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Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

Nongovernment Reforestation in the Philippines: Review, Analysis, and Ways Forward

Danilo C. Israel

DISCUSSION PAPER SERIES NO. 2015-49

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Non-government Reforestation in the Philippines: Review, Analysis and Ways Forward

Danilo C. Israel

Abstract

The study reviewed and assessed non-government reforestation in the Philippines vis a vis government and total reforestation using primary and secondary data. The end purpose was to identify issues and problems related to non-government reforestation and recommend actions that can be undertaken to address them. The study found that government reforestation dominated total reforestation while non-government reforestation only has a relatively small contribution in recent years. During the first three years of implementation of the NGP, in particular, non-government reforestation had been erratic, increasing in 2011 but decreasing in 2012 and 2013. The study asserted that private reforestation, or reforestation conducted by the private sector under no agreement with the government, has been the main driver of non-government reforestation at present. However, its full development as an industry has been hindered by various institutional, production, and marketing issues and problems. The study recommended ways to address these problems and issues and move non-government reforestation forward.

Keywords: non-government reforestation, private reforestation, reforestation laws and policies, generic supply chain, National Greening Program

Non-government Reforestation in the Philippines: Review, Analysis and Ways Forward

Danilo C. Israel¹

I. Introduction

Background

Forests are indispensable because of the countless benefits they provide. In the Philippines, however, forests are in serious decline because of excessive exploitation and the lack of truly effective reforestation programs to counter it. At present, sustainable harvesting of forest resources on the one hand and honest-to-goodness reforestation on the other are clearly what are needed for our forests.

To meaningfully arrest the problem of declining forests, the current Aquino administration commenced the National Greening Program (NGP) in 2011. In addition to simply planting trees, this priority initiative aims to reduce poverty; promote food security, environmental stability and bio-diversity conservation; and enhance climate change mitigation and adaptation in the country. The NGP seeks to plant 1.5 billion seedlings in 1.5 million hectares nationwide until 2016. As of this writing, an economic, social, environmental and institutional impact assessment of the program is ongoing (see Israel and Arbo 2015) while an earlier effort (Israel 2013) conducted a process evaluation and preliminary assessment of its efficiency and effectiveness.

Objectives

Complementary to the ongoing impact assessment of the NGP, this paper looks into the other component of reforestation: non-government reforestation. The main objective of this effort is to review and assess how non-government reforestation has performed over the years particularly vis a vis government and total reforestation. The end purpose is to identify issues and problems related to non-government reforestation and recommend actions that can be undertaken to address them.

To attain the aforementioned objective, the following sections of the paper provides relevant definitions; discusses the economic and non-economic importance of Philippine forests; identifies the institutional players and reviews the laws, policies, programs and projects related to reforestation; analyzes the performance of non-government vis a vis government reforestation and total reforestation; and profiles and describes the performance specifically of private reforestation.

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The paper uses primary data and information sourced through key informant interviews with government and private sector representatives and focus group discussions with private tree planters. It also utilizes secondary data and information generated from the existing literature and published and unpublished records of relevant government institutions. Aside from the usual time and resource constraints, the paper is limited by the data and information available. It is hoped that these limitations will be addressed in a succeeding study that will specifically look at the private reforestation in more detail.

II. Definitions

Reforestation, which is also called artificial regeneration, is the establishment of forest plantations on temporarily un-stocked lands that are considered as forest (FAO 2001). The Philippine government describes reforestation as the planting of an area in forest land using perennial plant species, usually dominated by trees and other forest species including the attendant preliminary activities such as seedling production, site preparation, construction of trails and access roads and bridges as well as the maintenance of plantations (e.g. DENR 1989).

There are two components of reforestation in the Philippines: government reforestation and non-government reforestation. Government reforestation includes those areas under programs on urban forestry, contract reforestation, agroforestry, watershed rehabilitation, mangrove, and protected areas rehabilitation (Carandang et al. 2013). On the other hand, non-government reforestation is reforestation done through the tenure instruments, citizenry, and private lands.

The early form of non-government reforestation was conducted through Timber License Agreements (TLAs). Over time, non-government reforestation also includes those under the Community-Based Forest Management Agreements (CBFMAs), Integrated Forest Management Agreements (IFMAs), Socialized Industrial Forest Management Agreements (SIFMAs), Tree Farm Lease Agreements (TFLAs), Agro-forestry Farm Lease Agreements (AFFLAs), Industrial Tree Plantation Lease Agreements (ITPLAs), Industrial Tree Plantation (ITPs), PD 1153 which required the planting of one tree every month for five consecutive years by every citizen of the Philippines) and “others”. Specifically, “others” is defined as including reforestation conducted by private land owners, organizations and citizenry not part of any agreement with the government. In this study, we use the term “non-government reforestation” as defined and “private reforestation” to refer to “others” or the reforestation conducted by the private sector under no agreement with the government.

Based on Presidential Decree (PD) 705 of 1975, an industrial tree plantation is any tract of forest land purposely and extensively planted to timber crops primarily to supply the raw material requirements of existing or proposed processing plants and related industries. On the other hand, a tree farm refers to any tract of forest land purposely and extensively planted to trees of economic value for their fruits, flowers, leaves, barks, or extractives, but not for the wood thereof. Because tree farm as defined above does not refer to the planting of trees for

the logs they produce, we use the term “tree planting” instead when referring to the planting trees for log production. From a key informant, large-scale tree planting covers 500 or more hectares while a small-scale operation which is called “smallholder” covers less than 500 hectares. There is no clear definition of what comprises medium-scale tree planting in the context of Philippine forestry.

III. Importance of Philippine Forests

Economic contributions

National output

In 2013, the overall Agriculture, Hunting, Forestry and Fishing sector contributed 11.23 percent to the Gross Domestic Product (GDP) of the Philippines (Table 1). The forestry subsector, however, shared only a minimal 0.04 percent of the GDP. This share of forestry is also significantly lower than the contributions of agriculture to the GDP of 9.46 percent and fishing of 1.73 percent, respectively. Likewise, in the same year, forestry contributed only 0.37 percent to the Gross Value Added (GVA) in the Agriculture, Hunting, Forestry and Fishing. This share was likewise significantly smaller than the contributions of agriculture of 84.26 percent and fishing of 15.37 percent, respectively.

Table 1: Economic Importance of the Forestry Sector to the Philippine Economy, 2013 (Current Prices)

Economy/Economic Group/Sector	Amount (Million Pesos)	Contribution to Agriculture, Hunting, Forestry and Fishing (%)	Contribution to GDP (%)
(GVA) Agriculture	1,092,748	84.26	9.46
(GVA) Forestry	4,756	0.37	0.04
(GVA) Fishing	199,320	15.37	1.73
Gross Value Added (GVA) in Agriculture, Hunting, Forestry and Fishing	1,296,824	100.00	11.23
Gross Domestic Product (GDP)	11,548,191	-	-

Source of data: PSA (2014a)

From 2001 to 2013, the contribution of the GVA in Forestry to the GDP has been fluctuating (Table 2). It attained an annual average share of 0.05 percent and reached a high of 0.08 percent in 2004 to 2006 and a low of 0.03 percent in 2010 and 2012. When the decades before the 2000s are considered, the available data show that contribution of the forestry subsector to national output has been significantly declining. For instance, back in 1985, the share of forestry to the gross national product (GNP) was higher at 0.13 percent, therefore indicating the decreasing importance of forestry to the national economy over time (FMB 2009).

Table 2: Gross Value Added (GVA) in Forestry as Percentage of GDP, 2001-2013 (in million pesos, current prices)

Year	GDP	GVA in Forestry	% GDP
2013	11,548,191	4,756	0.04
2012	10,567,336	3,238	0.03
2011	9,708,332	3,871	0.04
2010	9,003,480	2,435	0.03
2009	8,026,143	3,758	0.05
2008	7,720,903	3,574	0.05
2007	6,892,721	4,155	0.06
2006	6,271,157	5,126	0.08
2005	5,677,750	4,537	0.08
2004	5,120,435	4,330	0.08
2003	4,548,102	2,123	0.05
2002	4,198,345	1,758	0.04
2001	3,888,801	2,741	0.07
Average			0.05

Sources of data: PSA (2014a) and NSCB (2012)

Roundwood production

Roundwood, or log not yet sawn or hewed, is the primary beginning product derived from harvested trees. These logs are converted into timber and other processed products along the supply chain in forestry. From 2001 to 2013, in terms of volume, Philippine roundwood production has been increasing at an average annual growth rate (AAGR) of 10.0 percent (Table 3). Production was fluctuating from year to year and was highest in 2013 at 1,616 thousand cubic meters and lowest in 2002 at 541 thousand cubic meters. Furthermore, production was higher than 1,000 thousand cubic meters in some years and lower in others. In general, roundwood production was lower in the first half and higher in the second of the period. Also,

production fell sharply from 2009 to 2010 but rebounded substantially in 2011. During the first three years of implementation of the NGP, production rose in 2011, decreased in 2012 and increased again in 2013.

Table 3: Production, Exports, Imports, Net Exports and Apparent Demand for Roundwood in the Philippines, 2001-2013 (In thousand cubic meters)

Year	Production	Exports	Imports	Net Exports (Exports-Imports)	Apparent Demand (Production + Imports-Exports)
2013	1,616	1.22	123.52	-122.30	1,738.30
2012	1,354	2.14	115.06	-112.92	1,466.92
2011	1,485	2.67	88.91	-86.24	1,571.24
2010	982	5.46	41.59	-36.13	1,018.13
2009	1,401	0.08	37.41	-37.33	1,438.33
2008	1,510	0.64	77.56	-76.92	1,586.92
2007	1,569	0.08	93.18	-93.10	1,662.10
2006	1,562	0.27	65.19	-64.92	1,626.92
2005	1,110	0.05	164.96	-164.91	1,274.91
2004	934	1.76	177.11	-175.35	1,109.35
2003	689	0.02	355.79	-355.77	1,044.77
2002	541	1.43	434.18	-432.75	973.75
2001	713	5.50	551.33	-545.83	1,258.83
AAGR (%)	10.0	1,335.3	-1.7	0.5	4.9

Sources of Data: FMB (Various Years)

Note: There are no available data and roundwood production in terms of dollars so the values of apparent demand cannot be estimated. Therefore, a corresponding table presenting values is not presented here.

