Incentive structures for policy and institutional mainstreaming of commercial forestry investment sub-projects

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Acronyms and abbreviations

AO	Administrative Order
CoA	Commission on Audit
DAO	DENR Administrative Order
DENR	Department of Environment and Natural Resources
DMC	DENR Memorandum Circular
EO	Executive Order
FAO	United Nations Food and Agriculture Organization
FLEGT	Forest Law Enforcement, Governance and Trade
FMB	Forest Management Bureau
FPIC	Free, prior, and informed consent
GDP	Gross Domestic Product
GVA	Gross value added
ha	hectare
ICRAF	World Agroforestry
INREMP	Integrated Natural Resources and Environmental Management Project
JAO	Joint Administrative Order
m^3	cubic meter
MOA	Memorandum of Agreement
NTFP	Non-timber forest product
PHP	Philippine peso
RA	Republic Act
SME	Small-to-medium-sized enterprise
USD	United States dollar

Executive summary

The underlying causes of deforestation in the Philippines include policy, institutional and governance issues, such as unstable, confusing and conflicting forest policies and mandates; logging bans as perverse incentives; open-access forest lands due to lack of clear tenure; limited coordination with other sectors; poor monitoring and law enforcement; and the inability of institutions to adapt and carry out effective strategies.

The current policy and regulatory framework overseen by the Department of Environment and Natural Resources (DENR) and the Forest Management Bureau (FMB) are largely influenced by extractive-driven systems from the period when Timber License Agreements were the dominant tenure instrument and "underlines the failure to adjust policies and strategies that respond to devolved, holistic, interconnected, and community-managed ecosystems" (Carandang 2008:35).

The promulgation of the Local Government Code in 1991 has not been followed up by adequate decentralization of human and financial resources to govern natural resources at the provincial, city, municipality and barangay levels. This is manifested in terms of shortages of staff and limited budgets in local government units. This has been compounded by the continued (over-) regulatory and tree-planting focuses of DENR and FMB, the changing tenurial arrangements (for example, following the promulgation of the Indigenous Peoples' Rights Act in 1997 and the expiry and non-renewal of 50% of the former Certificates of Stewardship Contract issued by DENR during the Integrated Social Forestry Program, which started in 1982) and restricted capacity development of, and coordination with, local government units and other "third-party" forest managers (for example, non-governmental and civil-society organizations, academe, the private sector). It is not known how many Co-Management Agreements and/or sub-management agreements have been reached between DENR and local government units to co-manage public forest lands.

These factors have all contributed to restricting DENR's abilities to either significantly improve the management of open-access forests or restore degraded forest lands by mobilizing private-sector investment. Major investments are needed to develop the capacities of local governments and other third-party forest managers. One key recommendation of the Commission on Audit 2019 Performance Audit Report on the National Greening Program was to make community-organizing a pre-requisite before proceeding with the Enhanced National Greening Program.

The Government has poured billions of pesos into reforestation programs for over a century. The country has undertaken reforestation programs from 1916 through to the launch of the National Greening Program in 2011 and the extended Enhanced National Greening Program in 2016. The *Revised Master Plan for Forestry Development* adopted in 2003 estimated that only 460,000 hectares (ha) of fully established and well-managed forest plantations were needed to meet the country's plantation-wood requirements.

Several federal programs, including reforestation, industrial tree plantations, and social forestry were adopted to regenerate forest resources during the period before 1980 through

to 2001. An estimated 1.4 million ha of plantations were established up to 2001, of which only 150,190 ha were planted by the private sector (10.7%). Only 78,440 ha of industrial timber plantations (5.5% of the total) were established during the same period, suggesting that the range of incentives provided was ineffective. The major constraint was probably limited financial resources for extensive planting as no substantial credit support was provided by either Government or financial institutions. Hence, the only alternative was to generate revenues from exploiting natural forests to finance plantation development.

The recurrent costs of reforestation and afforestation programs could be effectively reduced if the Government were to adopt a more supportive enabling environment to promote the emergence of, for example, community-based timber enterprises. The standing volume of second-growth production forests is estimated at more than 217 million cubic meters (m^3), representing a natural resource asset worth more than USD 13 billion (at USD 60 per m^3) that could generate 60,000 full-time jobs by selling 500,000 m^3 of timber per year. DENR FMB needs to simplify the regulations for smallholders to trade timber to help in reducing the transaction costs associated with timber marketing and processing.

There is a critical need to move beyond a "culture of tree planting", "meeting planting targets" and providing direct incentives, such as tree seedlings, to one that also recognizes the critical role of indirect incentives, such as an appropriate enabling environment that establishes an overarching climate of an enterprise. This will include greater recognition of the phasing of incentives and the importance of smallholders' tree and forest management and facilitating entrepreneurship and the marketing of timber and non-timber forest products (NTFPs) by smallholders. The latter will also require good end-markets for smallholders' processed timber. Both are already present, for example, in Caraga Region (Carandang et al 2015, Wardell 2020).

Private investment needs stable and consistent policies as well as clarity about the boundaries between public forest lands and alienable and disposable lands. Clear tenure arrangements are necessary on all lands to maintain forest cover, biodiversity, environmental services and the confidence of potential investors.

The preparation of the Forest Investment Road Map is a welcome recent initiative of the Forest Investment and Development Division of FMB, with the vision of "Revitalized Philippine Forestry Investment towards inclusive growth and sustainable development through local and foreign direct investment to increase the gross domestic product contribution of the forest sector in the national economy".

The Road Map was formally adopted by DENR as DENR Administrative Order (DAO)-2019-22 on 2 December 2019. DENR leads in creating an enabling environment through responsive policies, one of which is to rise to the challenge of mobilizing new forestry investments to make sustainable forest management more commercially competitive and economically attractive to investors be they small-to-medium-sized or international businesses. The Forest Investment Road Map was developed, partly, in response to Republic Act (RA) 11032 s. 2018, on the Ease of Doing Business and Efficient Government Service Delivery, as a way to reduce regulatory transaction costs associated with the production, harvesting, transport and processing of timber from private lands, thereby making timber plantations a more attractive business for smallholders. To this end, DENR is confronted with three key challenges.

1. How to address the main barriers to financing private-sector investment in sustainable forest management.

2. How to develop clear implementing rules and regulations for the seven strategic components of the Forest Investment Road Map (FIRM 2019:46), including the "Institutionalization of forestry investment support mechanisms".

3. How to reduce the regulatory transaction costs associated with the production, harvesting, transport and processing of timber from private lands to make timber plantations an attractive business for smallholders.

1. Barriers to financing private investment in the Philippines

Forest investments are allocated unevenly among regions and countries. Tree-growing conditions, access to markets, and quality of the business environment, including political and economic stability and security of land tenure, are major determinants of investment flows. Most investors are concerned with gaining new markets and maximizing risk-adjusted returns and prefer investing in countries with a combination of good growing conditions and a stable investment environment.

In 2011, there was an estimated 65.7 million ha of commercial, production-oriented forest plantations in developing countries, of which about a third were privately owned, with significant regional differences. The amount of privately owned, established plantations in Latin America was 18.7 million ha, (78% of total commercial-production plantations), 5.1 million ha in Asia and Oceania (14%), and 0.3 million ha in Africa (6%). Total private-sector plantation investment in developing countries was estimated at USD 1,763,000,000 in 2011.[1]

Most of the investments are in industrial pulpwood production[2]. Investments in Latin America account for a large majority of the global total amount — USD1,464,000,000 (83%) — while investments in Asia and Oceania were estimated at USD 279 million (16%).[3] Even within Latin America, Brazil accounts for over 80% of the regional total.

International timberland investments by timberland fund managers, financed primarily by institutional investors such as pension funds and endowments, have emerged as a new source of financing of sustainable forestry in developing countries. Total assets under management have already reached an estimated USD 80 billion worldwide. The total volume of institutional timberland investment into developing countries is still, however, quite limited and heavily focused on a few countries in Latin America.

Several opportunities exist to improve other elements of the enabling environment for investments in the Philippines and to influence the investment decision-making of smallholders, communities, small-to-medium-sized enterprises (SMEs), and large domestic and international companies and timberland investors. These are related to national

1 Excluding investments in Reducing Emissions from Deforestation and Forest Degradation (REDD), landscape restoration and investments by households and communities as well as by most small-to-medium-sized forest enterprises

2 Critical gaps in information exist in terms of financing the management of natural forests and domestic investment flows in plantation development and wood processing

3 Estimated annual average private investment in plantation forests in Africa is very small in comparison, at about USD 20 million or 1% of total value

policies, legislation, regulations, governance, transparency, availability of information, and infrastructure.

There are several major barriers to financing private investment in sustainable forest management in the Philippines.

- Higher real and perceived risks than in Latin American and industrialized countries. These include political risks, unsecured land tenure, currency risks, social and environmental risks, as well as reputational risks.

- Limited availability of, and access to, both domestic and foreign equity and loan financing. International equity financing is especially difficult to secure for projects under USD 20–25 million.

- Forestry businesses face unfavorable terms for financing. Even if domestic debt financing is available, the interest rates can be excessively high (in local currency) and loan payback periods very short (from six months to three years).

- Higher up-front costs of preparing investment projects in the forestry sector due, among other things, to a lack of reliable information on forests and higher transaction costs throughout the investment cycle for small and medium-sized projects.

- The need for tax reform. In 2017, PHP 441 billion of foregone revenues (representing 2.8% of GDP) was provided as tax incentives to 3150 companies, including the elite top 1000 companies. This excluded SMEs that paid the regular 30% Corporate Income Tax. A comprehensive tax reform package aims to lower the rate from 30% to 20% and to reorient fiscal incentives to strategic growth industries and provide incentives to investors who make "net positive contributions to society" (Department of Finance 2020).

Some of these issues are addressed by the different clusters of recommendations grouped as direct and indirect incentives below.

2. Direct incentives

2.1 Facilitate production of tree seedlings by people's organizations through community-managed procurement in locally funded projects

Seedling production represented the largest component cost of the National Greening Program, accounting for 34% of the Program's total costs in 2019. The dominant direct incentive provided by DENR before and during the implementation of the National Greening Program has been the supply of free tree seedlings produced either in one of 11 "mechanized" DENR FMB nurseries and/or procured from private nurseries. Fast-tracking by DENR to meet National Greening Program targets has resulted in "missed financial opportunities for people's organizations", particularly after 2016 (CoA PAO-2019-01:52). The implementing rules and regulations of the Government Reform Act[4] allow a procuring entity, as a contract manager, to use negotiated procurement as a means to engage a community to implement a locally

4 Government Procurement Policy Board, Approving Guidelines on Community-Managed Procurement as a supplement to the Community Participation Procurement Manual, Government Procurement Policy Board Resolution No. 28-2016, 20 April 2016

funded community-based project. DENR is authorized to award the contract of seedling production to the people's organizations themselves.

DENR needs to change its approach to seedling production and distribution in favor of giving the *time and training to support people's organizations to produce the tree seedlings themselves.* This will ensure that the people's organizations will be able to maximize the socio-economic benefits of the National Greening Program. DENR will be able to "lessen the risk of fraud and corruption" associated with seedling procurement (CoA PAO-2019-01:52) and it may assist the people's organizations to transform themselves into cooperatives, thereby gaining access to credit facilities and finance, equipment and technical assistance from other Government agencies.[5] In effect, this represents a shift from a direct incentive to an indirect incentive by improving the enabling environment for people's organizations.

2.1.1 Recommendation: FMB adapts and amends Technical Bulletin No. 10, April 2014, Standard Seedling Cost and Unit Cost of Activities of the National Greening Program, to facilitate the shift to encourage people's organizations' production of tree seedlings through community-managed procurement in locally-funded projects. Also, FMB will need to develop simple technical guidelines to assist in training people's organizations in basic nursery establishment and maintenance techniques. A revision of DENR Memorandum Circular No. 2012-01, 02 May 2012, Implementation of the National Greening Program, may also be necessary to reflect the preferences of people's organizations to plant fast-growing exotic species rather than the prescribed shift from the use of exotic to indigenous species.

2.2 Strengthen implementation of the National Greening Program's convergence initiative by creating an in-house "clearing mechanism" mechanism for available grants, credit facilities and training support services and their respective requirements

The National Greening Program and the Enhanced National Greening Program were designed as a "convergence initiative" that planned to involve many Government agencies and local government units (Figure 2).

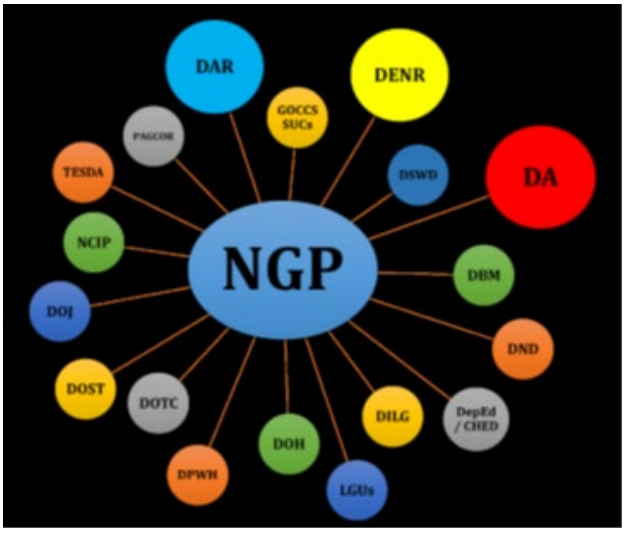

Figure 1. National Greening Program stakeholders

Source: CoA PAO-2019-01 2019:72

5 See examples of successful people's organizations in CoA PAO-2019-01:61–68

"High investments are needed to unleash the full potential of the forestry sector in driving economic productivity and growth coupled with the responsible and sustainable provision of ecosystem goods and services. The task is so enormous that no single entity like the Government or DENR can do it single-handedly."

(FIRM 2019:75)

Awareness of, and access to, Government services by people's organizations, cooperatives, private landowners, local government units, and potential investors is a crucial element in a convergence initiative. The Commission on Audit's Performance Audit Report concluded that despite convergence being a legal requirement under Executive Order (EO) No. 26 s. 2011 (and it is assumed also for the Enhanced National Greening Program adopted in 2016), "DENR was not able to implement this on a national scale" although "there are pockets of successes on the local level" (CoA PAO-2019-01 2019:68–72).

DENR and FMB staff could play a more pro-active role assisting people's organizations, cooperatives, private landowners, local government units, and potential investors by improving access to information about available grants, credit facilities, and training support services, and the requirements to be able to access each of them. This may include potential support available through, for example, the Department of Tourism for farm-to-market roads and the development of ecotourism sites, the construction of water-impounding dams through the Department of Public Works and Highways, new composting techniques with the Department of Social Welfare and Development, access to agricultural and processing machinery and equipment from the Department of Agriculture, and the road maps for coffee, cocoa and rubber developed by the Department of Trade and Industry.

The Forest Investment and Development Division of FMB initiated the signing of a new memorandum of agreement in August 2019 with the Development Bank of the Philippines' Financing Program. This aims to assist in the development and maintenance of existing tree plantations, assisting communities and tree growers to improve their economic conditions, and further address deforestation by reducing the susceptibility of communities to natural disasters. The Technical Bulletin for implementation is pending approval by the Policy Review Committee of FMB.

2.2.1 Recommendation: DENR establishes an in-house "clearing mechanism" to compile information about available grants, credit facilities and training support services from various Government agencies and the respective requirements to access each of them to facilitate a strengthened Enhanced National Greening Program convergence initiative.

2.2.2 Recommendation: DENR and the Development Bank of the Philippines develop clear and transparent guidelines on the types of financial services available through the Bank's Financing Program and the conditions of access for different types of investors. DENR will also explore the potential to establish a memorandum of agreement with the Land Bank of the Philippines.

2.3 Greater clarity and transparency in forest-sector incentives available to investors in the Philippines

Forest-sector SMEs, like SMEs more generally, suffer in the Philippines from limited access to business and financial services, lack of support to enhance their competitiveness, regulatory measures that constrain their ability to operate in a "legal" space or that create perverse incentives, and limited access to markets. These and other challenges and constraints for SMEs have been widely identified but recommendations and efforts to address them have often been fragmented and sector-bound, limiting the effectiveness of the intervention.

The Forest Investment Road Map (DAO 2019-22) refers to incentives about only one of the potential investment areas (FIRM: 14-38): the planting, development and processing of biomass resources (FIRM:24–25), specified as: "Fiscal and non-fiscal incentives include Income Tax Holiday, Exemption from Duties on Renewable Energy machinery, equipment and materials; tax exemption of carbon credits; financial assistance program, etc while incentives for farmers engaged in the plantation of biomass resources shall be entitled to duty-free importation and exemption from payment of value-added tax on all types of agricultural inputs, equipment and machinery within ten years from the effectivity of the Act, subject to verification by the Department of Energy." (FIRM:25).

2.3.1 Recommendation: DENR develops detailed guidelines on the fiscal and non-fiscal incentives available to prospective investors in the forest sector for all potential investment areas identified in the Forest Investment Road Map (roundwood and wood-based products, bamboo, rattan, biomass, high-value crops including coffee, cocoa and rubber, cattle grazing and ecotourism). DENR should focus on grants, tax concessions, differential duties and fees, subsidized loans, and cost-sharing arrangements for each of the potential investment areas.

2.3.2 Recommendation: DENR develops effective implementing rules and regulations for the seven strategic components of the Forest Investment Road Map (FIRM 2019:46), including detailed guidelines on how private investors and SMEs can access incentives (grants, tax concessions, differential fees and duties, subsidized loans and cost-sharing arrangements) also provided by the Board of Investments, Bureau of Customs, Bureau of Internal Revenue, Department of Energy, and Department of Budget and Management as part of efforts to "Institutionalize forestry investment support mechanisms".

3. Indirect incentives

Although the forestry sector's contribution to the country's gross national product has declined from 2.4% in the 1980s to 0.07% in 2006, it remains significant in diminishing the impact of poverty by providing habitats for formal and informal settlements and resources to sustain livelihoods. The forestry sector's underestimated value can be observed in its contribution of PHP 5.26 billion (0.12%) to the GDP of the Philippines in 2013 (Carandang 2012, SEPO 2015, Esplana and Quizon 2017).

The share of gross value added in forestry to GDP progressively declined from 2006 to 2016 (FIRM:41) in contrast to the projections of both the Philippines Revised Forestry Master Plan (2006) and the Philippines Forestry Sector Outlook (DENR FMB 2010) suggesting that significant improvements to the enabling policy and institutional environment are needed.

There are four Indirect incentives proposed to draw on the findings, conclusions, and recommendations of the *Report on policy review and institutional analysis for development of commercial forestry investment sub-projects* (ICRAF 2020a).

3.1 Clarity and stability in the overarching forest policy framework

The Revised Forestry Code of the Philippines enshrined in Presidential Decree 705 s. 1975 remains the only overarching policy framework to govern the use, management and protection of the country's forest resources even though "most of its provisions have become obsolete, particularly the allocation of forest lands and tenure" (FIRM:47). Currently, there are an estimated 97 laws, EOs, and Administrative Orders (AOs) (Domingo and Manejar 2019:17) governing land and forest administration in the Philippines. A draft Sustainable Forest Management Act has been languishing in the country's legislature for more than three decades. The enactment of the Sustainable Forest Management Bill remains elusive due to the lack of widespread support from members of both Houses of Congress.

