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# **Nongovernment Reforestation in the Philippines: Ways Forward**

**Danilo C. Israel**

**Research Paper Series No. 2016-01**

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*Danilo C. Israel*



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

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## List of Acronyms

AAGR	– average annual growth rate
AFFLA	– Agro-Forestry Farm Lease Agreement
ARMM	– Autonomous Region in Muslim Mindanao
BFD	– Bureau of Forest Development
CBFM	– Community-Based Forest Management
CBFMA	– Community-Based Forest Management Agreement
CLOA	– Certificate of Land Ownership Award
DAO	– DENR Administrative Order
DENR	– Department of Environment and Natural Resources
DMC	– DENR Memorandum Circular
EO	– Executive Order
FGD	– focus group discussion
FMB	– Forest Management Bureau
FSP	– Forestry Sector Project
GDP	– gross domestic product
GVA	– gross value added
ha	– hectare
IFMA	– Integrated Forest Management Agreement
ISF	– Integrated Social Forestry
LGU	– local government unit
LOI	– Letter of Instruction
m <sup>3</sup>	– cubic meters
MAO	– Ministry Administrative Order
NCR	– National Capital Region
NGO	– nongovernment organization
NGP	– National Greening Program
NIPAS	– National Integrated Protected Areas System
PD	– Presidential Decree
PO	– people's organization
PSA	– Philippine Statistics Authority
RA	– Republic Act
SIFMA	– Socialized Industrial Forest Management Agreement
TFLA	– Tree Farm Lease Agreement
TLA	– Timber License Agreement



## **Abstract**

This study reviews and assesses nongovernment reforestation in the Philippines vis-à-vis government and total reforestation using primary and secondary data. The objective is to identify issues and problems related to nongovernment reforestation and recommend actions that can be undertaken to address them. This study finds that government reforestation dominates total reforestation, while nongovernment reforestation only has a relatively small contribution in recent years. During the first three years of implementing the National Greening Program, the growth of nongovernment reforestation had been erratic, increasing in 2011 but decreasing in 2012 and 2013. This study asserts that private reforestation—or reforestation conducted by the private sector under no agreement with the government—has been the main driver of nongovernment reforestation at present. However, its full development as an industry has been hindered by various institutional, production, and marketing issues and problems. This study recommends ways to address these problems and issues to move nongovernment reforestation forward.



# 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 needed for Philippine forests.

To meaningfully arrest the problem of declining forests, the Aquino administration commenced the National Greening Program (NGP) in 2011. In addition to simply planting trees, this priority initiative aims to meet the following objectives: (1) reduce poverty; (2) promote food security, environmental stability, and biodiversity conservation; and (3) enhance climate change mitigation and adaptation in the country. The NGP seeks the planting of 1.5 billion seedlings in 1.5 million hectares (ha) of land nationwide until 2016. An economic, social, environmental, and institutional impact evaluation of the program is completed (Israel 2016) while earlier efforts (Israel 2013; Israel and Arbo 2015) conducted a process evaluation and preliminary assessment of the program.

It is safe to say, however, that due to the long gestation periods of investment in reforestation, the effects of the NGP on expanding forest cover and, in particular, the ability of the country to increase its own supply of wood can only be realized in the long term. Thus, at present, nongovernment reforestation has become a critical complementary activity to the NGP. Yet, little economic research has been done on nongovernment reforestation so far. Hence, it would be important to know how the industry has been performing over time, what the critical problems the industry is facing have been, and what actions can be done to address these problems.

## *Objectives and data*

This paper looks into nongovernment reforestation in the Philippines. The main objective of this effort is to review and assess how nongovernment reforestation has performed over the years particularly vis-à-vis government and total reforestation. The purpose is to identify issues and problems related to nongovernment reforestation and recommend actions that can be undertaken to address them, which can lead to the development of the industry.

To attain these objectives, the next section of the paper provides relevant definitions. Section 3 discusses the economic and noneconomic importance of Philippine forests and Section 4 identifies the institutional players and reviews the laws, policies, programs, and projects related to reforestation. Section 5 analyzes the performance of nongovernment vis-à-vis government reforestation and total reforestation. Section 6 provides the profile and describes the performance of private reforestation. Section 7 discusses the issues and problems in private reforestation. The paper concludes in Section 8 which also outlines the ways forward.

This paper uses primary data and information sourced through key informant interviews with government and private sector representatives, and focus group discussions (FGDs) with private tree planters based in Metro Manila and the Caraga region (Region XIII), the latter being an important private tree-growing area in the county. 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 private reforestation in more detail.

### **Definitions**

Reforestation, which is also called artificial regeneration, is the establishment of forest plantations on temporarily unstocked lands that are considered as forest (FAO 2001). The Philippine government describes reforestation as the planting of an area in a forestland 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 maintenance of plantations (DENR 1989).

There are two components of reforestation in the Philippines—government reforestation and nongovernment 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, nongovernment reforestation is reforestation done through tenure instruments, by the citizenry, and in private lands.

The early form of nongovernment reforestation was conducted through Timber License Agreements (TLAs). Over time, nongovernment reforestation also includes those under the Community-Based Forest Management Agreements (CBFMAs), Industrial 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, Industrial Tree Plantation, Presidential Decree (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 landowners, organizations, and citizenry that are not part of any agreement with the government. In this study, the term “nongovernment reforestation” is used as defined, while “private reforestation” refers to “others” or the reforestation conducted by the private sector under no agreement with the government.

