Forest cover in the Philippines 1934–2010.

Year	Forest Cover (mil ha)	Total Land Area (%)	Forest Area Change (%)	Annual Forest Change (ha)
1934	17.00	57.00	-	-
1969	10.64	35.46	-37.41	-182 000
1988	6.46	21.50	-39.3	-210 000
2003	7.168	23.89	+11	+700 000
2010	7.665	25.70	+7	+497 000

(Sources: DENR, FAO)

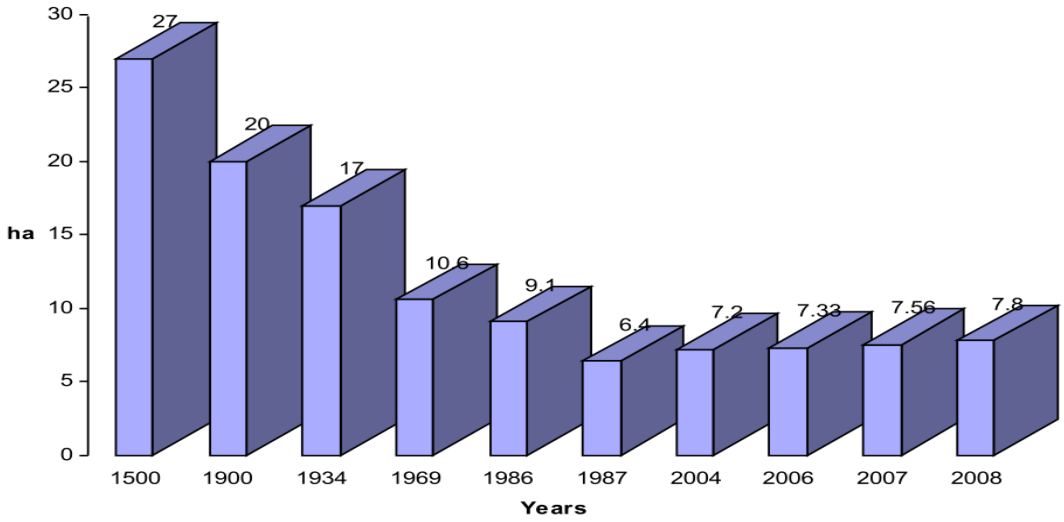

Figure 3. Estimates of changing forest cover of the Philippines based on various sources. (Source: Lasco 2009)

From 1990s to the succeeding decades, the country has seen a gradual increase in its forest areas. The latest figure from FAO in 2010 reported a 7% (497 000 ha) increase in forest area since 2003. The increasing trend in forest cover from its historical downward trend tends to indicate the start of forest transition in the country. As this development is rather recent, an in-depth study on transition to sustainable forest management and rehabilitation in the Philippines is necessary to better understand this phenomenon and to provide policy recommendations to sustain positive progress.

1.4.2 Policies governing land use change

Responding to the increasing and decreasing rate of deforestation, the country had implemented various policies concerning forest management and governance. During President Ferdinand Marcos' administration, four management approaches were implemented for forest conservation and use. The first was Forest Occupancy Management which was designed to control the destructive land management practices of swidden farmers and other forest occupants (Magno 2001). It also aimed to improve and uplift the conditions of the forest occupants and to transform the forest occupants from agents of destruction to partners in forest development and conservation.

In 1979, Communal Tree Farming was then formed which aimed to renew the forest with the help of upland communities. For twenty-five years, the farmers were allowed to utilize and earn profit from the forests and at the same time, to actively involve them in reforestation activities. In this program, every city or municipality was expected to establish tree farms where forest occupants, civic organizations, and municipal government units were also involved in reforestation (ibid.).

The Family Approach to Reforestation was then implemented to further inculcate in household level the importance of forestry conservation and management. The program focused on providing short-term contracts for families to set up tree plantations on public land (ibid.). Grade 2 students (though students other than Grade 2 can also participate) were taught about forest conservation practices in which when they were Fourth Year High School, they might be able to harvest the trees they planted (Nasayao 2005).

The Integrated Social Forestry Program which incorporated previously mentioned people-oriented programs, provide forest land occupants secure access to land through Certificate of Stewardship Contracts (CSC) giving them twenty-five year occupancy rights to public forest lands which could be renewed for another twenty-five years. They were provided assistance in the areas of agroforestry, land tenure, and community organizing through training programs and seminars.

After which, National Forestation Program (NFP) and Community Forest Program (CFP) was implemented. In NFP, the DENR enters into contract with organized upland settlers or peoples' organizations, civic groups, entrepreneurs, and other non-government organizations (Gascon *et al*. 2006). The Forest Land Management Agreement gave tenure to the community for 25 years, renewable for another 25 years. The CFP, on the other hand, was implemented to protect community forests by providing many benefits such as recreating and enjoying nature, protecting habitat, water quality, other environmental benefits, and providing economic benefits through timber resources. Organized communities can avail of this program through a Community Forest Management Agreement which is granted for 25 years and can be renewed for another 25 years. The community is expected to prepare a development plan and adhere to the principles of sustained-yield management (Magno 2001).

The survival of forests was placed at the hands of the local people who live in and around them. While NFP aims to rehabilitate and conserve the country's forest resources and reforestation of open and degraded areas and rehabilitation of critical watersheds, and CFP aim at bringing the benefits of forest conservation to local people and provide them alternative livelihood, Marcos' programs harnessed people's labor in an effort to rehabilitate denuded forest lands.

The Philippine Government adopted CBFM as its national strategy for sustainable forestry and social justice as it integrated all the forestry programs of the country (Gascon *et al*. 2006). The goals of CBFM are the following: rehabilitate the degraded or denuded forests by establishing forest trees in the upland landscape and to improve the socio-economic conditions of the people by integrating agricultural crops in their forestation activities. Community-Based Forest Management evolved out of the failure from other forest management approaches in ensuring sustainability of forest resources and the equitable distribution of access to and benefits from them (Guiang *et al*. 2001). The Philippine CBFM Strategic Plan (2008–2017) also revealed that Certificate of Stewardships were given to individuals whose areas were within the community-based forest management agreements, which was awarded to migrant communities and indigenous peoples.

Another important legislation is Republic Act 7160, otherwise known as the "Local Government Code" of 1991. This aims to distribute tasks of controlling, evaluating, maintaining, and monitoring forest lands to different organizations, local government units, the DENR, and others. Furthermore, reforestation initiatives, management of communal forests not exceeding 5 000 ha, protection of small watershed areas, and enforcement of government laws were devolved to local government units (Magno 2001). A Co-management Agreement Program was then drafted to strengthen the commitment of the provincial government in managing the natural resources.

Aside from the upland communities, indigenous peoples were also considered as partners in forestry conservation and management. Thus, the Indigenous Peoples Rights Act or IPRA Law (RA 8371) was promulgated. IPRA aims to "recognize, protect and promote the rights of indigenous cultural communities/indigenous people, creating a national commission of indigenous people, establishing implementing mechanisms, appropriating funds therefore, and for other purposes."

Another relevant law that can influence land use change is the National Integrated Protected Areas System Act of 1992, otherwise known as NIPAS Act. The Act provides "for the establishment and management of national integrated protected areas system, defining its scope and coverage, and for other purposes." NIPAS recognizes that a holistic plan of forest management must be done and that it will only be available through the cooperation of national government, local government, concerned private organizations, and local communities (i.e. indigenous cultural community) to take part in deciding how to best manage the forest resources for livelihood and other purposes. A tenurial instrument called the Protected Area Community-Based Resource Management Agreement (DENR Administrative Order No. 2004-32, Section 2) was then issued to provide opportunities to organized tenured migrant communities and indigenous peoples to manage, develop, utilize, conserve, and protect the resources within protected areas and buffer zones which has a term of 25 years and renewable for another 25 years.

CHAPTER 2 FORESTS AND FORESTRY IN THE PHILIPPINES

2.1 Extent of Forests

2.1.1 Forest resources

Forest resources refers to all resources available in the forest and could be a biomass from plants and animals including its derivatives; raw materials such as timber and non-timber forest products; non-biomass such as soil and water; and even intangible services in the forests such as storing water, trapping carbon, cleaning water and air, and minimizing the impacts of floods by erosion (NSCB 1998).

Timber harvesting, fuelwood gathering, charcoal making, and non-timber forest products (NTFP) collection were present in the Philippines and continued to contribute to deforestation and forest degradation whether legal or illegal (Carandang *et al.* 2012). Woodfuels refer to energy sources coming from biomass (which could be referred as fuelwood or unprocessed woody biomass; and charcoal or wood burned in low-oxygen environment) and in the Philippines, woodfuels were affordable and readily available for cooking in bakeries, restaurants/eateries, barbecue/lechon vendors, and food-processing industries which make them the first choice of energy users over liquefied petroleum gas, kerosene, electricity, etc (ibid.)

Charcoal trading is also a common source of cash income for many subsistence farmers in many areas and increases market demand for wood fuels while non-timber forest products (NTFPs) gathering and harvesting continue to provide more cash income for many rural households in the Philippines (ibid.) Some NTFPs harvested and locally traded are rattan, bamboo, almaciga resin, and wild honey while the other NTFPs were vines, ferns, medicinal plants, and fauna (birds, wild boar) mainly for home consumption although some are traded in very small quantities for cash (ibid.)

2.1.2 Extent of forest degradation/scarcity of forests

There has been a decreasing area of forest cover in the country from 92% of the total land area in 1575 to barely 24% in 2003 (Forest Management Bureau 2005, as cited by Rebugio 2010). In summary, the Revised Master Plan for Forest Development (2003), as cited by Carandang (2012a), revealed the following figures showing the Philippine historical forest cover from 1575 to 2005:

Table 3. Philippine historical forest cover, all forest types (1575–2005).

Year	Forest Cover(mil ha)	% of Total Area
1575	27.5	91.67
1863	20.9	69.67
1920	18.9	63.00
1934	17.8	59.33
1970	10.9	36.33
1980	7.4	24.67
1990	6.7	22.33
2005	7.2	24.00

Source: Revised Master Plan for Forest Development 2003

2.1.3 Variations among regions

Cagayan Valley (Region 2) is the home to the largest river basin in the Philippines which provides a considerable resource-base for agriculture, recreation, tourism, and hydro-energy and was considered to be an important supplier of water and power in the adjacent regions (Lusterio-Berja and Colson 2008). Cagayan has one of the largest areas (1 149 845 ha) of forest cover intact but environmental degradation, particularly deforestation which reduced forests and disturbed watersheds, was observed to be one of the major challenges in the region (ibid). However, it was reported that the region has some of the few remaining virgin forests in the country which was especially important for endangered species.

CALABARZON (Region IV-A) has one of the most varied landscapes in the country with a rich biodiversity, and attractive natural environment. According to Lusterio-Berja and Colson (2008) there were 24 protected areas in CALABARZON with a total area of 74 378 ha which was said to ensure survival of rare species and maintain the ecosystem's services. Forest cover was also seen essential in climate regulation, watershed protection, and preventing soil erosion in the region with almost fifty-5% of its area covered by forests. Mangrove plantations in the region were also seen as breeding and spawning grounds of fish and shellfish.

The Central Visayas Region (Region 7) has crops such as sugarcane, coconut, palay, corn, and cassava but it was reported that the region has limited forests remaining (De La Paz and Colson 2008). Instead, it was reported that the region was rich in its mineral resources such as silver, manganese, copper, gold, limestone, silica, and coal. According to the Forest Management Bureau (2008) only the National Capital Region has less remaining cover than Central Visayas (74 869 ha). Moreover, in 2003, only 3% of the remaining forest in the region is considered "closed" or dense forest, 57% is open forests, 16% were mangroves, and 24% were plantation forests. Meanwhile, the Autonomous Region in Muslim Mindanao (ARMM) experienced decades of logging which was a threat to natural resources yet still have fertile flatlands supporting its fishing and agricultural industries.