A new draft DAO, Implementing Rules and Regulations of EO No. 318 of 2004, was submitted to the DENR Secretary in mid-2019 following an 18-month consultative process. In the absence of a new Sustainable Forest Management Act and/or a National Land Use Act,

3.1.1 Recommendation: DENR formally adopts the Implementing Rules and Regulations of EO No. 318 of 2004 as the new overarching policy framework to govern the use, management and protection of the forest resources of the Philippines. The public launch of the new implementing rules and regulations at a national policy workshop with all stakeholders before the end of 2021 should be accompanied by targeted information and education programs for national Government agencies, local government units, non-governmental and civil-society organizations, and the private sector, including investors.

3.2 Development of a simplified, harmonized and streamlined land-tenure system

Private investment needs stable and consistent policies as well as clarity of the boundaries between public forest lands and alienable and disposable lands. Section 4, Article XII of the 1987 Philippine Constitution mandated Congress to determine by law the specific limits of forest lands and national parks and mark their boundaries on the ground. DAO No. 2008-24 in 2008 provided for the comprehensive and clear guidelines in delineating the boundaries between forest lands, national parks and agricultural lands. DENR subsequently implemented the Forestland Boundary Assessment and Delineation project, which was completed in 2017. It covered 80 provinces and a total of 89,092 km of forestland boundaries were delineated. As a result, about 345,286 ha currently regarded as forest lands are proposed to be reclassified or converted to alienable and disposable lands. If approved, this will effectively reduce forest lands by 2.29%. Region 7 will have the largest increase in forest land of about 74,942 ha. The most recent initiative to delineate the Philippines' specific forest limits culminated in three bills (Senate Bill Nos. 35, 741 and 861), which were still pending in the Senate Committee on Environment and Natural Resources in 2018.

3.2.1 Recommendation: DENR lobbies for the enactment of the Forestland Boundary Assessment and Delineation Bill and formally recognizes and approves the results of the Forestland Boundary Assessment and Delineation project.

Security of land and resource tenure are critical enabling incentives both in reducing deforestation and forest degradation and in defining which individuals and groups may gain from investments. The lack of clarity and consistency has led to a *de jure* and *de facto* absence of effective land governance. Clear tenure arrangements are necessary on forest lands and alienable and disposable lands to maintain forest cover, biodiversity and environmental services and to provide confidence for potential investors.

This challenge is particularly acute in the context of multiple tenurial instruments but only 38% of production forests are under some form of tenurial agreement (FIRM:13). Moreover, multiple laws, EOs, DAOs etc, planning frameworks and proposals for financing mechanisms under Reducing Emissions for Deforestation and Forest Degradation Plus render this context more complex.

Convergence initiatives among national Government agencies have not yet been able to process or manage tenurial conflicts and overlaps (see, for example, De Vera 2017). Further, existing tenurial instruments have not secured livelihoods or promoted economic development and sustainable land and forest use owing to their narrow focus, insecurity and conflicts with other titles and instruments (see Pulhin et al 2008, GIZ and DENR 2015, Esplana and Quizon 2017). In the upland areas, "millions of people live illegally on public forest lands without clear tenure rights or in situations where the same piece of land is claimed by different parties" (GIZ and DENR 2015:10).

DENR FMB is currently exploring the potential adoption of new Sustainable Forest Management Agreements, which, if considered as part of the Forest Investment Road Map proposal — Identification/validation, mapping, and assessment of potential investment areas (FIRM:48–49) — represents a promising new initiative to simplify, harmonize and streamline land tenure to stimulate new domestic and foreign direct investment in the forest sector. The promulgation of the proposed National Land Use Act would provide additional clarity as an overarching legal framework on land-related issues.

3.2.2 Recommendation: DENR finalizes and approves a DAO and attendant implementing rules and regulations to simplify, harmonize and streamline current tenurial arrangements as Sustainable Forest Management Agreements of variable duration (25–50 years) depending on the species to be grown.

Additional advocacy may be needed to facilitate the promulgation of both the National Land Use Act and the Land Administration Reform Act. These activities should be accompanied by targeted information and education programs for national Government agencies, local government units, non-governmental and civil-society organizations, and the private sector, including investors.

3.3 Strengthening the capacity of local government units and other third-party forest managers

Over the past century, the forest policy of the Philippines has evolved from a corporate timber license agreements approach to forest management towards a community-based forest management system. After four decades since the inception of the Integrated Social Forestry Program, forest policy now recognizes local communities and indigenous peoples as joint

forest managers, if not the custodians of the land and forest resources. Three milestone policy instruments adopted in the 1990s underscored the role of public and community involvement in land and forest resource management. These were the Local Government Code (RA 7160) in 1991, the National Integrated Protected Area System (RA 7586) in 1992 (as amended by RA 11038, the Expanded National Integrated Protected Area System Act of 2018) and the Indigenous People's Rights Act (RA 8371) in 1997.

The promulgation of the Local Government Code in 1991 has not been followed with adequate decentralization of human and financial resources to govern natural resources at the provincial, city, municipality and barangay levels. This has manifested in terms of shortages of staff and limited budgets in local government units. This has been further compounded by the continued (over-) regulatory and tree-planting focuses of DENR FMB, changing tenurial arrangements (for example, following the promulgation of the Indigenous People's Rights Act in 1997 and the expiry and non-renewal of 50% of the former Certificate of Stewardship Contracts issued by DENR during the Integrated Social Forestry Program, which started in 1982), and restricted capacity development of, and coordination with, local government units and other third-party forest managers (for example, non-governmental and civil-society organizations, academe, the private sector). It is not known how many Co-Management Agreements and/or sub-management agreements have been reached between DENR and local government units to co-manage public forest lands.

These factors have all contributed to restricting DENR's ability to either significantly improve the management of open-access forests or restore degraded forest lands by mobilizing private-sector investment. Major investments are needed to develop the capacities of local government units and other third-party forest managers combined with focused information and education campaigns. One key recommendation of the Commission on Audit's 2019 Performance Audit Report of the National Greening Program was to make community-organizing a pre-requisite before proceeding with the Program. As one recent report also notes, "The joint management of forest lands by local government units and DENR can be potentially successful. However, tenure issues, capacity, and lack of technology, as well as conflicts of interests between local and national authorities hinder successful implementation." (GIZ 2015:28).

DENR and the Integrated Natural Resources and Environmental Management Project (INREMP) both have examples of successful collaboration with local government units, for example, in Bohol and CAR and can draw additional lessons from other examples of successful decentralized sustainable forest management and private-sector investment in the Philippines (Report on policy review and institutional analysis for development of commercial forestry investment sub-projects (Wardell 2020): Sections VIII and IX).

3.3.1 Recommendation: DENR provides staff with additional on-the-job training to develop their facilitation skills. The University of the Philippines Los Baños' College of Forestry and Natural Resources and other partners, such as Forest Foundation Philippines, Non-Timber Forest Product Exchange Programme, Ateneo School of Government, Philippine Institute of Development Studies, and RECOFTC The Center for People and Forests, could be contracted to deliver tailor-made courses to strengthen DENR and FMB community-organizing and facilitation skills.

3.4 Facilitating a change in the organizational culture of DENR FMB

Although significant progress has been made to introduce Community-Based Forest Management Agreements, DENR's continued focus on regulation and extractive timber-driven systems drawing on past Timber License Agreements experience underlines the failure to fully adjust policies and strategies that respond to devolved, holistic, interconnected and community-managed ecosystems coordinated by local government units. This will necessitate a further redefinition of roles among stakeholders at the national, regional and local government unit levels. DENR will need to further decentralize functions and to delegate greater responsibility to regional DENR offices, as well as Provincial and Community Environment and Natural Resources Offices. DENR regional and local offices will need to be more facilitative and less regulatory in promoting sustainable forest management with third-party forest managers. DENR and FMB at national level will continue to define key policy, strategic and regulatory frameworks of the forest sector whilst facilitating devolved implementation by others.

There is a critical need to move beyond a "culture of tree planting", "meeting planting targets" and providing direct incentives such as tree seedlings to one that also recognizes the critical role of indirect incentives, such as an appropriate enabling environment to establish an overarching climate of an enterprise. This will include greater recognition of the phasing of incentives and the importance of smallholders' tree and forest management and facilitating entrepreneurship and the marketing of timber and NTFPs by smallholders.

The recent adoption of the Forest Investment Road Map (DAO 2019-22) in December 2019 is a welcome initiative by DENR'S Forest Investment Development Division to attract new domestic and foreign direct investment in the forest sector. The Vision, Goals, and Objectives of the Road Map include a seven-point strategic framework (FIRM:45–81) that will collectively assist in facilitating a change in the organizational culture of DENR FMB whilst contributing to the requirements of RA 11032 s. 2018 on the Ease of Doing Business and Efficient Government Service Delivery.

3.4.1 Recommendation: DENR focuses on two policy areas in the context of the recommendation that DENR adopt new Sustainable Forest Management Agreements as a simplified, harmonized and streamlined tenurial arrangement (see above), as follows.

3.4.1.1 Simplifying and harmonizing the continuous implementation of community-based forest management agreements to improve development outcomes

The dominant tenure instrument in the Philippines is now the Community-Based Forest Management Agreement (1884 agreements with people's organizations covering more than 1.6 million ha).[6] Several studies highlight that community-based forest management has not met its socio-economic targets (see Tesoro 1999, Guiang et al 2001, Harrison et al 2004, Rebugio et al 2010).

Current forest management planning, regulation, monitoring and policy making remains influenced by the timber-oriented rules and regulations of the Timber License Agreements era. The strict requirements for obtaining approvals to cut and transport timber products are

6 The original DENR strategic action plan for community-based forest management targeted 9 million ha of forest lands to be placed under community management

preventive measures to eradicate the proliferation of illegal logging but are, in essence, the same for community organizations and private-sector tenure holders. The high degree of regulation is similar to that formerly applied to holders of Timber License Agreements and Integrated Forest Management Agreements.

Four processes could be streamlined or developed by DENR to ensure the continuity of Community-Based Forest Management Agreements to improve development outcomes in terms of livelihood benefits to local communities and indigenous peoples.

It will also be important for DENR to also harness the lessons learned by the Japan International Cooperation Agency-financed Forestland Management Project, notably, in terms of securing land-tenure rights and enterprise development for food security and income (DENR FASPS n.d.).

3.4.1.2 Strengthening the emergence of community-based forest enterprises by simplifying and harmonizing harvesting, transportation and processing regulations for smallholders and SMEs

Forest-sector SMEs, like SMEs more generally, suffer in the country from limited access to business and financial services, lack of support to enhance their competitiveness, regulatory measures that constrain their ability to operate in a "legal" space or that create perverse incentives, and limited access to markets. These and other challenges and constraints for SMEs have been widely identified, but recommendations and efforts to address them have often been fragmented and sector-bounded, limiting the effectiveness of the intervention.

The Forest Investment Development Division of FMB has already initiated the development of a specific database for plantation investments. The Division formulated an Investment-Ready Registry for use at both national and regional levels, which is being piloted in eight regions (CAR, 2, 3, 6, 10, 11, 12, 13). The Technical Bulletin on the development of the Registry is pending approval by the Policy Review Committee of FMB.

Five processes could be streamlined by DENR to facilitate the emergence of SMEs in the Philippines. The adoption of the Forest Investment Road Map (DAO 2019-22) provides new opportunities for DENR to build, strengthen and sustain alliances with partners and existing tenure holders, explore new partnership mechanisms between the Government and the private sector and develop six new approaches to marketing strategies (FIRM:75–81). The latter may include the marketing of products from commercial forestry investment sub-projects (conservation farming, agroforestry, and commercial tree plantations), drawing on lessons learned by successful private-sector initiatives (*Report on policy review and institutional analysis for development of commercial forestry investment sub-projects*, ICRAF 2020a: Section IX).

4. Additional measures to create an improved enabling environment

Improving access to private financing will require a number of different initiatives encompassing, among other things, active investment promotion with targeted incentive schemes and new financial instruments favoring long-term investments; reducing investment risks through guarantees, public–private partnerships and innovative financing schemes;

provision of reliable information on forest lands; recording and publishing information on domestic investments; collecting, collating and improving access to information concerning the availability of suitable land for investments, growth and yield, growing conditions, risks etc; conducting ad hoc surveys and establishing specific databases (for example, on plantation investments); improving forest-sector governance and transparency; additional support for forestry and agroforestry research and development to increase productivity; helping to organize smallholders and communities so that they can enjoy economies of scale, become more eligible for accessing finance, and gain negotiating power.

Additional incentives such as tax breaks on revenues, provision of low-interest and long-maturing loans, less stringent requirements for wood processors, improving access to price information, improved maintenance of farm-to-markets roads used by tree farmers and opportunities to export plantation logs may enable other provinces to replicate the success of Caraga Region.

Investors are mainly interested in maximizing risk-adjusted returns. They assess a number of factors, examples of which follow.

- A country's political, regulatory, and economic stability
- The governance of a country's investment regime, of which the single most important factor is secure and risk-free land tenure
- Growth potential and access to growth markets, which are very much linked to potential timber investment sites, such as Regions 10 and 13
- Active investment promotion with targeted incentive schemes and developing new financial instruments favoring long-term investments
- Reducing investment risks through guarantees, public–private partnerships and innovative financing schemes as well as through access to, and provision of, reliable information
- A country's physical and institutional infrastructure (roads, ports, electricity, labor markets)
- Collecting, collating and improving access to information on the availability of suitable land for investments, growth and yield, growing conditions, risks etc
- Improving forest sector governance and transparency
- Additional support for forestry and agroforestry research and development to increase productivity
- Helping to organize smallholders and communities so that they can enjoy economies of scale, become more eligible for accessing finance, and gain negotiating power

Introduction

The Philippines boasts a rich history of logging as well as tree planting and forest restoration activities, the latter based on multiple externally funded reforestation and afforestation projects implemented before and after the launch of the Integrated Social Forestry Program in 1982. The more recent Government-financed National Greening Program was adopted in 2011 and extended from 2016 to 2028.

Over the past century, the forest policy of the Philippines has evolved from a corporate Timber License Agreement approach to forest management towards a community-based forest management system. After four decades since the inception of the Integrated Social Forestry Program in 1982, forest policy now recognizes local communities) and indigenous peoples as joint forest managers, if not the custodians of the land and forest resources. Three milestone policy instruments adopted in the 1990s reaffirmed the role of public/community involvement in forest resource management.[7]

The Government has poured billions of pesos into reforestation programs for over a century. The country has undertaken reforestation programs from 1916 through to the launch of the National Greening Program in 2011, which has been extended to 2028. The Revised Master Plan for Forestry Development adopted in 2003 estimated that only 460,000 ha of well-managed forest plantations would be needed to meet the country's plantation-wood requirements. The evolution of the type, total area, and several tenure instruments in force between 1970 and 2018 is presented in Table 1.

Table 1. Areas of forest land under the private sector from 1970 to 2018 (,000 ha)

Type of agreement	1970/1971		1980		1990		1995		2000		2018	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
TLA	461	10,598	261	7,939	97	3,620	41	1,600	19	910	2	120
IFMA/ITPLA			12	88	81	30	248	538	184	548	127	961
CBFMA									600	1,971	1,884	1,616
Tree farm			101	9	101	1	128	18	155	19	53	6
Agroforestry			2	1	94	11	84	97	80	91	0.4	2
Total				8,037		4,189		2,253		3,539		2,799

Note: TLA = Timber License Agreement; IFMA/ITPLA = Integrated Forest Management Agreement/Industrial Timber Plantation Agreement; CBFMA = Community-Based Forest Management Agreement

Sources: DENR FMB 1980, 1990, 2000, 2018

The underlying causes of deforestation and forest degradation in the Philippines include policy, institutional and governance issues, such as unstable, confusing and conflicting forest policies and mandates; logging bans as perverse incentives; open-access forest lands due to lack of clear tenure; limited coordination with other sectors; poor monitoring and

7 These were the Local Government Code (RA 7160) in 1991, the National Integrated Protected Area System (RA 7586) in 1992 (as amended by RA 11038, the Expanded National Integrated Protected Area System Act of 2018) and the Indigenous Peoples' Rights Act (RA 8371) in 1997

law enforcement; and the inability of institutions to adapt and carry out effective strategies (Guiang 2008, Carandang et al 2013).

The current policy and regulatory framework overseen by DENR and FMB are largely influenced by extractive-driven systems from the period when Timber License Agreements were the dominant tenure instrument, and "underlines the failure to adjust policies and strategies that respond to devolved, holistic, interconnected, and community-managed ecosystems" (Carandang 2008:35).

The recurrent costs of reforestation and afforestation programs could be effectively reduced if the Government were to adopt a more supportive enabling environment to promote the emergence of, for example, community-based forest enterprises. The standing volume of second-growth production forests in the Philippines is estimated at more than 217 million m^3, representing a natural resource asset worth more than USD 13 billion (at USD 60 per m^3) that could generate 60,000 full-time jobs by selling 500,000 m^3 of timber per year. DENR needs to simplify the regulations for smallholders to trade timber to help in reducing the transaction costs associated with timber marketing and processing at central, regional and local levels (Pulhin and Ramirez 2016).

Direct and indirect incentives

There is no single agreed definition for incentives (Meijerink 1997). Many equate incentives with subsidies, such as Gregersen (1984), who defined incentives as "public subsidies given in various forms to the private sector to encourage socially desirable actions by private entities". For this report, incentives include both direct incentives — such as cost-sharing, subsidized credit, provision of tree seedlings, fiscal incentives, reduction of uncertainty through loan guarantees, insurance, forest protection agreements and security of land tenure (Gregersen and Houghtaling 1978) — and indirect incentives, such as changes in policy and institutional mandates to facilitate investments by the private sector, provision of market information, and targeted extension, education and research (Keipei 1997). Direct and indirect incentives can be provided by governments as well as through projects funded by development banks (both national and multilateral) and official development assistance organizations (Table 2).

There is a critical need to move beyond a "culture of tree planting", "meeting planting targets" and providing direct incentives, such as tree seedlings, to one that also recognizes the critical role of indirect incentives, such as an appropriate enabling environment that establishes an overarching climate of an enterprise. This will include greater recognition of the phasing of incentives and the importance of smallholders' tree and forest management and facilitating entrepreneurship and the marketing of timber and NTFPs by smallholders. The latter will also require good end-markets for smallholders' processed timber. Both are already present, for example, in Caraga Region (Carandang et al 2015, *Report on policy review and institutional analysis for development of commercial forestry investment sub-projects*, Wardell 2020).

The types of incentives used in the Philippines are presented in Table 3.[8]

Three phases of incentives to promote plantation development are typically recognized: a) initiation; b) acceleration; and c) maturation (Figure 1). The Philippines is still in the initiation

8 As reported in 2003. see Enters et al 2003

Table 2. Types of incentives

Direct incentive	Indirect incentives		
	Variable incentives		Enabling incentives
	Sectoral	Macro-economic	
Seedlings	Input and output prices	Exchange rates	Land tenure and resource security
Specific provision of local infrastructure to support plantations	Trade restrictions (for example, tariffs)	Interest rates policies	Socio-economic conditions
Grants		Fiscal and monetary measures (for example, income taxes)	Accessibility and availability of basic infrastructure (ports, roads, electricity etc)
Tax concessions			Producer support services
Differential fees			Market development
Subsidized loans			Credit facilities
Cost-sharing arrangements			Political and macro-economic stability
			National security
			Research and extension services
			Capacity of local government units
			Clarity and stability of sectoral policies

Source: Adapted from Enters et al 2003:12

phase but has the potential to accelerate with revisions of enabling policy and institutional environment.