Based on PD 705 of 1975, an industrial tree plantation is any tract of forestland 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 forestland purposely and extensively planted to trees of economic value for their fruits, flowers, leaves, barks, or extractives, but not for the wood thereof. Because a tree farm as defined above does not refer to the planting of trees for the logs they produce, the term “tree planting” is used here instead when referring to the planting of trees for log production. From a government key informant, large-scale tree planting covers 500 ha or more while a small-scale operation, which is called “smallholder”, covers less than 500 ha. There is no clear definition of what comprises medium-scale tree planting in the context of Philippine forestry.

## 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 at 9.46 percent and fishing at 1.73 percent. In the same year, forestry contributed only 0.37 percent to the gross value added (GVA) in the agriculture, hunting, forestry, and fishing sector. This share was likewise significantly smaller than the contributions of agriculture at 84.26 percent and fishing at 15.37 percent.

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 during 2004–2006, 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, in 1985, the share of forestry to the gross national product was higher at 0.13 percent, thus indicating the decreasing importance of forestry to the national economy over time (FMB 2009).

Roundwood production

Roundwood, or log that is not yet sawn or hewed, is the primary beginning product derived from harvested trees. These logs are

**Table 1. Economic importance of the forestry sector to the Philippine economy, 2013 (current prices)**

Economy/Economic Group/Sector	Amount (in PHP million)	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
GVA in agriculture, hunting, forestry, and fishing	1,296,824	100.00	11.23
GDP	11,548,191	-	-

GDP = gross domestic product; GVA = gross value added  
Source of data: Philippine Statistics Authority (PSA) 2014a

**Table 2. Gross value added in forestry as percentage of GDP, 2001–2013  
(in PHP million, at current prices)**

Year	GDP	GVA in Forestry	Percent of 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
<b>Average</b>			<b>0.05</b>

GDP = gross domestic product; GVA = gross value added

Sources of data: PSA (2014a); National Statistical Coordination Board (2013)

converted into timber and other processed products along the supply chain in forestry. In terms of volume, Philippine roundwood production from 2001 to 2013 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 (m<sup>3</sup>) and lowest in 2002 at 541 thousand m<sup>3</sup>. Furthermore, production was higher than 1.0 million m<sup>3</sup> in some years and lower in other years. In general, roundwood production was lower in the first half and higher in the second half during 2001–2013. Also, production fell sharply from 2009 to 2010 but rebounded substantially in 2011. During the first three years of NGP implementation, production rose in 2011, decreased in 2012, and increased again in 2013.

### Roundwood trade

Some of the roundwood produced by the Philippines are exported to other countries. In terms of volume, Philippine roundwood exports

**Table 3. Production, exports, imports, net exports, and apparent demand for roundwood in the Philippines, 2001–2013 (in thousand m<sup>3</sup>)**

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
<b>AAGR (%)</b>	<b>10.0</b>	<b>1,335.3</b>	<b>-1.7</b>	<b>0.5</b>	<b>4.9</b>

AAGR = average annual growth rate

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

Sources of data: Forest Management Bureau (various years)

from 2001 to 2013 have been generally rising but also wildly fluctuating in some years (Table 3). This has resulted in a very high computed AAGR of 1,335.3 percent during the period. Exports were highest in 2001 at 5.46 thousand m<sup>3</sup> and lowest in 2003 at 0.02 thousand m<sup>3</sup>. 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 NGP implementation, roundwood exports consistently decreased from 2011 to 2013.

From 2001 to 2013, the volume of Philippine roundwood imports has been generally falling at a relatively low AAGR of -1.7 percent (Table 3). Imports were highest in 2001 at 551.33 thousand m<sup>3</sup> and lowest in

2009 at 37.41 thousand m<sup>3</sup>. 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 NGP implementation, roundwood imports consistently increased from 2011 to 2013.

From 2001 to 2013, the volume of Philippine roundwood net exports has 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 m<sup>3</sup> and lowest in 2001 at -545.83 thousand m<sup>3</sup>. 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 m<sup>3</sup> in all years except 2002. It was highest in 2013 at 1,738.30 thousand m<sup>3</sup> and lowest in 2002 at 973.75 thousand m<sup>3</sup>. Apparent demand was lower during the first half of the 2000s and higher in the second half. During the first three years of NGP implementation, 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 accounted for 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.

Finally, 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.