2.2 Forest Governance

2.2.1 The key players on the administration of forest use

According to the DENR-USAID (2004) there are six authorities or source of power in the allocation of forest lands. The first is the Philippine Congress since it can enact laws to establish forest lands and national parks. The second is the Philippine President wherefore upon enactment of laws, has the authority to declare, issue, or proclaim forest lands as forest reserves or military, civil, or mineral reservations. The third one is the DENR itself, as it is the primary government agency tasked with natural resources and forest management. The fourth is the local government units since the devolution of some national policies into local units. The fifth one is the DENR and LGU through joint orders/memoranda of agreement for devolution and partnership. And finally, the NCIP which is tasked to carry out the policies pertaining to indigenous people's rights and ancestral domains.

2.2.2 Forest ownership, tenure, utilization, and management

As shown in Table 1, there were three TLAs in the country located in Western Samar and Zamboanga del Norte. Of the existing 146 IFMAs, Luzon has 47, Visayas has 12, and Mindanao has 87. Meanwhile, the AFFLs numbered 8 while TFLs numbered 75 with Region 2 having the most number amounting to 29 TFLs. There were 1 872 SIFMAs located in Region 2 while there were 91 PFDAs. Lastly, the FLGAs totaled to 325 while CBFMAs numbered to 1 790 (DENR 2011).

In terms of production, there was an increase of 56% in the total log production in the country in 2011 amounting to 871 126 cu m, by which 98% of the total logs produced came from plantation forests. There was also an increase of 8% in plywood production with 299 760 cu m in 2011, as compared with the 2010 production data (ibid.)

2.3 Economic, Social and Environmental Contribution

2.3.1 Timber Extraction and Non-timber Forest Products

DENR (2011) reported that forest-based products account for USD3.336 billion or 3.07% of the country's aggregate external trade in all goods for 2011. The total export receipts from forest-based products totaled to USD2.167 billion which is an increase of 53% in 2010. Non-timber forest products showed an increase of USD1.2 million in 2011 compared in 2010's USD579 000. On the other hand, log exportation and non-timber manufacture slid down in 2011 with export sales of USD145 000 (26% decrease from 2010) and USD4.7 million (27% decrease from 2010), respectively.

Regarding imports, the aggregate value of forest-based products totaled USD1.169 billion which is also an increase from the 2010 record of only USD883 million. Paper and paperboard led the largest number of imports with spending of USD771 million. There was also an increase in the imports of lumber amounting to USD70.2 million compared to 2010's USD10.5 million. Plywood also increased in importation amounting to USD69.6 million which was a large increase from 2010 import of only USD37.3 million. Imports of forest-based furniture, wood-based manufactured articles, and logs increased amounting to USD53 million, USD29.1 million, and USD17.4 million respectively (DENR 2011).

CHAPTER 3 HISTORICAL REVIEW OF FOREST COVER CHANGE

3.1 Definition of Forests

The forest definition currently adopted by the Philippines is based on the Food and Agriculture Organization definition of the United Nations and was included in the Philippine National REDD-plus Strategy:

"Forest refers to land with an area of more than 0.5 ha and tree crown cover (or equivalent stocking level) of more than 10%. The trees should be able to reach a minimum height of 5 m at maturity in situ. It consists either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest formations with a continuous vegetation cover in which tree crown cover exceeds 10%. Young natural stands and all plantations established for forestry purposes, which have yet to reach a crown density of more than 10% or tree height of 5 m are included under forest."

3.2 Forest Cover Changes

The latest data on forest cover was on 2003 as released by Forest Management Bureau in Philippine Forestry Statistics. According to this document, open forests occupy 4 030 588 ha (56.23%) of the country's total forest cover. Meanwhile, closed forest cover occupies 2 560 872 ha (35.72%); plantation forest cover occupies 329 578 ha (5%); and mangrove forest cover occupies247 362 (3.45%).

In CARAGA Region, the total forest cover was 523 292 ha in 2003 (based also on 2011 Philippine Forestry Report of FMB-DENR 2011). Closed forest cover amounted to 64 729 ha; open forest cover amounted to 431 832 ha; and mangrove forest cover amounted to 26 731 ha. Among the four provinces of CARAGA, Agusan del Sur had the largest forest cover of 249 494 ha; followed by Surigao del Sur with 145 724 ha; Surigao del Norte with 76 050 ha; and Agusan del Norte with 52 024 ha.

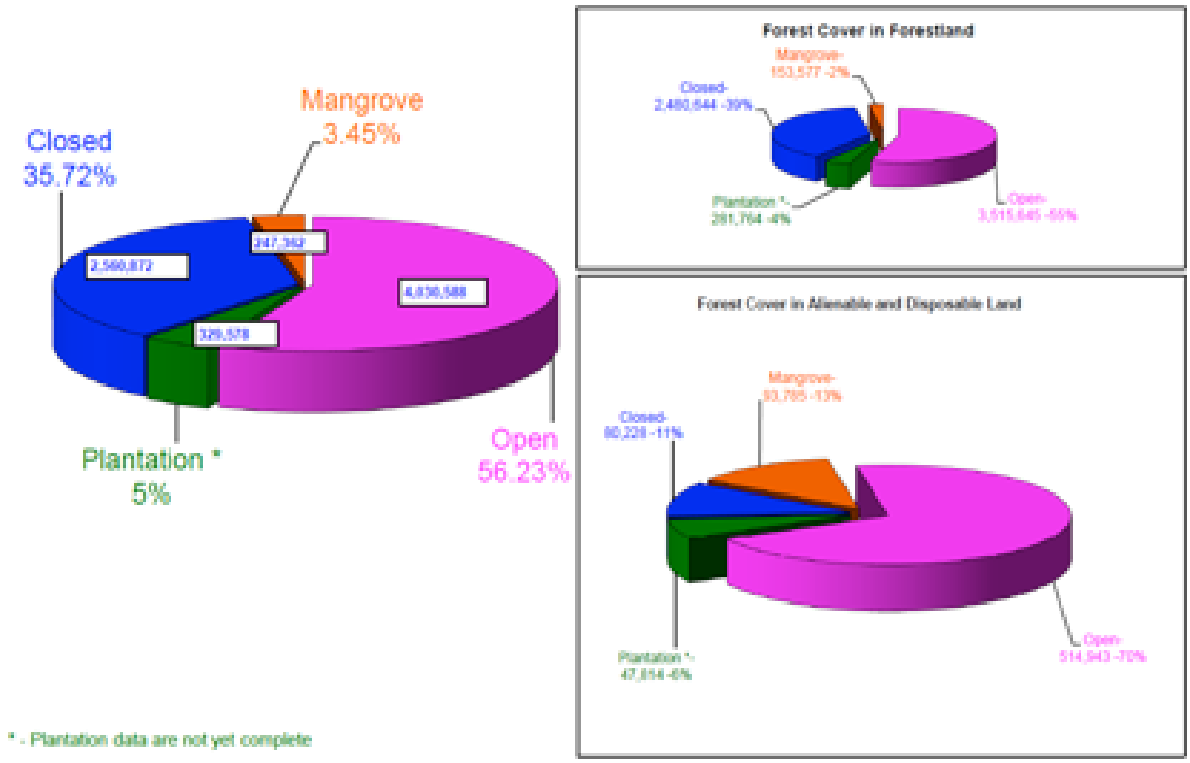

Figure 4. Forest Cover (in ha) of the Philippines in 2003 (FMB-DENR 2011)

3.3 Quality of Forests

Based on the 2005 Forest Resources Assessment Report of Forest Management Bureau (2009), the increase in forest cover is often found largely in open broadleaved forests than in closed broadleaved ones.

CHAPTER 4 MAJOR FORCES TO DRIVE FOREST TRANSITION

4.1 Drivers to Forest Deforestation and Degradation

Carandang *et al*. (2012) reported in their "Analysis of Key Drivers of Deforestation and Forest Degradation in the Philippines" the following direct drivers of deforestation and forest degradation as shown in Table 4.

In terms of forest products extraction, uncontrolled woodfuel production and NTFP extraction for subsistence and supplementary livelihood may threaten any REDD-plus mechanism if it continues. Various tenurial instruments and permits allowed timber harvesting in the country but after the issuance of EO 23 in 2011 banning logging in natural forests, there is no more planned timber harvesting. The same goes with fuelwood gathering, charcoal making, and NTFP extractions these were commonly used by households and commercial establishments. However, there was a need to identify the difference between subsistence use and commercial use (ibid.)

In terms of agricultural expansion, most forestlands were used as highland vegetable farms and expansion of settlement and resettlement programs in forestlands have been reported in some areas of the country. Kaingin, shifting cultivation, or traditional swidden was observed to be commonly practiced by indigenous peoples opening a few hundred square meters to less than a hectare but was even extensively practiced by migrant farmers opening up wider areas more than a hectare per household. This also hold true in highland vegetable farming where much of forest areas were logged and was converted to kaingin and upland settlements. The conversion of forestlands into settlement/resettlement areas, and oil palm and rubber plantations also led to deforestation in the country (ibid).

In terms of infrastructure expansion, road construction opened up new access to forestlands which may have potentials for logging or mining activities and may even lead to greater forest deforestation and degradation. The establishment of markets such as sawmills, and furniture and processing plants even led to allowed logging activities as rationalized by Section 30 of the Forestry Code. However, it was found out that there were increasing numbers of wood processing plants in the Philippines from 1980 to 2008. Mining was also revealed to the destruction of forests as trees were cut down and the rest of vegetation was cleared by bulldozers to get the ores underneath the forests. Construction of dams also contributed to the loss of many ecosystems and not only that, some people were even forced to move to other forest areas and clear the land they previously used for planting agricultural crops. Lastly, construction of tourism facilities (roads, hotels, sewage, and disposal facilities) was also seen as giving negative impacts in the environment (ibid).

Lastly, biophysical factors such as typhoons, landslides, floods, drought, earthquakes, forest fires, and climate change were seen as predisposing factors to deforestation and forest degradation. Heavy rain brings down logs and destroys vegetation. However, irresponsible use of forest and its resources exerts pressure on the forests aside from the natural causes aforementioned.

Table 4. List of direct drivers of DD identified by key informants by sector in the four sites in the study of Carandang *et al*. (2012).

Direct Drivers of DD	Frequency by Sector								TOTAL	%
	DENR	LGU	PO	IP	Traders	CSO	NCIP	PCSD		
Forest products extraction										
Legal/illegal logging/poaching	26	23	138	13	12	19	7	1	**239**	**40.58**
Charcoal making	3	12	17	6	3	5	2		**48**	**8.15**
Fuelwood gathering	1	6	16	2		1			**26**	**4.41**
NTFP gathering		2	6	1	2				**11**	**1.87**
Agricultural expansion										
Kaingin making	23	21	28	4	9	11	3	1	**100**	**16.98**
Conversion of forests (plantations, agroforestry, fishpond)	5	2		6	1	5		1	**20**	**3.39**
Grazing	3	1							**4**	**0.68**
Infrastructure expansion										
Mining	9	9	9	12	5	1	4	1	**50**	**8.49**
Road construction	1	1	1	1					**4**	**0.68**
Hydropower dam construction			3						**3**	**0.51**
Tourism facilities						3			**3**	**0.51**
Biophysical factors										
Climate change, typhoons, floods, landslides	2	4	62	2	2	1	2		**75**	**12.73**
Forest/brush fire	3	1	2						**6**	**1.02**
Total	**76**	**82**	**282**	**47**	**34**	**46**	**18**	**4**	**589**	**100.00**

4.2 Key Points Leading to Reforestation and Forest Rehabilitation: Legal Policy and Milestones

Reforestation efforts in the country aimed at improving the country's remaining forests. Contract reforestation was implemented which involved various stakeholders and "contractors were paid for a fee in for reforesting and maintaining a particular area for three years with an expected survival rate of ≥ 80% and an average height of 0.8 m. After the contract period, the area was to be turned over to the DENR" (Pulhin *et al*. 2006).

Two national government programs spearheaded the large-scale reforestation and rehabilitation activities: CBFM was launched by the then President Fidel Ramos through Executive Order 263 in 1995, and the National Greening program by President Benigno Aquino by virtue of Executive Order 26 in 2011.These programs were seen as a climate change mitigation strategies seeking to enhance the country's absorption of its carbon stock and was also designed to solve poverty since by providing alternative livelihood for marginalized households (DENR 2013).

Private sector plantations which also contributed to reforestation and forest rehabilitation were also established in the country. While most of regular government programs were intended to rehabilitate denuded areas and to protect watersheds, private tree plantations were intended for production purposes (FAO 1998).