Three phases of incentives to promote plantation development are typically recognized: a) initiation; b) acceleration; and c) maturation (Figure 1). The Philippines is still in the initiation phase but has the potential to accelerate with revisions of enabling policy and institutional environment.

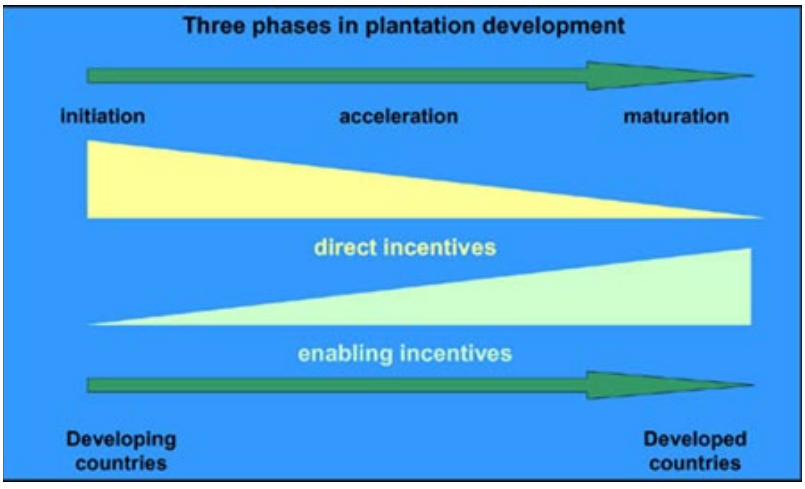

Figure 2. Phases in incentives typically used to promote plantation development

Table 3. Types of incentives to promote plantation development in the Philippines

Currency	State planting	LCS	Land grants	Nursery subsidies	Survival incentives	Grants to growers	CLs	TCs	JVA	R&E	Resource security	Focus on enabling incentives and removal of structural constraints
PHP	X		X				X	X		X		Low

Source: Adapted from Enters et al 2003:14

(LCS = Low Cost Seedlings ; CLs = Concessionary loans; TCs = Tax concessions; JVA = Joint venture arrangements; R&E = Research and extension)

Experience from other countries in Southeast Asia indicates that the businesses of most smallholding timber growers are not strictly market-oriented. Consequently, opportunities to make a better income from timber sales are often lost although timber plantations do generate important additional income for farmers. There is often a wide range in timber prices at village, watershed, provincial and regional levels but the farm-gate price generally lies at the lower end of the range. This is generally because of a) poor quality of logs produced by farmers; b) low bargaining power of farmers; c) high transaction costs due to cumbersome timber market regulations; and d) transport costs (Rohadi et al 2015).

Methodology

The research strategy of this report relied on an initial, and a subsequently more detailed, literature review, key informant interviews with DENR and FMB personnel, meetings with key resource persons from World Agroforestry (ICRAF), Forest Development Center of the College of Forestry and Natural Resources at the University of the Philippines Los Baños, Forest Foundation of the Philippines, Ateneo School of Governance, participation in three INREMP workshops (national DENR FMB workshop, 24–25 September 2019; regional DENR and Department of Trade and Industry workshop, Cagayan De Oro, 1–2 October 2019; and National Stakeholders Forum, Butuan City, 11–12 March 2020 and fieldwork in Bukidnon (Region 10), CAR and Caraga (Region 13) to generate both secondary and primary data.

The objective of this report is to complement the *Report on policy review and institutional analysis for development of commercial forestry investment sub-projects* (Wardell 2020) by presenting an overview of the evolution of incentives and disincentives in the forest sector in the Philippines during the period 1946 to the present. The report focuses on incentives and their impact on plantation development given the widespread depletion of natural forests, and the nationwide moratorium on logging of natural and residual forests (but excluding plantations) introduced in 2011. The National Greening Program was started in the same year and extended in 2016 through to 2028.

The report comprises five sections after this Introduction: Section II presents an historical overview of incentives during the logging era (1946–1981) and subsequent community-based forest management (1982–2004) and National Greening Program (2011–2019) eras. Section III presents an overview of the Forest Investment Road Map adopted by DENR as DAO 2019-22 in December 2019. Section IV provides an overview of policies and programs as perverse incentives. Section V outlines the current national policy framework of incentives for enhancing private investment, economic contribution, and global competitiveness of forest-based industries following the adoption of EO No. 318, s. 2004 and the Forest Investment Road Map (DAO 2019-22). Section VI presents two success stories: smallholder tree planting in the Philippine's "timber corridor", and a vertically integrated plantation and processing company. Section VII presents conclusions and preliminary recommendations. A list of references is presented in Section VIII of the report.

This Review of Incentives and Disincentives for Policy and Institutional mainstreaming of CFISPs between 1946-2019 (ICRAF 2020b) should be read in conjunction with the *Report on policy review and institutional analysis for development of commercial forestry investment sub-projects* (Wardell 2020), the *Enhanced Theory of Change Workshop Report,* the *National Stakeholders Forum Report*, and the *Tenure Arrangements in Philippines' Forest Lands Report.*

INREMP's commercial forestry investment sub-projects

Component 2 of INREMP focuses on smallholder and institutional investments, which include commercial forestry investment sub-projects (Table 4) with the overarching aims by end 2020 of planting being as follows.

- Over 14,000 ha of agroforestry with community participation
- 3000 ha of commercial tree plantations established
- Over 3000 ha of conservation farming demonstrations established

Table 4. Overview of commercial forestry investment sub-project targets and achievements as of 31 December 2019

Type of commercial forestry investment sub-projects	Target (ha)	Achievement	Percent achieved
Agroforestry	14,374	14,307	99
Commercial tree plantations	3,568	3,564	99
Conservation farming	3,633	3,434	95

Source: DENR presentation, National Stakeholder Forum, Butuan City, 11–12 March 2020 (see Annex 2)

"Commercial forestry investment sub-projects" are project "constructs" rather than Government policy in itself and, to this end, three INREMP Technical Bulletins were issued by DENR during 2015–2017: #2 Sub-project development in agroforestry (9 March 2015); #4 Sub-project development for commercial forest farm and tree plantations (9 March 2015); and #10 Sub-project development on conservation farming (17 May 2017). The first two Technical Bulletins issued in March 2015 were intended to assist all field implementing units in the four provinces and provide cost standards with beneficiary contributions per hectare to establish agroforestry (essentially fruit trees) and commercial tree plantations. This included details of the procurement process for engaging people's organizations or community participation to ensure consistency with the Government Procurement Reform Act RA 9184 and six guiding principles: a) equity; b) participation; c) responsiveness; d) accountability; e) transparency; and f) value for money.[9]

The Technical Bulletin on conservation farming was developed more than two years later. It provides more detailed guidance to all field implementing units in the four regions in terms of technical considerations, selection criteria, a 24-day conservation-farming "process", the types of technologies and activities to be supported by INREMP, and other "support facilities" that could be funded under the livelihood enhancement support sub-projects of INREMP. It also provides an outlined Work and Financial Plan with indicative annual costs and a 12-stage indicative payment schedule. Conservation farming — as distinct from agroforestry and commercial tree plantations — requires a (contractual) Forest Management Partnership Agreement and includes explicit reference to the need to comply with the social and environmental safeguards as prescribed in the INREMP Project Administration Manual, adopted in October 2012.

9 See Resolution No. 09-2014 of the Government Procurement Policy Board per Section 53.12 of the Revised Implementing Rules and Regulations of RA 9184

Multi-strata agroforestry systems mimic natural forests in structure by blending an overstorey of taller trees and an understorey of one or more layers of crops to maximize both horizontal and vertical space. Multiple layers of trees and crops achieve better natural resources management while securing food and nutritional security and incomes. The exact blend of crops and trees varies by region and culture but the spectrum includes macadamia and coconut, black pepper and cardamom, pineapple and banana, shade-grown coffee, cocoa, rubber and timber. Annex 3 presents an overview of multi-strata agroforestry, conservation farming and commercial tree plantations developed by ICRAF in the Philippines. Additional technical details can be found in Kummer (1992), Tacio (1993), Belino (2014) and DENR DAO 2005-25.

A key challenge for DENR is to mainstream key lessons learned during the implementation of commercial forestry investment sub-projects to avoid a repetition of the all-too-common end of initiatives upon completion of a project. For example, the majority of the 300 Multi-sectoral Forest Protection Committees established during the World Bank Environment and Natural Resources Sector Adjustment Loan project collapsed after the completion of the project (Cruz and Pulhin 2006:3). This is currently a critical challenge for INREMP, which is due to close at the end of 2020. The "transfer" of commercial forestry investment sub-projects to the National Greening Program is one option for DENR to explore whilst building social capital with local government units, people's organizations, and non-governmental and civil-society organizations.

Historical overview of incentives during the logging and reforestation eras

This section summarizes the types of incentives used during two periods in the Philippines that were dominated by logging and forest-based industrialization (1946–1980) and, thereafter, multiple approaches to reforestation, including the National Greening Program (after 2011 to the present). Additional details on the evolution of forest policy in the Philippines are presented in the *Report on policy review and institutional analysis for development of commercial forestry investment sub-projects* (Wardell 2020).

Logging and forest-based industrialization era (1946–1980)[10]

Logging

Forest degradation was negligible around 1900 when the US gained control of the Philippines. Timber harvesting gradually increased until the outbreak of World War 2 and the logging industry was among leading employers. After independence in 1946, when ownership of all forest lands was nationalized, the industry became more mechanized and large-scale logging expanded to meet strong postwar-US demand. Forest products, only 1.5% of total exports in 1949, grew to 11% by 1955. In 1961, a surge in Japanese demand also triggered a dramatic increase in harvesting. Driven by incentives, strength in the world log market, and mechanized harvesting, the timber boom peaked in 1969. Annual harvests averaged 8.8 million m^3 and the forest area under logging concessions nearly doubled, from 5.5 million ha in 1960 to 10.6 million ha in 1971. Forest products became the leading export commodity, reaching 33% of gross export values by 1969.

The timber boom was driven by the vast profits that logging companies accumulated because the Government was unable to capture an appropriate share of resource rents through forest revenue systems. Forest taxes and fees amounted to only 0.5 to 1.3% of total Government revenues during the 1970s. For many years, the primary revenue source was a volume-based charge that ranged from 0.6 to 3.5 pesos per m^3, depending on timber quality. Other volume-based charges were imposed to finance reforestation, extension, and research and development. Total volume-based charges amounted to PHP 6.35 to 9.35 per m^3 for logs used domestically, and PHP 10.85 to 13.25 per m^3 for exported logs. These fees were consolidated in 1980 to a charge of PHP 20 pesos per m^3 and raised by 50% to USD 1.52 in 1984.

Government revenues averaged only 8.8% of the sector's export values during 1970–1982, an indication of the Government's failure to capture rents. Concessions of from 1-to-10 years granted in the 1970s provided concessionaires with few incentives to practise sustained-yield management. Concessions were later extended to 25 years, with potential for renewal for an

10 This section draws on Repetto 1987, 1988

additional 25 years, but these were still short relative to the 70-year growing cycles of many tropical species. The effects of excessive rents and short-term leases were compounded by the structure of forest charges, which failed to differentiate forest charges by timber grade, species, and accessibility and instead based charges on the volume cut rather than on the volume of merchantable timber. Weak enforcement of regulations on harvesting methods, stand improvement, and forest protection also contributed to the problem due to inadequate funding and personnel to supervise private loggers.

Forest-based industrialization

The Philippine Government's program to develop the wood-processing industry had four main goals: a) increase foreign exchange; b) create domestic value addition; c) stimulate employment; and d) use dwindling forest resources more effectively. The first attempts began in the late 1960s, when concessions were issued preferentially to companies that agreed to establish lumber and plywood mills. In 1967, a Government directive required all harvesters to build processing plants and progressively reduce log exports. Many companies complied by building small, inefficient and little-used mills while continuing to export logs.

The Marcos Administration responded in 1975 with a ban on log exports. As a result, in 1977, sawmills and plywood-processing plants were operating at only 29% and 35% of capacity, respectively. Processed wood exports, mainly lumber and plywood, increased as a share of total sectoral exports from 14% in 1970 to 76% in 1983. The value of processed wood exports peaked in 1979 at USD 317 million but had declined by 1983. The number of wood-processing plants also declined: from a peak in 1976, the number of sawmills fell from 325 to 190 in 1982, plywood mills from 209 to only 35, and veneer mills from 23 to 11. Reported log export volume declined to only 11% of total production by 1980.

In 2017, 15 regular sawmills, 128 mini-sawmills, 46 veneer plants, 20 plywood plants, 2 blockboard plants, 1 fibreboard plant, and 19 integrated plants remained in the Philippines. Sixty-seven percent of log production in 2017 came from Region 13 (Caraga). Eight-seven percent of lumber was produced in Regions 10 and 13 in the same year.

Conversion of forests to other land uses

Since the early 1900s, Government policies have provided incentives by distributing public forest lands to the landless and poor. Whilst the population remained relatively small, no dramatic forest-cover changes occurred but as population growth increased after World War 2, pressures on forests increased. During the 1960s, the Government encouraged settlements in forest lands to broaden the economy's agricultural base. The single most important such initiative was the "land for the landless" program, which led to the conversion of 100,000 ha of forestland per year for farming during 1959–1963. Before this, the Homestead Act 1924 granted every Filipino the right to 24 ha of public land supported by a Torrens Title. In 1961, the Manahan Act amended RA No. 1199, otherwise known as the Agricultural Tenancy Act of the Philippines. This resulted in the conversion of occupied forests to agriculture by as much as 200,000 ha per year.

In 1975, the Government allowed farmers to occupy 5 ha of the land they tilled for up to 50 years. Deforestation left upper watersheds unprotected with significant effects on river flows,

fish populations, agriculture and upland communities who relied on forests for fruit, game and other non-wood forest products for their livelihoods.

Incentives and the plantation development and reforestation era (1982–2019)[11]

Several federal programs, including reforestation, industrial tree plantations, social forestry, and, after 2011, the National Greening Program, have been adopted to regenerate forest resources during the period before 1980 and up to the present. The incentives used by the different programs are presented in the following sections.

Estimates of the areas of plantations that have been successfully established (as distinct from the number of tree seedlings planted) are variable but it is clear that DENR has been the dominant actor, particularly after Presidential Letter of Instruction No. 145, s.1973 was issued to determine which alienable and disposable lands should be converted into industrial plantations and tree farms.

An estimated 1.4 million ha of plantations were established up to 2001, of which only 150,190 ha were planted by the private sector (10.6%) (Table 5). Only 78,440 ha of industrial timber plantations (5.5% of the total) were established during the same period, suggesting that the range of incentives provided was ineffective. The major constraint was probably limited financial resources for extensive planting as no substantial credit support was provided by either Government or financial institutions. Hence, the only alternative was to generate revenues from exploiting natural forests to finance plantation development.

Table 5. Forest land Boundary Assessment and Delineation project status, 2017

Period	Government (ha)		Private sector (ha)	
	(Including contract reforestation from 1989 onwards)	Timber License Agreements' reforestation compliance	Industrial wood planting	Planting for environmental purposes
Before 1980	184,029	67,689	6,634	15,358
1980–1985	179,389	111,300	20,681	18,653
1986–1992	425,802	132,956	28,803	6,130
1993–1998	147,609	95,138	18,901	27,048
1999–2001	69,799	8,893	3,421	4,561
Totals	1,006,628	415,976	78,440	71,750

Source: Based on DENR FMB 1997, 2001

Pre-1980

Forest plantation development before 1980 was mandated by command-and-control rather than economic or financial incentives. Most plantation development was funded by direct public investment through annual appropriations to Government agencies, primarily, the-

11 This section draws on Acosta 2003

then Bureau of Forest Development. The emphasis was on planting seedlings and reporting hectarage planted, with little or no quality control or planning for sustainable long-term plantation timber supplies. Timber License Agreement holders were mainly interested in harvesting natural forests. The plantations that they established were only a token gesture to comply with the reforestation requirements of the law and their license agreements.

The enactment of Republic Act (RA) No. 115 in 1947 was the first major Government effort to restore forest cover in the Philippines. This Act created a Reforestation Fund from charges levied on timber harvested on State forest lands.[12] This fund was used exclusively by the-then Bureau of Forestry to finance reforestation projects. To accelerate tree planting, a Reforestation Administration was created in 1963 according to RA No. 2706. Its mandate was to hasten the reforestation of barren and denuded public lands. Until the 1970s, "regular reforestation projects"[13] were developed using the Reforestation Fund and administered by the Reforestation Administration but only an estimated 78,000 ha had been reforested by 1983. Presidential Letter of Instruction No. 145, issued in November 1973, directed the Presidential Committee on Wood Industries Development to submit a programme "to promote the development of industrial plantations and tree farms… and broaden the resource base of the (forest-based) industries". Presidential Decree (PD) 1559 of 1979, amending the Revised Forestry Reform Code (PD 705) reiterated the "establishment or development and maintenance of forest tree plantations".

1980 to 1985

In 1980, LOI 423 sanctioned the establishment of industrial timber plantations to "intensify and accelerate forest ecosystem management" and led to the creation of the Program for Forest Ecosystem Management, which aimed to re-establish forest cover nationwide by calling on all Government agencies to undertake "tree planting' in watersheds, along roads and in parks". Much of the tree planting was ceremonial or cosmetic and there was little follow-up or maintenance. Areas planted in "critical watersheds" were under de facto control of upland farmers who regarded Government-mandated tree planting as a threat to their claims to the land. Fire was often used as a weapon of the weak (Scott 1995) to destroy the planted areas.

Presidential Executive Order (EO) No. 725 of 1981 established the Industrial Tree Plantation program and accelerated the establishment of plantations in open, denuded, brushland and poorly-stocked areas. Timber License Agreement holders were given six months to a) apply for an Industrial Tree Plantation lease agreement over suitable areas not exceeding 30% of their respective Timber License Agreement areas; and/or b) implement an approved seven-year reforestation plan within their areas. The Government also founded the National Industrial Tree Corporation, a subsidiary of the Government-owned National Development Company, offering a number of incentives.

- A nominal application fee of PHP 0.50 per ha

12 Forest charges are royalties collected by the Government from timber concessionaires based on the net timber volume extracted from the forests. During the time the Reforestation Fund (1950s to late 1960s) was in effect, the forest charges were about USD 0.50–1.00 per m^3 of timber, depending on species, at the-then exchange rate of PHP 4.00 = USD 1.00

13 These were projects funded by general Government appropriations, as distinct from "foreign-assisted projects" funded by official development assistance loans and grants

- Exemption from land rental for the first 25 years of the lease. Upon renewal of the lease for another 25 years, the rent would be PHP 0.50 per ha per year for the first five years and, thereafter, PHP 1.00 per ha per year
- No rent from a lessee who, upon verification, substantially met the development schedule of the plantation, tree farm or agroforestry farm, as prescribed in the approved plans
- Reduced taxes on plantation timber: only 25% of the regular forest charges on timber from natural forests
- Exemption from certain internal revenue taxes
- Tax-deductible plantation development expenses
- Long-term, low-interest loans from Government financing institutions, such as the Development Bank of the Philippines

During this period, 155,000 ha of State forest lands were granted to the private sector for development of tree plantations. Most of these areas had been (fully or partially) under timber concession agreements, which were then converted to tree plantation leases. Only 20,600 ha were established as industrial wood plantations.