Roundwood trade

Some of the roundwood produced by the Philippines are exported to other countries. From 2001 to 2013, in terms of volume, Philippine roundwood exports have been generally rising but also wildly fluctuating in some years (Table 3). This has resulted to a very high computed AAGR of 1,335.3 percent during the period. Exports were highest in 2001 at 5.46 thousand cubic meters and lowest in 2003 at 0.02 thousand cubic meters. Exports were generally higher during the second half of the 2000s and lower in the first half. There was a big decline in roundwood exports from 2001 to 2002 and from 2010 to 2011. On the other hand,

there was a big increase in exports from 2009 to 2010. During the first three years of implementation of the NGP, roundwood exports consistently decreased from 2011 and 2013.

From 2001 to 2013, in terms of volume, Philippine roundwood imports have been generally falling at a relatively low AAGR of -1.7 percent (Table 3). Imports were highest in 2001 at 551.33 thousand cubic meters and lowest in 2009 at 37.41 thousand cubic meters. Unlike exports, imports were generally higher during the first half of the 2000s and lower in the second half. There was a big decline in imports from 2003 to 2004 and from 2005 to 2006. During the first three years of implementation of the NGP, roundwood imports consistently increased from 2011 to 2013.

From 2001 to 2013, in terms of volume, Philippine roundwood net exports have been consistently negative because imports were higher than exports throughout (Table 3). However, net exports were generally improving, manifested by decreasing negative net export figures, but at a relatively low AAGR of 0.5 percent. Net exports were highest in 2010 at -36.13 thousand cubic meters and lowest in 2001 at -545.83 thousand cubic meters. Net exports were generally higher during the first half of the 2000s and lower in the second half of the period. There were big improvements in net exports in the first half of the period. During the first three years of implementation of the NGP, roundwood net exports consistently declined from 2011 to 2013.

Apparent demand for roundwood

Apparent demand, which is computed as production plus imports less exports, is an estimate of demand and can be used in place of actual demand in the absence of data (FMB 2009). From 2001 to 2013, the apparent demand for roundwood increased at an AAGR of 4.9 percent (Table 3). Apparent demand was more than 1,000 thousand cubic meters in all years except 2002. It was highest in 2013 at 1,738.30 thousand cubic meters and lowest in 2002 at 973.75 thousand cubic meters. Apparent demand was lower during the first half of the 2000s and higher in the second half. During the first three years of implementation of the NGP, like production, apparent demand rose in 2011, decreased in 2012 and then increased again in 2013.

Establishments and employment

Data on establishments and employment in the forestry subsector of the Philippines are limited. Thus, only results of the 2012 Census of Philippine Business and Industry (PSA 2014b) can be presented. For establishments with a total employment of 20 and over, those involved in silviculture and other forestry activities and support services formed only 0.5 percent of the total establishments in the agriculture, forestry and fishing sector. The same source also indicated that employment in silviculture and other forestry activities, and support services to forestry decreased from 928 workers in 2010 to just 405 workers in 2012 or a 56.4 percent drop.

Of all the subsectors under the agriculture, forestry and fishing sector; employment in silviculture and other forestry activities, and support services was the lowest. It should be pointed out that these minimal employment figures are not inclusive of all the workers in forestry, including those in establishments with below 20 workers as well as the numerous but largely informal workers. Nonetheless, they firmly show that employment in a major group of establishments in forestry has declined.

To close, it should also be emphasized that wood is not the only economic benefit that can be generated from forests. Food, fuel and other products can also be had which, like wood, benefit the economy and society in general. These other economic contributions are not quantified in this study because of the absence of adequate data and information for the purpose.

Non-economic contributions

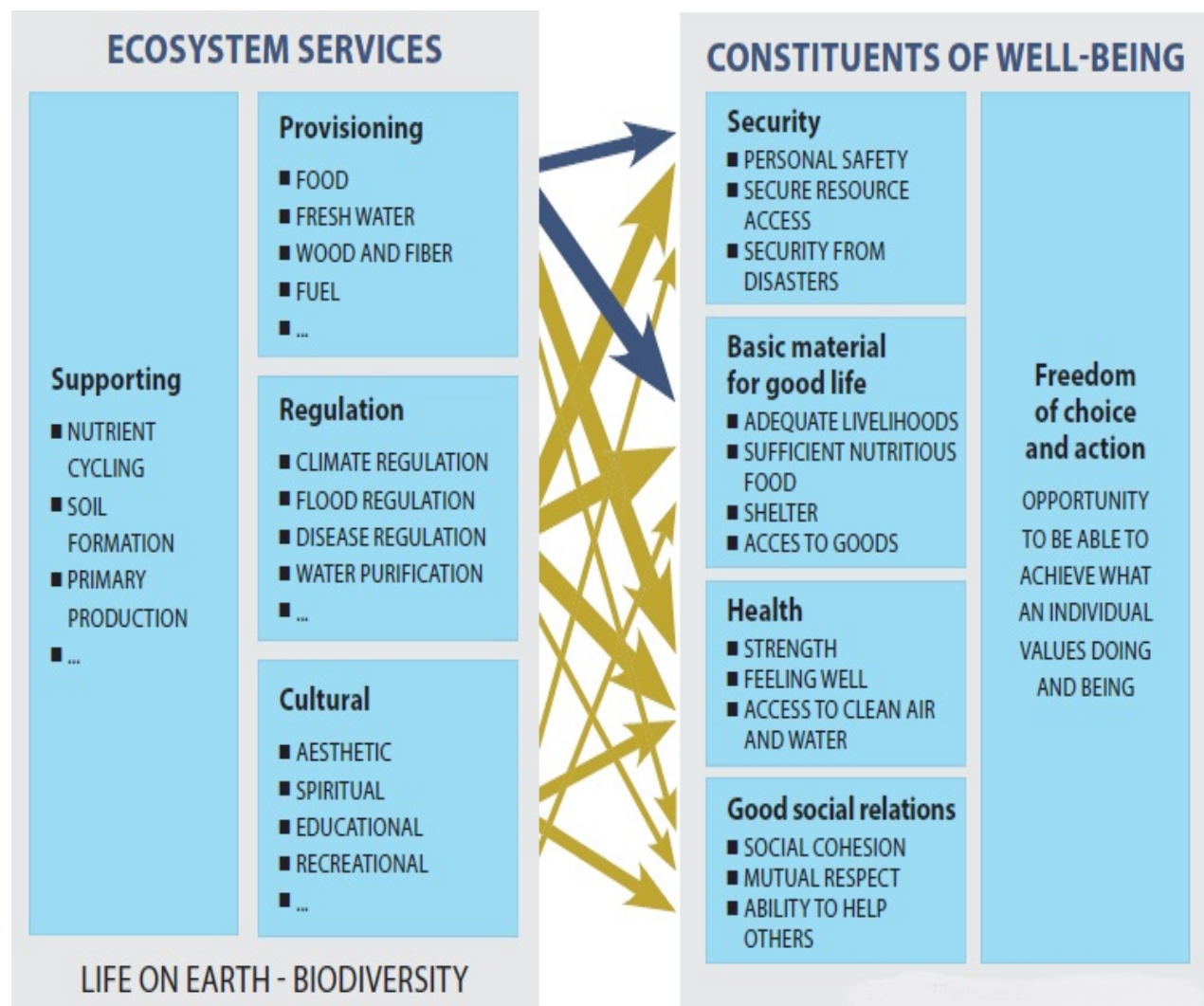
Although the GDP and other economic contributions of the forestry subsector are relatively small compared to other economic sectors of the Philippines, forest ecosystems in general offer many other benefits to society. It is now widely accepted that forests provide various provisioning, regulating, cultural and supporting services which we will summarize below (Figure 1). Of these benefits, the first one, provisioning services, or the physical products produced from the forest, are already discussed beforehand while the rest are generally non-economic benefits.

Regulating services are the 'preventative' benefits of forests such as their role in erosion control, flood prevention, climate regulation, carbon sequestration and water purification (UN 2014). Cultural services are sources of aesthetic and spiritual regeneration as well as providing recreation and education, which supplies services for the tourism industry. Supporting services describes the role of ecosystems as a 'nursery' for other environmental benefits, such as nutrition cycling and soil formation and also include biodiversity services such as species and habitat conservation. Together with the economic provisioning services, these generally non-economic regulating, cultural and supporting services provided by forests help ensure the well-being of a country and improve the security, basic material for good life, health and good social relations among its people.

As shown earlier, some of the provisioning services provided by forests, such as wood, can be accounted for in the share of the forestry subsector to the GDP. Most of the other services, on the other, are difficult to compute with reasonable accuracy. Among others, this is because the accounting of these services, that is, putting reliable values on them particularly in money terms, is still a work a progress around the world. There are some important reasons which have been put forward behind the difficult task (Agrawal et al. 2013). For one, the valuation methodologies used by researchers differ and the generated estimates also differ and oftentimes significantly.

For the Philippines, Carandang (2008) estimated the total foregone value of resources lost due to losses in forest areas from 1992 to 2003 at around 118.2 billion pesos for an annual average of 10.7 billion pesos, at 2006 prices. The paper argued that these estimates of foregone values highlight the importance of sound forest management with strong forest protection component. For its part, NSCB (1998) reported that the value of standing trees in old growth dipterocarp forest decreased from 213 billion pesos in 1988 to 156 billion pesos in 1994, showing an average annual decline of 5.1 percent. The same is true for secondary growth forest but at a slower rate of 4.1 percent, from 209 billion pesos in 1988 to 162 billion pesos in 1994. For the entire period, the Philippine forestry sector lost a total of 104 billion pesos worth of standing trees in both old growth and second growth forests. The paper argued that these data supported the notion of the great losses the country incurred because of significant forest losses over the years.

Figure 1: Linkage between Forest Ecosystem Services and Human Well-being



Source: UN (2014) and based on the Millennium Ecosystem Assessment

To recapitulate, both the economic and non-economic contributions of forests have significant fallen with the decline in the forest cover of the Philippines. Carandang et al. (2013), for instance, explained that From 17.8 million hectares or about 60 percent of the land area in 1934, the forest cover of the country fell significantly to just 7.168 million hectares or 23.89 percent in 2011. Therefore, around 10 million hectares of forests cover were lost in the last seven decades. The country has modestly recovered in recent years with forest cover increasing at a rate of about 55,000 hectares per year (FAO 2010). Again, the underlying causes of deforestation in the Philippines are excessive deforestation and failed reforestation programs. It has been argued as well that deforestation in the Philippines can be traced to structural forces existing in the country including among others high population growth and lack of urban job creation leading to poverty, migration and increasing dependence on forests and uplands (Cruz et al. 1986).