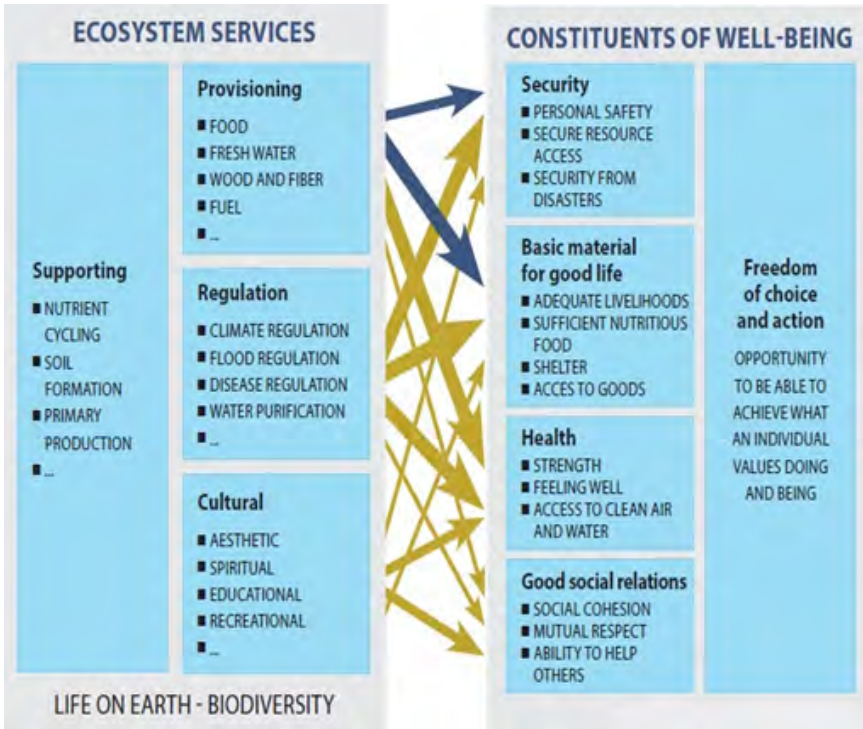
### *Noneconomic contributions*

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 are summarized in Figure 1. Of these benefits, the first one, provisioning services, or the physical products produced from the forest, are already discussed earlier while the rest are generally noneconomic 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, soil formation, and biodiversity services, such as species and habitat conservation. Together with the economic provisioning services, these generally noneconomic regulating, cultural, and supporting services provided by forests help ensure the well-being of a country and improve



**Figure 1. Linkage between forest ecosystem services and human well-being**



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

the security, basic material for good life, health, and good social relations among its people.

As discussed 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 other reasons, this is because the accounting of these services, or putting reliable values on them particularly in money terms, is still a work in progress around the world. Some important reasons behind this difficult task have been put forward (Agrawal et al. 2013). One is the differences in the valuation methodologies used by researchers, hence, the generated estimates also differ and, oftentimes, these differ 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 PHP 118.2 billion for an annual average of PHP 10.7 billion, 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, the National Statistical Coordination Board (1998) reported that the value of standing trees in old growth dipterocarp forest decreased from PHP 213 billion in 1988 to PHP 156 billion 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 PHP 209 billion in 1988 to PHP 162 billion in 1994. For the entire period, the Philippine forestry sector lost a total of PHP 104 billion 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.

To recapitulate, both the economic and noneconomic contributions of forests have significantly fallen with the decline in the forest cover of the Philippines. Carandang et al. (2013), for instance, explained that from 17.8 million ha or about 60 percent of the land area in 1934, the forest cover of the country fell significantly to just 7.168 million ha or 23.89 percent in 2011. Therefore, around 10 million ha 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 ha 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).

## **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

**Table 4. Institutions involved in reforestation in the Philippines**

<b>Institution</b>	<b>Main Roles</b>
Congress	Provides the legal framework for forests development and management including reforestation.
President	Issues national 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 forestlands 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 semigovernment 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 steward of forest resources.
Nongovernment organizations and the rest of civil society	Provide technical and financial support to POs, policy advocacy, and legal assistance especially to indigenous peoples; 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)

president issues national policies relevant to reforestation and forest rehabilitation; the Department of Environment and Natural Resources (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 people and entities from the private sector that hold leases of public

forestlands and are mandated to rehabilitate certain areas covered by their leases, and other private entities that plant trees in owned lands, seedling nursery operators, hired labor, other input suppliers, as well as other individuals and organizations are players in reforestation.

While all cited institutions are in one way or another involved in nongovernment reforestation as a component of overall reforestation, the most important institution relevant to nongovernment reforestation is the private sector, which, as will be shown later, dominates nongovernment reforestation in more recent years. Other more important players are the DENR and LGUs, which provide management at the national and local levels and the academic and research institutions from which the nongovernment reforestation players may seek technical assistance and expertise.

### *Reforestation-related laws, policies, programs, and projects*

#### **The period during 1910s–1960s**

During this relatively long period—from the 1910s to the 1960s—few laws intended mainly for reforestation in the Philippines were enacted (Table 5). In 1916, Act 2649 mandated reforestation in an aggregate area of 4,095 ha in the Talisay–Minglanilla Friar Lands Estate in Cebu province and appropriated PHP 10,000 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, meager government funds limited the 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.

After World War II, Republic Act (RA) 115 of 1947 created a Reforestation Fund from charges levied on timber harvested on state forestlands. 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, 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

**Table 5. Laws, policies, and programs directly related to reforestation in the Philippines, 1910–2000**

Year	Law/Policy/ Program/ Project	Title/Description	Main Feature
1916	Act 2649	An act to reforest an aggregate 4,095 ha in the Talisay-Minglanilla Friar Lands Estate in Cebu province	Appropriated PHP 10,000 for reforestation in Cebu province.
1947	RA 115	An act to provide funds for reforestation and afforestation	Created a Reforestation Fund from charges levied on timber harvested on state forestlands, in addition to the regular forest charges.
1960	RA 2706	An act creating the Reforestation Administration	Created the Reforestation Administration with the mandate to hasten the reforestation of barren and denuded public lands.
1972	PD 1	A decree 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	An LOI to accelerate the rehabilitation of extensively denuded and degraded lands	Directed the Presidential Committee on Wood Industries Development to submit a program to promote the development of industrial plantations and tree farms.
1973	Bureau of Forest Development (BFD) Circular 45	A circular establishing the Family Approach to Reforestation Program	BFD entered into short-term contracts with families to set up tree plantations in public lands.
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 Program.
1976	PD 953	A decree requiring the planting of trees in certain places	Mandated that every owner of an existing subdivision shall plant trees in open spaces as well as along all roads and service streets.