The Integrated Social Forestry Program, established through Presidential Proclamation 1260 in 1982, 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 links. It ushered in a pioneering period (Pulhin 1997) to introduce and develop both community forestry and watershed management. Most of these reforestation programs at the time continued to depend on local communities providing a source of labor rather than as partners in forest conservation and development (Pulhin 2002).

The processes and institutions developed under the Integrated Social Forestry Program shaped the national community-based forest management strategy adopted in 1995. The anticipated large-scale reforestation by upland communities was constrained, however, by unclear policies, technical problems, and market-related flaws. It was unclear from the outset how the timber produced on Integrated Social Forestry Program farms was to be marketed and sold. Harvesting permits from local government forestry offices were required even for tiny volumes from individual woodlots. Forestry extension services provided poor technical advice on plantation management, resulting in low-quality plantations, low productivity and, hence, unattractive revenues. Wood-processing facilities were not structured to process small-dimension timber economically and the availability of cheap illegal timber from natural forests further depressed prices for plantation wood.

l1986 to 1992

A new Philippine Constitution was promulgated in 1987 and had a profound effect on the re-orientation of Philippine forestry in the post-Marcos era. Before 1987, privileges for the use, management, development and utilization of natural resources were granted through

Timber License Agreements. Under the new Constitution, this arrangement was terminated and replaced by product-sharing, co-management or joint-venture arrangements between the State (as the owner of the resources) and the private sector. Forest plantation programs had to be redesigned. In 1991, Timber License Agreement holders were told to cease logging in old-growth forests and to shift harvesting operations to mature, second-growth forests. Industrial Forest Management Agreements replaced the Industrial Timber Plantation lease agreements[14] and were designed to encourage greater private-sector participation in developing forest resources. Adequately stocked secondary forests could be included in Industrial Forest Management Agreements areas and could be logged when plantations were established. This was the most attractive incentive for the private sector. In 1991, DAO No. 42 provided the following additional incentives.

- Reduced payment of forest charges (25% of regular forest charges on plantation products)
- Exemption from payment of certain internal revenue taxes
- Permanence of the boundary and status of the Industrial Forest Management Agreement area
- Tax-deductible plantation development expenses
- Credit assistance
- Entitlement to fair compensation

About 187 000 ha were granted to the private sector under the new program and tenurial arrangements, of which only 28 803 ha of plantations were established.

Most tree planting in this period was due to massive new funding through loans from the Asian Development Bank and the Overseas Economic Cooperation Fund of Japan for contracted reforestation by families, rural communities, local governmental units and non-governmental organizations under the Forestry Sector Program, among others. Most plantations were established to rehabilitate watersheds and, hence, did not serve as an important supply of industrial wood.

1993 to 1998

This period was characterized by renewed Government efforts to improve the forest plantation development policy. The implementing rules and regulations for Industrial Forest Management Agreements were rewritten twice and caused much confusion for the private sector. Industrial Forest Management Agreements covering 127,400 ha were awarded to 126 corporate entities for plantation development during this period. Many awardees were Timber License Agreement holders whose leases were expiring or who were using the chance to obtain new 25-year tenure agreements on State forest lands. Plantation establishment by the private sector remained below expectations (18,901 ha). In 1993, the rules and regulations

14 The Industrial Forest Management Agreement was later renamed Integrated Forest Management Agreement to legally accommodate other non-plantation forestry activities within forest lands, such as management of natural forests

for Industrial Forest Management Agreements were revised and DAO No. 60 provided the following incentives.

- Industrial Forest Management Agreement holders were allowed to interplant crops between rows of trees within areas designated for industrial forest plantations in their Industrial Forest Management Agreement areas
- All planted trees and other crops established according to an Industrial Forest Management Agreement, or transferred from the DENR, belonged to the Industrial Forest Management Agreement holder who had the right to harvest, sell and utilize products at the time specified in the approved Comprehensive Development and Management Plan
- No restriction on the export of logs, lumber and other forest products harvested from Industrial Forest Management Agreement plantations was placed on an Industrial Forest Management Agreement holder. However, logs or unprocessed lumber from indigenous trees growing naturally in an Industrial Forest Management Agreement area could not be exported
- All plantation products derived from an Industrial Forest Management Agreement area were exempted from forest charges but all products derived from indigenous trees and/or other plants growing naturally in an Industrial Forest Management Agreement area and from plantations established in compliance with Timber License Agreement reforestation obligations were subjected to the usual forest charges
- Minimal land rents were charged
- Industrial Forest Management Agreement holders were entitled to all relevant incentives provided for under the Omnibus Investment Code

DAO No. 60, s. 1993 liberalized the Industrial Forest Management Agreement administrative system.

- Categorized the Industrial Forest Management Agreements into two types: Type I covered open, denuded and grassland areas to be set aside only for plantation establishment; Type II included secondary forests that could be harvested during plantation development operations
- Increased the maximum area per Industrial Forest Management Agreement from 20,000 ha to 40,000 ha
- Allowed Timber License Agreements to be converted to Industrial Forest Management Agreement
- Provided for the protection of affected rural communities and indigenous people's interests[15]

15 DAO No. 2 in 1993 provided guidelines to recognize indigenous people's ancestral claims, at a time when the Indigenous People's Rights Act was not yet enacted by Congress

- Enabled the DENR to actively identify and plan for Industrial Forest Management Agreement areas even before any application by a private entity
- Prescribed the procedures for bidding on Industrial Forest Management Agreement areas by the private sector
- Prescribed the rate of plantation establishment, such that any Industrial Forest Management Agreement should be fully developed after 12 years
- Permitted a maximum of 10% of the Industrial Forest Management Agreement area to be planted with permanent crops to generate cash flow before the first rotation
- Allowed Industrial Forest Management Agreements to be transferred to enhance their marketability as an investment venture

Further amendments were made to emphasize environmental protection and the adoption of community-based forest management as the key strategy for sustainable management following the adoption of Presidential EO No. 263 in 1995. This also removed the former privilege of Industrial Forest Management Agreement holders to harvest in natural forests.

New conditions were also introduced through DAO No. 4, s, 1997.

- Industrial Forest Management Agreement holders could interplant between trees within areas designated for Industrial Forest Plantations in their Industrial Forest Management Agreement areas, provided that there would be no adverse impacts on biodiversity, as indicated in a prior environmental impact assessment
- All trees, except those for environmental protection purposes, planted by the Industrial Forest Management Agreement holders belonged to the Industrial Forest Management Agreement holders, who had the right to harvest, sell and utilize them
- The Industrial Forest Management Agreement holder could export logs, lumber and other forest products harvested from the Industrial Forest Management Agreement plantation, per the Government's allocation system
- All plantation products derived from an Industrial Forest Management Agreement area were exempted from forest charges
- No restriction was placed on the use and improvements of the Industrial Forest Management Agreement as collateral for obtaining loans for further development of the Industrial Forest Management Agreement area, provided that prior approval from DENR was obtained
- Industrial Forest Management Agreement were to be covered by the Environmental Impact Assessment procedures of DENR

1999 to 2004

The rules on Industrial Forest Management Agreement were revised again in 1999 to encourage private sector investment in forestry. DAO No. 53 s. 1999 restored the privilege of

harvesting in adequately stocked secondary forests, allowed for the sale of timber felled in areas prepared for plantation establishment, and enabled Timber License Agreement holders to renew, for another 25 years, their tenure over State forest land.

DAO No. 53-99 also entitled Industrial Forest Management Agreement holders to undertake several other actions.

- Interplant secondary crops between trees.
- Harvest, sell and utilize all planted trees and other crops in whatever marketable form(s) and whatever legal manner(s)
- Export logs, lumber and other forest products derived from the Industrial Forest Management Agreement area without any restriction although timber from natural forests could not be exported
- Exemption from forest charges on plantation products
- Claim all relevant incentives under the Omnibus Investment Act
- Transfer plantations that were at least 3 years-old to (rural) cooperatives upon fair compensation or payment to the Industrial Forest Management Agreement developer or through a financing institution or be open for investment
- Use plantation crops that were at least 3 years-old as collateral for loans from Government development banks, financial institutions or Government-owned and controlled corporations
- Secure access to an additional area, or a new Industrial Forest Management Agreement, if the Industrial Forest Management Agreement holder had satisfactorily complied with the terms and conditions of the original Industrial Forest Management Agreement

A significant new development was the identification and proclamation of a 600,000 ha "timber corridor" in north-eastern Mindanao, together with a 200 ha "wood-based economic zone" for an integrated wood-processing facility. This was intended to attract foreign and domestic investors.

2004 to 2010

Presidential EO No. 318, Promoting Sustainable Forest Management, issued by then-President Gloria Arroyo in 2004, underlined the need to harmonize policy reforms adopted since PD 705 in 1975 and to "pursue the sustainable management of forests and forest lands in watersheds" (Section 1, EO 318). The necessity for such an instrument reflected the fact that a draft Sustainable Forest Management Act and both a National Land Use Act and a Land Administration Registry Act had, by then, been languishing in the country's legislature for more than two decades.

Three milestone policy instruments adopted in the 1990s underscored the role of public and community involvement in land and forest resource management. These were the Local Government Code (RA 7160) in 1991, the National Integrated Protected Area System (RA 7586) in 1992 (as amended by RA 11038, the Expanded National Integrated Protected Area System Act of 2018), and the Indigenous People's Rights Act (RA 8371) in 1997. These instruments culminated in a changing and increasingly complex policy arena as the number of local government units and national government agencies implicated in the sustainable management and development of forest resources in the country increased significantly. Unclear institutional mandates and jurisdictional limits led, in some cases, to still-unresolved conflicts.

This was compounded by "policy inflation" as the Government of the Philippines and DENR FMB responded to new global opportunities and challenges since 2006. These included the promulgation of the Biofuels Act (RA 9367) in 2006; preparing a list of threatened species for the Convention on International Trade in Endangered Species of Wild Fauna and Flora-related in 2007 (DAO No. 2007-01); the development of the Philippine National Reducing Emissions from Deforestation and Forest Degradation Plus Strategy in 2010 (EO No. 881, s. 2010); engagement in a dialogue to inform and prepare a possible Forest Law Enforcement, Governance and Trade Voluntary Partnership Agreement after 2012 (Keong et al 2012, ITTO/IMM 2019); the adoption of the Philippine Master Plan for Climate Resilient Forestry Development in January 2016 (see, Lasco and Pulhin 2003, Rawlins et al 2017, DENR FMB 2017); and consultations which began in the same year to develop a forest investment road map.[16] "Policy inflation" has not been matched, however, by any significant increase in either human or financial resources at a time when most externally funded natural resource management projects had finished or were close to completion.

A summary of the objectives, highlights and limitations of the Philippine forest restoration programs from the 1980s through to 2019 is presented in Table 6.

16 See https://forestry.denr.gov.ph/index.php/forestry-investment-road-map-for-a-revitalized-and-sustainable-forestry-investment

Table 6. Summary of Philippine forest restoration programs (1980s–2019)

Year	Program/ project	Objectives	Highlights	Potential for improvement
1982	Integrated Social Forestry Program	Maximize land productivity, enhance ecological stability and improve socio-economic conditions of forest occupants and communities	Consolidated all previous people-oriented programs and covered communities in open and deforested upland areas and mangrove areas. Gave way to Certificate of Stewardship Contracts and Certificates of Community Forest Stewardship	Failed to utilize a bottom–up, participatory, flexible and responsive extension system with an inability to recognize and respond to the failure of the program caused by the lack of a farming-systems approach and widespread promotion of technologies with narrow recommendation domains (Gerrits 1996)
1986	National Forestation Program	Reforestation of open and degraded areas and rehabilitation of critical watersheds	Communities were paid by DENR for 3 years for the establishment of tree and rattan plantations; Government subsidy of 20,000 pesos per ha	Forests were to be turned over to DENR after 3 years but due to management cost concerns, land was re-allocated under Forest Land Management Agreements
1989	Low Income Upland Communities Project	Restore and sustainably manage upland forest resources and alleviate rural poverty	About 15,000 ha in eight major watersheds were treated through contract reforestation, benefitting about 7000 tribal and lowland migrant families	There was "bounded participatory planning" in the Philippine Association For Intercultural Development-assisted local situational analysis in Kabilyan Watershed yet the creation of a Socio-Economic Development Program by the communities locked them into an agenda determined by the Low Income Upland Communities Project with pre-defined project components and alternative solutions presented by the local communities were ruled out (Pulhin 2000)
1989	Community Forestry Program	Provide upland residents with an alternative source of livelihood to shifting cultivation	Communities formed people's organizations and obtained Community Forest Management Agreements that allowed them to utilize and sell products within a residual forest	Community Forest Management Agreements' issuance was claimed to have ignored the fact that most of the forest areas were claimed or occupied by upland cultivators (98 families), which led to project implementation delays and strained relations between local government unit (barangay) members and the claimants (Pulhin 2000)

Year	Program/ project	Objectives	Highlights	Potential for improvement
1989	Forest Land Management Agreement	Provide sharing agreements between the Government and individuals, communities and corporations for plantations that were previously established under the short-term contract reforestation program	Allowed family and community contractors to continue to benefit from the areas they reforested	
1993	Industrial Forest Management Agreement	Designed to ensure an adequate supply of timber and other forest products for domestic and export markets on a sustainable basis while also promoting the well-being of forest-dependent communities	Supported timber production while Timber License Agreements were being phased out	Duration of property rights in Industrial Forest Management Agreement presented some concern to smallholders and tenurial systems did not assure stakeholders and investors of a long-term or semi-permanent arrangement. The systems could accommodate one-cutting, possibly two-cutting, systems only. (Harrison et al 2004)
1994	Socialized Industrial Forest Management Agreement	Development, use and sustainable management of plantation forests, with a primary objective of producing wood and non-wood forest products	Instituted to revitalize the industrial forest plantation program and generate income for smallholders in the uplands	Private-sector constraints included tenure duration too short for long-term investment, credit difficult to obtain, development and transport costs were high, frequent change of policies, low marketing support (Chokkalingam et al 2006)

Year	Program/ project	Objectives	Highlights	Potential for improvement
1995	Community-Based Forest Management Program	Organized efforts of the Government to work with communities in and near public forests to protect, rehabilitate, manage, conserve and utilize the resources	Integrated and unified people-oriented forestry programs of the Government and gave way to three tenurial instruments: Certificate of Stewardship Contracts, Community-Based Forest Management Agreements and Certificate of Ancestral Domain Contracts	Implementation arrangements were complex and adoption was been delayed in some cases by the need to prepare complex business plans (Osita 2003); absence of participation at the local level (Lacuna-Richman 2001)
1998	Community-Based Resource Management Program	Reduce rural poverty and environmental degradation through support for locally generated and implemented natural resource management projects	Focused on local government units as managers of development and environment-related projects; had innovative financing offering a loan-grant-equity mix to jumpstart local government units' development efforts	The approval process was time consuming and required a detailed proposal document (Harrison et al 2004)
2011	National Greening Program	Convergence initiative designed to reduce poverty, promote food security, stabilize the environment, conserve biodiversity, and enhance climate-change mitigation and adaptation	Planted 1,344,553,383 seedlings of various tree species on 1,637,439 ha of open, denuded and degraded forest lands (exceeded target area at 113%); generated approximately 3.3 million jobs and employed 462,066 persons in upland and rural communities Around PHP 47.22 billion allocated to DENR from 2011 to 2019 to implement the program	Poor program monitoring, which focused on targets (number of hectares planted and number of seedlings planted); low survival rates became an issue in many areas that posted far below the desired survival rate of 85% (Israel 2016)

Year	Program/ project	Objectives	Highlights	Potential for improvement
2019–2028	National Greening Program (expanded coverage) EO No. 193 adopted on 12 November 2015	Continues to target to reduce poverty, promote food security, stabilize the environment, conserve biodiversity, and enhance climate-change mitigation and adaptation to cover the "estimated 7.1 million ha of unproductive, denuded and degraded forest lands which contribute to environment-related risks such as soil erosion, landslides, and flooding" (EO No. 193 s. 2015: 1)	Despite 8 years of implementation, legislators are still sceptical as to its actual impact As a result, the Program's budget was cut in half from PHP 5.15 billion in 2018 to PHP 2.60 billion in 2019	The Commission on Audit Performance Audit Report published on 18 December 2019 concluded that, "Reforestation remains an urgent concern but fast-tracking its process without adequate preparation and support by and among stakeholders led to a waste of resources." Program implementers, including people's organizations, identified various problems in implementing the program, such as the distance to the areas, calamities, and insufficiency of the contract payments. However, the Commission on Audit found that the most crucial issue was DENR's strategy of fast-tracking the program. Fast-tracking led the DENR to 1) impose targets on its field officials beyond their absorptive capacities; 2) proceed with the program without conducting a survey, mapping, and planning; 3) include far untenured areas, which would be abandoned after the term of the maintenance and protection contract; and 4) cause the people's organizations to miss financial opportunities, such as profits from seedling production. According to field officials, the targets were too ambitious. Instead of increasing forest cover, fast-tracking reforestation activities only increased the incidences of wastage. Based on the latest Philippine forest statistics, forest cover increased marginally by 177,441 ha; from 6,836,711 ha in 2010 to 7,014,152 ha in 2015. This is only 11.8% of the 1.5 million ha target of the Program under EO No. 26. even if the 85% standard of survival rate of 1,275,000 ha is used, the accomplishment will still be at a low rate of 13.9%. On a positive note, it was enough to reverse the previous downward trend

Source: Based on DENR FMB 1997, 2001

Incentives and the National Greening Program 2011–2019

From 2011 onwards, a large increase in reforestation was observed with the implementation of the National Greening Program. The Program was consistent with the updated Master Plan for Forestry Development (2016–2028) and aimed to harmonize all tree-planting initiatives by planting 1.5 billion trees on 1.5 million ha during 2011–2016 on "forest lands, mangrove, and protected areas, ancestral domains, civil and military reservations, urban areas under the greening plan of local government units, inactive and abandoned mines sites and another suitable land" (EO No. 26, Section 2).

Initial annual planting targets of 100,000 ha per year were increased to 300,000 ha per year in 2013. The importance of DENR in the areas reforested after 2011 has increased with a concomitant decline in planting by other private-sector actors (Table 7).

Table 7. Area reforested by sector 2010–2018

Year	Total area planted (ha)	DENR	% DENR	Other national government agencies	Timber licensees	IFMA/SIFMA/ CBFMA/ TFLA/PLA/ ITPLA*	Others, including non-governmental and civil-society organizations
2007	27,837	25,024	90	-	-	-	2,813
2008	43,609	27,752	64	-	182	928	14,747
2009	54,792	53,842	98	-	-	950	-
2010	36,877	32,384	88	-	3,737	756	-
2011	128,558	82,163	64	20,721	-	-	25,674
2012	221,763	132,710	60	74,334	-	5	14,714
2013	333,160	273,971	82	52,135	-	-	7,054
2014	334,302	306,468	92	8,810	-	-	19,024
2015	360,357	360,357	100	287	-	-	-
2016	284,089	284,089	100	-	-	-	-
2017	202,488	202,488	100	-	-	-	-
2018	141,310	141,148	99.9	-	-	-	162

* IFMA = Integrated Forest Management Agreements; SIFMA = Socialized Industrial Forest Management Agreements; CBFMA = Community-Based Forest Management Agreements; TFLA = Tree Farm Lease Agreements; PLA = Plantation Lease Agreement; ITPLA = Industrial Tree Plantation Lease Agreement

Source: DENR FMB Forestry Statistics 2018:19

The survival rates of tree seedlings planted by the National Greening Program have consistently been below target. The Program expected an 85% survival rate but in a 2013 Audit Report of the Commission on Audit it was noted that the survival rate, based on the areas surveyed, was only 68%. The Philippine Institute of Development Studies assessment of the efficiency and effectiveness of the Reforestation Program of the DENR in 2013 highlighted a lack of sufficient monitoring, a lack of species–site–market matching, poor seedling survival rates, and weak maintenance of planted sites. Four types of incentives were provided for under the Program.