IV. Institutions, Laws and Policies

Institutions involved in reforestation

Reforestation in the Philippines involves numerous players and institutions (Table 4). In passing, Congress provides the legal framework for forests development and management including reforestation; the President issues national policies relevant to reforestation and forest rehabilitation; DENR promulgates rules and regulations that translate the generalities of law into concrete terms; and the Local Government Units (LGUs) enforce forestry laws and implement reforestation and related forestry projects in partnership with the DENR and local communities. The private sector is also an important player in reforestation in the Philippines. Aside from the members of the private sector who hold leases of public forest lands and mandated to rehabilitate certain areas covered by their leases and the private entities that plant trees in owned lands, entities including seedling nursery operators, hired labor, and other input suppliers as well as other individuals and organizations are players in reforestation.

Reforestation-related Laws, policies, programs and projects

1910s to 1960s

During this relatively long period from the 1910s to the 1960s, there were few laws enacted intended mainly for reforestation in the Philippines (Table 5). In 1916, Act 2649 mandated reforestation in an aggregate area of 4,095 hectares in the Talisay- Minglanilla Friar Lands Estate in Cebu province and appropriated P10,000 for the purpose (Pulhin et al. 2006). In 1919, the Magsaysay Reforestation Project was established in some areas in Luzon. In 1927, a Cinchona plantation was established in Bukidnon and three other reforestation projects were put up thereafter until 1931. From 1910 until 1936, meagre government funds limited rehabilitation efforts generally to experimental planting, small plantations, and studies on suitable species and seed treatment to hasten germination. More reforestation took place from 1937 to 1941 when the national government appropriated funds for larger-scale activities.

Table 4: Institutions Involved in reforestation in the Philippines

Institution	Main Roles
Congress	Provides the legal framework for forests development and management including reforestation
President	Issues national the policies relevant to reforestation and forest rehabilitation
DENR	Promulgates rules and regulations that translate the generalities of law into concrete terms
Private Sector	Holds leases of public forest lands and mandated to rehabilitate certain areas covered by their leases; this also includes private entities that plant trees in owned lands
LGUs	Enforce forestry laws and implement reforestation and related forestry projects in partnership with the DENR and local communities
Other government and semi-government agencies	Engage in rehabilitation activities in watersheds under their jurisdictions
Upland farmers, local communities and People's Organizations (POs)	Implement planting, maintenance and protection activities and serve as stewards of forest resources
Non-government Organizations (NGOs) and the rest of civil society	Provide technical and financial support to POs, policy advocacy, and legal assistance especially to indigenous people; implement, monitor and evaluate reforestation projects; and/or promote community-level actions and demands
Academic and research institutions	Promote science-based policies and programs; provide technical assistance and support; conduct project monitoring and evaluation; critique government forestry policies, programs and projects; and/or produce foresters
Funding institutions	Act as global drivers/funders of reforestation policies and programs

Source: Modified from Chokkalingam et al. (2006)

Table 5: Laws, Policies, and Programs Directly Related to Reforestation in the Philippines, 1910s-2000s

Year	Law/ Policy/ Program/ Project	Title/Description	Main Feature
1916	Act 2649	Act to reforest an aggregate 4095 hectares in the Talisay-Minglanilla Friar Lands Estate in Cebu province	Appropriated P10,000 for reforestation in Cebu Province
1947	Republic Act (RA) 115	Act to provide funds for reforestation and afforestation	Created a Reforestation Fund from charges levied on timber harvested on state forest lands, in addition to the regular forest charges
1960	RA 2706	Act creating the Reforestation Administration	Created the Reforestation Administration with the mandate to hasten the reforestation of barren and denuded public lands
1972	Presidential Decree (PD) 1	PD reorganizing the executive branch of the national government	Integrated the Reforestation Administration with the Bureau of Forestry, Parks and Wildlife Office and the Southern Cebu Reforestation Project
1973	Letter of Instruction (LOI) 145	LOI to accelerate the rehabilitation of extensive denuded and degraded lands of the Philippines	Directed the Presidential Committee on Wood Industries Development to submit a programme to promote the development of industrial plantations and tree farms
1973	Bureau of Forest Development (BFD) Circular 45	Circular establishing the Family Approach to Reforestation (FAR) Program	BFD entered into short-term contracts with families to set up tree plantations in public land
1974	PD 389	Forestry Reform Code	Codified, revised and updated all forestry laws
1975	PD 705	Revised Forestry Reform Code	Made revisions on PD 389 and resulted to the establishment of the Forest Occupancy Management (FOM) Program
1976	PD 953	PD requiring the planting of	Mandated that every owner of an

		trees in certain place	existing subdivision shall plant trees in the open spaces as well as along all roads and service streets
1977	PD 1153	PD requiring the planting of on tree every month	Required every citizen 10 years of age or above to plant one tree every month for five consecutive years
1977	Memorandum Circular (MC) 985	MC requiring the maintenance of plant nurseries	Required local governments to establish and maintain seedling nurseries within their respective localities
1978	PD 1559	PD amending the Revised Forestry Reform Code	Made amendments to PD 705
1979	Ministry Administrative Order (MAO) 11	MAO establishing the Communal Tree Planting (CTF) Program	Mandated that every city and municipality of the country to establish tree farms
1979	LOI 818	LOI compelling timber license, lease and permit holders to reforest	Compelled all timber license, lease and permit holders to reforest one hectare of denuded or brush land for every hectare logged
1980	LOI 423	LOI sanctioning the establishment of industrial tree plantations to intensify and accelerate forest ecosystem management	Led to the creation of the Program for Forest Ecosystem Management (ProFEM)
1981	Executive Order (EO) 725	EO facilitating the establishment of industrial tree plantations	Mandated the establishment of Industrial Tree Plantation (ITP) Programme in open, denuded, brushland and inadequately stocked areas
1982	LOI 1260	LOI establishing the Integrated Social Forestry (ISF) Program	Mandated the establishment of the ISF Program
1983	LOI 1312	LOI mandating the establishment and development of local government forest or tree parks	Mandated that every barangay, municipality or city shall establish, develop and maintain forest or at least one tree park in suitable and accessible areas
1987	Ministry of Natural Resources Administrative	MAO to encourage people to plant trees in their private lands	Lifted restrictions on harvesting, transportation and sale of firewood, pulpwood and timber in private lands

	Order (MAO) 4		
1987	No law in 1987, DAO 16 in 1993	Forestry Sector Project (FSP)	Launched a 14-year National Forestation Program with a target area of 1.4 M ha to be reforested by 2000
1989	DENR Administrative Order (DAO) 123	DAO establishing the Community Forestry Program (CFP)	Awarded Community Forestry Management Agreements (CFMA) to organized upland communities for a period of 25 years, renewable for another 25 years
1990	DAO 71	DAO establishing the Forest Land Management Program (FLMP)	Issued Forest Land Management Agreements (FLMA) which replaced the former short-term contract reforestation systems
1992	DAO 35	DAO creating the Low Income Upland Communities Project (LIUCP)	About 15,000 hectares in eight major watersheds were treated through contract reforestation, to the benefit of about 7,000 tribal and lowland migrant families.
1993	DAO 60	DAO Initiating Industrial Forest Management Agreements (IFMA)	Intended IFMAs to support timber production when Timber License Agreements (TLAs) were being phased out
1995	EO 263	EO adopting Community-Based Forest Management (CBFM) as the national strategy to ensure sustainable forest management	Integrated all people-oriented forestry programs and projects of the government into CBFM
1996	DAO 24	DAO instituting the Socialized Industrial Forest Management Agreement (SIFMA)	Intended to further democratize access to forest resources, especially to small to medium investors and even to small farmers
2004	EO 318	EO promoting sustainable forest management in the Philippines	Moved for the adoption of incentives to encourage the development of private forests
2005	DENR Secretary's Memorandum dated November 30, 2005	Memorandum cancelling some Community-Based forest Management Agreements (CBFMAs)	Cancelled 233 existing CBFMA in 11 Regions (CAR, 1, 3, 4-A, 4-B, 5, 6, 7, 9, 10 and 11) due to CBFM People's Organizations' (POs) unsatisfactory performance ratings
2006	DENR Secretary's	Memorandum cancelling some CBFMAs	Cancelled all existing CBFMAs in 8 Regions (1, 4-B, 5, 6, 7, 8, 9 and 13)

	Memorandum dated January 5, 2006		due to CBFM POs' alleged non-compliance/violations
2008	DENR Memorandum Circular (DMC) 04	Circular initiating the 2009 Upland Development Program (Reforestation and Agroforestry)	Provided for the establishment or improvement of nurseries and the provision of seeds or seedlings
2011	EO 26	EO implementing the National Greening Program	Mandated the planting of 1.5 billion trees in 1.5 million hectares from 2011 to 2016
2011	EO 23	EO declaring an indefinite logging moratorium on the cutting and harvesting of timber in the natural and residual forests	Prohibited the DENR from issuing logging contracts / agreements, issuing / renewing tree cutting permits except for clearing of road right of way by DPWH, site preparation for tree plantations, silvicultural treatments and similar activities
2012	RA 10176	Act reviving the observance of Arbor Day	Authorized the LGUs the responsibilities for celebrating the day for tree planting as an annual event
2013	Memorandum of the DENR Undersecretary and Chief of Staff dated February 5, 2013	Memorandum clarifying on the suspension of the processing of all request for cutting permit	Clarified that cutting permits not covered by suspension are those including naturally grown trees within private/titled property; planted trees within public forest/timberland and private lands; and tree cutting activities covered by exemptions provided in the Memorandum from the Executive Secretary dated 26 October 2011
2013	DMC 06	DMC providing guidelines and procedures for plantation development for NGP with area coverage of 100 hectares and above	Covered minimum areas of 100 hectares and maximum areas of 1,000 hectares contiguous or clustered within the municipalities as identified by the DENR

Sources of Data: Carandang et al. (2013), Pulhin et al. (2007), Pulhin et al. (2006), Chokkalingam, et al. (2006), Acosta (2004), and Carandang et al. (n.d.)

After World War II, RA 115 of 1947 created a Reforestation Fund from charges levied on timber harvested on state forest lands. This was followed by RA 2706 of 1960 which established the Reforestation Administration to hasten tree planting in barren and denuded public lands. Until the 1970s, the reforestation projects that were administered by the Reforestation Administration using the Reforestation Fund were the only evidence of significant forest plantation development in the country (Acosta 2004). Furthermore, mainly government and private companies initiated and implemented rehabilitation activities (Chokkalingam, et al. (2006).