The early form of private forestry was through Timber License Agreements (TLAs), however it has been phased out and has now been replaced with a more socially inclusive strategy and environmentally accountable mechanism to parcel out forest management to industries and others. An example is the Integrated Forest Management Agreement (IFMA) which is a production-sharing agreement between DENR and a qualified applicant where exclusive rights to develop, manage, protect and utilize a specified forest area within 25 years (renewable for another 25). According to the FMB-DENR, as of 2010 there are 154 IFMA holders covering an area of 906 830.77 ha and about 91 131.79 ha has been planted.

Socialized Industrial Forest Management Agreement (SIFMA) is another production-sharing agreement where the DENR grants rights to a natural or juridical person to develop, utilize and manage a small tract (from 1–500 ha) of forestland consistent with the principle of sustainable development.

The table below shows an account of forest management under the purview of the government and non-government sectors from 1990–2011.

Table 5. Area reforested (in ha) by the government and private sector from 1990 to 1996.

Year	Grand Total	By Government Sector	By Non-Government Sector
2011	128,559*	-	-
2010	36,877	32,384	4,493
2009	54,792	53,842	950
2008	43,609	27,752	15,857
2007	27,837	25,024	2,813
2006	7,223	4,476	2,747
2005	16,498	7,187	9,311
2004	20,338	12,436	7,902
2003	15,088	13,195	1,893
2002	25,620	20,681	4,939
2001	31,444	26,524	4,920
2000	27,632	21,740	5,892
1999	42,167	31,184	10,983
1998	42,368	33,219	9,149
1997	66,237	49,301	16,936
1996	46,096	18,869	27,227
1995	65,233	21,841	43,392
1994	49,551	18,032	31,519
1993	19,211	6,347	12,864
1992	40,593	24,304	16,289
1991	93,039	73,602	19,437
1990	191,663	153,949	37,714

*National Greening Program Accomplishment involving DENR and other partners
(Source: FMB-DENR 2011)

4.3 Elements to Sustainable Forest Management

The Forestry Development Center (2010) developed a model for sustainable forest management (SFM) for the country identifying six key elements, namely: enabling policy; capable institutions; systems, tools and guidelines; capable stakeholders; enforcement and management; and good governance. These elements are described briefly below and reiterated in the last section on recommendations for the way forward.

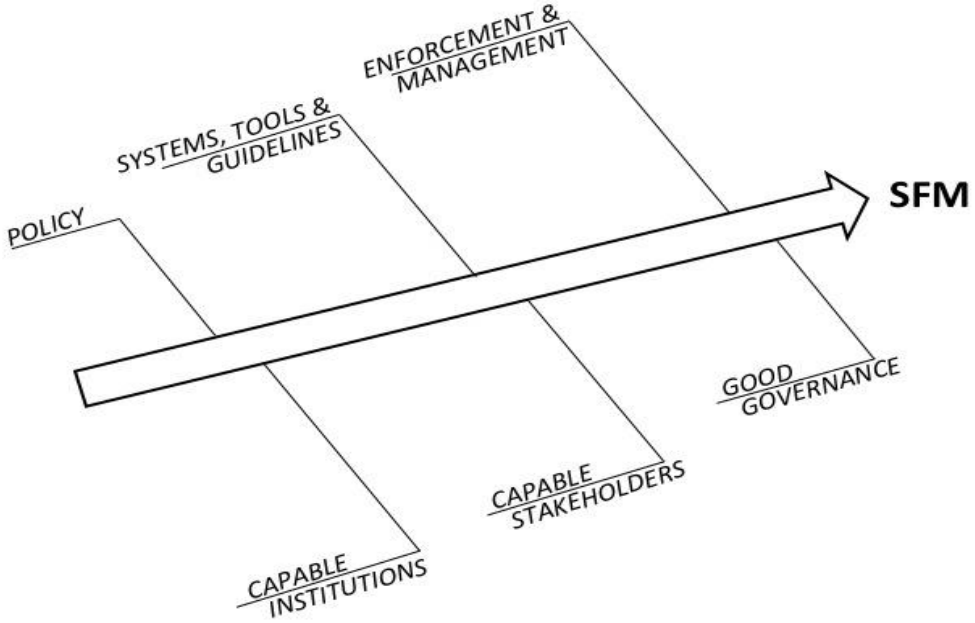

Figure 5. Key elements of sustainable forest management in the Philippines.

4.3.1 Policy

SFM need clear, stable and sound policies that would require legislation of the pending Sustainable Forest (and Environmental) Management Act (SFM or SFEM) that is reflective of the true aspirations of greatest number of people dependent on forest resources. Policy formulation and implementation should be a dynamic process and should be responsive to the needs of time and yet being able to anticipate and effectively address the future generation's demands for forest goods and services.

4.3.2 Capable Institutions

The sector needs capable and accountable institutions with clear and strong mandate to protect the interests of greater majority of our people (with adequate resources i.e., funds, equipment, and trained people).

4.3.3 Capable Stakeholders

Effective LGUs and stakeholders participation and support with full recognition of the rights of indigenous people is also a necessary element of SFM. Their effective participation is hinged on their awareness and capability to participate effectively.

4.3.4 Systems, Tools & Guidelines

A system for effective planning, program implementation, monitoring and evaluation with supportive MIS is needed to operationalize SFM. Likewise, the use of forest development/management tools (e.g., forest certification, chain of custody, timber tracking, and other tools) is strategic in transitioning from traditional forest management to SFM.

4.3.5 Enforcement and Management

Effective and efficient enforcement of forestry policies should be able to address destructive and illegal activities that contribute to continuous forest degradation and deforestation and hence, is of central importance in promoting sustainable forest management. Similarly, appropriate management and protection of the remaining natural forests and the plantation areas coupled with the effective rehabilitation of the degraded ones is key to the achievement of the goal of SFM.

4.3.6 Good Governance

The employment of the key principles of good governance such as transparency, accountability, participation, and equity in the management of the country's forest resources is crucial in advancing SFM. Such principles must be applied in all aspects of decision-making including planning, implementation, monitoring and evaluation of different policies, programs and projects.

4.4 Case Study: Caraga Region

4.4.1 Private Land Tree Plantation, Talacogon, Agusan del Sur

Introduction

The role of private land tree plantations in the Philippines is very important especially in its quest to transition from traditional and unsustainable forestry to sustainable forest management. In 2004, there were an estimated 46,000 ha of tree farms in private lands in the CARAGA Region alone involving 31 000 tree farmers supplying 60% of the country's plantation timber (Mitchao 2004). At present, such private lands devoted to tree farms has increased significantly to around 50 000 ha, although, some private land owners also ventured into planting rubber trees as they see this as a more preferred tree crop in providing continuous income. These plantations also ease up the pressure on natural forests for timber as well as provide the needed employment opportunities in rural areas of the region—which is considered to be one of the poorest regions in the country. The case study site is the municipality of Talacogon, Agusan del Sur representing tree farming in private lands.

Private Land Forestry

Tree farming in private lands is a lucrative business among local people in the CARAGA Region, specifically in Talacogon. According tor the DENR (CENRO Talacogon), there are 192 registered tree farmers in the municipality (with PTPOC – private tree plantation ownership certificate) with a total land area of 914 ha in 2010. According to the tree farmer respondents, majority of them plant falcata (*Paraserianthes falcataria*) in their farms primarily for timber production that are made into veneer and plywood in the nearby Butuan City. Other market outlets include Cagayan de Oro City and Davao City. There are traders who also export falcata logs to China, Japan and Taiwan. This young industry provides plenty of livelihood opportunities to the local people. From seedlings production to planting, maintenance, harvesting and marketing, these activities entail labor that is being provided by local community members. Other businessmen also earn from this industry through trading, trucking, and final processing of products.

Five private land tree farmers were interviewed to get their views on the prospects and business outlooks for tree plantations. Information from these interviews were supplemented by other interviews on tree farmers done by Carandang *et al.* (2012). The interviews were open-ended but usually revolved around costs, productivity, marketing and overall views of farmers on the programs and policies of the government regarding such venture.

Results

Most farmers interviewed have a mix of tree crops in their farms. Common species planted are falcata (*Paraserianthes falcata*), mangium (*Acacia mangium*) and rubber *(Hevea braziliensis*). Other common species include mahogany (*Swietenia macrophyla*) and gmelina (*Gmelina arborea*). Falcata constitutes a major proportion of the species planted corresponding to an estimated of 60 % of area. Rubber is the next common species planted recently. Farmers have given up on gmelina as this species is very heavy but commands a cheaper price per cubic meter.

Tree farming employs a lot of people. Even the communities dependent on traditional forestry, benefits from employment in these tree farms as part time labor during peak labor season of maintenance and harvesting. Based on previous studies, for every cubic meter of logs harvested in falcata plantations, an equivalent of 4.67 man-days are required to complete the operations (Table 6). As such, there are many people employed everyday in this industry and many people benefit along its value chain.

Table 6. Labor requirement in forest plantations.

Activities	Mandays required
1. for every cu m of falcata logs produced /1	
Nursery operations	0.04
Plantation Establishment	0.06
Plantation Maintenance	0.21
Infrastructure	0.03
Total	**0.35**
2. For every cu m of logs harvested from plantations /2	
Felling	0.30
Loading	0.24
Hauling	2.00
Hauling (animal days)	2.00
Scaling	0.13
Total	**4.67**

/1 - Based on Carandang, A and M. Carandang (2009).
/2 - Estimated based on study of Camacho, et.al., 2006.

The estimated income per year from forest-based livelihood in Talacogon is quite lucrative. As one would notice, hundreds of truckloads of falcata timber from Agusan del Sur are being transported to Butuan City and other destinations every day. A truckload of this timber is around 40 cu m and fetches around 80 000 to 140 000 pesos each. Every day, the value of timber that go to the local economy easily adds up to around P12 million.

Accordingly, tree farmers gross income per ha ranges from P300 000 to P600 000 per rotation of 8 to 10 years. From an estimated plantation cost of around P42 000 per ha and a harvest and roadside transport cost of around P762 per cu m, a tree farmer could have a net income of around P200 000 to P250 000 from an average yield of around 220 cu m per ha.

Value Chain for Private Land Tree Plantations

The decision of farmers to go into tree plantation is reinforced by stories of other farmers making it well in the trade despite the many other options available to them. Tree farmers get different prices on their timber based on the diameter of products. Falcata pick-up prices along the road per cu m are as follows:

- Less than 20 (Small size) Pulp = P1800
- 20–28 dia = P2200
- 30–up dia = P 2400
- 40–up dia = P2500
- 50–up dia = P2600
- 60–up dia = P2700

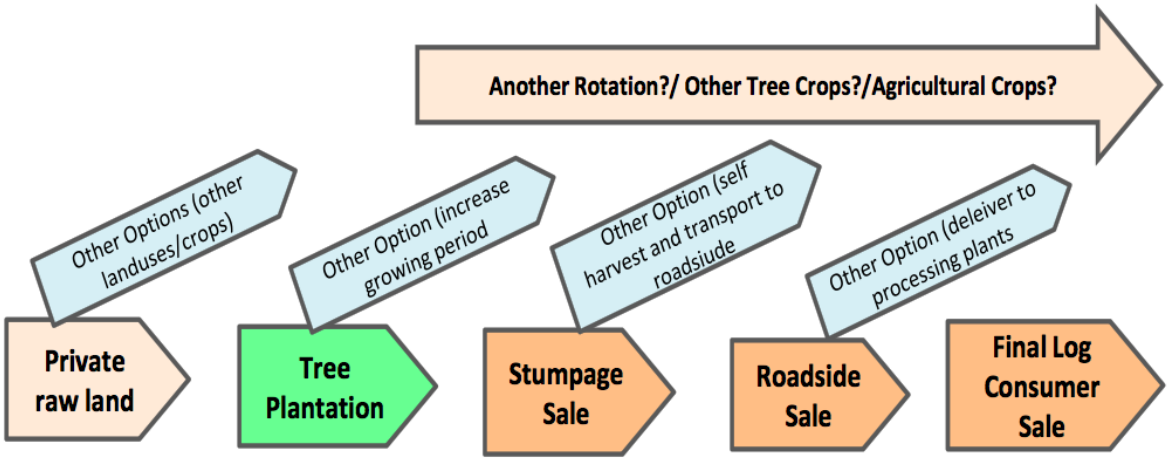

Figure 6. Decision options in private land tree plantation value chain

The decision to repeat the planting cycle after harvest depends on the experience of farmers in the first rotation. The decision of farmers to go into tree plantation is reinforced by stories of other farmers making it well in the trade despite the many other options available to them.