1. Provision of free timber tree, fruit tree, and high-value crop seedlings

2. "All proceeds from agroforestry plantations shall accrue to the National Greening Program beneficiary communities to address food security and poverty reduction

3. National Greening Program beneficiaries shall be considered a priority in the Conditional Cash Transfer Program

4. Appropriate incentives shall be developed by the Department of Agrarian Reform, DENR, Department of Agriculture Convergence Initiative to encourage "rainforestation" [sic], particularly in protected areas" (EO No. 26: Section 3.3)

Commission on Audit's performance audit report of the National Greening Program, 2019

EO No. 193 was adopted on 12 November 2015 to facilitate "Expanding the coverage of the National Greening Program" to cover the "estimated 7.1 million ha of unproductive, denuded and degraded forest lands which contribute to environment-related risks such as soil erosion, landslides, and flooding" (EO No. 193 s. 2015: 1).

The policy decision to establish the Enhanced National Greening Program was taken before the Commission on Audit's performance audit report was published on 18 December 2019. The report concluded that, "Reforestation remains an urgent concern but fast-tracking its process without adequate preparation and support by, and among, stakeholders led to a waste of resources." (CoA-PAO-2019-01, 2019). Additional details of PAO-2019-01 are presented below.

"By 2010, the Philippines had already lost 60% of its total forest cover. Out of 16.90 million ha of forest lands in 1934, approximately 6.84 million ha remained. To jumpstart reforestation, in 2011, the Aquino Administration created the National Greening Program to regain 1.5 million ha of forest lands by planting 1.5 billion trees within six years. To cover the rest of the forest lands, the National Greening Program was extended until 2028. Around PHP 47.22 billion were allocated to the DENR from 2011 to 2019 to implement the program. However, despite eight years of implementation, legislators are still sceptical as to its actual impact. As a result, the Program's budget has been cut in half from PHP 5.15 billion in 2018 to PHP 2.6 billion in CY 2019.

The Commission on Audit report aimed to determine: a) the extent the program made an impact on the environment; b) the extent the program made an impact on its beneficiaries; and c) the extent the DENR ensured that the program was administered following established policies and procedures. To answer the aforementioned objectives, the audit team conducted a document review and interviewed program officials. To validate the information gathered, the audit team visited Program sites and conducted group discussions with the people's organizations implementing the program on the ground. The audit scope covers 2011 to 2018.

Program implementers, including people's organizations, identified various problems, such as the distance of the areas, calamities and insufficiency of the contract payments. However, the Commission found that the most crucial issue was DENR's strategy of fast-tracking the

program. Fast-tracking led the DENR to a) impose targets on its field officials beyond their absorptive capacities; b) proceed with the program without conducting a survey, mapping, and planning; c) include far untenured areas, which will be abandoned after the term of the maintenance and protection contract; and d) cause the people's organizations to miss financial opportunities, such as profits from seedling production.

According to field officials, the targets were too ambitious. Instead of increasing forest cover, fast-tracking reforestation activities only increased the incidences of wastage. Based on the latest Philippine forest statistics, forest cover increased marginally by 177,441 ha; from 6,836,711 ha in 2010 to 7,014,152 ha in 2015. This is only 11.8% of the 1.5 million ha target of the National Greening Program under EO No. 26. Even if the 85% standard of survival rate of 1,275,000 ha is used, the accomplishment will still be at a low rate of 13.9%. On a positive note, it was enough to reverse the previous downward trend.

The Commission found pieces of evidence showing that the Program contributed to the reduction of poverty, however, it could not conclude as to its scale due to the insufficiency of data. Generally, beneficiaries narrated how the program payments helped augment their household budget. There were exceptional groups and communities, who were able to transform themselves into cooperatives, thereby gaining access to credit facilities and finance, equipment, and technical assistance from other Government agencies. With additional capital, they were able to create additional sustainable income streams.

The crucial factors in the success of these beneficiaries are a) the preparedness of the beneficiaries to implement the program; and b) the convergence of different agencies, including the private sector. However, community organizing is not the priority of the National Greening Program. This is the reason why dependent people's organizations are still prevalent. Convergence, on the other hand, is a requirement under EO No. 26, s. 2011. DENR was not able to implement this on a national scale. The pockets of success were caused by individual ingenuity at local level.

The key recommendations of the Commission on Audit Performance Audit report were as follows.

1. Consult with the Provincial and Community Environment and Natural Resources Offices, private sector and beneficiaries in formulating the action plan and targets.

2. Ensure that the people's organizations benefit from seedling production by providing them enough time to produce the seedlings themselves.[17]

3. Make community-organizing a pre-requisite before proceeding with the Program.

4. Implement the convergence initiative at the national and local levels

(CoA Performance Audit Report PAO-2019-01, 2019)

17 Despite this recommendation, DENR continues to produce its own seedlings. See DENR press release of 20 July 2020. https://www.denr.gov.ph/index.php/news-events/photo-releases/1719-36-million-seedlings-or-80-of-2020-seedling-production-target-already-prepared-by-denr

Forest Investment Road Map (DAO 2019-22)

The Forest Investment Road Map was formally adopted by DENR as DAO 2019-22 on 02 December 2019 shortly before the Commission on Audit Performance Audit Report on the National Greening Program was published.

The Road Map constitutes the country's blueprint to encourage private-sector investment in forestry and provides a general overview of the country's forest resources, tenure instruments and key investment opportunities that will hasten the country's progress and socio-economic development through the optimization and wise use of forest lands under the purview of sustainable forest management.

The Forest Investment Road Map aims to revitalize forestry investments through local and direct foreign investments in an environmentally sound, economically viable and socially responsible manner towards inclusive growth and sustainable development. It will also prescribe guidelines on how industrial-level partnerships can be strengthened to transform production forests into a significant contributor to the national economy (from 0.01 to 0.14% by 2028). The Road Map has several goals, as follow.

- Provide an enabling environment for investments in forest and forest-based products and services to assure investors of stable policies, secure tenure, incentives, and technical support.
- Generate additional and sustained forestry investments to meet the demands for forest and forest-based products and high-value-added commodities and services.
- Ensure the sustainable supply of raw material to produce globally competitive forest-based products and services.
- Promote equity and social justice by uplifting the socio-economic status of women and men in forest-dependent communities.

There are several more specific objectives of the Road Map.

- Identify and delineate potential investment areas based on regional comparative advantages. Potential investment areas include forest plantations for timber, NTFPs, fuelwood, biomass, and high-value crops (coffee, cocoa and rubber) as well as cattle grazing, ecotourism outside National Integrated Protected Area System areas and other ecosystem services (FIRM:14–38).
- Develop and maintain 1,438,298 ha commercial forest plantations by 2028.
- Establish and maintain 297,234 ha of fuelwood and biomass energy plantations by 2020.
- Develop and maintain 500,000 ha of NTFP plantations and high-value crops by 2028 through community partnerships with private investors.

- Develop and maintain 111,000 ha of grazing land by 2028.
- Formulate or amend policies and guidelines related to forestry investments.
- Establish specific guidelines for implementing payment for ecosystem services.
- Provide appropriate tenure instruments for private investors or community partnerships with private investors.
- Increase by 50%, on average, annual income of upland communities.
- Place 75% of open-access forest lands under appropriate management arrangements.
- Establish forest-based industries with sustainable source of raw materials.

The seven strategic components on how to achieve the goals and objectives are listed below.

1. Provision of stable enabling policy and investor-friendly environment.
2. Institutionalization of forestry investment support mechanisms.
3. Identification, mapping and assessment of potential investment areas.
4. Provision of secure tenure and partnership agreements.
5. Development and management of potential areas for forestry investments.
6. Strengthening and sustaining partnerships with existing tenure holders.
7. Marketing strategies.
8. The projected additional contribution of several commodities to gross value added and gross domestic product in 2028 under the Road Map is presented in Table 8 below.

Table 8. Projected additional contribution of several commodities to GVA/GDP in 2028 under the Forest Investment Road Map

Commodities	GVA* (billion PHP)	% GVA to GVA of manufacturing	% GVA to GVA of AFF* sector	% GVA to GDP*	No. of full-time employees
Logs	39.582	-	1.66	0.14	156,679
Lumber	18.281	0.27	-	0.06	35,873
Plywood	19.918	0.29	-	0.07	39,084
Furniture/ WBMA	104.423	1.59	-	0.38	212,752
Bamboo	0.881	-	0.04	0.003	3,805
Coffee	0.438	-	0.02	0.002	1,892

Commodities	GVA* (billion PHP)	% GVA to GVA of manufacturing	% GVA to GVA of AFF* sector	% GVA to GDP*	No. of full-time employees
Cacao	0.197	-	0.01	0.00	850
Rubber	0.299	-	0.01	0.001	1,291
Total	188.020	2.14	1.73	0.66	452,226

Sector	Baseline GVA and GDP (2017) (billion PHP)	Projected GVA and GDP in 2028 (billion PHP)
Agriculture, Fisheries and Forestry	1,453	2,387.5
Manufacturing	3,044	6,839.8
GDP	15,289	28,346.4

*AFF = Agriculture, Fisheries and Forestry; GVA = Gross Value Added; GDP = Gross Domestic Product

Source: FIRM:42

Policy development that will further support and strengthen implementation of the Road Map include the following.

- Advocacy for the passage of the Sustainable Forest Management Bill that will replace PD 705.
- Review and amendment of guidelines on permitting, utilization and transportation of forest-based products.
- Harmonization of guidelines and process by DENR, other Government agencies and local government units on the issuance of necessary clearances for the approval of tenure and permits that are overseen by these agencies.
- Harmonization and streamlining of guidelines and processes by DENR and other concerned Government agencies on how private investors and upland communities can access incentives provided by the Board of Investments, Bureau of Customs, Bureau of Internal Revenue, Department of Energy, local government units and Department of Budget and Management.

"Likewise, improved forest governance is a continuing imperative of Government in the allocation, protection, and conservation of the country's forests and forest resources. The pillars of good governance include accountability, transparency, rule of law, responsiveness, equity and inclusiveness, effectiveness and efficiency, consensus-oriented and participation"

(FIRM:45-47).

Policies and programs as perverse incentives

A perverse policy incentive is an incentive that produces unintended and undesirable results, contrary to the intentions of the policy. Similarly, a perverse program generates results that are contrary to the intentions of the program. The complexity of forest management in the Philippines from licensing through management, harvest and sale to renewal has involved multiple sets of policies and guidelines as well as changes and reversals of the same, some of which can be considered as perverse because they contributed more to deforestation and forest degradation than to conservation. The following section summarizes examples of perverse policies and programs in the Philippines, focusing on the period after PD 705 in 1975.[18]

Phasing out of Timber License Agreements

The Revised Forestry Code of the Philippines (PD 705, as amended by PD 1559) remains the basic law governing the management of the entire forests and forest lands of the country. Issuing timber licenses and permits to private sector concessionaires (holders of Timber License Agreements) invariably entailed peripheral operations that became the underlying causes of deforestation such as building roads, logging camps, and initial settlements for forest workers. The 1987 Constitution, however, no longer allowed the granting of any Timber License Agreements and permits with its new focus on production sharing, joint venture, and co-production. TLAs were phased out and many logging companies stopped operations. Abandoned Timber License Agreements became open-access areas and accessible logged-over areas were settled by former Timber License Agreements employees and new migrants. Logging roads provided easier access and facilitated timber cutting and the transport of illegal timber and other forest products.

Over-regulation and corruption in the transport and processing of logs harvested from private lands

Securing permits to harvest and transport timber harvested from smallholder private lands is a complicated, costly and cumbersome business (Pulhin and Ramirez 2016). To compound matters, roadside checkpoints, manned by composite teams of DENR, police, military and customs personnel, established as a measure to address illegal logging, have become an instrument of extortion (Tesoro and Angeles 2008). Over-regulation and corruption are two of the reasons hindering investment in the forest sector in the Philippines. Even if the logs and other forest products are properly documented, personnel manning the checkpoints still demand payment. Thus, recycling of permits to transport often happens with the connivance of those who are regulating the movement of logs and other forest products. Spot-checks of wood-processing plants can also involve corrupt payments during DENR inspections of products for both domestic and export markets. Per RA 11032 s. 2018 on the 'Ease of Doing Business and Efficient Government Service Delivery', DENR at both national and regional levels has increased its efforts to eradicate corruption in the transport and processing of

18 This section draws on Carandang et al 2013

logs harvested from private lands, and to reduce transaction costs for the private sector and smallholders.[19]

Rewards to informers of forest violations

EO No. 227 was issued on July 25, 1987 to amend section 68 of PD 705 which states that the mere possession of timber or other forest products without legal documents is illegal and considered a criminal act punishable under Articles 309 and 310 of the Revised Penal Code. EO No. 227 also authorizes the courts or the DENR Secretary or his duly authorized representative to confiscate the timber or any forest products cut, gathered, collected, removed or possessed as well as the machinery, equipment (including conveyances), implements and tools illegally used in the area where the timber or forest products are found. EO No. 227 also grants rewards to informers who report violations, leading to the apprehension and conviction of any offender or confiscation of forest products. The reward is equivalent to 20% of the value of the proceeds of forest products confiscated. This is viewed as a perverse incentive because instead of preventing violations, forest protection officers allow them to occur first before being reported to ensure a larger potential confiscation and, hence, a larger percentage reward.

Logging moratoria

To curb rampant illegal logging, a nationwide moratorium was declared by issuing EO No. 23 on February 1, 2011. By the time the moratorium came into effect, an estimated 70% of all 77 provinces in the Philippines were already covered by logging bans or moratoria issued during 1968–1994 (Guiang 2001, GIZ and DENR 2013). Specifically, DENR issued a DAO in 1991 that banned timber harvesting in all old growth and virgin forests and in areas above 50% slope and higher than 1000 meters above sea level. Others were issued for different reasons as Presidential directives, proclamations and letters of instruction, ministerial orders, departmental Memorandum Orders, administrative orders (AOs), and radiograms as well as laws such as the National Integrated Protected Areas System Law, RA 7611 issued in 1992 (Strategic Environmental Plan for Palawan), RA 9772 issued in 2009 (Southern Leyte had initially adopted a total logging ban through AO No. 31, July 20, 1982), and Provincial Ordinances (for example, Ordinance No. 2008-09 'Adopting a Total Log Ban Policy in the Province of Quezon').

EO No. 23 s. 2011 prohibited DENR from issuing logging contracts and agreements and tree-cutting permits in all natural and residual forests encompassing Timber License Agreements, Industrial Forest Management Agreements, Socialized Industrial Forest Management Agreements, and Community-Based Forest Management Agreements. Logging was still allowed in tree plantations. DENR was also tasked with reviewing and evaluating all existing Industrial Forest Management Agreements, Socialized Industrial Forest Management Agreements, and Community-Based Forest Management Agreements; implementing a forest certification system to ascertain the sustainability of legal sources and the chain of custody of timber and wood products, nationwide; closing down all sawmills, veneer plants and other wood-processing plants that were unable to present proof of sustainable sources of legally cut logs for at least five years; and creating a National Anti-Illegal Logging Task Force. DENR Resolution 2011-003 was also adopted to create anti-illegal logging task forces in every region.

19 See, for example, https://mb.com.ph/2020/07/13/denr-6-strengthens-anti-corruption-drive/

The experience in implementing logging bans in natural forests has been mixed and very variable. EO 23 did not initially deter illegal logging as evidenced by the large-scale timber smuggling that occurred in 2012. This resulted in the confiscation of illegally sourced timber and the relief of key DENR officials in Regions 11 and 13. The nationwide moratorium has not worked as domestic demand for timber products in the Philippines has remained strong and access to an estimated 5 million ha of forest lands is open due to weak enforcement capacities. For example, the devolution of forest protection authority to Provincial and Community Environment and Natural Resources Offices was not complemented with additional labor or fiscal resources: "Existing forest guards were each left in charge of between 4000–7000 ha of forest, which was too large for accurate monitoring and too open to armed threats with little to no security detail" (Domingo and Manejar 2019:44).

The logging bans have also led to reductions in Government revenues as well as incomes and employment in the logging and wood-processing industries. It may also have led to increased costs associated with forest protection efforts that are not as effective as those provided by local landholders (Mickelwait et al 1989). The major reasons for the persistence of illicit logging are socio-economic factors, such as a lack of alternative livelihood options, and limited capacities to protect forests. Without addressing these issues, the logging moratorium became a perverse incentive. Despite evidence to the contrary, a total commercial logging ban (or a more drastic total ban on all forms of tree-felling) is still regarded by several environmental advocates as the only rational way to conserve the Philippines' forest resources.

Reforestation projects and programs

PD 705 mandated the Government to conduct reforestation activities. Section 33 states that the Government shall reforest bare or grass-covered tracts of forest lands, brushlands, open tracts of forest lands, and other areas needing reforestation. Multiple reforestation projects and programs were established with the secondary aim of employing upland people. The reforestation audit in 1987 highlighted that replanting often happened several times in areas already reforested. Furthermore, project workers were found to burn planted areas as a way of securing continued employment. The contract reforestation program in the 1990s also had little success due to limited ownership by local communities to maintain and protect the reforested areas, corruption, and inadequate monitoring.

Devolution of DENR functions to local government units

The promulgation of the Local Government Code in 1991 has not been followed up by adequate decentralization of human and financial resources to govern natural resources at the provincial, city, municipality and barangay levels. This is manifested in terms of shortages of staff and limited budgets at the local government unit level. This has been compounded by the continued (over-) regulatory and tree-planting foci of DENR, changing tenurial arrangements (for example, following the promulgation of the Indigenous People's Rights Act in 1997 and the expiry and non-renewal of 50% of the former Certificates of Stewardship Contracts issued by DENR during the Integrated Social Forestry Program in the 1980s), and restricted capacity development of, and coordination with, local government units and other third-party forest managers. It is not known how many Co-Management Agreements and/

or sub-management agreements have been reached between DENR and local government units to co-manage public forest lands.[20]

These factors have all contributed to restricting DENR's abilities to either significantly improve the management of open-access forests or restore degraded forest lands by mobilizing private-sector investment. Major investments are needed to develop the capacities of local government units and other third-party forest managers combined with focused information and education campaigns. As one recent report notes, "The joint management of forest lands by local government units and DENR can be potentially successful. However, tenure issues, capacity, and lack of technological lack, as well as conflicts of interests between local and national authorities hinder a successful implementation." (GIZ 2015:28). DENR and INREMP both have examples of successful collaboration with local government units, for example, in Bohol and CAR, and can draw additional lessons from other examples of successful decentralized sustainable forest management and private-sector investment in the Philippines (see Report on policy review and institutional analysis for development of commercial forestry investment sub-projects (Wardell 2020): Sections VIII and IX).