Thus, while the period from the 1910s to the 1960s was long, the laws and policies related to reforestation were few and far in between. A reason behind this was that forests back then were still abundant and the attention of the government was focused more on the other sectors of the economy and not on forest rehabilitation. Another explanation was that the years during and after the Second World War were times of violent upheaval and later reconstruction requiring government to concentrate mostly on the war effort first and then on the succeeding rebuilding activities. While reforestation was relatively minimal, however, some form of non-government reforestation has already occurred conducted by some private companies.

1970s

In the 1970s, many more laws were enacted related to reforestation in the Philippines compared to the previously (Table 5). Under Martial Law, Presidential Decree 1 of 1972 integrated the Reforestation Administration with the Bureau of Forestry, Parks and Wildlife Office and the Southern Cebu Reforestation Project. Three major reforestation-related programs resulted from forestry-related laws: the Family Approach to Reforestation (FAR) Program created through BFD Circular 45 of 1973, Forest Occupancy Management (FOM) Program created through PD 705 of 1975, and the Communal Tree Farming (CTF) Program created through MAO 11 of 1979. Also, PD 389 of 1974 established the Forestry Reform Code, followed by PD 705 which revised the Forestry Reform Code, and PD 1559 of 1978 which amended the Revised Forestry Reform Code. In addition, PD 953 of 1976 required the planting of place in certain places including in private subdivisions. Since the mid-1970s international funding began to play a role and many different sectors became involved. (Chokkalingam, et al. (2006).

During Martial law, timber License Agreements (TLAs) became the primary tenural arrangement for the private sector involved in Philippine forestry. From 1976, the holders of TLAs were given the responsibility to reforest inadequately-stocked forest lands within their concessions (Pulhin et al. 2007). However, the TLA holders were mainly interested in harvesting natural forests and the plantations that they established were only a token gesture to comply with the reforestation requirements of the law and their license agreements (Acosta 2004). Although a few forestry companies established forest plantations because it was in their long-term interests, most private enterprises during this period focused only on extracting timber from old-growth forests.

With the TLAs, non-government reforestation became an important feature in Philippine forestry in the 1970s. Acosta (2004) asserted that forest plantation development during this time was mandated by command-and-control, rather than through economic or financial incentives. The bulk of plantation development was funded by direct public investments through annual appropriations to government agencies, primarily the Bureau of Forest Development (BFD). The emphasis was on planting seedlings and reporting hectares planted, with little or no quality control or planning for sustainable long-term plantation timber supplies.

1980s

In the first half of the 1980s, more reforestation-related laws, policies, programs and projects were enacted and implemented (Table 5). These included the Program for Forest Ecosystem Management (ProFEM) created through LOI 423 of 1980, Industrial Tree Plantation (ITP) Programme created through EO 725 of 1981, and the Integrated Social Forestry (ISF) Program created through LOI 1260 of 1982. Also, in 1983, LOI 1312 mandated the establishment and development of local government forest or tree parks. The ISF was considered a radical departure from past traditional Philippine forestry doctrine because it introduced the concept of resource stewardship by forest land-dependent families and communities, a privilege which, for decades, had been exclusive to corporate entities with strong political and economic linkages (Acosta 2004). The processes and institutions that came out of the ISF Program helped shape the community-based forest management (CBFM) strategy which developed about two decades later.

The second half of the 1980s was considered a period of transition of the forestry sector of the Philippines (Acosta 1984). A major feature of this transition was the redefinition of the modes of access to natural resources. Before 1987, the privileges for the use, management, development and utilization of natural resources were granted through leasehold arrangements of which the main form was the TLA system in forestry. Under the 1987 Constitution, this arrangement was terminated and replaced by product-sharing, co-management, or joint-venture arrangements between the government and the private sector. Also in 1987, in addition to the constitutionally-mandated changes, MAO 4 was initiated to encourage people to plant trees in their private lands. Likewise, other major initiatives were conducted including the Forestry Sector Projects (FSP I was established in 1987 while FSP II was conducted in 1995 through DAO 16 of 1993 under the National Forestation Program (NFP)). Another important initiative was the Community Forestry Program (CFP) which was implemented through DAO 123 of 1989 which awarded Community Forestry Management Agreements (CFMA) to organized upland communities.

With many of the aforementioned reforestation programs and projects being conducted by non-government entities, non-government reforestation truly flourished in the 1980s. It was also during this time that the CBFM concept started to really take shape which later became the dominant mode of forest management in the Philippines. After the People Power revolution in 1986, the concepts of people participation and multi-sectoral participation in addition to many

other novel ideas started to take hold in forestry policy. Further, with the implementation of FSP I and other foreign-funded programs, donor funding for reforestation projects have also increased as well as the participation of international and local NGOs in Philippine reforestation activities.

1990s

In the 1990s, major reforestation-related initiatives continued (Table 5). The Forest Land Management Program (FLMP) was created through DAO 71 of 1990 while the Low Income Upland Communities Project (LIUCP) was established through DAO 35 of 1992. Through DAO 60 of 1993, the Industrial Forest Management Agreements (IFMA) was initiated to support timber production when the TLAs were started being phased out. Then, through EO 263 of 1995, CBFM was adopted as the national strategy to ensure sustainable forest management. Then, DAO 24 of 1996 created the Socialized Industrial Forest Management Agreement (SIFMA) which was intended to further democratize access to forest resources, especially for small to medium investors and even to small farmers. As earlier mentioned as well, FSP II commenced during this decade, in 1995.

In 1990, the first Master Plan for Forestry Development (MPFD) was drafted with people-oriented forestry as a major forestry strategy (Pulhin et al. 2007). Under the plan, 1.5 million hectares of residual forests plus an additional 5.9 million hectares of “open access” areas would be placed under community forest management over a ten-year period. The plan also stipulated that corporate or large- scale operations such as TLAs and timber production sharing agreements (TPSAs) were to be confined to about 24 percent of the total forests allocated for commercial timber harvesting.

It was in the 1990s that the concept of CBFM as the prevailing approach to forest management in the Philippines firmly took. The concepts of decentralization and devolution of functions in some forestry functions also started during the period as mandated by the Local Government Code (LGC) of 1991. With the implementation of FSP II and other foreign-funded programs, donor funding for reforestation projects and the participation of international and local NGOs in reforestation activities also continued in this decade. With many of the aforementioned reforestation programs and projects being conducted by non-government entities, non-government reforestation flourish albeit with a lower coverage compared to the 1980s.

2000-2013

In the 2000s, a major reforestation initiative was the Revised Master Plan for Forestry Development (RMPFD) of 2003. This plan embodied the accomplishments of the forestry sector in pursuit of the MPFD of 1993. Another important reforestation-related initiative was EO 318 of 2004 which promoted sustainable forest management in the Philippines (Table 5). This EO also pursued the adoption of incentives to encourage the development of private forests which

showed the national government recognizing the important role of incentives and the involvement of the private sector in forest management in the Philippines.

Two DENR Secretary's Memoranda dated November 30, 2005 and January 5, 2006 cancelled some CBFMAs in some areas of the country. Then DENR Memorandum Circular (DMC) 04 of 2008 initiated the 2009 Upland Development Program (Reforestation and Agroforestry) which mandated the establishment or improvement of nurseries and the provision of seeds or seedlings.

In the 2010s, important forestry laws were also established. As earlier mentioned EO 26 of 2011 created the NGP. This law consolidated and harmonized all greening efforts such as Upland Development Program (UDP), Luntiang Pilipinas and similar initiatives of the government, civil society and private sector. EO 26 specifically ordered the planting of trees in the following lands of the public domain: forestlands, mangrove and protected areas, ancestral domains, civil and military reservations, urban areas under the greening plan of the LGUs, inactive and abandoned mine sites, and other suitable lands. The DENR was designated as the lead agency for the NGP while the members of the Steering Committee under the DA-DAR-DENR Convergence Initiative constituted the Oversight Committee of the program, to be chaired by the DENR.

In 2011, EO 23 was also released declaring an indefinite logging moratorium on the cutting and harvesting of timber in the natural and residual forests and created an Anti-Illegal Logging Task Force. The EO was intended to uphold intergenerational responsibility to protect the environment and to prevent further destruction brought about by natural disasters. It prohibited the DENR from issuing logging contracts/agreements, issuing/renewing tree cutting permits except for clearing of road right of way by DPWH, site preparation for tree plantations, silvicultural treatments and similar activities. It also tasked the DENR to review all existing forestry agreements and immediately cancel those that have violated forestry laws at least twice such as the conduct of any logging activity in natural or residual forest.

In 2013, RA 10176 which revived the observance of Arbor Day in the Philippines was passed. The law authorized the LGUs to celebrate the day for tree planting as an annual event. Two DENR memoranda were also circulated providing further instructions on the implementation of EO 23 and EO 26.

Other forestry-related laws

Other national laws which have some implications on reforestation were enacted in the past (Table 6). Among these are the 1987 Philippine Constitution which re-oriented natural resources management policies towards encouraging private sector participation in forest management; the 1991 Local Government Code of the Philippines that devolved numerous national functions in forest management to LGUs; the National Integrated Protected Areas System (NIPAS) of 1992 which established an integrated protected areas system in the country,

and the Indigenous Peoples Rights Act (IPRA) of 1997 that recognized the rights of indigenous peoples to their ancestral lands, including forestlands.

In 1995, the Philippine Mining Law (RA 7942) was enacted which instituted a new system of mineral resources exploration, development, utilization and conservation in the country (Table 6). In 2006, the Biofuels Act (RA 9367) directed the use of Biofuels and established the Biofuels Program resulting in the growing of sources of biofuels in forestlands. In 2009, the Climate Change Act (RA 9229) mainstreamed climate change into government policy formulation and to establish the framework strategy and program on climate change. Overall, these laws at the least have indirect impacts reforestation in the country, including non-government reforestation. As cases in point, the mining law affects reforestation because many mining operations are done in the upland and forested areas. The law on climate change affects reforestation because the latter has a mitigating influence on the former. The biofuels law affects reforestation because the planting of biofuel sources may also be done in the upland areas.

To end, various laws, policies, programs and projects in forestry that affect reforestation have been implemented in the Philippines since the 1900s up to the present. Some of these directly influence reforestation in general and non-government reforestation in particular. There are also laws and policies which deal on forestry as an overall sector and only have indirect implications on reforestation while other laws deal on other sectors such as mining and energy; societal interests such as climate change, protected areas; social groups such as indigenous peoples which also have bearings of reforestation. Lastly, the 1935 and 1987 constitutions which are the encompassing laws of the land necessarily influence reforestation in the country.