Tree farmers get different prices on their timber based on the diameter of products. Falcata pick up prices along the road per cu m ranges from P1800 for less than 20 cm diameter to as high as P2700 for 60 cu m/diameter.

Usually, the farmers sell assorted sizes of timber. The bigger the diameter, the higher the selling price. Hence, selling time depends on the needs of the farmers for cash. Those who are well-off are observed to postpone harvest to prolong growing period and wait for the trees to grow bigger which are expected to command a better price and much bigger returns. In such cases, buyers usually go to the farmers and offer attractive prices to them at stump.

It is also observed that the bigger the diameter of logs being sold, the higher the price the buyers offer. However, the usual sales point is along the highway where the prices above were obtained. Figure 6 shows some decision options for farmers in order to get fair return from their investment.

The decision starts with an option to plant trees in a private raw land or existing agricultural land. As depicted in the above figure, farmers may also opt to devote his land to other crops. If he decides to plant trees, there are usually three choices for tree species namely: falcata, rubber and mangium. During harvest period, he may opt to sell on stumpage basis or he may harvest himself and transport his products on the roadside. The latter is the usual practice as there are ready buyers who prefer to buy on pick-up basis along the road. After selling the first rotation crop, the decision to repeat the planting cycle after harvest depends on the experience of farmers in the first rotation and the prevailing market conditions at that time. He can continue to plant falcata or shift to other species like mangium or plant agricultural crops like rubber and oil palm.

Table 7. Value Chain for Private land tree plantations (falcata)

Transactions	Costs (at constant prices)	Unit	Std Cost/ cu m
Seedling Costs	2400	ha	10.9
Site Preparation	3000	ha	13.6
Plantation establishment	4800	ha	21.8
Plantation maintenance (1st year)	12800	ha	58.2
Pltn maint. (2nd year)	6400	ha	29.1
Pltn maint. (3rd year)	6400	ha	29.1
Pltn maint. (4th-10th year)	6000	ha	27.3
LandRent (8000/ha/yr)**	80000	ha	363.6
Cost at Stump		**cu m**	**553.6**
Fair Price at Stump*		cu m	**692.0**
Harvesting (Chainsaw operator)	120	cu m	120.0
Hauling (Minor Log Transport - to roadside)	500	cu m	500.0
Loading (10 wheeler, 28 cu m)	4000	truck	142.9
Cost at Pickup		cu m	**1,454.9**
Fair Price at Pickup*		cu m	**1,818.6**
Environmental Tax	35	cu m	35
Hauling (Trucking to Butuan)	18000	truck	642.9
SOP (Checkpoints)***	3500	truck	125.0
Paper processing	250	truck	8.9
Cost at Plant Delivery (Butuan)*		cu m	**2,630.4**
Fair Price at Delivery		cu m	**3,288.0**

* Includes 25% margin for profit and risk.

** A minimal rental fee is included to cover opportunity cost of land.

*** Average amount prepared by truckers for checkpoints.

1 ha, 1,600 trees per ha, smallholder farmers

Average Yield/ha @ 10 yr rotation

Price / cu m (Butuan) =	2,700.0	P/cu m
Gross Revenue/ha =	594,000.0	P

For falcata crop, a value chain analysis was conducted as provided in Table 7. The average cost at stump is around P553.6 per cu m**,** hence the farmer must not sell below this price at stump. Considering a reasonable 25% profit margin, the fair price at stump must be P692. The price at stump can go higher than this if the plantation is near the road or accessible to trucks during dry season.

If the farmer opts to sell at roadside, he would incur additional costs for harvesting, hauling, loading and other incidental costs in keeping and handling the products. Nevertheless, he could jack up the price up to P1 818 or more per cu m, to compensate for his efforts in bringing the logs near the road. In fact the bigger diameter logs fetch up to P2 700 an attractive price considering the cost at pick-up is only around P1 454.9**.** If the farmer has the means, he can still earn additional income by delivering the products to the mill. However, this is not the usual practice by ordinary farmers but this is being done by farmer-traders who produce the logs at the same time buy the products of other farmers.

Pic. 1. Newly harvested falcata logs being stacked at the roadside for eventual pick-up by traders.

Pic. 2. A ten-wheeler truck being loaded.

Figure 6. Some photos of timber trade practices in CARAGA region.

Problems (as related by tree farmers)

Among the problems encountered in this business is that farmers have no clout in stating the fair price for their timber. The price of falcata is monopolized or dictated by traders and agents of big companies who are the ultimate user. For those with small wood processing plants (WPP), the 5 years log supply contract volume requirement imposed by the government (through EO 23) in order to operate is very hard to satisfy. The farmers also lament the poor conditions of the roads especially, in far-flung barangays of the municipality. Others have no ready capital to expand their plantations because this would eat up areas earmarked for agricultural crops. Their plantations are not well-managed as they plant in a staggered manner because of lack of capital.

Suggestions (by tree farmers)

Tree farmers have a consensus that tree farming of falcata is a good business and must be further encouraged and supported by the government. Among the major suggestions of tree farmers to further improve the situation are as follows:

- provide financial assistance for farmers who have private lands that can be devoted to forestry to further develop this emerging tree farm industry;
- encourage businessmen in investing on more strategic wood processing plants in Talacogon to lessen transport cost of products, less stringent requirements (reducing the required 5-year log supply contract to 3 years for wood processing plants (WPP) in order to operate legitimately) for processors so that they could re-operate for the benefits of the communities;
- authorities to work for a more stable price of falcate;
- reduction of tax on land and harvested falcate; and,
- improvement and proper maintenance of farm to market road strategic to tree farmers.

4.4.2 Sustainable Agroforestry Development in Agusan Del Norte in DENR-LGU Co-Management Scheme

Introduction

Co-management is a management option that recognizes the importance of the local government units (LGUs) in forest management. The LGUs are the closest government institutions with the people which take care of most of the basic services that the upland communities would need. As provided for in Section 4.3, DAO 2010-07, the LGUs can manage forest lands in two ways: through the Forest Land Use Plan (FLUP) approach where the LGUs are transformed into area managers of forest lands within their jurisdictions; and through a Memorandum of Agreement between the DENR and the concerned LGUs where the LGUs shall have the direct responsibility of managing co-management areas. At present, the country has about 159 co-management agreements already effected covering a total area of 487,085.64 ha mostly found in the Cordillera Administrative Region (Tamayo 2012).

Co-management in the CARAGA Region particularly Agusan del Norte is still in its infancy stage. The cancellation of the TLA of Nasipit Lumber Corporation (NALCO) resulted to the conception of a co-management project in Agusan del Norte which includes four municipalities of the province namely: Las Nieves, Buenavista, Nasipit, and Carmen. Hence in 2010, the LGU of Agusan del Norte came up with a co-management plan for the LASBUENASCAR Agroforestry Development Project (covering the four municipalities) to protect/conserve and rationalize the use of the natural resources of the province for the interest, benefit and welfare of the people. The project involves a total of 56,093 ha of vast forest lands from the cancelled Nasipit Lumber Company Timber License Agreement (TLA) No. 39-A in Agusan del Norte.

The focal persons on co-management in the Regional Offices of the DILG and DENR including DENR-CENRO office in Nasipit, Agusan del Norte, were interviewed to get their views and insights on the prospects of co-management in the province of Agusan del Norte. The interviews were open-ended and revolved around the potentials and opportunities of co-management, issues and concerns and their views on the programs and policies of the government regarding co-management.

Site Description

The province of Agusan del Norte is located on the northeastern portion of Mindanao. It is bounded on the north by Butuan Bay and Surigao del Norte, on the east by Surigao del Sur, on the south by Agusan del Sur, and on the west by Misamis Oriental. The province occupies a total land area of 354,686 ha covering 11 municipalities and 163 barangays. Including Butuan City, it accounts to about 6.9% of the Region's total land area.

The proposed co-management area is formerly a NALCO concession area covered by TLA No. 39-4 and is also a part of the Nasipit-Anakan Forest Reserve. It is a contiguous area of 56 093.81 ha within the Municipalities of Las Nieves, Buenavista, Nasipit, and Carmen in the Province of Agusan del Norte. More than half of the area (55.5%) have 0–18% slope while 24.2% and 20.3% of the area are within 18–50% and above 50% slope categories, respectively.

The existing land use of the area consists of the following: cultivated/ settlement – 10 548.16 ha (18.8%), forest plantation – 1271 ha (2.3%), watershed – 7289 ha (13%), open canopy forest – 12,388.67 ha (22.1%), close canopy forest – 2 231 ha (4%), brushland – 8 846.57 ha (15.8%), grassland – 1 198.25 ha (2.1%), CADC areas 8 673.16 ha (15.4%) , wilderness areas– 1 770 ha (3.1%), CBFM areas– 1 000 ha (1.8%), Dairy Stockfarm Area 602 ha (1.1%), and Military Reservation area 276 ha (0.5%).

Forest plantations planted in the area had been dominated by falcata and gmelina. Agricultural areas were planted with banana, coconut, coffee, rice, corn, root crops, pineapple, and abaca, among others. Fruit trees like durian, *marang*, *rambutan*, and avocado were also planted.

Potentials and Opportunities

The potentials and opportunities of the proposed co-management area in Agusan del Norte are the following:

1. As a former logging concession, the co-management area with more than 50 % of its slope within 0–18% is basically suited for agroforestry activities. The area has potential for agribusiness.

2. The several rivers and creeks traversing the area are used mainly for fishing and as means also of transportation and sources of water for agriculture and domestic use.

3. The co-management area has vast land area with excellent climate and is open for development to investors.

4. According to the focal person from the provincial LGU, the number of investors who have signified their intentions to develop the area has increased. Many private individuals and corporations and GOs, among others have given their intentions to invest in the area. However, much of their proposed investments are not related to timber production but rather, mostly on food production. For instance, a group from South Korea would like to develop 4000 ha within the Municipality of Carmen for the production of cassava and other crops. In addition, the group intends to establish and develop a plantation for the production of wood pellets for energy generation. Another investor from the private sector, the NEWPHIL Corn Corporation would like to develop about 5000 ha of the area to produce corn for food production. Others would like to develop portions of the area by planting fruit trees and cash crops and also some others intend to develop portions by planting rubber and falcata.

5. The co-management area is predominantly classified as forestland area and is part of the Nasipit-Anakan Forest Reserve. Hence, a big portion of the area would have great potential for forest protection and biodiversity conservation including ecotourism.

6. The area has three unproclaimed watersheds such as the Calayagon Watershed in the Municipality of Buenavista, Kinabjangan Watershed in the Municipality of Nasipit and Casiklan Watershed in the Municipality of Las Nieves with a total aggregate area of 7489 ha to secure water sources for agriculture and domestic use. Through the programme, the LGU will have a deliberate effort to protect their water sources.

7. The stakeholders within the area are committed to the program. The people are also supportive to the program.

Issues, Problems and Concerns

Among the issues, problems and issues encountered in the co-management area include the following:

1. The crops planted—which are seasonal, cannot fully support the basic needs of the people in the area. Commercial activities in the area were confined mostly to agricultural production and industrial tree plantation and therefore cannot sustain their needs. Unlike before when logging was still in boom, NALCO as stated in the proposed co-management plan, was the source of employment of about 4 500 people contributing to 3.6% of the employment in the province. The cancellation of the Timber License Agreement of NALCO, not only left the concession area unattended but also contributed to the high incidence of poverty in the area.

2. After cancellation, the area had become open access area and had been subjected to unregulated activities like agricultural intrusion, slash-and-burn cultivation and unregulated extraction of forest resources that are noticeably observed in many parts of the area. Some portions had been subdivided under the Department of Agrarian Reform (DAR) Certificate of Land Ownership Agreement (CLOA).

3. As per interview, insurgency problem/peace and order condition in the area is also a concern that also needs immediate solution.

4. It was also revealed that the area is part of a forest reserve hence, should not be used for any other purpose other than for forest protection.