## Nongovernment Reforestation in the Philippines

**Table 5 continued**

<b>Year</b>	<b>Law/Policy/Program/Project</b>	<b>Title/Description</b>	<b>Main Feature</b>
1977	PD 1153	A decree requiring the planting of one 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 985	A circular requiring the maintenance of plant nurseries	Required local governments to establish and maintain seedling nurseries within their respective localities.
1978	PD 1559	A decree amending the Revised Forestry Reform Code	Made amendments to PD 705.
1979	Ministry Administrative Order 11	An order establishing the Communal Tree Planting Program	Mandated every city and municipality of the country to establish tree farms.
1979	LOI 818	An 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	An 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.
1981	Executive Order (EO) 725	An EO facilitating the establishment of industrial tree plantations	Mandated the establishment of Industrial Tree Plantation Program in open, denuded brushlands and inadequately stocked areas.
1982	LOI 1260	An LOI establishing the Integrated Social Forestry (ISF) Program	Mandated the establishment of the ISF Program.
1983	LOI 1312	An LOI mandating the establishment and development of local government forests 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 Order 4	An order 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.

Table 5 continued

Year	Law/Policy/ Program/ Project	Title/Description	Main Feature
1987	No law in 1987, DENR Administrative Order (DAO) 16 in 1993	Forestry Sector Project	Launched a 14-year National Forestation Program with a target area of 1.4 million ha to be reforested by 2000.
1989	DAO 123	An order establishing the Community Forestry Program	Awarded Community Forestry Management Agreements to organized upland communities for a period of 25 years, renewable for another 25 years.
1990	DAO 71	An order establishing the Forest Land Management Program	Issued Forest Land Management Agreements that replaced the former short-term contract reforestation systems.
1992	DAO 35	An order creating the Low-Income Upland Communities Project	About 15,000 ha in eight major watersheds were treated through contract reforestation for the benefit of about 7,000 tribal and lowland migrant families.
1993	DAO 60	An order initiating Industrial Forest Management Agreements	Intended to support timber production when Timber License Agreements were being phased out.
1995	EO 263	An 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	An order instituting the Socialized Industrial Forest Management Agreement	Intended to further democratize access to forest resources, especially for small to medium investors and even for small farmers.
2004	EO 318	An 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	A memorandum cancelling some Community-Based Forest Management Agreements (CBFMAs)	Cancelled 233 existing CBFMA in 11 regions (Cordillera Administrative Region, 1, 2, 4-A, 4-B, 5, 6, 7, 9, 10, and 11) due to unsatisfactory performance ratings of CBFM POs.

## Nongovernment Reforestation in the Philippines

**Table 5 continued**

<b>Year</b>	<b>Law/Policy/ Program/ Project</b>	<b>Title/Description</b>	<b>Main Feature</b>
2006	DENR Secretary's Memorandum dated January 5, 2006	A memorandum cancelling some CBFMAs	Cancelled all existing CBFMAs in eight regions (1, 4-B, 5, 6, 7, 8, 9, and 13) due to CBFM POs' alleged noncompliance/ violations.
2008	DENR Memorandum Circular (DMC) 04	A 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	An EO implementing the National Greening Program	Mandated the planting of 1.5 billion trees in 1.5 million ha from 2011 to 2016.
2011	EO 23	An 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 the Department of Public Works and Highways, site preparation for tree plantations, silvicultural treatments, and similar activities.
2012	RA 10176	An act reviving the observance of Arbor Day	Authorized the LGUs to handle the responsibilities for celebrating tree planting as an annual event.
2013	Memorandum of the DENR Undersecretary and Chief of Staff dated February 5, 2013	A memorandum clarifying the suspension of the processing of all requests 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 October 26, 2011.
2013	DMC 06	A circular providing guidelines and procedures for the plantation and development through the NGP with area coverage of 100 ha and above	Covered minimum areas of 100 ha and maximum areas of 1,000 ha contiguous or clustered within the municipalities as identified by the DENR.

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



private companies initiated and implemented rehabilitation activities (Chokkalingam et al. 2006).

Thus, while the period 1910–1960 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 efforts required the government to concentrate mostly on war efforts first and then on the succeeding rebuilding activities. While reforestation was relatively minimal, however, some form of nongovernment 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 previous years (Table 5). Under the Martial Law years, PD 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 Program created through Bureau of Forest Development (BFD) Circular 45 of 1973, Forest Occupancy Management Program created through PD 705 of 1975, and the Communal Tree Farming Program created through Ministry Administrative Order (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 trees 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, TLAs became the primary tenurial arrangement for the private sector involved in Philippine forestry. Since 1976, the holders of TLAs were given the responsibility to reforest inadequately stocked forestlands within their concessions (Pulhin et al. 2007). However, 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, nongovernment 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 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 created through Letter of Instruction (LOI) 423 of 1980, Industrial Tree Plantation Programme created through Executive Order (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 forestland-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 that developed about two decades later.