V. Performance of Non-Government Reforestation

There are limited secondary data and information that can be used to assess the performance of reforestation in the Philippines over time, much less private reforestation. Below, the measure of performance is mainly hectares planted only. This goes without saying that other performance measures such as survival rates, replanting rates, growth rates, as well as economic, social, environmental, institutional and other parameters are at the least equally important. It is hoped that the ongoing efforts to assess the impacts of the NGP mentioned earlier may provide useful data and information needed to measure rigorously the performance of reforestation.

1910s to 1960s

Available data from the Forest Management Bureau (FMB) showed that from 1951 to 1960, total reforestation covered 54,531 hectares, all of which were government reforestation (Table 7 and Figure 2). Then, in the 1960s, total reforestation amounted to 97,995 hectares all of which were also conducted by the government. These data contradicted earlier statements that some form of non-government reforestation already occurred before the 1970s. On the other

hand, it could be that the hectares covered by non-government reforestation then were considered minimal by government authorities so that they were excluded from the reforestation statistics.

Table 6: Other Important Laws Affecting Forestry in the Philippines, 1900s to 1990s

Year	Laws	Title/Description	Main Feature
1904	Forest Act	Act to encourage the rational exploitation of forests	Became the decisive regulatory mechanism in Philippine forestry and remained the basis for all elements of forest management until 1975
1917	Act 2711	Forest Law of 1917	Established communal forests and pastures for the use of communities though the forest land itself remained under state control
1935	Philippine Constitution	The 1935 Constitution of the Philippine Commonwealth	Stipulated that all timberlands belong to the state
1941	Forestry Administrative Order (FAO) 14-1	FAO empowering the Secretary of Agriculture and Commerce to set aside communal forests, upon the endorsement of the Director of Forestry and the request of municipal councils.	Granted residents of a municipality the privilege to cut, collect and remove, free of charge, forest products for their personal use
1987	Philippine Constitution	The 1987 Constitution of the Republic of the Philippines	Re-oriented natural resources management policies towards encouraging private sector participation in forest management by replacing the lease system of disposing forest lands with production sharing, co-production sharing and joint venture arrangements
1991	RA 7160	The Local Government Code of the Philippines	Devolved the implementation of social forestry and reforestation initiatives, management of communal forests not exceeding 5,000 hectares, protection of small watershed areas, and the enforcement of forest laws to

			local government units (LGUs)
1992	RA 7586	Act providing the establishment and management of National Integrated Protected Areas System (NIPAS)	Established an integrated protected areas system in the country where different stakeholders particularly LGUs were given greater role in the management of protected areas through membership in the Protected Areas Management Board (PAMB)
1995	RA 7942	Philippine Mining Act	Instituted a new system of mineral resources exploration, development, utilization and conservation
1997	RA 8371	Indigenous Peoples Rights Act (IPRA)	Recognized the rights of indigenous peoples to their ancestral lands, including forestlands
2006	RA 9367	Biofuels Act	Directed the use of Biofuels and established the Biofuels Program resulting in the growing of sources of biofuels in forestlands
2009	RA 9729	Climate Change Act	Intended to mainstream climate change into government policy formulation and to establish the framework strategy and program on climate change

Sources of Data: Carandang et al. (2013), Pulhin (2002)

Pulhin et al. (2006) cited that by 1960, the Philippine government has planted 55,381 hectares and spent P20,267,375 since 1916 at the cost of P581/ha from 1947-60. The same author asserted that the forestry sector appeared to already have a significant contribution to the economy even in the 1950s. For instance, in 1959, the country's market share in globally-traded tropical timber logs was estimated at above 30 percent already (Pulhin 2007, Quintos 1989).

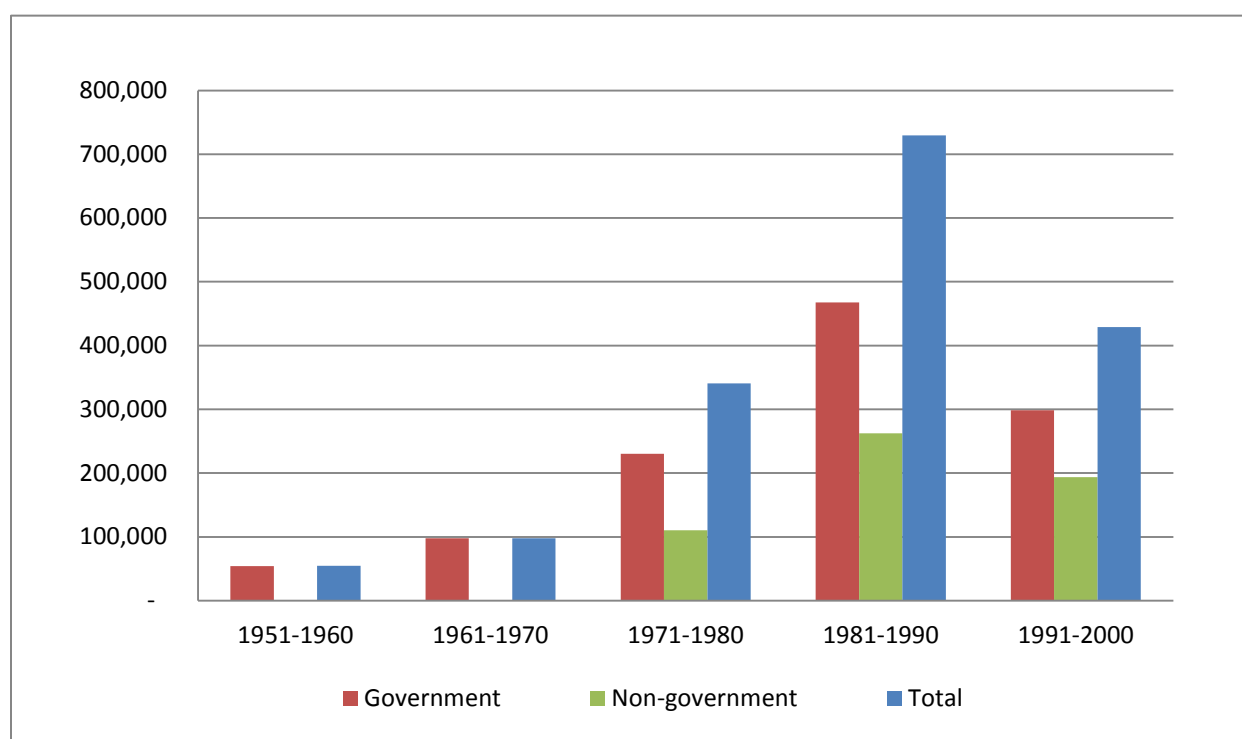
1970s

In the 1970s, government reforestation totaled 230,368 hectares while non-government reforestation amounted to 110,316 hectares for a total reforestation of 340,864 hectare (Table 7 and Figure 2). Thus, significant non-government reforestation was undertaken during this period and comprised 32.38 percent of total reforestation. Total reforestation in the 1970s was more than three times that registered in the 1960s and higher than those attained in the succeeding two decades. Non-government reforestation, on the other hand, was lower than those attained in the 1980s and 1990s. Pulhin et al. (2007) mentioned that the forestry sector has contributed significantly to the national economy during the 1970s. For instance, forest products averaged 19 percent of the total value of national exports of the country from 1970 to 1973.

Table 7: Area Reforested in the Philippines, by Component and Decade, 1951-2000 (hectares)

Year	Government	Percent to total	Non-government	Percent to total	Total
1991-2000	298,439	60.64	193,688	39.36	429,127
1981-1990	467,404	64.07	262,162	35.93	729,566
1971-1980	230,368	67.62	110,316	32.38	340,864
1961-1970	97,995	100.0	-	-	97,995
1951-1960	54,531	100.0	-	-	54,531
Total	1,148,737	66.99	566,166	33.01	1,741,903

Sources of data: FMB (2011, 1999)

Figure 2: Area Reforested in the Philippines, by Component and Decade, 1951-2000 (hectares)

Source of data: Table 7

1980s

In the 1980s, government reforestation totaled 467,404 hectares while non-government reforestation amounted to 262,162 hectares for a total reforestation of 729,566 hectares (Table 7 and Figure 2). Therefore, non-government reforestation comprised a significant 35.93 percent of total reforestation which was higher than the percentage share in the 1970s. Furthermore, total, government, and non-government reforestation were highest in the 1980s than in any of the other decades considered.

It was reported that of the 64,541 hectares planted in 1981, 33,834 ha or 52.42 percent was done by groups besides the forestry department (Pulhin et al. 2007). Furthermore, from 1980 to 1985, 155,000 hectares of state forest lands were granted to the private sector for tree plantation development, with tenure arrangements of 25 years, renewable for another 25 years (Acosta 2004). During the transition period of the late 1980s, forest plantation area surged to an all-time high of more than 500,000 million hectares. However, most plantings were the result of massive infusion of funds through loans from the Asian Development Bank (ADB)/Overseas Economic Cooperation Fund (OECF) for contract reforestation by families, rural communities, LGUs and NGOs under the Forestry Sector Program.

1990s

In the 1990s, government reforestation totaled 298,439 hectares while non-government reforestation amounted to 193,688 hectares for a total reforestation of 429,127 hectares (Table 7 and Figure 2). Therefore, non-government reforestation comprised a significant 39.36 percent of total reforestation which was higher than the percentage shares in the previous decades. Total government and non-government reforestation decreased compared to the 1980s. Acosta (2004) mentioned that judging by the slow rate of forest plantation development until the latter part of the 1990s, it was obvious that the incentives provided by the reforestation programs were ineffective.