5. Security of tenure is a concern of the community. People are afraid that the government will be taking their lands through the program.

6. Existence of boundary disputes among the municipalities covered by the co-management area. Every municipality would want to have share of the co-management area. It was revealed that the area was not equally distributed.

7. Portion of the co-management area of about 8 000 ha is within CADC. Because of this, IPs would assert their rights on the land and would like to have a direct hand in the implementation.

8. There is a conflict of interest if co-management is mainly for food production considering CARAGA Region is the timber corridor of the country.

9. Infrastructures and social facilities are inadequate in the area. Existing roads are badly in need of rehabilitation and improvement. Health services are available only in urban areas.

10. Co- management has no clear and definite policy guidelines. There is no single policy that deals with specific guidelines on co-management such as on procedures and requirements on entering into co-management, kind of development, incentives for good performing LGUs, guidelines for prioritizing co-management areas, etc.

Recommendations

The following are the recommendations that had been arrived at based on the interviews with key informants:

1. The co-management area should be managed by the provincial LGU and not by the municipal LGUs so as not to create any problem in management among the four municipalities, according to one key informant. Otherwise, the strategic framework on co-management at the municipal level should also be provided aside from the provincial level.

2. There should be an institutional collaboration among LGUs, communities, NGOs, and the private sectors in forest protection, rehabilitation and conservation since the co-management area is predominantly classified forestland.

3. Individual property rights and tenurial rights of stakeholders should be recognized.

4. As per interview, the insurgency problem/peace and order condition in the area should be addressed through coordination with concerned institutions. This problem should be solved through the development of the area.

5. The DENR should be required to develop guidelines defining the rights, roles, obligations, responsibilities, privileges, production sharing, incentives, and accountabilities of the parties involved in the co-management agreement. These guidelines should be easy and simple to follow and are transparent and have accountability.

6. The Memorandum of Agreement between the DENR and LGU should already be approved so that the developed plan entitled, *LASBUENASCAR Sustainable Agroforestry Development Project- Co-Management Program* for Agusan del Norte will already be implemented. With this agreement, the LGU of Agusan del Norte will have the direct responsibility of managing the co-management area.

7. Likewise although not mandatory, the Forest Land Use Plan (FLUP) of the area should also be developed to facilitate identification of areas for development, among others.

4.4.3 Sustainable Forest Management in Surigao Del Sur, Caraga Region: The Case of SUDECOR IFMA

Introduction

On November 4, 2009, an Integrated Forest Management Agreement (IFMA, No. 06-2009) was forged between the DENR and the Surigao Development Corporation (SUDECOR) covering an area of 75,671 ha. The same area was covered for SUDECOR's existing Timber License Agreement (TLA) No. 56-1 in Surigao del Sur which expires on June 30, 2011. As such, the TLA holder opted to convert it into IFMA Site, upon the TLA's expiration, with its desire to continue sustainable forest management as it has done for the last 50 years since it started operations in 1959. SUDECOR has gained national and international recognitions as a model sustainable forest production area in the Philippines and has been the site for various government-funded projects showcasing sustainable forest management (SFM) and its component on the ground (SUDECOR 2009).

This study focused on the experiences of SUDECOR and its concessions on promoting and achieving sustainable forest management in the area. The focal persons interviewed were: key informants from SUDECOR, the Municipal Environment and Natural Resources Officer (MENRO), four representatives from different community organizations around the SUDECOR concessions, and three barangay officers. A focus group discussion (FGD) was also conducted with the twelve workers in SUDECOR to gather perspectives on the latter's experiences on SFM in Surigao Del Sur. The interviews and FGD revolved on the background of the site, current situation of SUDECOR IFMA, opportunities and potentials as well as issues, problems, and gaps on the site, and their recommendations towards transition to SFM.

Site Description

The province of Surigao del Sur is a coastal province of CARAGA Region located on the northern-east coast of Mindanao. The SUDECOR IFMA site (Figure 7) covers a total area of 75 671 ha and its concession area falls within the Municipalities of Madrid, Lanuza, Cortes, Tandag, Tago, Carmen, and San Miguel, extending approximately 30 kilometers in length and 50 kilometers at its widest stretch. It is approximately 809 kilometers away from Manila and 260 kilometers away from Cebu on a general direction of 138^{o} and 117^{o} respectively (SUDECOR 2009).

There were alliances of seven municipalities forming the SUDECOR. The stakeholders were the local government units (LGUs), DENR, community-based forest management (CBFM) tenure holders, NPC and ISF holders, and the SUDECOR itself. Indigenous people (IP) communities were chosen (per concession) to choose who will hold the settlement in managing the forests. There were also conferences made for the forest stakeholders in which they built consensus with the National Commission on Indigenous People (NCIP) to take roles as co-owner and co-managers of the forests

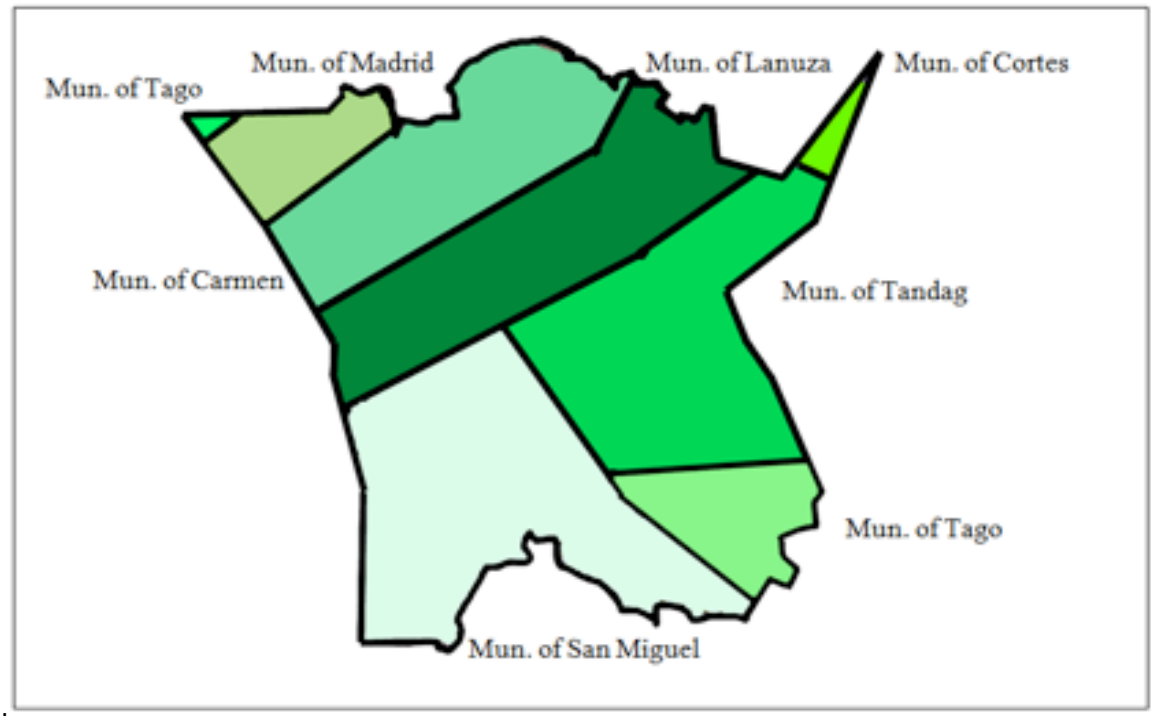

Figure 7. Municipality Map covering the SUDECOR IFMA Area.

The land uses in SUDECOR were timber lands which are classified as mossy, virgin, and residual forests; open lands where indigenous peoples (IPs) settlements were distributed and became part of their community ancestral domain titles (CADT); and the rest were forest lands. A specific land use or vegetation type in the IFMA area was shown in Table 8..

SUDECOR's 50-year period of reforestation in its 347 ha IFMA site, could be seen as one of their accomplishments in achieving SFM.

Table 8. Land Use/Vegetation Type in the IFMA Area (SUDECOR 2009)

Land Use/Vegetation Types	**Area (ha)**	**% of Total**
A&D	1,581	2.09
Brushland	6,588	8.71
Dipt. Forest – High Volume	8,141	10.76
Dipt. Forest – Medium Volume	17,246	22.79
Dipt. Forest – Low Volume	26,306	34.76
Dipt. Forest, Virgin	2,869	3.79
Mossy Forest	2,036	2.69
Openland	5,544	7.33
Plantation	2,132	2.82
Sub-Marginal Forest	3,228	4.26
Total	***75,671***	***100***

The agricultural crops planted were coconut, matugan, palay, and banana while the most promising products in the area were rattan, cedar, narra, and mangium. Specifically, the members of SUDECOR reported the following: Brgy. Damiog in the Municipality of Laruan has coconut, falcata, and matugan; Brgy. Ibuai near the Municipality of Tandang, have indigenous peoples (IPs) residing inside the forests; Brgy. Puyat inside the SUDECOR Compound has falcata and had fuel shops and water tanks; Brgy. Pakwan is just like Brgy. Ibuai also had IPs residing in the forests; Brgy. Cayale in the Municipality of Tago plants palay and falcata and also had IPs; Brgy. Cabangayan inside San Miguel have rice fields and virgin forests; Brgy. Mamaco has mahogany; Brgy. Umalag, Brgy. Calatagan, Brgy. Bakaka-ay, Brgy.Gakub, and Brgy. Bitaugan also had IPs; Brgy. Gakub also in the Municipality of Madrid had banana and coconut plantations; and in the upper municipality of Carmen were the Brgy. Esperanza School and the Bayoyo Dam.

According to the key informants, the major changes in the land use during the 1950s were due to the presence of logging companies. During 1980s, some portion of TLAs became integrated social forestry areas. During 1990s, a community-based forest management project was implemented. When the TLA of SUDECOR was stopped, it was assumed that SUDECOR also stopped its operations but it returned in 2004 to 2006. There was also a mineral production sharing agreement (MPSA) in 2006 where portion of it was proclaimed a watershed area. Some IPs also entered Brgy. Pakwan and built their settlement, thus changing the land use from residual to settlement forests. Some key informants noted that one of the major factors causing the change in land use was the loyalty of the elected leader of the IPs who was supposed to and should have no steak on the ancestral domains. However, it was revealed that of all the places not covered with certificate of ancestral lands titles (CADTs), the elected leader chose the settlement forests for the IPs since the place can be utilized for mining.

In terms of the forest cover, the area of operation was selective logging in line with the Philippine Selective Logging System (PSLS). The major factor that contributed to the use of selective logging (aside from PSLS) was the shifting of settlements.

The changes in the social aspects were the presence of illegal loggers until the 1990s. From 1950s to 1980s, SUDECOR was said to have been a peaceful site. Encroachment of their boundaries started to occur in 1981. In 1986, there was an arson in Bakaka-an where 19 equipment of SDC were damaged in San Miguel. On September 2009, workers of SUDECOR noted that some members of the New People's Army (NPA) burned some machinery in Brgy. Puyat.

IPs, who were once nomadic by existence were employed by SUDECOR so that the former can apply for CADC and CADT. However, IPs resorted to small-scale mining when they were not granted a CADC or CADT. IPs also declared ownership of some forest lands through the 'community approach to mining' as approved by NCIP. They also currently conduct illegal logging and land conversion.. Moreover, SUDECOR was tasked to have responsibility over IPs. They were provided scholarships by SUDECOR, and other social services such as; basketball courts, and medical services However, it was revealed that there had been anti-SUDECOR sentiments by five to seven IP leaders before since the latter thought that they were deprived of their rights to extract the resources until they realized their rights.

Programs such as backyard gardening and poultry for the barangays were also developed for non-IPs. SUDECOR also supports schools for non-IPs by improving school buildings and building community chapels. Moreover, non-IP teachers were also allowed to teach IPs in the classroom as requested by the Datu. Still, the financial support comes from SUDECOR.

Some of the respondents noted that SUDECOR has been active in providing assorted lumbers and plywood for their construction activities. In Brgy. Magasang, they even requested 5,000 board feet of lumber for use of local government units. Moreover, SUDECOR provides labor as long as it was requested by the barangays. They also noted that road construction were also conducted by SUDECOR. In Barangay Consuelo (inside the Municipality of Cantilan), they built tollgates where every farm produce is collected a fee of P20.00.