Under the Local Government Code (RA 7160), the devolution of DENR functions is limited to certain functions but does include authority to apprehend violators of forest laws (Section 28). This can be seen as a perverse policy with considerable risks of graft and rent appropriation by local actors due to the non-enforcement of forest laws (see, for example, Wardell and Lund 2006). Furthermore, under Section 7 of the Code, the creation of a local government unit or its conversion from one level to another level (e.g. from sitio to barangay) shall be based on verifiable indicators of viability and projected capacity to provide services. In some cases, forest lands have been subject to conversion by qualifying as a barangay, such as the Upland Land Grant in Real Quezon in the 1980s.

Government-sanctioned land conversion and settlements

The Municipality of Narra in Palawan was originally a resettlement area for landless people from Luzon created through Proclamation 190, s, 1950. EO No. 355 created the Land Settlement Development Corporation in the same year and converted the Civil Reservation into Central Palawan Settlement Project. Since then, large-scale migration of settlers from all over the country to this site has occurred. RA 1160 enacted the National Resettlement and Rehabilitation Administration which took over the administration of the Central Palawan Settlement Project. The Administration became the Municipality of Narra on June 20, 1970 per RA 5642. Many forestland areas were cleared due to the expansion of crops, predominantly rice. Proclamation No. 196, s, 1990 declared certain areas in Quezon Province as production forests subject to the coverage of the Comprehensive Agrarian Reform Program despite its declaration as a national park in 1977. This proclamation contributed to the rapid loss of forest cover as communities cut trees not only in the resettlement area but also in the surrounding protected area for charcoal and other wood uses.

Mining

RA 7076 s, 1991 established a DENR-coordinated People's Small-Scale Mining Program to promote, develop, protect and rationalize viable small-scale mining activities to generate

20 No clear national guidelines for the implementation of Co-Management Agreements exist and thus interpretation of the Co-Management Agreements approach varies between regions (Belino 2014:32)

more employment opportunities and provide equitable sharing of the nation's wealth and natural resources. Small-scale mining contracts are under the jurisdiction of local government units. Many small-scale mining activities throughout the country have led to deforestation exacerbated by new migrants due to limited capacities to regulate and monitor. In 2004, the Philippine Government adjusted its development strategy further toward neoliberalism, a centrepiece of which was tariff liberalization. EO No. 264 committed the Philippines to bring down tariffs on all but a few sensitive products to 1–5% by 2004. This led to a large increase in mining applications from foreign firms. On Palawan, particularly in the south, this resulted in 350 approved mining applications and more than 400 pending applications (Rasch 2014:241). Mining applications are now reviewed per the Mining Act 1995 and the Indigenous People's Rights Act Law of 1997 and require Palawan Council for Sustainable Development's "Strategic Environmental Plan clearance". They should not overlap with Environmentally Critical Areas Network zones created by RA 7611 in 1992 and should be accepted by barangays, municipalities and indigenous peoples.

The national policy framework of incentives for enhancing private investment and the economic contribution of the forest sector

Incentives have been used to develop plantations, to support the establishment or expansion of forest industries, and as a way to reduce harvesting of natural forests in the Philippines. Incentives are appropriate when the private net returns, including externalities, are greater than the returns from alternative land uses. However, rates of return also have to be compared with investments in other sectors and other regions and countries. In the Philippines, the majority of plantation establishment has been carried out by the Government or in tandem with Government incentives. The country is still at the initial stage of plantation development as the involvement of the private sector is in its infancy. The imposition of a nationwide logging ban in 2011 was not accompanied by appropriate measures to promote new wood supplies. Region 13 (the so-called "timber corridor") is an exception to this rule. Private-sector development in the forestry sector has never really got off the ground in the country even after the Asian financial crisis in 1997.

The Revised Forestry Code of the Philippines enshrined in PD 705 (1975), as amended by PD 1559 (1978), remains the only overarching policy framework to govern the use, management and protection of the country's forest resources even though "most of its provisions have become obsolete, particularly the allocation of forest lands and tenure" (FIRM 2019:47). Currently, there are an estimated 97 laws, EOs and AOs governing land and forest administration in the Philippines (Domingo and Manejar 2019:17). A draft Sustainable Forest Management Act and both a National Land Use Act and a Land Administration Reform Act have been languishing in the country's legislature for more than three decades. The enactment of the Sustainable Forest Management Bill remains elusive due to the lack of widespread support from members of both Houses in Congress.

In the absence of an overarching framework law on forestry, a Presidential EO No. 318 was adopted in 2004: Promoting Sustainable Forest Management in the Philippines. Section 2.4 includes the following provisions in terms of "Incentives for enhancing private investments, economic contribution and global competitiveness of forest-based industries".

A first attempt by DENR FMB to develop implementing rules and regulations in 2004 was not endorsed or implemented. A new draft DAO — Implementing Rules and Regulations of EO No. 318 of 2004 — was submitted to the DENR Secretary in mid-2019 following an 18-month

consultative process conducted by the Forestry Development Center of the University of the Philippines Los Baños, guided by a technical working group comprising representatives of Government (65%), people's organizations (17%), private sector (6%), non-governmental organizations (6%), academics (3%) and Food and Agriculture Organization of the United Nations' Forest Law Enforcement, Governance and Trade (FLEGT) (3%), with financial support provided by FAO, European Union and FLEGT. The draft implementing rules and regulations are still with the DENR Secretary and include new proposals for "Incentives for enhancing private investments, economic contribution, and global competitiveness of forest-based industries" (Table 9).

Table 9. Incentives for enhancing private investment, economic contribution and global competitiveness of forest-based industries

Section	Provision
2.4.1	The Government shall provide a favorable and stable policy and investment environment that shall promote the development of efficient, globally-competitive and environment-friendly forest-based industries, ensure their sustainable raw material supply and encourage value-added processing in-country to boost rural employment and the economy.
2.4.2	Filipino entrepreneurship in forestry shall be encouraged and supported.
2.4.3	A package of incentives and services that are responsive to the development of forest in private and public forest lands shall be adopted to encourage the development of private forests and privately planted trees and enhancement of capacities of stakeholders to engage in private forest development and related activities.
2.4.4	The development of high-value crops and non-timber forest crops in public forest lands, private lands and in-home forest gardens shall be promoted and encouraged to enhance economic and ecological benefits and attain self-sufficiency in the country's wood requirements.
2.4.5	Incentives shall be provided to encourage co-management of forest resources involving national and other government agencies, local government units, civil-society organizations and the private sector.

Source: EO 318, s. 2004: 26411. MFN 12802, PMS Library

There are three key challenges for DENR FMB.

1. How to address the key barriers to financing private-sector investment in sustainable forest management in the Philippines.

2. How to reduce the regulatory transaction costs associated with the production, harvesting, transport and processing of timber from private lands to make timber plantations an attractive business for smallholders.

3. How to develop clear implementing rules and regulations to implement the seven strategic components of the Forest Investment Road Map (FIRM 2019:46), including the "Institutionalization of forestry investment support mechanisms".

DENR is leading efforts to simplify both tenurial agreements and licensing procedures whilst increasingly recognizing the multiple uses and benefits of forest lands. It is planned to replace existing agreements established since the 1980s with sustainable forest management

agreements.[21] However, there are currently no DENR FMB guidelines or regulations for this. The Road Map adopted by DENR FMB as DAO 2019-22 on 2 December 2019 does, however, provide a general framework — Identification/validation, mapping and assessment of potential investment areas (FIRM:48–49) — which represents a promising new initiative to simplify, harmonize and streamline land tenure to stimulate new domestic and foreign direct investment in the forest sector. Additional efforts will still be needed to support the implementation of JAO 2012-01 to manage tenurial conflicts and to resolve jurisdictional issues among different agencies. The promulgation of the proposed National Land Use Act would provide additional clarity as an overarching legal framework to promote sustainable and equitable land use.

The Forest Investment and Development Division of FMB have already initiated the development of a specific database for plantation investments. The Division formulated an Investment-Ready Registry for use at both the national and regional levels, which is being piloted in eight regions (CAR, 2, 3, 6, 10, 11, 12, 13). The Technical Bulletin on the development of the Registry is pending approval by the Policy Review Committee of FMB.

Similarly, the Forest Investment and Development Division initiated the signing of a new MOA in August 2019 with the Financing Program of the Development Bank of the Philippines. This aims to assist in the development and maintenance of existing tree plantations, assisting communities and tree growers to improve their economic conditions and further address deforestation by reducing the susceptibility of communities to natural disasters. The Technical Bulletin for implementation is also pending approval by the Policy Review Committee of FMB.

The Road Map (DAO 2019-22) refers to incentives about only one of the potential investment areas (FIRM:14–38), namely, the planting, development and processing of biomass resources (FIRM:24–25), specified as, "Fiscal and non-fiscal incentives include Income Tax Holiday (ITH), Exemption from Duties on Renewable Energy machinery, equipment and materials; tax exemption of carbon credits; financial assistance program, etc while incentives for farmers engaged in the plantation of biomass resources shall be entitled to duty-free importation and exemption from payment of value-added tax (VAT) on all types of agricultural inputs, equipment and machinery within 10 years from the effectivity of the Act, subject to verification by the Department of Energy (DOE)." (FIRM:25).

A summary of the outcomes of the recent implementing rules and regulations' consultative process about Article V of EO No. 318 on incentives is presented in Table 10.

21 Online meeting between DENR FMB and ICRAF to discuss draft INREMP reports 5.1 and 5.2 and Policy Brief 5.3, held 2 July 2020

Table 10. Issues and recommendations by participants for Article V: Incentives for enhancing private investment, economic contribution and global competitiveness of forest-based industries

Region	Issue	Recommendation
Luzon	Create "attractive investment" to minimize conversion of forest to corn and other crops	
	Basic sectoral lack of capital, enterprise capacity, information on incentives, access to markets: hampers investment in forestry enterprises	Access to incentives are provided under RA 8425, such as PDTF, micro-finance program
	Lack of consultation with community-based forest management people's organizations for resource extraction projects within community-based forest management areas	
	Lack of access of community-based forest management people's organizations to incentives due to them from resource users (water, minerals etc) within community-based forest management areas	Provision of incentives to communities that are managing and protecting headwaters
	Re: DAO 99-46 on regulations governing the entry and disposition of imported logs, lumber, wood-based products, raw materials, DENR requires importers to secure a certificate of registration	Simplify the process and reduce documentary requirements for CR of imported products
Visayas	Tax collection of local government units for developmental activities within forest lands (re Local Code and municipal ordinances)	
	Difficult to harvest/utilize planted trees within community-based forest management areas	
	Non-members of people's organizations planting corn in their claimed areas within National Greening Program sites	
	Low quality of Government-funded forest plantations	Conduct silvicultural practices
Mindanao	Issue on 10% limit to agricultural development within tenured areas (DAO 99-53/IFMA)	Lift the limit as long as crops planted are long term and can be converted to reconstituted wood products (e.g. particle board, laminated, finger-jointed wood)
	Certificate of Tree Plantation Ownership is issued only to private tree plantations and not to "backyard" tree plantations established on untenured forest lands (leads to illegal tree cutting)	Propose amendment to DAO 99-20 to issue Certificates of Tree Plantation Ownership for backyard plantations established in untenured forest land as certified by local government unit (Brgy. Captain)

Region	Issue	Recommendation
	No guidelines on protection, maintenance, and harvesting of National Greening Program areas planted by farmers in untenured forest lands after a 3-year contract	■ Develop a plan and provide an incentive for the continued maintenance of National Greening Program areas planted by farmers, for example, linking the planting of trees to markets (site–species–market matching) ■ Include rubber plantations in National Greening Program areas (clarify policy if the rubber is still considered a crop; part of 10% limitation on crops in forest lands
National	No program nor incentives for biofuel plantation development (for example, nipa palm for alcohol) in swamplands	Propose development of swampland areas for biofuel production under joint venture/co-production agreements ■ Review the concept of co-management, including incentives ■ Include the Green Jobs Act in the draft implementing rules and regulations

Source: EO 318, s. 2004: 26411. MFN 12802, PMS Library

Success stories

Smallholders' tree planting

Forest plantations for timber production were encouraged through deregulation and providing incentives for establishing them on private land. The success in Caraga Region was due, in part, to the regional DENR lifting restrictions on the harvesting, transporting and sale of firewood, pulpwood or timber planted on private land, through DAO No. 4, 1987. Private tree plantations still need to be registered per the DMC No. 97-09 (DENR 1997) to ensure proof that those timber products came from private land. A cutting permit was no longer required and Private Tree Plantation Ownership Certificates for tree plantations within private and titled land or tax-declared alienable and disposable land were issued per DENR MO 99-20. Plantation logs were also exempted from payment of forest charges.

A series of policy restrictions on commercial operations in natural forests and the nationwide logging moratorium ban introduced in 2011 triggered a shift in accessing timber from natural forests to plantation forests. 16 out of 29 wood-processing plants in Talacogan stopped operations. Due to the difficulties in accessing forest lands to establish tree plantations, many farmers in Mindanao shifted to planting trees on private land. This had several advantages, including the price of plantation wood remaining stable given the lack of wood supply from natural forests, a good road network existing for easy transport and marketing and the remaining wood-processing plants in Butuan City (six veneer and seven plywood plants) served as a ready market for plantation wood for the smallholding tree farmers holding Private Tree Plantation Ownership Certificates. Many downstream industries such as trading, trucking and final processing were also created.

Tree plantations of fast-growing species, such as 'falcata' (*Paraserianthes falcataria*) on private land in Talacogan, Agusan del Sur, Caraga Region represent a thriving business. Tree farmers' gross income per ha ranges USD 2222–13,333 per rotation of 8–10 years. With estimated plantation establishment cost of USD 93 per ha and a harvest and roadside transport cost of USD 17 per m^3, a smallholding tree farmer could generate a net income of USD 4444–5,555 from an average yield of 220 m^3 per ha (Carandang et al 2015).

The Philippines operates a complex system of registration for smallholders' tree farms, which is designed primarily to prevent illegal timber logging and transport (Calub 2005). The Community Environment and Natural Resources Offices are responsible for tree-farm registration and maintain an inventory. Electronic processing and management of this data is limited. Most tree farmers only register when they wish to harvest trees for sale.[22]

Some provinces introduced "environmental protection fees". In Talacogan, tree farmers were affected by such a regulation as the local government collected USD 0.78 per m^3. Other tree crops being planted by smallholders in the province and other parts of the Philippines include rubber (*Hevea brasiliensis*), *Gmelina arborea*, *Acacia mangium* and *Swietenia macrophylla*.

22 The DENR in Caraga Region issued a memorandum to all Provincial and Community Environment and Natural Resources Offices on the "Registration of Tree Plantations within unintended/open public forest land areas by forest occupants" on 22 April 2014. This was subsequently revoked by DENR on 11 April 2018

Establishing falcata plantations is a viable business in terms of an internal rate of return and annuity value of about 48% and USD 668, respectively. As a short-rotation tree-crop aged 12 years, falcata has a net present value of USD 4140 at 12% (Carandang and Carandang 2009, Carandang et al 2015). Additional incentives, such as tax breaks on revenues, provision of low-interest and long-maturing loans, less stringent requirements for wood processors, improving access to price information, improved maintenance of farm-to-markets roads used by tree farmers and opportunities to export plantation logs may enable other provinces to replicate the success in Caraga Region.

A vertically integrated plantation and processing company in Aurora Province and Caraga Region

The Industries Development Corporation was established in 1961 and currently manages more than 114,000 ha of forest land. This large-scale, vertically integrated forest investment includes 77,548 ha under an Integrated Forest Management Agreement in Aurora Province, 8,133 ha of which is classified as open forest and shrubs for biomass production. Moreover, 36,569 ha are under Integrated Forest Management Agreement tenure in Caraga Region. The Corporation is engaged in sustainable forest management, plantation development, primary wood processing, and furniture and door manufacturing.

The company has actively promoted third-party certification through the Verified Legal Origin certificate program of Rainforest Alliance[23] and collaborate with the National Greening Program through the Comprehensive Site Development program to plant 5600 ha of plantations in Aurora Province and Ilocos Norte. The Corporation also developed a livelihood rattan project in collaboration with the Indigenous Peoples of Aurora Province.

The proposed forest investment assumes that migration into the forested uplands of the Philippines will increase pressures on natural forests and hence create opportunities to establish new plantations as an alternative resource, conditional on stable and clear Government policies that respect the security of land tenure and encourage the utilization of planted timber resources. The promulgation of EO 23 s. 2011 effectively did this.

The socio-economic status of smallholding farmers and local market demand will dictate which species are to be planted and the cutting cycle of the investment. A balance needs to be achieved between ensuring uniformity of product to create volumes to attract buyers whilst avoiding the risks associated with monocultures. The Corporation's forest plantation investment aims to develop 1020 ha of degraded forest lands by combining different tree species based on site conditions and local market demand, encompassing fast-growing fuelwood species (Madre de cacao on a 4-year cutting cycle to create cash flow, intercropped with high-value timber species (*Swietenia macrophylla*) on an 8–12-year cutting cycle (Table 11)). Infrastructural support ensures that road networks, planting methodology and tools, forest harvesting and handling technologies, and downstream manufacturing technologies are assessed before attracting private equity investment to ensure the sustainability of the project.

The high-value timber products will comprise doors, furniture, mouldings, plywood and veneer with an anticipate log volume of 1553 m^3 per year. This will generate up to 107 jobs as

23 https://www.rainforest-alliance.org/business/certification/

plant employees, generate sales of about PHP 80 million per year, and investments of around PHP 50 million for infrastructure and woodworking equipment. The estimated total project revenues and community benefits from the investment are presented in Tables 12 and 13, respectively.

Table 11. Industries Development Corporation's choice of fast-growing and high-value tree species

Fast-growing species (36.8 tons per ha per year)	High-value species (92 m^3 per ha)
Target product: Fuelwood	Veneer logs sawlogs
Characteristics	
Short rotation	Workability of timber
Coppicing species	Characteristics of wood grain
High specific gravity	Strength and density
Nitrogen-fixing	
Target markets	
Pulp and paper	Tree species used as raw material for furniture, plywood etc
Pellet plants	
Industrial drying requirements	Joint venture with downstream wood-based manufacturing plants or power generation
Biomass power plants	

Source: Ong 2020:5

Table 12. Total project revenues

Sales	Total sales (million PHP)	Yearly sales (million PHP)	%
Lumber (solid m^3)	276,560	12,571	24
Charcoal	863,723	39,260	76
Totals	1,140,283	51,831	
% net margin	48.95		
Equity internal rate of return	12.67		
Project internal rate of return	14.72		

Source: Ong 2020:16

Table 13. Community benefits

Woodlot farmer	Yearly income (PHP)	Yearly ha average (PHP)
Av. Profit share fuelwood, people's organization	492,2456	1,468
Av. Road construction labor component	902,549	
Av. Plantation labor component	3,016,375	5,205
Av. Harvesting component	1,070,833	1,468
Av. Yearly benefit to farmer	5,482,013	
Maximum laborers	78	

Source: Ong 2020:17

The success of the proposed Corporation's plantation highlights the critical need for clarity and stability in the forest policy and regulatory framework; security of land tenure; the ability to generate sustainable livelihoods for the upland farmers, that is, a bottom–up approach with farmers' incomes in mind; lower cost of materials and cheaper handling costs; certified high-value timber; and creating a broad base of raw material to facilitate downstream investments to create livelihood opportunities in the lowlands, thereby limiting further migration to the uplands.

Conclusions and recommendations: making timber plantations an attractive business for smallholders

The preparation of the Forest Investment Road Map is a welcome recent initiative of the Forest Investment Development Division of FMB.