2000-2013

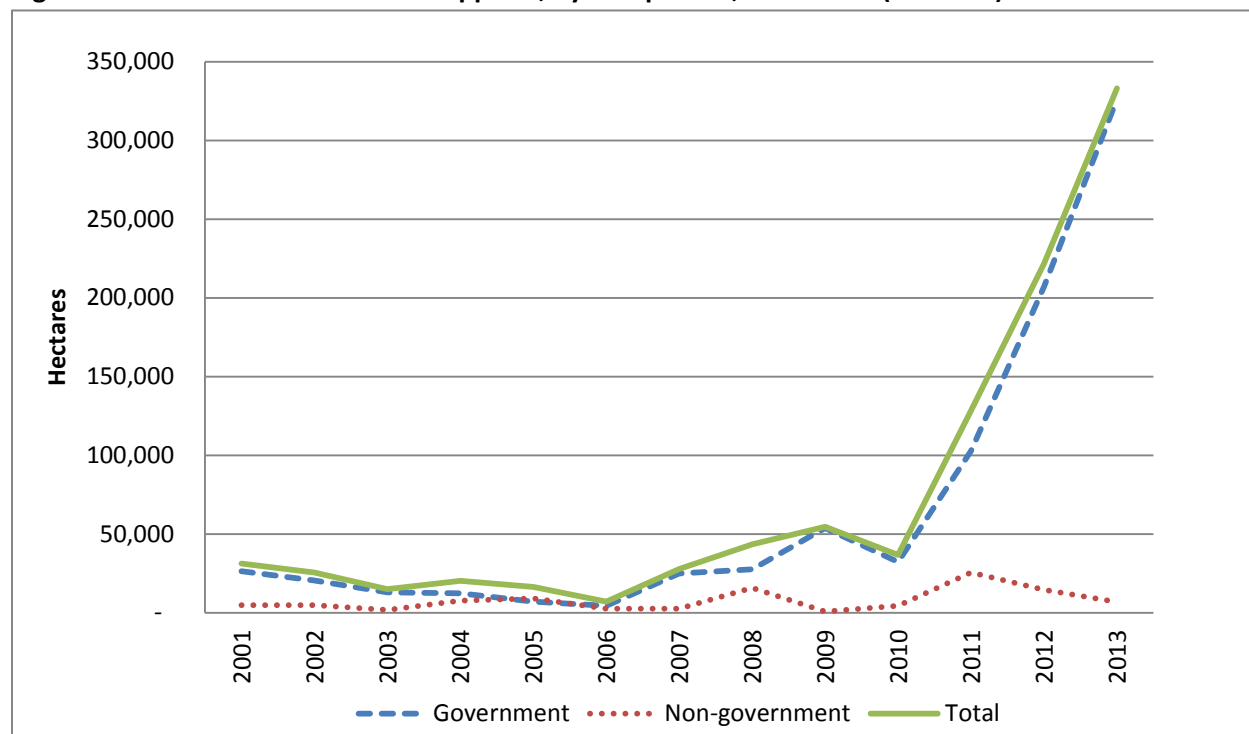
From 2001 to 2010, government reforestation totaled 223,501 hectares while non-government reforestation amounted to 55,825 hectares for a total reforestation of 279,326 hectares (Table 8 and Figure 3). Thus, non-government reforestation comprised 19.99 percent of total reforestation which was way lower than the percentage shares in the previous decades. Total government and non-government reforestation were lower compared to the 1970s, 1980s and 1990s. With these, it was apparent that reforestation had been a relatively neglected activity of government relative to earlier years and the incentives provided by the reforestation programs were effective as well.

Table 8: Area Reforested in the Philippines, by Component, 2001-2013 (hectares)

Year	Government	Percent to total	Non-government	Percent to total	Total
2013	326,106	97.88	7,054	2.12	331,160
2012	207,044	93.36	14,719	6.64	221,763
2011	102,884	80.03	25,674	19.97	128,558
2010	32,384	87.82	4,493	12.18	36,877
2009	53,842	98.27	950	1.73	57,792
2008	27,752	63.64	15,857	36.36	43,609
2007	25,024	89.89	2,813	10.11	27,837
2006	4,476	61.97	2,747	38.03	7,223
2005	7,187	43.56	9,311	56.44	16,498
2004	12,436	61.15	7,902	38.85	20,338
2003	13,195	87.45	1,893	12.55	15,088
2002	20,681	80.72	4,939	19.28	25,620
2001	26,524	84.35	4,920	15.65	31,444
Total					
2001-2013	859,539	89.27	103,272	10.73	962,811
2001-2010	223,501	80.01	55,825	19.99	279,326
2011-2013	636,038	93.06	47,447	6.94	683,485
Average					
2001-2013	66,118.38	79.24	7,944.00	20.76	74,062.38
2001-2010	22,350.10	75.88	5,582.50	24.12	27,932.60
2011-2013	212,012.67	90.43	15,815.67	9.57	227,828.33

Source of data: FMB (2014)

Figure 3: Area Reforested in the Philippines, by Component, 2001-2013 (hectares)



Source of data: Table 8

During the NGP from 2011 to 2013, government reforestation totaled 636,038 hectares while non-government reforestation amounted to 47,447 hectares for a total reforestation of 683,435 hectares (Table 8 and Figure 3). Non-government reforestation now comprised an even lower 6.94 percent of total reforestation compared to previous decades except during the period when non-government reforestation was not conducted. The main reason for this of course was that the NGP years covered only three years. When annual averages were considered, a different outcome resulted. In the 2010s, the annual average non-government reforestation was 5,582.20 hectares which was way lower than that attained in the NGP years of 15,815.67 hectares.

For the entire period from 2001 to 2013, government reforestation totaled 859,539 hectares while non-government reforestation amounted to 103,272 hectares for a total reforestation of 962,811 hectares (Table 8 and Figure 3). Total and government reforestation were highest in 2013 and lowest in 2006 while non-government reforestation was highest in 2011 and lowest in 2009. For the entire period, government formed more than 90 percent while non-government contributed less than 10 percent to the total reforestation conducted in the country. The figures also showed clearly that both total and government reforestation in the Philippines had grown much faster during the implementation of the NGP that before (Figure 3). On the other hand, non-government reforestation had been falling between the two periods.

During the NGP years, in terms of regional distribution, total reforestation had been highest in Central Visayas (Region VII) with 42,412 hectares and lowest in the National Capital Region (NCR) with 2,047 hectares (Table 9 and Figure 4). Government reforestation was largest in Region VII with 38,295 hectares and smallest in the NCR with 2,047 hectares. Non-government reforestation was highest in Western Visayas (Region VI) with 4,695 hectares and lowest in NCR, MIMAROPA (Region IV-B), Bicol Region (Region V), Zamboanga Peninsula (Region IX), SOCCSKSARGEN (Region XII), and Autonomous Region of Muslim Mindanao (ARMM) with none. The NCR was understandably lowest in reforestation being a highly urbanized area.

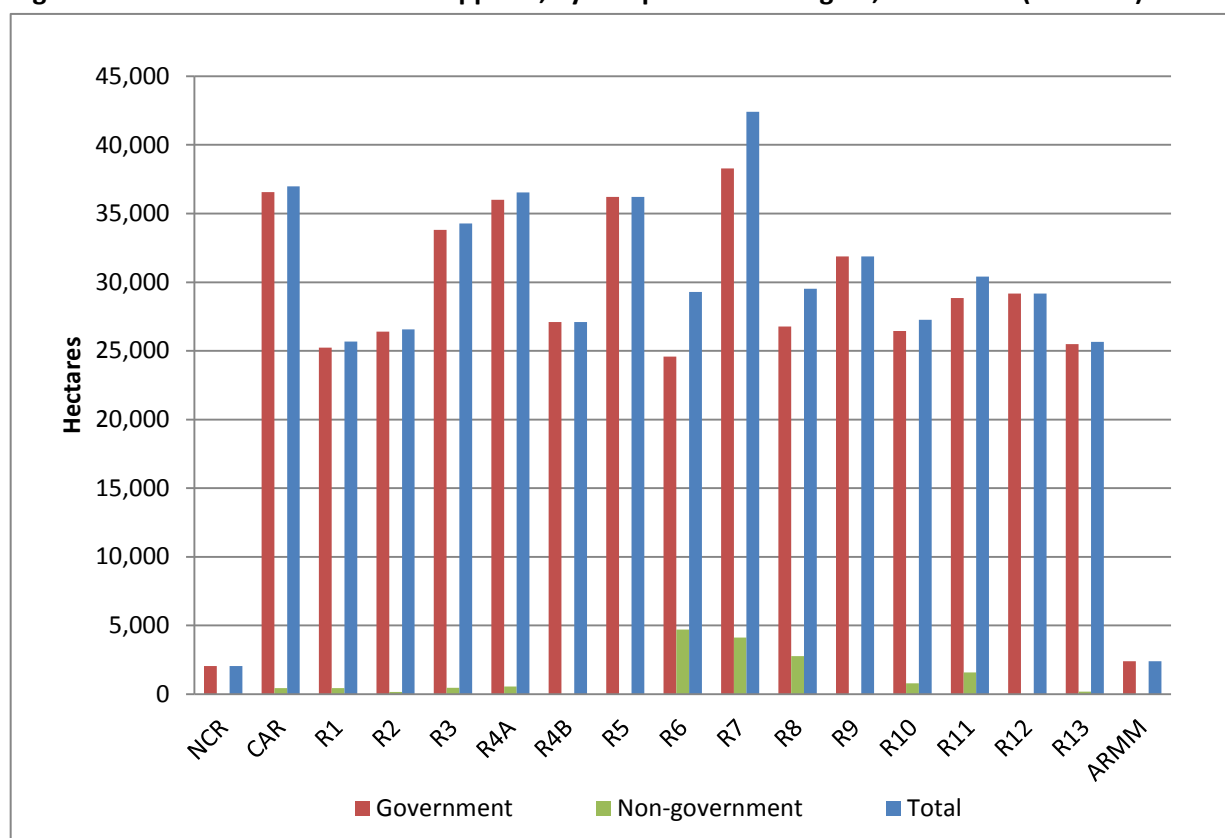
Table 9: Area Reforested in the Philippines, by Component and Region, 2011-2013 (hectares)

Region	2011-2013				
	Government	Percent to total	Non-Government	Percent to total	Total
NCR	2,047	100.00	-	-	2,047
CAR	36,551	98.82	435	1.18	36,986
R1	25,239	98.29	439	1.71	25,678
R2	26,403	99.42	155	0.58	26,558
R3	33,819	98.67	455	1.33	34,274
R4A	35,999	98.51	546	1.49	36,545
R4B	27,090	100.00	-	-	27,090
R5	36,212	100.00	-	-	36,212
R6	24,588	83.97	4,695	16.03	29,283
R7	38,295	90.29	4,117	9.71	42,412
R8	26,766	90.64	2,764	9.36	29,530
R9	31,883	100.00	-	-	31,883
R10	26,457	97.07	799	2.93	27,256
R11	28,838	94.82	1,574	5.18	30,412
R12	29,167	100.00	-	-	29,167
R13	25,487	99.31	176	0.69	25,663
ARMM	2,407	100.00	-	-	2,407
Others	178,786	85.10	31,292	14.90	210,078
Total	636,034	93.06	47,447	6.94	683,481

Source: FMB (Various Years)

Note: Others include reforestation by various groups which are not categorized by region

Figure 4: Area Reforested in the Philippines, by component and Region, 2011-2013 (hectares)



Source: Table 9

From 2001 to 2013, non-government reforestation was conducted under timber licenses, Integrated Forest Management Agreements (IFMA), Socialized Industrial Forest Management Agreements (SIFMA), Tree Farm Lease Agreements (TFLA)/Agro-forestry Farm Lease Agreement (AFFLA), Community-Based Forest Management (CBFMA) and “others” or private reforestation as defined earlier (Table 10). The available data indicated that the hectares planted under these programs had been erratic with some reforestation done by some programs in some years and none in others. The available data also indicated that total non-government reforestation amounted to 103,272 from 2001 to 2013. Non-government reforestation was higher at 55,825 hectares in the 2000s than during the three years of NGP implementation from 2001 to 2013 at 47,447 hectares. Of the different types of non-government reforestation, private reforestation performed the best, planting the most hectareage during the 2001 to 2013 period and during the sub-periods before and after the NGP. Thus, private reforestation clearly has been the main driver of non-government reforestation in recent years.