Education was also seen as an advantage when SUDECOR was still in operation, since the parents get their income from working as laborers in SUDECOR. The laborers also receive various benefits as indicated by law such as medical insurance. However, it was observed that when SUDECOR stopped operations, there were some students who stopped attending school since their parents lost their jobs.

However, SUDECOR was credited for pursuing an “Adopt-a-School” program in other municipalities when it was still operational.

Potentials and Opportunities

Based on the FGD, since 1964 SUDECOR has already practiced sustainable development through watershed protection, reforestation, and building of dam sites in the area. They also had land control monitoring system in the area where surveyors marked 50% of the reserved or residual trees so they can easily identify illegal loggers encroaching the area. They also follow the Philippine Selective Logging System. Moreover, they had already piloted pathways to easily drag the logs down the forest and lessen the damages on the forests.

SUDECOR also had nurseries for tree planting which enabled them to maintain their site for almost 40 years. Rattan was the most promising non-timber forest product in SUDECOR where the organization assists the communities in harvesting the produce but only for a limited access since overexploitation of resources have a bearing on biodiversity. IPs were also given license for planting and harvesting rattan. There were also seminars conducted for Timber Stand Improvement so the IPs and other area constituents will not cut timber and other medicinal herbs along the area. Regarding development facilities and infrastructure, there were road maintenance and year-long *Brigada Eskwela* in all the concessions of SUDECOR. The organization provided the labor and lumber was acquired from other manufacturing plants. SUDECOR also have their own checkpoints in the concession to monitor illegal logging in the area. Development activities were stopped since there was no fund available in the site.

SUDECOR maintained fire-protection in their site through the Multi-Sectoral Forestry Protection Council whose members served as municipal guards since the Council had fire trucks. The Council established fire lines so that the whole area will be protected from large-scale forest fires.

Fuelwood, which was seen as one of the drivers of deforestation, had been a part of the processing of the concession and was not seen as a driver of deforestation in the area. It was also reported that IPs were given contracts for fuelwood collection.

Regarding mining, SUDECOR reported the illegal miners who entered their concession to the DENR. SUDECOR also had meetings with mining corporations emphasizing the guidelines if the latter did not comply.

The present opportunities in the site as identified were: planting in rice farms, cleaning fish ponds, mixing cements for construction, making copra, mangrove planting and rehabilitation, crab fattening and branching, seaweed culture, and raising *talaba*. Rattan was the most promising forest product and was frequently marketed in Cebu.

Issues, Problems and Concerns

Implementation of the Total Log Ban (Executive Order No. 23) opened a venue for illegal activities in the forests. Upon its implementation, it was observed by the interviewees that illegal logging in Brgy. Gakub was prevalent, especially during nighttime. The Total Log Ban also caused SUDECOR to stop their operations and its effects were visible in the concession. For instance, the IPs once held rights for tree planting and reforestation activities were now unable to do so. Delivery of goods from SUDECOR sites to the market was also stopped because SUDECOR cannot easily penetrate the site anymore due to the implementing guidelines of EO 23.

Development activities were also stopped when SUDECOR operations were terminated; thus road and bridge constructions were unmaintained in the area. The IPs also reverted to *kaingin*, thus converting forests to non-forest uses. When these activities were immediately reported to the nearest municipal authorities, the IPs contest that they already had the site for *kaingin* purposes from the beginning.

The Manobos (an IP tribe) in the area once declared a portion of SUDECOR as their ancestral domain; thus establishing boundaries to distinguish which part of the mountain belongs to the IP and that of the SUDECOR. However, when SUDECOR planted falcatas inside their own boundaries, the Manobos harvested it.

There was a problem of conversion of forest to non-forest uses where the previous reforestation sites became open-access, some were even transformed as mining sites. Some SUDECOR IFMA sites were found to have small-scale mining of nickel and gold.. It was reported that the miners did not submit letter of request to SUDECOR to undertake mining operations in the concessions and instead illegally entered the area. It was also revealed that mining led to erosion which then led to aggravated siltation along the river streams.

Natural calamities also became visible in the site after mining was conducted in the area. Livelihood opportunities were also seen as a problem in SUDECOR after mining.

There were also problems which had not yet been addressed in the area such as the incidence of armed insurgents (New Peoples' Army) in the area.. SUDECOR is active in reporting illegal activities by submitting status reports to national government units. They also had informants or reporters who actively monitors and protects the forest and provides security assistance by identifying illegal loggers and reporting them to the Forestry Office of DENR.

Currently, SUDECOR is finding a way to be exempted from the log ban.

Recommendations

Does sustainable development still exist in SUDECOR IFMA site? It was revealed during the interviews that there was a need for equitable sharing of benefits (i.e. profit sharing, payment of royalties, pursuing social justice, and transcending corporate social responsibility) between SUDECOR and its constituents. There should also be shared responsibility in sustainable managing the forests other than depending on logging operations.

There should be a shift from short-scale to large-scale approach in marketing agricultural products. Moreover, there is a need for a shift of ownership from individual to collective approach.

There is also a need for a better marketing system and a facilitated agribusiness development for sustainable development.

SUDECOR passed the requirements of sustainable forest management and that they were a model of SFM as an exemplary site in Asia and the Pacific. It was also noted that for SFM to happen, there is a need to allow industry players only with corresponding concessions so that illegal logging will be avoided.

The possible facilitating factors for achieving SFM in SUDECOR, on a national level, was the possibility of an enabling environment which clearly defines regulations on forest resource development relative to the establishments and maintenance of forest industries.

In logging, there was a need to destroy the roads accessible to illegal loggers. In concessions, there was a need to update their land classifications. In terms of development activities, waste from mining should be watched through proper mining measures. For mining, it was suggested to assess first which of the areas in and outside SUDECOR can be used for mining. There was also a need to review the Mining Act of the Philippines so no more communities will get affected by its operations. Regarding business prospects, it was recommended for a permission to cut the trees in the national forests in titled lands within the community. There was also a need to have a higher demand on forest products such as wood and lumber despite the growing market for steel, synthetic fibers, and cements.

The end of the 50-year license of the TLA is a threat to SUDECOR. It was recommended to bring back SUDECOR and its operations in the area. There is also a need for establishing a company like SUDECOR to protect the forests so the concession will not be for open access. More areas should be developed for organic vegetable production to develop cash crops for the community than just depending on forest products which might lead to possible exhaustion of resources. Reforestation of fast-growing species can lead to sustainable forest management in the area. The challenge is to stop illegal loggers and *kaingineros* when reforestation was conducted in the area.

More livelihood opportunities and seminars should be made available for the communities. Seminars on making furniture from rattan, rope-making from sea weeds, crab fattening, raising fish in cages, and developing fish ponds should be conducted especially now that SUDECOR stopped its operations.

Fishes, shrimps, and crabs were also currently considered as promising products in Surigao but the depreciation of their products and the increasing demand for higher salaries for the workers became a problem. It was suggested to ban the big fishing boats called *liba-liba* since it destroys the seafloor where small fisher men get corals and sea weeds. Lastly, there was a need to have double efforts on reforestation practices in SUDECOR IFMA sites since the area was now limited by area and workforce.

4.4.4 Community-based Forest Management Agreement (CBFMA) in Mabuhay Timberland Farmers Multi-Purpose Cooperative (MATILFAMCO)

Introduction

Community-based Forest Management (CBFM) in the Philippines was enacted through Executive Order 263 naming it as the country's national strategy for forest development in the uplands. CBFM is considered to be an umbrella program of past community-led forestry activities. In this strategy, organized communities or Peoples' Organizations (POs) are given a tenurial instrument (CBFM Agreement) placing them as natural resource managers of a defined forest area for a period of 25 years, renewable for another 25 years.

Site Description

Indigenous peoples called Manobos occupied what is now known as Mabuhay. Previously, the locals referred to it as "Magbantilis." The name came from the word "bantilis" a type of rock that is smooth, hard and heavy found near bodies of water. It was replaced with Mabuhay in the 1950s.

Wild boars, deers and other game used to be prolific in the area however there has been a noticeable decline in the beginning of the 1980s.

During the 1990s, the local community became organized and formed the Mabuhay Timberland Farmers Association (MATILFA). In 1999, MATILFA became the MATILFAMCO in order to participate in the CBFM program. The PO was given 2 115 ha of forestland tenure located at Purok 4, 5, 7 and 8, Barangay Mabuhay, Municipality of Prosperidad, Agusan del Sur. At that time, there were only 23 members who contributed to capital build up. Now there are about 289 members whose capital build-up ranges from P100 to up to P12 000.

Part of the CBFMA involved the participation of the PO in: forest rehabilitation (including agroforestry); forest protection; development of alternative livelihood opportunities (not necessarily dependent on forest products); and, other activities that may be identified in the future as consistent with the CRMF of the area.

Activities of the PO involved agroforestry and forestry, however being subjected to good management, the success of the PO increased their revolving capital and they were able to build-up their livelihood options (cooperative sari-sari store) for members.

With the PO generating income from projects and their other livelihood activities, participation in the PO activities was increased. The PO participated in various government and externally supported projects.

Forest Transition (1950–Present)

In order to determine forest transition in the area, primary data gathering included an interview with key informants (KII), a focus group discussion (FGD) and participatory mapping. There were five respondents from the KII and six respondents for the FGD. Secondary data were used to validate results from the KII and FGD.

Figure 8. Participatory mapping result during the FGD.

In the 1950's the site was lush with green virgin forests. Early migrant settlers from Surigao, Bohol and some members of indigenous peoples from the Lumad tribe cleared portions of the land to practice farming.

It was only in the 1970's when there was an increase in extractive activities in the area. The population grew, more land was cleared for farming, and people practiced logging in the primary forests. There were legal logging firms present in the area—AGO Timber, Consuelo V. Calo Timber and Liberty Forest, as well as a few illegal logging practiced by small groups in the site and the nearby areas.

In 1979, majority of the land in Mabuhay was claimed by the Cojuangco family but has been subjected to land reform and was awarded to the local residents through the Department of Agrarian Reform (DAR).

The increase in population brought development in the area during the following decade. Several structures were built which included: a primary school, barangay center and a health center.

It was observed by respondents that the decrease in forest cover caused the loss of biodiversity in the area, for in the following decade, what was once a frequent sighting spot of wild boars, monkeys and fauna was near to null.

During the late 1990s, the barangay became organized and formed a Peoples' Organization that would later be called the MATILFAMCO. A Farmer's building was built in the community center and the primary school became recognized as the Mabuhay Elementary School.

After being granted a CBFMA in 1998, MATILFAMCO participated in various projects. In the year 2002, they received alternative livelihood projects from DENR in the amount of P69 000 for goat raising. In 2004 they were recipients of chicken dispersal and fruit tree seedling distribution in the amount of P13 500. In the early years of their CBFM project, they have established a falcata plantation and in 2010 they were able to gain a revenue of P112 000 from it.

The PO was also involved in other reforestation efforts to restore the uplands. In 2010, together with the DENR, they entered into a joint undertaking with the Korea International Cooperation Agency (KOICA) to develop an Integrated Wood Pellet Manufacturing and Industrial Tree Plantation Development. Part of this project involved the establishment of a 200ha forest plantation within the CBFM area as a sustainable source for wood pellet raw material. The DENR also conducted capacity building activities with members of the PO and other private and tenure instrument holders near the site. Finally, the agreement also involved market development for wood pellet export to Korea, development of renewable energy industry, and research and development to determine appropriate species for wood pellet production.

Additionally, MATILFAMCO is also engaged in the National Greening Program (NGP) and is currently targeting to reforest 150 ha in the area.

Potentials and Opportunities

Chocolate production is a prospect because they have been planting seedlings of cacao to give farmers members/non-members additional income.

MATILFAMCO also have a program tie-up with the Department of Agriculture for the establishment of a fish pen. The DA gave free fingerlings including feeds for fish (1 000 sq m with 4 000 fingerlings of tilapia). Their expenses amounted to P10 000 for this start-up.

The Cooperative store is also an income generating investment. They are able to clear 20 sacks of rice/week (P2 000/week) alone, plus income from other goods. The store also buys scrap/feeds from the community and then resells these for a small profit.