DENR is the lead agency responsible for creating an enabling environment through responsive policies, one of which is to rise to the challenge of mobilizing new forestry investments to make sustainable forest management more commercially competitive and economically attractive to investors be they small-to-medium-sized or international businesses.

The Road Map was developed, in part, in response to RA 11032 s. 2018 on the 'Ease of Doing Business and Efficient Government Service Delivery' as a way to reduce regulatory transaction costs associated with the production, harvesting, transport, and processing of timber from private lands thereby making timber plantations a more attractive business for smallholders. To this end, DENR is confronted with three key challenges.

1. How to address the key barriers to financing private sector investments in sustainable forest management in the Philippines.

2. How to develop clear implementing rules and regulations for the seven strategic components of the Road Map (FIRM 2019:46), including the "Institutionalization of forestry investment support mechanisms".

3. How to reduce the regulatory transaction costs associated with the production, harvesting, transport and processing of timber from private lands to make timber plantations an attractive business for smallholders.

Barriers to financing private investment

There are several barriers to investment in the forest sector nationally.

- Investments are allocated unevenly among regions
- Varied tree-growing conditions
- Weak access to markets

- Poor quality of the business environment, including political and economic stability
- Lack of security of land tenure

These form major determinants of investment flows.

Most investors are concerned with gaining new markets and maximizing risk-adjusted returns. They prefer investing in countries with a combination of good growing conditions and a stable investment environment. In 2011, there were an estimated 65.7 million ha of commercial, production-oriented forest plantations in developing countries, of which about a third were privately owned, with significant regional differences.

The amount of privately owned (established) plantations in Latin America is 18.7 million ha, (78% of total commercial-production plantations), 5.1 million ha in Asia and Oceania (14%), and 0.3 million ha in Africa (6%). Total private-sector plantation investment in developing countries was estimated at USD 1,763,000,000 in 2011.[24] Most of the investments are in industrial pulpwood production.[25] Investments in Latin America account for a large majority of the global total amount — USD 1,464,000,000 (83%) — while investments in Asia and Oceania are estimated at USD 279 million (16%).[26] Even within Latin America, Brazil accounts for over 80% of the regional total.

International timberland investments by fund managers, financed primarily by institutional investors such as pension funds and endowments, have emerged as a new source of financing of sustainable forestry in developing and emerging countries. Total assets under management have already reached an estimated USD 80 billion worldwide. The total volume of institutional timberland investment into developing and emerging countries is still, however, quite limited, and heavily focused on a few countries in Latin America.

Several opportunities exist to improve other elements of the enabling environment for investments in the Philippines and to influence the investment decisions of smallholders, communities, SMEs, large domestic and international companies, and timberland investors. These are related to national policies, legislation, regulations, governance, transparency, availability of information, and infrastructure.

There are several barriers to financing private investments in sustainable forest management in the Philippines.

- Higher real and perceived risks than in Latin American and industrialized countries. These include political risks, unsecured land tenure, currency risks, social and environmental risks, as well as reputational risks.
- Limited availability of, and access to, both domestic and foreign equity and loan financing. International equity financing is especially difficult to secure for projects under USD 20–25 million.

24 Excluding investments in Reducing Emissions from Deforestation and Forest Degradation (REDD), landscape restoration and investments by households and communities as well as by most by SMEs

25 Critical gaps in information exist in terms of financing the management of natural forests and domestic investments flows in plantation development and wood processing

26 Estimated annual average private investments in plantation forests in Africa are very small in comparison, at about USD 20 million or 1% of the total value

- Forestry businesses face unfavorable terms for financing. Even if domestic debt financing is available, the interest rates can be excessively high (in local currency) and loan payback periods very short (from six months to 3 years).

- Higher up-front costs of preparing investment projects in the forestry sector due to a lack of reliable information on forest and higher transaction costs throughout the investment cycle for small-to-medium-sized projects, among other things.

- The need for tax reform. In 2017, PHP 441 billion of foregone revenues (representing 2.8% of GDP) was provided as tax incentives to 3150 companies, including the elite top 1000 companies. This excluded all SMEs who paid the regular 30% Corporate Income Tax (CIT). A comprehensive tax reform package aims to lower CIT from 30% to 20% and to reorient fiscal incentives to strategic growth industries and make incentives available to investors who make "net positive contributions to society" (Department of Finance 2020).

Some of these issues are addressed by the different clusters of recommendations grouped as direct incentives and indirect incentives below.

Direct incentives

Facilitate production of tree seedlings by people's organizations through community-managed procurement in locally funded projects

Seedling production represented the largest component cost of the National Greening Program, accounting for 34% of the total costs in 2019 (Table 14).

Table 14. Budget allocation per major component of the National Greening Program, 2019

Particulars	Amount (PHP)	%
Survey, mapping and planning	1,402,976,850	3
Seedling production	**15,987,775,192**	**34**
Site preparation and plantation establishment	8,132,272,000	17
Maintenance and protection	11,352,654,000	24
Other activities	4,291,251,000	9
Project management and supervision	6,057,645,958	13
Total	47,224,575,000	100

Source: CoA PAO-2019-01:8

The dominant direct incentive provided by DENR before, and during, the implementation of the National Greening Program has been the supply of free tree seedlings produced either in one of 11 DENR FMB nurseries and/or procured from private nurseries. Fast-tracking by DENR to meet targets resulted in "missed financial opportunities for people's organizations", particularly after 2016 (CoA PAO-2019-01: 52). The implementing rules and regulations of the Government Reform Act[27] allow a procuring entity, as a contract manager, to use negotiated

27 Government Procurement Policy Board, Approving Guidelines on Community-Managed Procurement as a supplement to the Community Participation Procurement Manual (5CPPM), Government Procurement Policy Board Resolution No. 28-2016, 20 April 2016

procurement as a means to engage a community to implement a locally funded community-based project. DENR is authorized to award the contract of seedling production to the people's organizations themselves.

DENR needs to change its approach to seedling production and distribution in favour of giving the time and training to support people's organizations to produce tree seedlings themselves. This will ensure that the people's organizations will be able to maximize the socio-economic benefits of the Program, DENR will be able to "lessen the risk of fraud and corruption" associated with seedling procurement (CoA PAO-2019-01: 52) and it may assist the people's organizations to transform into cooperatives, thereby gaining access to credit facilities and finance, equipment and technical assistance from other Government agencies.[28] In effect, this represents a shift from a direct incentive to an indirect incentive by improving the enabling environment for people's organizations.

Recommendation: FMB adapts and amends Technical Bulletin No. 10, April 2014 — Standard Seedling Cost and Unit Cost of Activities of the National Greening Program — to facilitate the shift to encourage people's organizations' production of tree seedlings through community-managed procurement in locally funded projects. Also, FMB will need to develop simple technical guidelines to assist in training people's organizations in basic nursery establishment and maintenance techniques.

A revision of DMC No. 2012-01, 02 May 2012 — Implementation of the National Greening Program — may also be necessary to reflect the preferences of people's organizations for plant fast-growing exotic species rather than the prescribed shift from the use of exotic to indigenous species.

Strengthen implementation of the convergence initiative by creating an in-house "clearing mechanism" of available grants, credit facilities and training support services and their respective requirements

The National Greening Program and the Enhanced National Greening Program were designed as a convergence initiative involving a large number of Government agencies (Figure 1).

"High investments are needed to unleash the full potential of the forestry sector in driving economic productivity and growth coupled with the responsible and sustainable provision of ecosystem goods and services. The task is enormous that no single entity like the government or DENR can do it single-handedly" (FIRM 2019:75).

Awareness of, and access to, different Government services by people's organizations, cooperatives, private landowners, local government units, and potential investors is a crucial element in a convergence initiative. The Commission on Audit Performance Audit Report concluded that despite convergence being a legal requirement under EO No. 26 s. 2011 (and it is assumed also for the Enhanced National Greening Program adopted in 2016), "DENR was not able to implement this on a national scale" although "there are pockets of successes on the local level" (CoA PAO-2019-01, 2019:68–72).

28 See examples of successful people's organizations in CoA PAO-2019-01:61–68

DENR and FMB staff could play a more pro-active role to assist people's organizations, cooperatives, private landowners, local government units, and potential investors by improving access to information on available grants, credit facilities, and training support services, and the requirements to be able to access each of them. This may include potential support available through, for example, the Department of Tourism for farm-to-market roads and the development of ecotourism sites, the construction of water impounding dams through the Department of Public Works and Highways, new composting techniques with the Department of Social Welfare and Development, access to agricultural and processing machinery and equipment from the Department of Agriculture and the road maps for coffee, cocoa, and rubber developed by the Department of Trade and Industry.

The Forest Investment Development Division of FMB initiated the signing of a new MOA in August 2019 with the Financing Program of the Development Bank of the Philippines. This aims to assist in the development and maintenance of existing tree plantations, assisting communities and tree growers to improve their economic conditions, and further address deforestation by reducing the susceptibility of communities to natural disasters. The Technical Bulletin for implementation is also pending approval by the Policy Review Committee of FMB.

Recommendation: DENR establishes an in-house "clearing mechanism" to compile information on available grants, credit facilities and training support services from different Government agencies, and the respective requirements to access each of them, to strengthen the convergence initiative.

Recommendation: DENR in collaboration with the Development Bank of the Philippines develop clear and transparent guidelines on the types of financial services available through the Bank's Financing Program, and the conditions and requirements to access these for different types of investors. DENR will also explore the potential to establish an MOA with the Land Bank of the Philippines.

Greater clarity and transparency of forest-sector incentives for investors

Forest-sector SMEs, like SMEs more generally, suffer in the Philippines from limited access to business and financial services, lack of support to enhance their competitiveness, regulatory measures that constrain their ability to operate in a "legal" space or that create perverse incentives, and limited access to markets. These and other challenges and constraints for SMEs have been widely identified, but recommendations and efforts to address them have often been fragmented and sector-bounded, limiting the effectiveness of the intervention.

The Forest Investment Road Map (DAO 2019-22) refers to incentives about only one of the potential investment areas (FIRM: 14-38), namely, the planting, development and processing of biomass resources (FIRM:24–25), as per below.

"Fiscal and non-fiscal incentives include ITH, Exemption from Duties on Renewable Energy machinery, equipment and materials; tax exemption of carbon credits; financial assistance program, etc while incentives for farmers engaged in the plantation of biomass resources shall be entitled to duty-free importation and exemption from payment of VAT on all types of agricultural inputs, equipment and machinery within ten (10) years from the effectivity of the Act, subject to verification by the DOE." (FIRM: 25).

Recommendation: DENR develops detailed guidelines on the fiscal and non-fiscal incentives available to prospective investors in the forest sector for all potential investment areas identified in the FIRM (round wood and wood-based products, bamboo, rattan, biomass, high-value crops including coffee, cocoa and rubber, cattle grazing and ecotourism). DENR should focus on grants, tax concessions, differential duties and fees, subsidized loans, and cost-sharing arrangements for each of the potential investment areas.

Recommendation: DENR develops effective implementing rules and regulations for the seven strategic components of the Road Map (FIRM 2019:46), including detailed guidelines on how private investors and SMEs can access incentives (grants, tax concessions, differential fees and duties, subsidized loans and cost-sharing arrangements) also provided by the Board of Investments, Bureau of Customs, Bureau of Internal Revenue, Department of Energy, and Department of Budget and Management as part of its efforts to "Institutionalize forestry investment support mechanisms".

Indirect incentives

Although the forestry sector's contribution to the country's gross national product has declined from 2.4% in the 1980s to 0.07% in 2006, it remains significant in diminishing the impacts of poverty by providing habitats for formal and informal settlements, and resources to sustain livelihoods. The forestry sector's underestimated value can be observed in its contribution of PHP 5.26 billion (0.12%) to GDP in 2013 (Carandang 2012, SEPO 2015, Esplana and Quizon 2017).

The share of gross value added from forestry to GDP has progressively declined from 2006 to 2016 (FIRM:41) in contrast to the projections of both the Philippines Revised Forestry Master Plan (2006) and the Philippines Forestry Sector Outlook (DENR FMB 2010), suggesting that significant improvements to the enabling policy and institutional environment are needed.

The indirect incentives are proposed to draw on the findings, conclusions and recommendations of the Report on policy review and institutional analysis for development of commercial forestry investment sub-projects (Wardell 2020), as follows.

Clarity and stability in the overarching forest policy framework

The Revised Forestry Code of the Philippines enshrined in PD 705 s. 1975 remains the only overarching policy framework to govern the use, management and protection of the country's forest resources even though "most of its provisions have become obsolete, particularly the allocation of forest lands and tenure" (FIRM:47). Currently, there are an estimated 97 laws, EOs and AOs (Domingo and Manejar 2019:17) governing land and forest administration in the Philippines. A draft Sustainable Forest Management Act has been languishing in the country's legislature for more than three decades. The enactment of the Bill remains elusive due to the lack of widespread support from members of both Houses in Congress.

A new draft DAO — Implementing Rules and Regulations of EO No. 318 of 2004 — was submitted to the DENR Secretary in mid-2019 following an 18-month consultative process. In the absence of a new Sustainable Forest Management Act and/or a National Land Use Act, the following is recommended.

Recommendation: DENR formally recognizes and adopts the proposed Implementing Rules and Regulations of EO No. 318 of 2004 as the new overarching policy framework to govern the use, management and protection of the forest resources in the Philippines. The public launch of the new implementing rules and regulations at a national policy workshop to be held with all stakeholders before the end of 2021 should be accompanied by targeted information and education programs for national Government agencies, local government units, non-governmental and civil-society organizations and the private sector, including investors.

Development of a simplified, harmonized and streamlined land-tenure system

Private investment needs stable and consistent policies as well as clarity on the boundaries between public forest lands and alienable and disposable lands. Section 4, Article XII of the 1987 Philippine Constitution mandated Congress to determine by law the specific limits of forest lands and national parks and mark their boundaries on the ground. DENR issued DAO No. 2008-24 in 2008, which provided comprehensive and clear guidelines for delineating the boundaries between forest lands, national parks and agricultural lands. DENR subsequently implemented the Forest Land Boundary Assessment and Delineation project, which was completed in 2017. It covered 80 provinces and a total of 89,092 km of forest boundaries were delineated. As a result, about 345,286 ha currently regarded as forest lands are proposed to be reclassified or converted to alienable and disposable lands. If approved, this will effectively reduce forest lands by 2.29%. Region 7 will have the largest increase in forest land area of about 74,942 ha. The most recent initiative to delineate the Philippines' specific forest limits culminated in three bills (Senate Bill Nos. 35, 741 and 861), which were still pending in the Senate Committee on Environment and Natural Resources in 2018.

Recommendation: DENR lobbies for the enactment of the Forest Land Boundary Assessment and Delineation bill, and formally recognizes and approves the results of the Forest Land Boundary Assessment and Delineation project.

Security of land and resource tenure are critical enabling incentives both in reducing deforestation and forest degradation and in defining which individuals and groups may gain from investments. The lack of clarity and consistency has led to a de jure and de facto absence of effective land governance. Clear tenure arrangements are necessary on forest lands and alienable and disposable lands to maintain forest cover, biodiversity and environmental services, and to provide confidence for potential investors.

This is particularly acute in the context of multiple tenurial instruments, where only 38% of production forests are under some form of tenurial agreement (FIRM:13). Also, multiple laws, EOs and DAOs etc, multiple planning frameworks, and proposals for financing mechanisms in the framework of Reducing Emissions for Deforestation and Forest Degradation Plus render this context more complex.

Convergence initiatives among national Government agencies have not yet been able to process or manage tenurial conflicts and overlaps (see, for example, De Vera 2017). Further, existing tenurial instruments have not secured livelihoods or promoted economic development and sustainable land and forest use due to their narrow focus, insecurity and conflicts with other titles and instruments (see Pulhin et al 2008, GIZ DENR 2015, Esplana and Quizon 2017). In the upland areas, "millions of people live illegally on public forest

lands without clear tenure rights or in situations where the same piece of land is claimed by different parties" (GIZ and DENR 2015:10).

DENR FMB is exploring the potential adoption of new Sustainable Forest Management Agreements, which, if considered as part of the Forest Investment Road Map — Identification/validation, mapping, and assessment of potential investment areas (FIRM:48–49) — represents a promising initiative to simplify, harmonize and streamline land tenure to stimulate new domestic and foreign direct investment in the forest sector. The promulgation of the proposed National Land Use Act would provide additional clarity as an overarching legal framework on land-related issues.

Recommendation: DENR finalizes and approves a DAO and attendant implementing rules and regulations to simplify, harmonize and streamline current tenurial arrangements as Sustainable Forest Management Agreements of variable duration (25–50 years) depending on the species to be planted. Additional advocacy may be needed to facilitate the promulgation of both the National Land Use Act and the Land Administration Reform Act.

These activities should be accompanied by targeted information and education programs for national Government agencies, local government units, non-governmental and civil society organizations and the private sector, including investors.

Strengthening capacity of local government units and other third-party forest managers

Over the past century, the forest policy of the Philippines has evolved from a corporate Timber License Agreement approach to forest management towards a community-based forest management system. After four decades since the inception of the Integrated Social Forestry Program, forest policy now recognizes local communities and indigenous peoples as joint forest managers, if not the custodians of the land and forest resources.

Three milestone policy instruments adopted in the 1990s underscored the role of public and community involvement in land and forest resource management. These were the Local Government Code (RA 7160) in 1991, the National Integrated Protected Areas System Act (RA 7586) in 1992 (as amended by RA 11038, the Expanded National Integrated Protected Areas System Act of 2018) and the Indigenous People's Rights Act (RA 8371) in 1997.

The promulgation of the Local Government Code in 1991 has not been followed by adequate decentralization of human and financial resources to govern natural resources at the provincial, municipality and barangay levels. This is manifested in terms of shortages of staff and limited budgets at the local government unit level. This has been compounded by the continued (over) regulatory and tree-planting foci of DENR FMB, changing tenurial arrangements (for example, following the promulgation of the Indigenous People's Rights Act in 1997 and the expiry and non-renewal of 50% of the former Certificates of Stewardship Contracts issued by DENR during Integrated Social Forestry Program, which started in 1982), and restricted capacity development of, and coordination with, local government units and other third-party forest managers. It is not known how many Co-Management Agreements and/or sub-management agreements have been reached between DENR and local government units to co-manage public forest lands.

These factors have all contributed to restricting DENR's abilities to either significantly improve the management of open access forests or restore degraded forest lands by mobilizing private sector investments. Major investments are needed to develop the capacities of local government units and other third-party forest managers combined with focused information and education campaigns. One key recommendation of the Commission on Audit 2019 Performance Audit Report of the National Greening Program was to make community-organizing as a pre-requisite before proceeding with the program. As one recent report also notes:

"The joint management of forest lands by local government units and DENR can be potentially successful. However, tenure issues, capacity, and lack of technological lack, as well as conflicts of interests between local and national authorities hinder a successful implementation." (GIZ 2015:28).

DENR and INREMP both have examples of successful collaboration with local government units, for example, in Bohol and CAR and can draw additional lessons from other examples of successful decentralized sustainable forest management and private-sector investment in the Philippines (*Report on policy review and institutional analysis for development of commercial forestry investment sub-projects* (Wardell 2020): Sections VIII and IX).