Table 10: Area Reforested by Non-Government in the Philippines, by Program, 2001-2013 (hectares)

Year	Non-Government Sector						Total
	Timber Licenses	IFMA	SIFMA	TFLA/ AFFLA	CBFMA	Others (Private Reforestation)	
2013	-	-	-	-	-	7,054	7,054
2012	-	5	-	-	-	14,714	14,719
2011	-	-	-	-	-	25,674	25,674
2010	3,737	756	-	-	-	-	4,493
2009	-	950	-	-	-	-	950
2008	182	741	187	-	-	14,747	15,857
2007	-	-	-	-	-	2,813	2,813
2006	-	-	-	-	-	2,747	2,747
2005	341	5,973	263	101	-	2,633	9,311
2004	2,836	2,877	204	1,350	-	635	7,902
2003	842	924	-	110	-	17	1,893
2002	564	1,678	1,790	264	52	591	4,939
2001	1,410	1,431	997	139	103	840	4,920
Total							
2001-2013	9,912	15,335	3,441	1,964	155	72,465	103,272
2001-2010	9,912	15,330	3,441	1,964	155	25,023	55,825
2011-2013	-	5	-	-	-	47,442	47,447

Sources of data: FMB (Various Years)

While practically all of the aforementioned non-government reforestation programs (except private reforestation) have not conducted replanting particularly during the NGP years, the status of these programs as of 2013 is summarized below based on unpublished data provided by key informants from FMB:

- As of 2013, only three TLAs existed with a total area of 177,085 hectares located in Samar and Zamboanga del Norte. However, these TLAs had no operation in that year.
- There were 140 existing IFMAs covering one million hectares. Region 13 has the largest coverage spanning 358,449 hectares.
- There were 1,267 SIFMAs issued with an aggregate area of 29,464 hectares. About 59 percent were located in Region VII, particularly in Isabela, Cagayan, and Quirino.
- There were 61 TFLAs covering 6,153 hectares. There were three AFFLAs covering 448 hectares. At present, TFLAs and AFFLAs are not issued anymore.

- e) CBFMAs involved 1,884 People's Organizations covering 1.6 million hectares and participated in 191,352 members.

VI. Brief Profile and Performance of Private Reforestation

Brief Profile

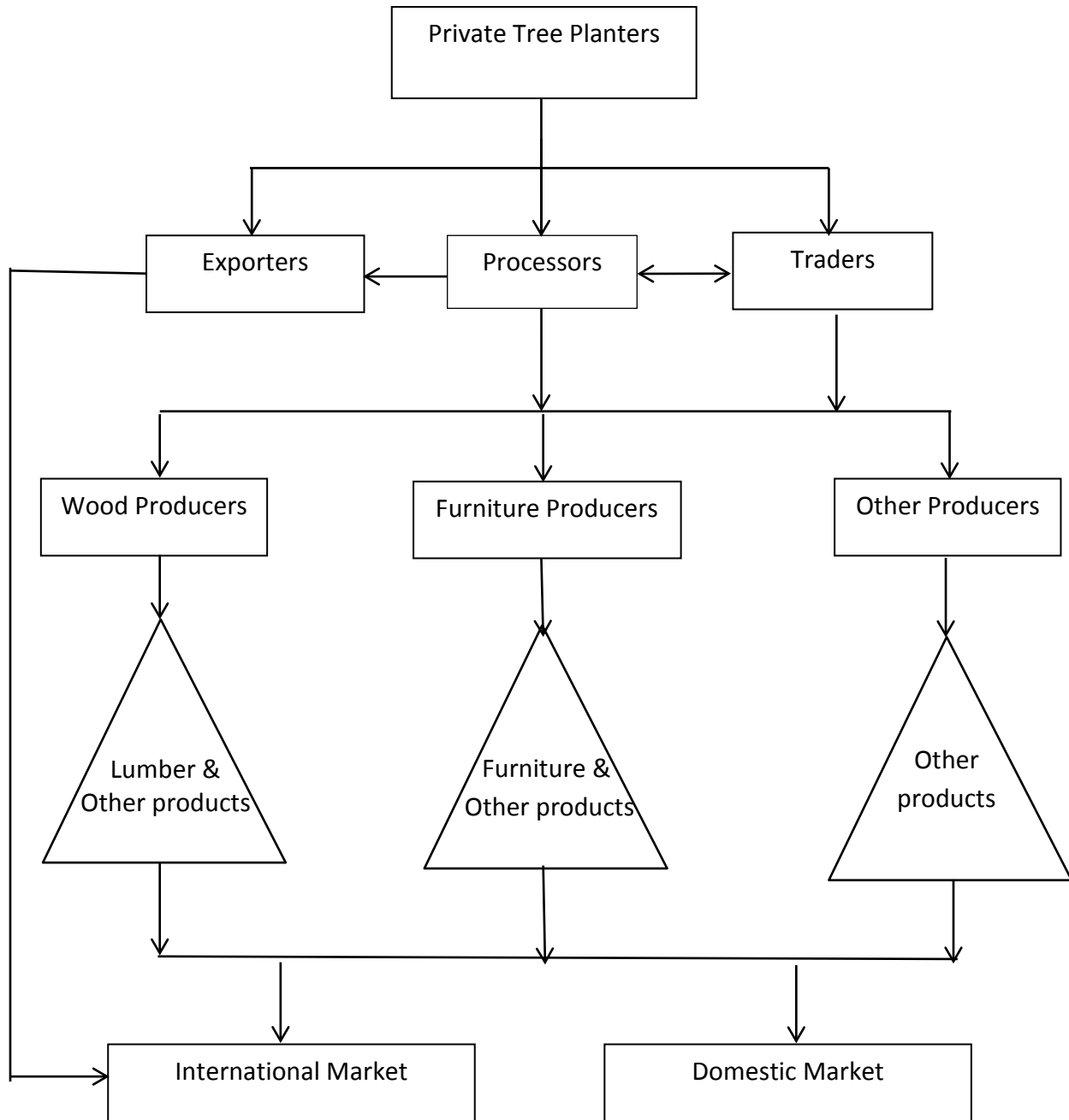
A study fully profiling non-government reforestation in the Philippines has yet to be done. In brief here and based on key informant interviews, large scale private tree planters in the country include timber-producing firms and businesses. Smallholders are usually households but can also be businesses. Among the common tree species planted by private tree planters for commercial purposes are Falcata (*Paraserianthes falcataria*), Mahogany (*Swietenia macrophylla*) and Gmelina (*Gmelina arborea*), not necessarily in that order of importance. In the CARAGA Region in Northeastern Mindanao, the fast growing falcata is most planted. Other commercial species grown include Bagalunga (*Melia dubia*), Mangium (*Acacia mangium*), Molave (*Vitex Parviflora*), Narra (*Pterocarpus indicus*), Auri (*Acacia auriculiformis*), Ipil-ipil (*Leucaena leucociphal*a), Antipolo (*Artocarpus blancoi*), Bagras (*Eucalyptus deglupta*), and other species.

The actual supply chain for private reforestation may vary between different regions of the country but a generic supply chain is presented below (Figure 5). The inputs of private tree planters are land, labor, seedlings, pesticides and others. Seedlings may be purchased from seedling nurseries or cultivated by the tree planters themselves. The growing period of trees vary between species but generally takes more than five years. Falcata, for instance, is harvested after eight years or so. Once mature, the trees are cut and the harvested logs are sold to exporters who send the logs directly to the international market; processors who process the logs and then export or sell domestically; and/or traders who sell to exporters or processors. The processors then sell to the wood producers, furniture producers, and other producers. In turn, these producers sell their products in the domestic and/or export markets.