The second half of the 1980s was considered a period of transition for the forestry sector of the Philippines (Acosta 2004). 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, comanagement, 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). Another important initiative was the Community Forestry Program that was implemented through DENR Administrative Order (DAO) 123 of 1989, which awarded Community Forestry Management Agreements to organized upland communities.

With many of the aforementioned reforestation programs and projects being conducted by nongovernment entities, nongovernment 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 multisector 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 nongovernment organizations (NGOs) in Philippine reforestation activities.

### 1990s

In the 1990s, major reforestation-related initiatives continued (Table 5). The Forest Land Management Program was created through DAO 71 of 1990 while the Low Income Upland Communities Project was established through DAO 35 of 1992. Through DAO 60 of 1993, the IFMA was initiated to support timber production when the TLAs were 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 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, FSP II commenced during this decade in 1995.

In 1990, the first Master Plan for Forestry Development was drafted with people-oriented forestry as a major forestry strategy (Pulhin et al. 2007). Under the plan, 1.5 million ha of residual forests plus an additional 5.9 million ha of “open access” areas would be placed under community

forest management over a 10-year period. The plan also stipulated that corporate or large-scale operations—such as TLAs and timber production sharing agreements—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 root. The concepts of decentralization and devolution of functions in some forestry functions also started during the period as mandated by the Local Government Code 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 nongovernment entities, nongovernment reforestation flourished 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 of 2003. This plan embodied the accomplishments of the forestry sector in pursuit of the Master Plan for Forestry Development 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 that 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 CBFMA's in some areas of the country. Then DENR Memorandum Circular 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 noted earlier, EO 26 of 2011 created the NGP. This law consolidated and harmonized all greening efforts such as the Upland Development Program, *Luntiang Pilipinas*, and similar initiatives of the government, civil society, and the private sector. EO 26 specifically ordered the planting

of trees in the following public domain lands: 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. EO 23 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 a road's right-of-way by the Department of Public Works and Highways, 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 forests.

In 2013, RA 10176, which revived the observance of Arbor Day in the Philippines, was passed. The law authorized 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 that have some implications on reforestation were enacted in the past (Table 6). Among these are the 1987 Philippine Constitution, which reoriented natural resources management policies toward 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 of 1997 that recognized the rights of indigenous peoples to their ancestral lands, including forestlands.

**Table 6. Other important laws affecting forestry in the Philippines, 1900s–1990s**

Year	Laws	Title/Description	Main Feature
1904	Forest Act	An act to encourage the rational exploitation of forests	This 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 forestland 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 14-1	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	Reoriented natural resources management policies toward encouraging private sector participation in forest management by replacing the lease system of disposing forestlands with production sharing, coproduction 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 ha, protection of small watershed areas, and enforcement of forest laws to LGUs.

**Table 6 continued**

<b>Year</b>	<b>Laws</b>	<b>Title/Description</b>	<b>Main Feature</b>
1992	RA 7586	An act providing for the establishment and management of 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 their membership in the Protected Areas Management Board.
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	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: Pulhin (2002); Carandang et al. (2013)

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 established the framework strategy and program on climate change. Overall, these laws at the least have indirect impacts on reforestation in the country, including nongovernment 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.

In sum, 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 nongovernment reforestation in particular. There are also laws and policies that deal with forestry as an overall sector and only have indirect implications on reforestation while other laws deal with other sectors such as mining and energy; on societal interests such as climate change and protected areas; and on social groups such as indigenous peoples, which also have bearings on reforestation. Lastly, the 1935 and 1987 Constitutions, which are the encompassing laws of the land, necessarily influence reforestation in the country.

### **Performance of Nongovernment Reforestation**

There are limited secondary data and information that can be used to assess the performance of reforestation in the Philippines over time, including that of private reforestation. The measure of performance is mainly based on hectares planted. It 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 equally important. It is hoped that the ongoing efforts to assess the impacts of the NGP may provide useful data and information needed to measure rigorously the performance of reforestation.

#### *1910s–1960s*

Available data from the Forest Management Bureau (FMB) showed that from 1951 to 1960, total reforestation covered 54,531 ha, all of which were government reforestation (Table 7). Then, in the 1960s, total reforestation reached 97,995 ha—all of which were also conducted by the government. These data contradicted earlier statements that some form of nongovernment reforestation already occurred before the 1970s. However, it could be that the hectares covered by nongovernment



**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: Forest Management Bureau (FMB) various years

reforestation then were considered minimal by government authorities so that they were excluded from the reforestation statistics.

Pulhin et al. (2006) cited that by 1960, the Philippine government has planted 55,381 ha and spent PHP 20,267,375 since 1916 at the cost of PHP 581/ha during 1947–1960. The same authors 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 (Quintos 1989; Pulhin et al. 2007).

### *1970s*

In the 1970s, government reforestation totaled 230,368 ha while nongovernment reforestation reached 110,316 ha for a total reforestation of 340,864 ha (Table 7). Thus, significant nongovernment 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 of the registered figure in the 1960s and higher than those attained in the succeeding two decades. Nongovernment 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.