Respondents from the interviews believe that the REDD+ program will help them protect the forest better and improve their quality of life, hence they see it as an opportunity.

Issues, Problems and Concerns

The primary concern they have is the hostile forces that are present in the area. In 2005, they reported that the NPA burned some of the seedlings in the nursery that they have put up.

Respondents also mentioned their hesitation of planting rubber because these are exotic species. They also mentioned that seed sourcing, with regard to provenance and quality is lacking in the area.

Another problem is boundary-based and other types of conflict among community members themselves and other institutions (PO and DENR/PO and LGU).

Finally, they have expressed grievance in the tedious bureaucracy involved in securing a Resource Use Permit (RUP) because they cannot harvest the trees in their plantations.

Recommendations (from the PO)

The PO sees REDD+ as an effective forest protection strategy if famers will participate. They also expect that benefit sharing for ecosystem services provided will be equal to its carbon equivalent value in the international market.

They believe that biodiversity monitoring should be implemented and strengthened in their area to document environmental sustainability as well as provide evidence of success of their forest management. They proposed the formation of “bantay gubat” monitoring system to increase and stabilize protection in the site.

4.5 Integrative Analysis of the Four Cases

There were four cases examined in this study that representing the actual situation of SFM in the country, namely: Private Land Tree Plantation, Talacogon, Agusan del Sur, Sustainable Agroforestry Development in Agusan Del Norte in DENR-LGU Co-Management Scheme, The Case of SUDECOR IFMA concerning sustainable natural forest management in Surigao Del Sur, and the Case of Community-based Forest Management Agreement (CBFMA) in Barangay Mabuhay, Municipality of Prosperidad Agusan del Sur.

These cases are just manifestations of the complexity of the forest management systems in the Philippines. Such management systems cut across various governance dimensions, from social, political, institutional, economic and environmental aspects. Currently, private land tree plantations in the Philippines plays a very important role transitioning from traditional and unsustainable forestry to sustainable forest management.

While current sources of timber from public lands are not yet sustainable, private land tree plantations amply fill the gap in timber production. The potentials of this sub-sector can further be enhanced by more government support to technology generation and adoption, financial incentives, and appropriate policy environment to encourage more investment in this endeavor. Many similar studies saw the potentials of falcata and rubber for private land tree plantations to uplift the plight of many smallholder tree farmers at the same time easing the pressure from natural forests in terms of wood supply.

On the other hand, the DENR-LGU Co-Management Scheme implementing sustainable agroforestry in Agusan Del Norte provides a venue for the local government unit (LGU) to showcase critical collaboration among the community members, the local government and the national government agencies.

The experience of four municipalities of the province in Agusan del Norte namely, Las Nieves, Buenavista, Nasipit. And Carmen demonstrates the significant role of local governments in assisting the communities provided that a right tenurial instrument is in place.

The potentials and opportunities of co-management covering a large area includes greater leverage both for the tenure holders and prospective investors to take advantage of very favorable climate to grow tree crops and attain economy of scale in their operations. It is however, critical to harmonize the short-term basic needs of the community members into the corporate plans to generate wealth in the area. This would target both the economic conditions of the area as well as the social unrest brought about by lack of livelihood opportunities. It is however, strategic for the government, to come up with clear guidelines on many aspects of co-management like tenure, benefit-sharing and institutional collaboration and roles.

In the same manner, there are other existing tenurial instruments that are in effect in natural forests. The case of SUDECOR which is a holder of an existing IFMA in Surigao Del Sur, exemplifies the dilemma of private corporate tenure-holder who by a change of policy suddenly find itself empty-handed considering the amount of investments they have poured in the area.

The fact that it is a holder of a sustainable forest management award from FAO did not help much. As it was saddled by social and peace and order problems before EO 23 was issued, it was able to survive and contain them, plus it has the technical potentials of sustaining its viability by virtue of its approved management plan. However, the implementation of EO 23 opened a venue for illegal activities in the forests. SUDECOR stopped the operations and the effects were visible in terms of IP involvement, illegal logging, cut-off delivery of products, lay-off of many employees and conversion of many forest areas into kaingin, among others.

Finally, the study team visited the CBFMA of MATILFAMCO. CBFM is considered as a reliable vehicle for SFM. In fact, both SFM Bills pending in Congress in the Philippines puts premium to CBFM. It is a cross cutting strategy for all types of forests. Yet, CBFM implementation is also saddled with a lot of challenges including the bureaucratic and tedious procedures involve in timber harvesting even of planted species, unsustainable livelihood, weak organizations, etc.

CHAPTER 5 UNDERSTANDING FOREST TRANSITION IN THE PHILIPPINES

5.1 Forest Transition Models

Most tropical countries in the world experienced similar patterns of forest transition. Angelsen (2009) described the general forest transition model as following a sequence where a forested region goes through four stages: (1) initially high forest cover and low deforestation, (2) accelerating and high deforestation, (3) slow-down of deforestation and forest cover stabilization, and (4) a period of reforestation.

The Philippine experience practically gone through the first three stages as described in a Philippine study of deforestation and forest degradation (FDC-GIZ, 2011) and is starting to seriously operationalize reforestation through its National Greening Program. The figure below shows the path to increased forest cover described in the forest transition model:

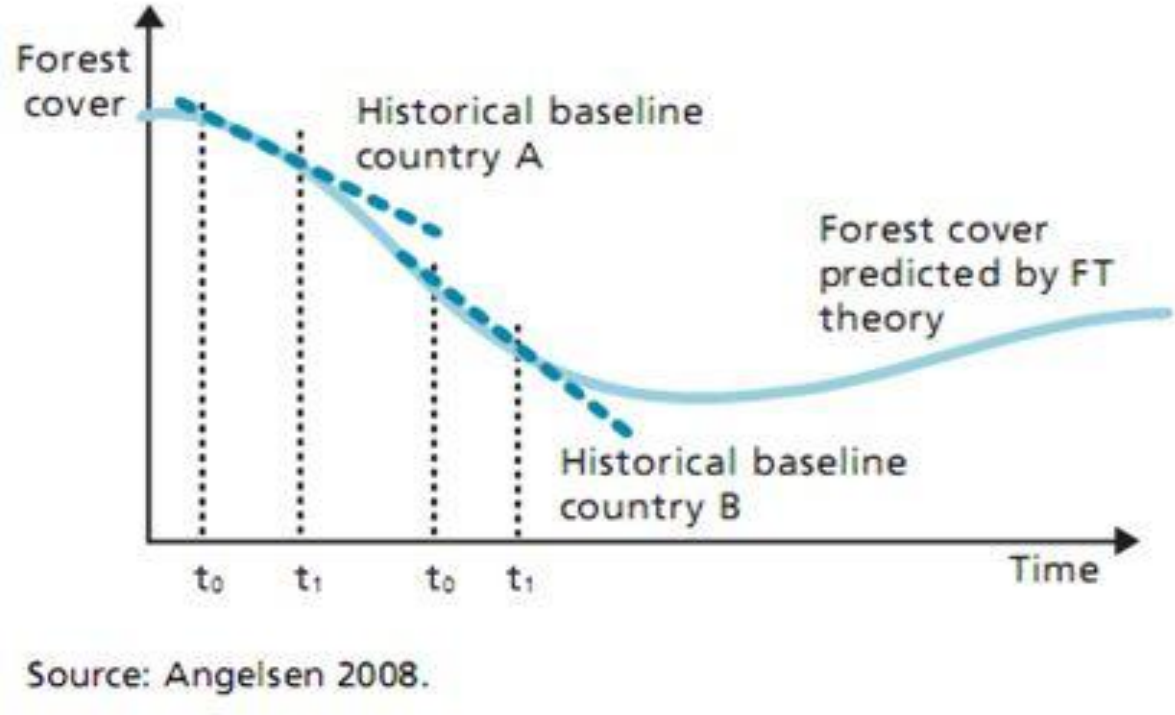

Figure 9. Angelsen's forest transition model.

The key drivers of deforestation and degradation in the Philippines presented in Figure 10 below become the basis for forest transition in the country. Having identified the relationships between the forces of deforestation, it becomes clear that they are critical to the transition in forest restoration.

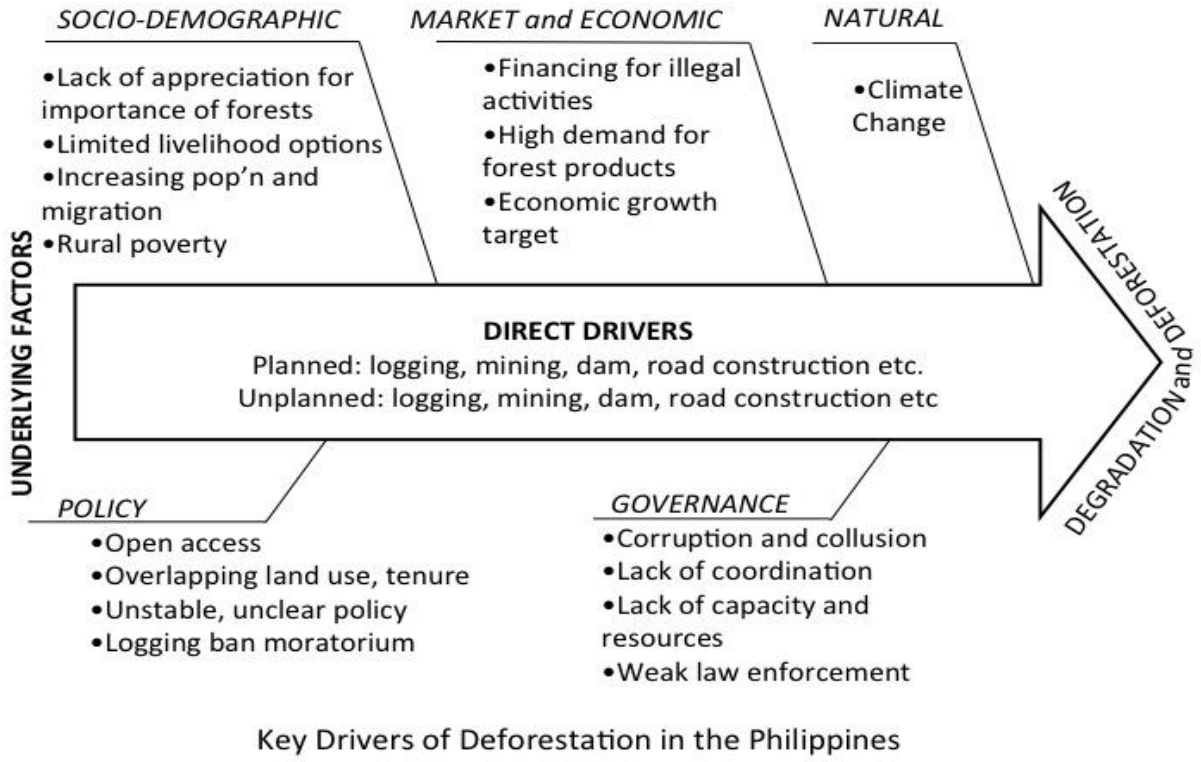

Figure 10. Causes of deforestation in the Philippines.

Angelsen (2009) contrasted the FT model with the von Thünen model. This model focuses on land rent, as a starting point. Accordingly, land is allocated to the use generating the highest land rent (surplus). Changes in the land rent of different uses therefore become the key to explain changes in land uses and land cover. The von Thünen approach also deals with the spatial determinants of the rent of different land uses, which is a strong empirical characteristic of forest cover change. Thus, it provides a general framework for understanding forest cover change, but does not provide an explanation of why land rents change, nor does it contain a theory of feedbacks from changes in land rent curves or interactions between the curves (ibid.) Within this conceptual framework one therefore needs to incorporate theories of land users' behavior and how markets for commodities, labor, capital and land operate. While the von Thünen approach has a spatial focus, the forest transition (FT) has a temporal one as described earlier.

Based on existing data and forest cover, forest transition in the Philippines may be analyzed from early 1500s to the present. Conceptually, it can be represented in Figure 11, where the trend in forest cover changes show that forests in the country are indeed transitioning. Hypothetically, it is hoped that this trend will continue and is headed toward sustainable forest management.