Performance of private reforestation

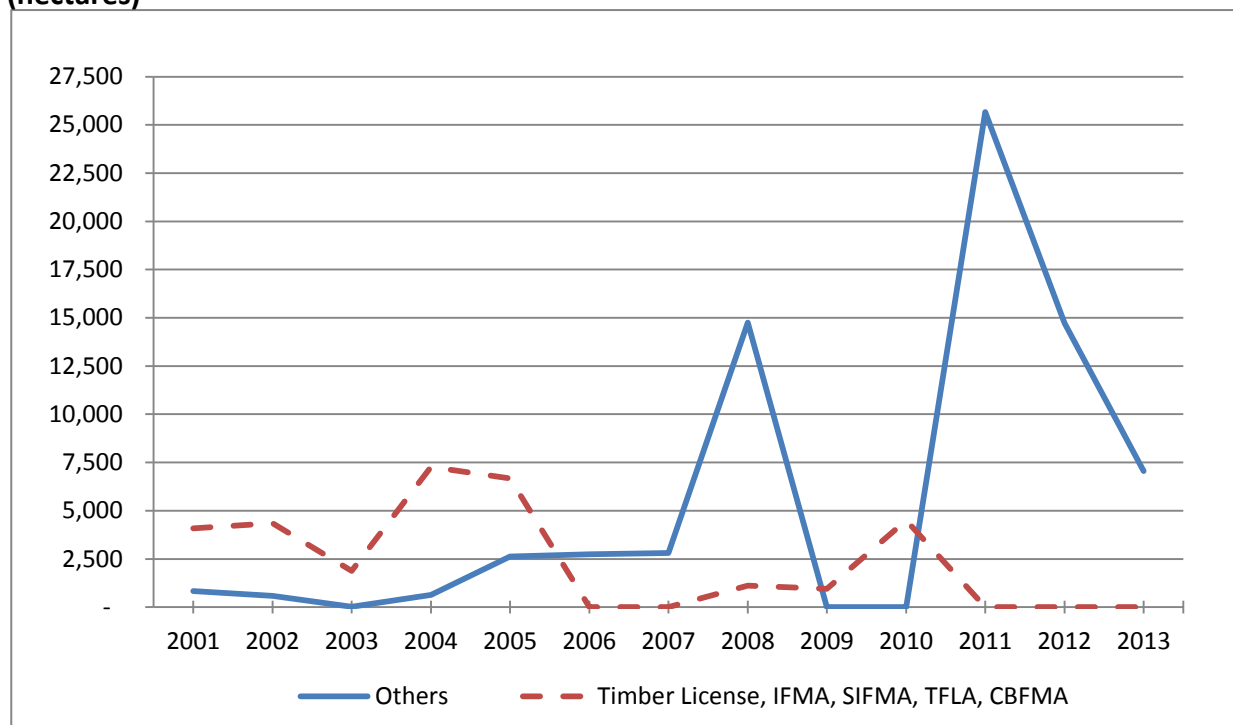
The performance of private reforestation in the Philippines from 2001 to 2013 in terms of hectares planted has been erratic (Table 10 and Figure 6). It decreased from 2001 to 2003, increased from 2004 to 2007 and significantly rose in 2008. Then, it plunged to 0 in 2009 and 2010, reached a peak in 2011 and fell in 2012 and 2013. Similarly, the total hectares planted by the other non-government programs had been erratic. It was fluctuating all throughout and was higher in the first half of the 2010s, lower in the second half of the decade and practically non-existent afterwards during the NGP years. The figures again emphasized the fact that in the future, concentrating on the development of private reforestation may be the preferred approach unless the government creates another non-government sector-based program in the future.

Figure 5: Generic Supply Chain for Private Reforestation in the Philippines



Source of data: key informants

Figure 6: Area Reforested by Private and Other Non-government Reforestation, 2001-2013 (hectares)



Source of data: Table 10

VII. Issues and Problems in Private Reforestation

The supply chain of private reforestation as illustrated earlier is rather extended and the issues and problems constraining it at different stages are numerous. The issues and problems which are preventing the private sector from investing into or expanding tree planting operations are summarized below based on the existing secondary literature and interviews with key informants.

Institutional issues and problems

- Relevant laws and policies in the country keep changing and are sometimes inconsistent. This makes private tree planters hesitant to invest fearing that they may not be able to harvest or market the trees they plant due to the policy changes.
- While there is a large-scale government program for reforestation in the NGP, the private sector is generally left out. Yet, a government-assisted program particularly for the smallholders who face numerous constraints to enter or expand is direly needed.
- Security of tenure remains a problem in private reforestation. Some are discouraged to plant due to contesting land claims. Among land reform beneficiaries, some collective Certificates of Land Ownership Awards (CLOA) are not yet converted to individual titles.
- Many privately-owned lands suitable for tree planting are kept vacant because they are maintained only for land price speculation. The productive potential of these lands have

been wasted. For its part, the government has not offered incentives or imposed disincentives for owners to plant trees.

- e) Tree planting as an industry has yet to be fully examined as a potential profit earner for the private sector and as a contributor to national development. Available studies in general are technical, environmental, and institutional in nature.
- f) The decision of the private sector to plant or invest is constrained by the limited data and information available. Because of this, many potential investors are unaware or view commercial trees simply as inferior to crops and livestock agriculture.
- g) Some tree planters do not have sufficient funds for the long gestation period from tree planting to harvest. This leaves them at the mercy of loan sharks or forces them to consider tree planting as a partial activity only.

Production issues and problems

- a) The tree planting production process is considered risky. One form of production risk is price risk, particularly the high and fluctuating costs of production inputs due to inflation and limited supply.
- b) Poaching is another form of production risk faced by private tree planters. Standing trees are sometimes cut and stolen, mainly by outsiders but even by members of own community.
- c) Diseases are likewise a major risk in tree planting with young trees being partially or completely infested resulting to low survival rates, high replanting rates, and overall high production costs.
- d) Tree planters constantly face the risk of natural calamities, such as fires, typhoons and landslides, which can seriously damage or even wipe out standing trees and causing large losses.
- e) Climate change resulting to extended or erratic dry and wet seasons is yet another problem in tree planting which results to stunted trees and poor net returns at harvest.

Marketing issues and problems

- a) Price risk in marketing also exists. While stable at present, log prices could be low and unstable in the future. Full market information on log prices is not available to tree planters.
- b) The export market is generally not accessible to tree planters but only to buyers and traders. Tree planters, particularly the smallholders, are unable to benefit from international trade.
- c) In some tree planting areas, access is difficult due to the non-existence or poor quality of roads and bridges. During the rainy season, waterways are sometimes used to transport logs.
- d) For smallholders, the equipment and facilities, such as trucks, needed to carry logs to buyers are often lacking or expensive to hire. Sometimes, the main modes of transporting logs from the uplands are animals and people.

VIII. Summary, Conclusion and Ways Forward

Summary and Conclusion

This study explains that the forest cover of the Philippines has significantly declined over time due to excessive exploitation and the absence of meaningful reforestation to counter it. Together with the decline in forest resources, the economic and non-economic benefits from the forestry sector have also diminished. It is imperative then that effective reforestation must be done.

A major finding of the study is that private reforestation is the main driver of non-government reforestation particularly in the recent past and will be in the years to come. The importance of smallholders, as well, to the forestry sector cannot be overstated. Smallholders can actually produce significant quantities of logs than will add to the production of large-scale tree planters.

For the private sector to be truly involved, it is reasonable for it to expect that its profits would be higher and the risks would be lower from tree planting. The likelihood of this being attained at present is hindered by the various issues and problems some of which are mentioned earlier. These, as well which may have been missed out in the above discussion, have to be addressed.

Ways forward

The recommendations to address the issues and problems faced in private reforestation are based on the existing secondary literature and interviews with key informants and summarized below:

Institutional recommendations

- a) To address the problem of inconsistent policies, the Sustainable Forest Management Act (SFMA) must be passed. This law will harmonize existing laws to make them more consistent including those which directly or indirectly impact on private reforestation.
- b) The Comprehensive Land Use Act (CLUA) should also be passed. Among others, it will provide the basis for identifying areas suited for private reforestation and eliminate the fear of future conversion.
- c) To address the lack of attention on private reforestation, the government can establish a program separate from the NGP and designed to motive smallholders to invest or expand tree planting operations.
- d) In addition to (c) a comprehensive value chain study should be done on private reforestation in the Philippines and in major tree planting areas such as the CARAGA region to identify major issues and problems in the supply chain and find solutions.
- e) Conflicting claims on private lands are a long-standing problem in the Philippines. Penalty for false claimants and land grabbers must be made more severe. The

Department of Agrarian Reform (DAR) must hasten the process of dividing collective CLOAs.

- f) The country is wasting resources on land kept only for price speculation. One potential solution that the government can consider is to impose higher/lower real estate taxes on unused/reforested land to induce owners to plant trees.
- g) Research on reforestation can put more emphasis on the financial and economic aspects of tree planting. The data and information generated from these studies will help investors decide on tree planting as a viable business.
- h) The Regional DENR and other relevant agencies should monitor and gather relevant market data and information effectively while the FMB and other relevant agencies should disseminate them effectively as well on the ground in the language, form, and style that can easily be understood.
- i) The government can put up an effective credit program particularly for smallholders not only for them to be able to plant but also for them to meet their daily needs during the long period between planting and harvest.
- j) In addition to (i), trainings on how to prepare good research proposals among the small-scale planters can be conducted so that their chances of getting a loan from banks and other traditional fund sources are increased.

Production-related recommendations

- a) To help address input price risk, among others, government seedling nurseries should be enhanced so that they can provide a more steady supply of good quality and cheap seedlings to tree planters.
- b) Law enforcement and citizenry should be incentivized by putting up an effective reward system for catching tree poachers. Another way to address poaching is to put up a high penalty for offenders including sufficiently long prison sentences.
- c) To help minimize tree diseases, training and extension courses on pest control including the use of indigenous techniques and local knowledge should be widely conducted.
- d) The inclusion of tree planting in the coverage of existing crop insurance programs should be seriously studied to help address the problem of large losses due to natural calamities and other problems.
- e) Pertinent agencies can provide adequate and advanced weather and climate forecasts and other related information to tree planters so that they can reduce the negative effects of weather and climate changes.

Marketing recommendations

- a) Help must be afforded to tree planters so that they can form marketing cooperatives to increase their leverage in the market and improve their access to information on prevailing prices.
- b) In addition, vertical integration among tree planters can be promoted to cover processing, marketing and other downstream activities and reduce the influence of middlemen in their operations.

- c) The government can help develop access of tree planters and their marketing cooperatives to international markets for commercial logs and processed wood products by providing them at least the same assistance given to other industries.
- d) The government must improve road and bridge infrastructure in the rural areas to hasten the transportation of tree production inputs and harvested logs from the sources to their destinations.
- e) Aside from government, marketing cooperatives and similar organizations can help by investing in commonly owned-equipment and facilities, such as chainsaws and trucks, for harvesting and transporting logs to markets by their members.

Other recommendations

- a) To make tree planting more attractive than agriculture, agro-forestry and forestry-tourism as alternative ventures can be promoted. Using tree-planted areas as commercial nature parks can boost profitability and local employment.
- b) Within the long term, the trading of large-scale tree plantations in the stock market may be considered. This can generate needed capital and provide the opportunity for their owners to generate investment where needed.
- c) Over the long-term, possibility of paying private tree planters for the environmental services that their trees provide can be considered. These payments may come in the form of reduced taxes, provision of soft loans and other forms of de facto payments.

To end, it must be mentioned that at present the government has already done some significant steps to address issues and problems relevant to private reforestation. For one, to encourage the private sector to pursue sustainable development, the FMB through the newly created Forest Investment Division is adopting and has drafted a policy on Forest Management Portfolio Approach. This is intended to create Public-Private Partnerships (PPPs) that would encourage investments in sustainable forest management. In addition, the FMB and its partners have an ongoing study on unifying land tenure government in Philippine forest lands. These initiatives are important steps in the right direction which will contribute to addressing the numerous issues and problems mentioned here towards the full participation of the private sector in forestry.

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