### *1980s*

In the 1980s, government reforestation totaled 467,404 ha while nongovernment reforestation reached 262,162 ha for a total reforestation of 729,566 ha (Table 7). Therefore, nongovernment reforestation comprised a significant 35.93 percent of total reforestation, which was higher than the percentage share in the 1970s. Total government and nongovernment reforestation figures were highest in the 1980s than in any of the other decades considered.

It was reported that of the 64,541 ha planted in 1981, 33,834 ha or 52.42 percent was done by groups besides the forestry department (Pulhin et al. 2007). From 1980 to 1985, 155,000 ha of state forestlands 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 ha. However, most plantings were the result of massive infusion of funds through loans from the Asian Development Bank and Overseas Economic Cooperation Fund for contract reforestation by families, rural communities, LGUs, and NGOs under the Forestry Sector Program.

### *1990s*

In the 1990s, government reforestation totaled 298,439 ha while nongovernment reforestation reached 193,688 ha for a total reforestation of 429,127 ha (Table 7). Therefore, nongovernment reforestation comprised a significant 39.36 percent of total reforestation, which was higher than the percentage shares in previous decades. Total government and nongovernment 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 ha while nongovernment reforestation reached 55,825 ha for a total reforestation

of 279,326 ha (Table 8). Thus, nongovernment reforestation comprised 19.99 percent of total reforestation, which was way lower than the percentage shares in previous decades. Total government and nongovernment reforestation were lower compared to the 1970s, 1980s, and 1990s. With these figures, 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 ineffective as well.

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

For the period 2001–2013, government reforestation totaled 859,539 ha while nongovernment reforestation reached 103,272 ha for a total reforestation of 962,811 ha (Table 8). Total and government reforestation were highest in 2013 and lowest in 2006 while nongovernment reforestation was highest in 2011 and lowest in 2009. For the entire period, government accounted for more than 90 percent while nongovernment contributed less than 10 percent to the total reforestation conducted in the country. The data also showed clearly that both total and government reforestation in the Philippines had grown much faster during the implementation of the NGP than before. On the other hand, nongovernment 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 7) with 42,412 ha and lowest in the National Capital Region (NCR) with 2,047 ha (Table 9). Government reforestation was largest in Region 7 with 38,295 ha and smallest in the NCR with 2,047 ha. Nongovernment reforestation was highest in Western Visayas (Region 6) with 4,695 ha. NCR, MIMAROPA (Region 4-B), Bicol Region (Region 5), Zamboanga

**Table 8. Area reforested in the Philippines, by component, 2001–2013 (hectares)**

Year	Government	Percent to Total	Nongovernment	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 (various years)

**Table 9. Area reforested in the Philippines, by component and region, 2011–2013 (hectares)**

Region	Government	Percent to Total	Nongovernment	Percent to Total	Total
NCR	2,047	100.00	-	-	2,047
CAR	36,551	98.82	435	1.18	36,986
1	25,239	98.29	439	1.71	25,678
2	26,403	99.42	155	0.58	26,558
3	33,819	98.67	455	1.33	34,274
4-A	35,999	98.51	546	1.49	36,545
4-B	27,090	100.00	-	-	27,090
5	36,212	100.00	-	-	36,212
6	24,588	83.97	4,695	16.03	29,283
7	38,295	90.29	4,117	9.71	42,412
8	26,766	90.64	2,764	9.36	29,530
9	31,883	100.00	-	-	31,883
10	26,457	97.07	799	2.93	27,256
11	28,838	94.82	1,574	5.18	30,412
12	29,167	100.00	-	-	29,167
13	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

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

Source: FMB (various years)

Peninsula (Region 9), SOCCSKSARGEN (Region 12), and Autonomous Region in Muslim Mindanao (ARMM) did not have any nongovernment reforestation during 2011–2013. The NCR was understandably lowest in total reforestation being a highly urbanized area.

From 2001 to 2013, nongovernment reforestation was conducted under timber licenses, IFMAs, SIFMAs, TFLAs/AFFLA, CBFMA, and “others” or private reforestation as defined earlier (Table 10). Available

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data indicate that the hectares planted under these programs had been erratic—with some reforestation done by some programs in some years and none in others. Available data also indicate that total nongovernment reforestation reached 103,272 ha from 2001 to 2013. Nongovernment reforestation was higher at 55,825 ha in the 2000s than during the three years of NGP implementation, from 2001 to 2013, at 47,447 ha. Of the different types of nongovernment reforestation, private reforestation performed the best, planting the most hectareage during the period 2001–2013 and during the subperiods before and after the NGP. Thus, private reforestation clearly has been the main driver of nongovernment reforestation in recent years.

**Table 10. Area reforested by nongovernment in the Philippines, by program, 2001–2013 (hectares)**

Year	Nongovernment 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

AFFLA = Agro-Forestry Farm Lease Agreement, CBFMA = Community-Based Forest Management Agreement, IFMA = Industrial Forest Management Agreement, SIFMA = Socialized Industrial Forest Management Agreement, TFLA = Tree Farm Lease Agreement  
Sources of data: FMB (various years)

While practically all the aforementioned nongovernment 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 the FMB.