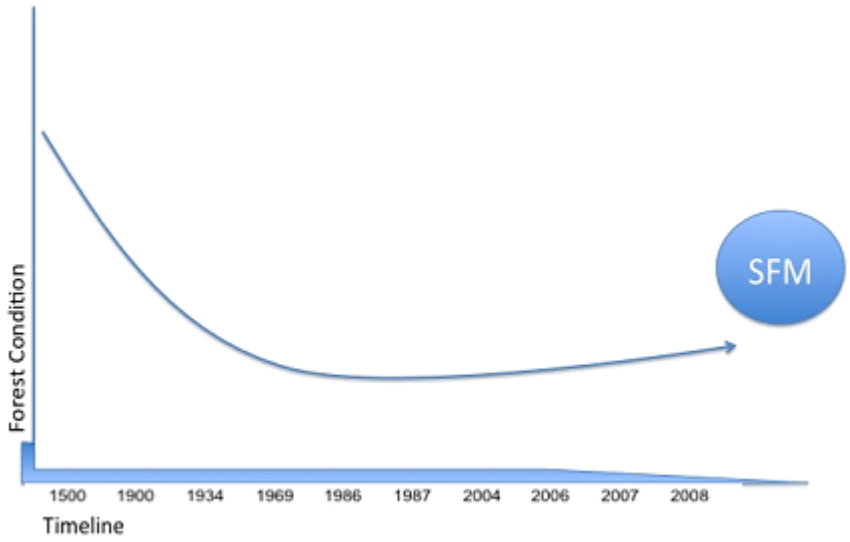

Figure 11. Forest condition in the Philippines through time (Based on Lasco 2009)

It was established in Figure 11 that the causes of deforestation straddle institutional and economic factors. Based on this we can hypothesize the factors that enable and hinder forest transition toward restored forests to constitute the core elements of SFM as previously discussed in Section 4.3 and represented in Figure 10 or the fishbone model.

As mentioned in the previous section, the fishbone model suggests that since Philippine forests are in the process of transition, the 'pathway' toward the SFM goal is contingent to the following elements: policy and incentive system; capable institutions and other stakeholders; appropriate systems, tools and guidelines; successful enforcement and management; and good governance.

The dotted arrow meanwhile, represents the assumption that the country is heading toward SFM considering its current efforts in forest rehabilitation and the current forest cover trends. This will hopefully lead to achieving SFM beyond 2015.

5.2 Forest Transition Gaps

Experiences from the Philippines show that the transition to SFM is not a linear but a dynamic and a very complex process. It is influenced by a combination of socio-demographic, economic, politico-institutional, and environmental forces operating at various scales from local to global.

Viewed in the context of the identified key elements of SFM, there are yet major transition gaps that need to be filled out to improve on and sustain the initial gains in terms of the increasing forest cover which hopefully is a tangible indicator towards the path of SFM in the country. These gaps include among others: the need for enabling policies and incentive systems; capable institutions and stakeholders actively engaged and committed in the pursuit of SFM; appropriate systems, tools and guidelines for SFM; and the practice of good forest governance including effective law enforcement. The details of these are elaborated in the following chapter particularly in the recommendations section.

CHAPTER 6 REFLECTIONS AND RECOMMENDATIONS

The Philippines provides an interesting case for studying transition to sustainable forest management in the tropical world. Before the Spanish came in the 1500, existing estimate indicates that about 90% (17 mil ha) of the country's total land area of 30 mil ha was covered by lush tropical forests. Four centuries later, forest cover was recorded at 20 mil ha or 66.67% of the country's total land area.

Accelerating and high deforestation rate was believed to have commenced at the early 1900 when the Americans introduced high intensive logging operations using the then state of the art timber harvesting technologies from U.S.A. (Roth 1983). The trend continued even after World War II where most of the logs were shifted to Japan which replaced the American market (Pulhin 1996). In 1959 for instance, the country's market share in globally-traded tropical timber logs was above 30% (Quintos 1989) that contributed to massive loss in forest cover (Pulhin 1996). The forest cover was recorded at its lowest in 1987 when the country had barely 6.4M ha (21.33% of the country's total land area) remaining. So massive was the country's deforestation rate during the first three quarters of the 20th century that some writers described it as "one of the greatest plunder in the tropical world" (Broad and Cavanagh 1992).

Based on existing data, the slow-down in the country's deforestation and forest cover stabilization may have taken place sometime between the 1980s and 2000. Radical forest policy reforms were introduced during this period including the massive cancellation of the erring timber license agreements (TLAs) and the non-renewal of the expired ones. From around 7.9 mil ha of forestlands licensed to 261 TLA holders in 1980, licensed areas was significantly reduced to around 0.91 mil ha by 2000 (Pulhin and Dressler 2009).

Taking the place of the TLAs are the local communities living within or adjacent to forestlands which were given the opportunity to manage, protect and develop these areas through the issuance of various forms of land tenure instruments under the CBFM Program. From almost nil in 1980, forestlands under the CBFM Program significantly increased to around to 5.48 mil ha (ibid.) Major initiatives on reforestation also commenced during this period which included the Forestry Sector Projects (FSP) I and II established in 1987 and 1995 respectively under the so-called National Forestation Program (NFP) (Pulhin *et al.* 2006). Unlike the traditional government-centered reforestation efforts, NFP engaged the different stakeholders in its activities such as families, local communities, NGOs, LGUs and the private sector with a physical target to rehabilitate 1.4 mil ha nationwide from 1987 to 2000, or an average of 100 000 ha per year (Magno 1994). In the area of governance, reorganization of the DENR took place in 1987 through the issuance of Executive Order No. 192, partly to remove corrupt officials in the bureaucracy (Korten 1994).

There is no doubt that that these reforms have contributed to the slowing down of deforestation and the stabilization of the country's forest cover which is the third stage in Angelsen's (2009) forest transition model. As previously mentioned, official government statistics recorded the lowest forest cover in the history of Philippine forestry in 1987 at 6.4 mil ha (21.33% of the total land area) but this has bounced back to 7.2 mil ha (24% of the country's total land area) by 2004. While more updated official statistics on the present forest cover are yet to be released by the government, one can surmise that forest cover may have continued to increase over the last decade considering the recent serious efforts in forest protection and the thousands of ha planted under the NFP and more recently, the NGP.

Indeed, in view of the commitment of the present government administration to reforestation gauged from the substantial budget it has allocated for NGP until 2016, the Philippines may have very well commenced Angelsen's (2009) fourth stage of forest transition by venturing on massive reforestation program.

It should be emphasized, however that increase in forest cover alone is a necessary but not a sufficient condition to ensure transition to SFM. Notwithstanding the initial progress in reversing the downward trend in forest cover that prevailed for more than a century, pursuing SFM remains a very complex and challenging process.

The following set of recommendations has to be collectively and successfully implemented for the Philippines to achieve the goal of SFM.

1) Formulate and implement enabling policies in support of SFM

Enabling policies should be formulated and effectively implemented to ensure the successful transition towards SFM. As indicated earlier, there is an urgent need to legislate a law on SFM to end the long time debate between "total logging ban" and "sustainable forest management". The latter will provide incentives for local communities, the private sector, and other key stakeholders to be ensured of the benefits from responsible forest management and hence propel economic development in the forestry sector.

Similarly, a law that clearly delineates the production from the protection forests and other major forest uses should be passed to guide the development and management of all forestlands in the country. In the absence of such law, there will always be confusion as to where timber harvesting will be allowed which serves and disincentives to various stakeholders to actively participate in forest management and protection. Moreover, one of the critical elements of SFM is the active involvement of forest based industries in converting products to usable commodities.

Currently, initiative of this sector is currently curtailed by less-than friendly investment climate that had led to the continuous demise of the forest-based industries. Thus, there is a need to develop investment-friendly policy environment to attract substantial flow of investments in the sector, whether local or foreign. This would require more stable policy that secures timber harvesting in specified and clearly delineated areas and the removal of regulatory barriers in harvesting, transport, processing and marketing of timber and non-timber forest products to reduce transaction costs and make forest-based enterprises more economically viable.

2) Mobilize and capacitate concerned institutions and stakeholders to be actively engaged in pursuit of SFM

The forestry sector through the DENR should continue to rally the support of the different key institutions and stakeholders that can either facilitate or obstruct the achievement of SFM. These include among others, the government sector particularly the legislative and executive branches of the government; local government units from the provincial to the barangay level; local communities and people's organizations; private sector; civil society including the non-government organizations, media and the academe; and development organizations.

A comprehensive analysis of the specific roles of these organizations and stakeholders in supporting SFM should be clearly mapped out including the threats associated with their non-cooperation. DENR should come up with strategic action plans to build alliances with key institutions and stakeholders including winning the support of those oppose the idea of SFM and hence can derail the transition process towards its achievement. For instance, appropriate strategies should be employed to people in the Congress to win their support to legislate an SFM law. Similarly, the hard core environmental NGOs which take a purely preservationists stand and oppose for passage of SFM law should be educated on the merits of sustainable timber harvesting.

Moreover, the media that shapes public opinion should be educated on the merits of SFM to serve as strategic partners in educating the general public to have appreciation of the importance of forestry in general and in the process support forestry programs and projects.

The DENR in partnership with the academe and other relevant sectors should also institutionalize continuing capacity development programs among key institutions and groups to build their knowledge, skills and attitudes in support of SFM. In particular, the capacities of local institutions and groups which are at the forefront of SFM implementation such as the DENR field personnel (from regional to the CENRO level), local government units, local communities/POs, and potentially NGOs, should be continually enhanced. Financial support for this should be integrated in the regular appropriation of the DENR and the LGUs.

Finally, appropriate incentive system should also be put in place to sustain the interest and active participation of the different institutions and groups to support the achievement of SFM goal. Such a system can include incentives such as increased salary and professional growth in the case of DENR and LGU personnel, livelihood opportunities and increased income from CBFM areas in the case of local communities and people's organizations; project grants and recognition in the part of NGOs, etc.

3) Institutionalize appropriate systems, tools and guidelines for SFM

Appropriate systems, tools and guidelines for SFM should be institutionalized by DENR as the key organization to propel the transition process. At the core of this is the adoption a long-term SFM Master Plan which should be legislated by the Congress to ensure continuity despite changes in the government administration.

Such a plan should allow flexibility for continuous refinements and enhancements to ensure relevance through time. A science-based system for decision-making, program planning, monitoring and evaluation should be put in place at the different levels of DENR from central to the field to operationalize SFM. Such as system should be supported by a cost-effective and user friendly decision-support tool such as the Management Information System for a more effective and efficient management.

Similarly, an effective Monitoring and Evaluation System should that engages the participation of the different stakeholders outside the DENR should be institutionalized to promote check and balance in the government operations.

Moreover, as previously mentioned, the use of forest development/management tools such as forest certification, chain of custody, timber tracking, and similar instruments is strategic in transitioning from traditional forest management to SFM.

4) Practice good governance including effective law enforcement

As previously mentioned, the effective employment of the key principles of good governance such as transparency, accountability, participation, and equity in the management of the country's forest resources to be applied in all aspects of decision-making including planning, implementation, monitoring and evaluation of different policies, programs and projects will be crucial in transitioning towards sustainable forest management. These principles should therefore be imbibed in all levels of forest governance from the national down the local level through a continuing capacity development program as mentioned above. Corresponding rewards for good performance and sanctions for non-compliance should be institutionalized in the system to upgrade the current governance standards and help achieve SFM goal.

Also, as previously mentioned, effective and efficient enforcement of forestry laws, rules and regulations should be able to address continuous forest degradation and deforestation. This requires the strengthening of the existing multi-sectoral forest protection committees and the re-invigoration of the inactive ones by providing appropriate and adequate support to their operations. Emerging opportunities for sustainable forest protection and development should also be carefully studied and employed where appropriate such as that of the Reducing Emissions from Deforestation and Forest Degradation (REDD Plus), payment for environmental services (PES) and similar opportunities. Similarly, appropriate management and protection of the remaining natural forests should be ensured by enhancing the current management of protected areas and other biodiversity rich areas. A long-term comprehensive development plan of these areas employing good governance principles is therefore necessary to support the achievement of SFM. Finally, to meet present and future wood requirements of the country, current reforestation and plantation development efforts should be enhanced through effective governance to eliminate graft and corruption that previously riddled the forestry sector.

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