- i) As of 2013, only three TLAs existed with a total area of 177,085 ha located in Samar and Zamboanga del Norte. However, these TLAs had no operation in that year.
- ii) There were 140 existing IFMAs covering one million ha. Region 13 has the largest coverage spanning 358,449 ha.
- iii) There were 1,267 SIFMAs issued with an aggregate area of 29,464 ha. About 59 percent were located in Region 7, particularly in Isabela, Cagayan, and Quirino.
- iv) There were 61 TFLAs covering 6,153 ha. There were three AFFLAs covering 448 ha. At present, TFLAs and AFFLAs are no longer issued.
- v) CBFMAs involved 1,884 people's organizations covering 1.6 million ha and participated in by 191,352 members.

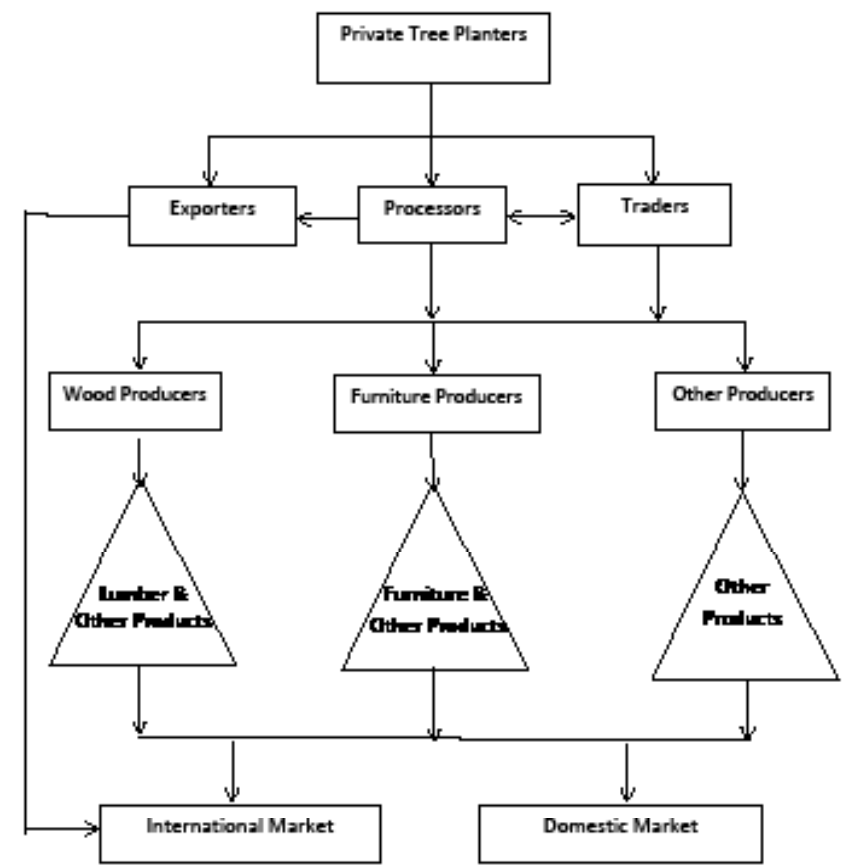
## Brief Profile and Performance of Private Reforestation

### *Brief profile*

A study fully profiling nongovernment reforestation in the Philippines has yet to be done. Based on FGDs and 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 leucociphala*), *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 in Figure 2. 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

Figure 2. Generic supply chain for private reforestation in the Philippines



Sources of data: Key informants from the Caraga region and FMB

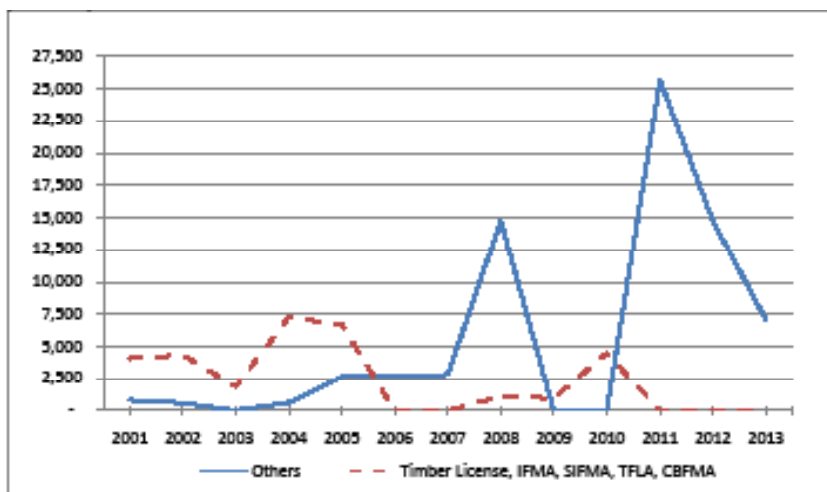


process the logs and then export or sell domestically while traders sell to exporters or processors. The processors then sell to the wood producers, furniture producers, and other producers. In turn, these producers sell their products in the domestic and/or export markets.

### *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 3). Figures decreased from 2001 to 2003, increased from 2004 to 2007, and significantly rose in 2008. Then, it plunged to zero in 2009 and 2010, reached a peak in 2011, and fell again in 2012 and 2013. Similarly, the total hectares planted by the other nongovernment 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 nonexistent afterward 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 nongovernment sector-based program.

**Figure 3. Area reforested by private and other nongovernment reforestation, 2001–2013 (hectares)**



CBFMA = Community-Based Forest Management Agreement, IFMA = Industrial Forest Management Agreement, SIFMA = Socialized Industrial Forest Management Agreement, TFLA = Tree Farm Lease Agreement  
Source of data: Table 10

## **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 that are preventing the private sector from investing into or expanding tree-planting operations are summarized below based on the existing relevant secondary literature, FGDs, and key informant interviews.

### *Institutional issues and problems*

- i) 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.
- ii) While there is a large-scale government program for reforestation in the NGP, the commercial private sector is generally left out. Yet, a government-assisted program particularly for smallholders who face numerous constraints to enter or expand is direly needed.
- iii) 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 (CLOAs) are not yet converted to individual titles.
- iv) 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 has been wasted. For its part, the government has not offered incentives or imposed disincentives for owners to plant trees.
- v) 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.
- vi) 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.

- vii) 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*

- i) 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.
- ii) Poaching is another form of production risk faced by private tree planters. Standing trees are sometimes cut and stolen, mainly by outsiders and even by members of their own community.
- iii) 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.
- iv) 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.
- v) Climate change resulting from extended or erratic dry and wet seasons is yet another problem in tree planting that results to stunted trees and poor net returns at harvest.

*Marketing issues and problems*

- i) 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.
- ii) 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.
- iii) In some tree planting areas, access is difficult due to the nonexistence or poor quality of roads and bridges. During the rainy season, waterways are sometimes used to transport logs.
- iv) For smallholders, 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.

### **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 noneconomic 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 nongovernment 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 that will add to the production of large-scale tree planters.

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

#### *Ways forward*

The following recommendations to address the issues and problems faced in private, nongovernment reforestation are based on FGDs, key informant interviews, and from existing secondary literature.

#### **Institutional recommendations**

- i) To address the problem of inconsistent policies, the Sustainable Forest Management Act must be passed. This law will harmonize existing laws to make them more consistent, including those that directly or indirectly impact on private sector reforestation.

- ii) The Comprehensive Land Use Act should also be passed. Among others, it will provide the basis for identifying areas suited for private sector reforestation and eliminate the fear of future conversion.
- iii) To address the lack of attention on private sector reforestation, the government can establish a program separate from the NGP and design it in such a way that it will motivate smallholders to invest or expand their tree planting operations.
- iv) In addition to item iii, a comprehensive value chain study should be done on private sector 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.
- v) 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 must hasten the process of dividing collective CLOAs.
- vi) 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.
- vii) 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.
- viii) 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 on the ground as well in a language, form, and style that can easily be understood.
- ix) 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.
- x) In addition to item ix, trainings on how to prepare good research proposals among the small-scale planters can be

conducted to increase their chance of getting a loan from banks and other traditional fund sources.

### **Production-related recommendations**

- i) To help address input price risk, among others, government seedling nurseries should be enhanced so that these can provide a more steady supply of good quality and cheap seedlings to tree planters.
- ii) 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.
- iii) 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.
- iv) 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.
- v) Pertinent agencies can provide adequate and advanced weather and climate forecasts, early hazard warnings, and other related information to tree planters. These can reduce the negative effects of weather and climate changes.

### **Marketing recommendations**

- i) Provide help 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.
- ii) Vertical integration among tree planters can also be promoted to cover processing, marketing, and other downstream activities and to reduce the influence of middlemen in their operations.
- iii) The government can help tree planters and their marketing cooperatives develop access to international markets for commercial logs and processed wood products by providing them with at least the same assistance given to other industries.

- iv) The government must improve road and bridge infrastructure in the rural areas to hasten the transport of tree production inputs and harvested logs—from their sources to their destinations.
- v) Aside from the government, marketing cooperatives and similar organizations can help by investing in commonly owned-equipment and facilities, such as chainsaws and trucks for their members, to be used for harvesting and transporting logs to markets.

#### **Other recommendations**

- i) To make tree planting more attractive than agriculture, agroforestry and forestry-tourism as alternative ventures can be promoted. Using tree-planted areas as commercial nature parks can boost profitability and local employment.
- ii) For the long term, the trading of large-scale tree plantations in the stock market may be considered. This can generate the needed capital and provide the opportunity for their owners to generate investment where needed.
- iii) Over the long term, the 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.

Finally, it must be mentioned that at present, the government has already done some significant steps to address issues and problems relevant to private sector 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 that would encourage investments in sustainable forest management. In addition, the FMB and its partners have an ongoing study on unifying land tenure management 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 toward the full participation of the private sector in forestry.

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This study reviews and assesses nongovernment reforestation in the Philippines vis-à-vis government and total reforestation using primary and secondary data. The objective is to identify issues and problems related to nongovernment reforestation and recommend actions that can be undertaken to address them. This study finds that government reforestation dominates total reforestation, while nongovernment reforestation only has a relatively small contribution in recent years. During the first three years of implementing the National Greening Program, the growth of nongovernment reforestation had been erratic, increasing in 2011 but decreasing in 2012 and 2013. This study asserts that private reforestation—or reforestation conducted by the private sector under no agreement with the government—has been the main driver of nongovernment reforestation at present. However, its full development as an industry has been hindered by various institutional, production, and marketing issues and problems. This study recommends ways to address these problems and issues to move nongovernment reforestation forward.



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