Recommendation: DENR provides staff with additional on-the-job training opportunities to develop their facilitation skills. The University of the Philippines Los Baños and other partners — such as Forest Foundation of the Philippines, Non-Timber Forest Products Exchange Programme, Ateneo School of Governance, Philippines Institute for Development Studies, and RECOFTC — could be contracted to deliver tailor-made courses to strengthen DENR and FMB community-organizing and facilitation skills.

Facilitating a change in the organizational culture of DENR FMB

Although significant progress has been made to introduce Community-Based Forest Management Agreements, DENR's continued focus on regulation and extractive timber-driven systems drawing on past Timber License Agreements' experience underlines the failure to fully adjust policies and strategies that respond to devolved, holistic, interconnected, and community-managed ecosystems coordinated by local government units.

This will necessitate a further redefinition of roles among stakeholders at the national, regional, provincial and local government unit levels. DENR will need to further decentralize functions and to delegate greater responsibility to regional DENR offices as well as Provincial and Community Environment and Natural Resources Offices. DENR regional and local offices will need to be more facilitative and less regulatory in promoting sustainable forest management with third-party forest managers. DENR and FMB at the national level will continue to define key policy, strategic and regulatory frameworks of the forest sector whilst facilitating devolved implementation by other actors.

There is a critical need to move beyond a "culture of tree planting", "meeting planting targets" and providing direct incentives, such as tree seedlings, to one that also recognizes the critical role of indirect incentives, such as an appropriate enabling environment to establish an overarching climate of enterprise. This will include greater recognition of the phasing of

incentives and the importance of smallholders' tree and forest management and facilitating entrepreneurship and the marketing of timber and NTFPs by smallholders.

The adoption of the Forest Investment Road Map (DAO 2019-22) with its seven-point strategic framework (FIRM:45–81), will collectively assist in facilitating a change in the organizational culture of DENR FMB whilst contributing to the requirements of RA 11032 s. 2018 on the Ease of Doing Business and Efficient Government Service Delivery.

Two policy areas merit particular attention in the context of the recommendation to DENR to approve and adopt new Sustainable Forest Management Agreements as a simplified, harmonized and streamlined tenurial arrangement, as follow.

Simplifying and harmonizing the continuous implementation of Community-Based Forest Management Agreements to improve development outcomes

Four processes could be streamlined or developed by DENR to ensure the continuity of Community-Based Forest Management Agreements to improve development outcomes in terms of livelihood benefits to local communities and Indigenous Peoples. It will be important for DENR to also harness the lessons learned by the Japan International Cooperation Agency-financed Forestland Management Project, notably, in terms of securing land tenure and enterprise development for food security and income (DENR FASPS n.d.).

A. Preparation and approvals of both Community Resource Management Frameworks (DAO 96-29) and Community-Based Forest Management Agreements' Five Year Work Plans (DAO 2000-29 and DAO 2004-9): Approval of plans usually takes 8–18 months before the people's organization can proceed with harvesting and forest development. A seven-step Work Plan process costs an estimated USD 2400 (Pulhin et al 2016).

Recommendation: DENR simplify the Five Year Work Plan process for smallholders and reduce the associated costs through more inclusive policies with, and capacity-building of, local government units.

B. Securing Certificates of Pre-Condition to renew Community-Based Forest Management Agreements per the Indigenous People's Rights Act Law 1997, National Commission on Indigenous Peoples AO No. 3, s 2012 (Revised Free, Prior and Informed Consent Guidelines) and JAO No. 1 s, 2012.

Many existing Community-Based Forest Management Agreements are coming to the end of their first 25-year mandate and will be subject to renewal. As a result, the new Free, Prior and Informed Consent requirement of the National Commission on Indigenous Peoples is a new and complex seven-step process of consultation to obtain a Certificate of Pre-Condition from indigenous peoples and indigenous cultural communities given the (now) primacy of customary laws, traditions and practices per the Indigenous People's Rights Act.

Recommendation: DENR strengthen their in-house legal expertise at central and regional levels to oversee and expedite Free, Prior and Informed Consent processes for soon-to-expire Community-Based Forest Management Agreements in ancestral domains. During the

period 2015–2040, an estimated 1941 Community-Based Forest Management Agreements contracts will expire, with 379 expiring in 2025 alone.

C. Securing a Certificate of Tree Plantation Ownership: planted trees intended for commercial harvest in the future have to be registered (DMC 99-20 and DMC 97-07) and a boundary survey of the property undertaken. A seven-step process involves hiring a surveyor and DENR personnel to inspect and validate the survey before the Community Environment and Natural Resources Office issues a Certificate of Tree Plantation Ownership , costing USD 54–56, and taking three days to one week (Pulhin et al 2016).

Recommendation: DENR issue guidelines for Sustainable Forest Management Agreements' simplified procedures for plantations on private land and reduced costs for smallholders.

D. Improving Community-Based Forest Management Agreements and smallholders' access to credit and micro-financing for forestry and agroforestry value chains.

Recommendation: DENR will explore options drawing on the experience of the Department of Trade and Industry with the bamboo and abaca value chains, the GIZ-supported Expansion and Diversification of the Abaca Sustainability Initiative and the Agricultural Credit Policy Council. A review of earlier experience with loan financing by the Development Bank of the Philippines should also be commissioned.

Strengthening the emergence of community-based forest enterprises by simplifying and harmonizing harvesting, transportation and processing regulations for smallholders and SMEs

Five processes could be streamlined by DENR to facilitate the emergence of SMEs in the Philippines. The adoption of the Forest Investment Road Map (DAO 2019-22) provides new opportunities for DENR to build, strengthen and sustain alliances with partners and existing tenure holders, explore new partnership mechanisms between the Government and the private sector and develop six new approaches to marketing strategies (FIRM:75–81). The latter may include the marketing of products from commercial forestry investment sub-projects (conservation farming, agroforestry, and commercial tree plantations), drawing on lessons learned by successful private-sector initiatives (Report on policy review and institutional analysis for development of commercial forestry investment sub-projects (Wardell 2020): Section IX).

E. Securing a Resource Use Permit (DAO 2000-29): The DENR Secretary has the sole authority to approve Resource Use Permits, which is then still subject to a Community Environment and Natural Resources Office Notice to Proceed.

Recommendation: DENR FMB delegate authority for approvals of Resource Use Permits to regional directors of DENR.

F. Transporting timber (EO 277, which replaced PD 705) by securing a Certificate of Timber Origin (DAO 94-07) issued by the Community Environment and Natural Resources Office . An additional Certificate of Transport Agreement and a Certificate of Trans-shipment for all logs transported outside the province are also required.

Recommendation: DENR FMB simplifies the process and eliminate or reduce transport charges whenever feasible as an incentive to smallholders.

G. Processing timber (DENR Memorandum Order 96-09) by securing a permit to establish and operate mini-sawmills. However, DMC 2003-14 declares a moratorium on the establishment of new wood-processing plants. The estimated cost of securing a wood-processing permit from the regional office of the DENR is USD 1400 (Pulhin et al 2016).

Recommendation: DENR FMB simplifies the process of obtaining a wood-processing permit and reduces the transaction costs for smallholders to promote community-based tree enterprises.

H. Addressing the complex issue of 'standard operating procedures' or informal payments often associated with checkpoints manned by the DENR, military and Philippine National Police personnel. Standard operating procedures can amount to an estimated USD 200–260 per truckload of logs (Pulhin et al 2016). The costs associated with spot-checks of wood-processing plants is not known.

Recommendation: DENR FMB introduce a zero-tolerance policy for all transport and wood-processing-associated standard operating procedures with appropriate sanctions and conduct a focused nationwide information and education program for the same.

I. Facilitating the participation of DENR and FMB staff and leaders of successful community-based forest enterprises on, for example, the PROFOR on-line course for SMEs (see https://www.profor.info/knowledge/unlocking-potential-small-and-medium-forest-enterprises) and by facilitating access to other training material and courses developed by various bodies.

Recommendation: DENR facilitates access to training courses and material for their staff and the leaders of successful people's organizations and community-based forest enterprises.

Additional measures to create an improved enabling environment

Investors are mainly interested in maximizing risk-adjusted returns. Among other factors, they assess the following.

- A country's political, regulatory and economic stability.
- The governance of a country's investment regime, of which the single most important factor is perhaps secure and risk-free land tenure.
- Growth potential, and access to growth markets, which are very much linked to potential timber investment sites within the Philippines, such as Regions 10 and 13.
- Active investment promotion with targeted incentive schemes and developing new financial instruments favoring long-term investments.

- Reducing investment risks through guarantees, public–private partnerships and innovative financing schemes as well as through access to, and provision of, reliable information.
- A country's physical and institutional infrastructure (roads, ports, electricity, labor markets).
- Collecting, collating and improving access to information on the availability of suitable land for investments, growth and yield, growing conditions, risks etc.
- Improving forest sector governance and transparency.
- Additional support for forestry and agroforestry research and development to increase productivity.
- Helping to organize smallholders and communities so that they can enjoy economies of scale, become more eligible for accessing finance, and gain negotiating power.

References

Acosta RT. 2003. *Impact of incentives on the development of forest plantation resources of the Philippines*. Rome, Italy: Food and Agriculture Organization of the United Nations. http://www.fao.org/3/ae535e/ae535e0c.htm.

Adams M. 2002. *Grow the markets before growing the wood*. Tropical Forest Update 12(4):19.

Ateneo School of Government. n.d. *Corruption Risk Assessment for REDD+ in the Philippines and development of REDD+ anti-corruption measures*. Manila, Philippines: Ateneo de Manila University.

Baynes J, Herbohn J, Smith C, Risher R, Bray D. 2015. Key factors which influence the success of community forestry in developing countries. *Global Environmental Change* 35(2015):226–238.

Blundell A, Harwell E. 2009. *Manual: an analysis of corruption in the forestry sector.* Berlin, Germany: Transparency International.

Boado EL. 1988. Policies affecting forest use in the Philippines. In: Repetto R, Gillis M, eds. *Public policy and the misuse of forest resources*. Cambridge, UK: Cambridge University Press.

Broad R, Cavanagh J. 1993. *Plundering paradise: the struggle for the environment in the Philippines*. Manila, Philippines: Anvil Publishing.

Brown C, Durst PD, Enters T. 2001. *Forests out of bounds: impacts and effectiveness of logging bans in natural forests in Asia-Pacific.* RAP publication 2001/10. Bangkok, Thailand: Food and Agriculture Organization of the United Nations.

Byerlee D. 2014. The fall and rise again of plantations in tropical Asia: History repeated? *Land* 3:457–597.

Calub F. 2005. DENR rules and regulations governing timber and timber products planted on private land. *Annals of Tropical Research* 27(1):91–96.

Carandang WM, Lasco RD. 1998. Successful reforestation in the Philippines: technical considerations. In: Pulhin FB, Reyes LC, Pecson DN, eds. *Mega issues in Philippine forestry: key policies and programs:* Los Baños, Philippines: Forestry Development Center, University of the Philippines Los Baños. pp 49–59.

Carandang AP. 2008. *The forestry sector: costs of environmental damage and net benefits of priority interventions. A contribution to the Philippines Country Environmental Analysis.* Manila, Philippines: World Bank.

Carandang A, Carandang M. 2009. Activity cost standards for forest development and rehabilitation in the Philippines. *Journal of Environmental Science and Management* 12(1):42–67.

Carandang AP, Bugayong LA, Dolom PC, Garcia LN, Villanueva MB, Espiritu NO. 2013. *Analysis of key drivers of deforestation and forest degradation in the Philippines.* Quezon City, Philippines: Department of Environment and Natural Resources; Eschborn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit.

Carandang RP, Carandang MG, Camacho LD, Camacho SC, Aguilon BC, Gevana DT. 2015. Profitability of smallholder plantations in Talacogan, Agusan Del Sur, Philippines. *Ecosystems and Development Journal* 5(3):3–11.

Cedamon E, Harrison S, Herbohn J, Mangaoang E. 2011. Compiling market and other financial data on smallholder forestry in the Philippines. *Small-scale Forestry* 10:149–162.

Chokkalingam U, Carandang AP, Pulhin JM, Lasco RD, Peras RJJ, Toma T. 2006. *One century of forest rehabilitation in the Philippines: approaches, outcomes and lessons.* Bogor, Indonesia: Center for International Forestry Research.

Cossalter C, Pye-Smith C. 2003. *Fast-wood forestry: myths and realities.* Bogor, Indonesia: Center for International Forestry Research.

Cruz RVO, Pulhin JM. 2006. R*eview of multisectoral forest protection committees in the Philippines*. VERIFOR Country Case Study 7. London, UK: Overseas Development Institute; Bangkok, Thailand:

RECOFTC; Bogor, Indonesia: Center for International Forestry Research; Cartago, Costa Rica: Centro Agronómico Tropical de Investigación y Enseñanza.
Dahal G, Capistrano D. 2006. Forest governance and institutional structure: an ignored dimension of community-based forest management in the Philippines. *International Forestry Review* 8(4):333–394.
De Jong W. 2010. Forest rehabilitation and its implication for forest transition theory. *Biotropica* 42(1):3–9.
De Jong W, Galloway G, Katila P, Pacheco P. 2016. Incentives and constraints of community smallholder forestry. *Forests* 7:209. DOI:10.3390/f7090209.
[DENR FMB] Department of Environment and Natural Resources' Forest Management Bureau. 2017. *Philippines forest sector agrees to roadmap to improve forest law enforcement, governance and trade.* 29 May. Quezon City, Philippines: Forest Management Bureau, Department of Environment and Natural Resources.
[DENR FMB] Department of Environment and Natural Resources' Forest Management Bureau. 2016. *Philippine masterplan for climate resilient forestry development.* Quezon City, Philippines: Forest Management Bureau, Department of Environment and Natural Resources.
[DENR FMB] Department of Environment and Natural Resources' Forest Management Bureau. 2006. *Revised masterplan for forestry development.* Quezon City, Philippines: Forest Management Bureau, Department of Environment and Natural Resources.
[DENR FMB] Department of Environment and Natural Resources' Forest Management Bureau. 1991. *Philippines master plan for forest developmen*t. Quezon City, Philippines: Forest Management Bureau, Department of Environment and Natural Resources.
DENR Policy Advisory Group. 1987. *DENR policy and program agenda for the environment and natural resources sector.* Quezon City, Philippines: Department of Environment and Natural Resources.
Department of Finance. 2020. *Corporate Income Tax and Incentives Reform Act (CITIRA*). Manila, Philippines: Department of Finance.
Dolom PC, Bugayong LA, Casin MCS, Villanueva MMB, Tolention NL, Pulhin FB, Palacpac AB, Capinin HLL, Donoso LA, Aguilon BC, Nicmic JC, Castillo JF, Buot MK, Cabrera RVC. 2018. The Sustainable Forest Management Law (Executive Order No. 318): formulation of its Implementing Rules and Regulations. *Ecosystems and Development Journal* 8(2):69–81.
Domingo SN, Manejar AJA. 2019. *Forest protection in the Philippines: policy evolution and sector outcomes.* PIDS Research Paper Series No. 2019-03. Quezon City, Philippines: Philippine Institute for Development Studies.
Durst PB, Waggener TR, Enters T, Tan LC, eds. 2001. *Forest out of bounds: impacts and of logging bans in natural forests in Asia-Pacific.* RAP Publication: 2001/08. Bangkok, Thailand: Food and Agriculture Organization of the United Nations.
Enters T. 1999. Incentives as policy instruments: key concepts and definitions. In: Sanders DW, Huszar PC, Sombatpanit S, Enters T, eds. *Incentives in soil conservation.* Enfield NH, USA: Science Publishers. pp 25–40.
Enters T, Durst PB, Brown C. 2003. What does it take to promote forest plantation development? Incentives for tree-growing in countries of the Pacific rim. *Unasylva* 212(54):11–18.
Enters T, Durst PD, Brown C. 2001. *What does it take? The role of incentives in forest plantation development in the Asia-Pacific Region*. Unpublished manuscript.
Ehrenberg-Azcarate F, Pena-Claros M. 2020. Twenty-years of forest management certification in the tropics: major trends through time and among continents. *Forest Policy and Economics* 111(2020):102050. https://doi.org/10.1016/j.forpol.2019.102050.
Escarcha JF, Lassa JA, Palacpac EP, Zander KK. 2020. Livelihoods transformation and climate change adaptation: the case of smallholder water buffalo farmers in the Philippines. *Environmental Development* 33(2020):100468. https://doi.org/10.1016/j.envdev.2019.100468.

[FAO] Food and Agriculture Organization of the United Nations. 2019. *A framework to assess the effectiveness of community-based forestry.* Forestry Working Paper 12. Rome, Italy: Food and Agriculture Organization of the United Nations.

[FAO] Food and Agriculture Organization of the United Nations. 2017. *Community based Forestry. Extent, effectiveness and potential.* Policy Brief. Rome, Italy: Food and Agriculture Organization of the United Nations.

Ferguson I, Chandrasekharan C. 2004. *Paths and pitfalls of decentralization for sustainable forest management: experiences of the Asia-Pacific region*. Paper, Interlaken Workshop on Decentralization in Forestry, 27–30 April 2004. Yokohama, Japan: International Tropical Timber Organization. http://www.cifor.cgiar.org/publications/pdf_files/interlaken/Ferguson_Chandrasekharan.pdf.

Forest Management Bureau. 2019. *Forest statistics 2018*. Quezon City, Philippines: Forest Management Bureau, Department of Environment and Natural Resources. https://forestry.denr.gov.ph/index.php/statistics/philippines-forestry-statistics

Forest Management Bureau. 2018. *Philippine forests at a glance 2017*. Quezon City, Philippines: Forest Management Bureau, Department of Environment and Natural Resources. https://faspselib.denr.gov.ph/node/1404

Forest Management Bureau. 2012. *Philippine national REDD Plus strategy*. Quezon City, Philippines: Forest Management Bureau, Department of Environment and Natural Resources.

Forest Management Bureau. 2009. *Philippines forestry outlook study.* Working Paper No. APFSOS II/WP/2009/10. Bangkok, Thailand: Food and Agriculture Organization of the United Nations.

Gerrits RV. 1996. *The Philippine Government's approach to upland development: the Integrated Social Forestry Program.* SEARCA Uplands Research Project Working Paper No. 16. Los Baños, Philippines: Southeast Asian Regional Center for Graduate Study and Research in Agriculture.

[GIZ and DENR] Department of Environment and Natural Resources, Deutsche Gesellschaft für Internationale Zusammenarbeit. 2015. *Improving governance of tenure: enhancing guidance for the issuance of a unified tenure system.* Final Report. Eschborn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit.

Gregersen H, Houghtaling L. 1978. Government subsidies to stimulate forestry at the farm communities level. In: *Proceedings of the Eighth World Forestry Congress.* Rome, Italy: Food and Agriculture Organization of the United Nations.

Gregersen H. 1984. Incentives for forestation: a comparative assessment. In: Wiersum KF, ed. *Strategies and designs for afforestation, reforestation and tree planting*. Proceedings of an international symposium on the occasion of 100 years of forestry education and research in the Netherlands. Wageningen, 19–23 September 1993. Wageningen, Netherlands: Pudoc Scientific Publishers. pp 301–311.

Guiang E. 2008. *Comments and suggestions on the forestry sector: costs of the environmental damage and net benefits of priority interventions*. Paper, Workshop, Ortigas Center, Metro Manila, 17 June. n.l., n.p.

Guiang ES. 2001. Impacts and effectiveness of logging bans in natural forests: Philippines. In: Durst PB, Waggener TR, Enters T, Tan LC, eds. *Forest out of bounds: impacts and of logging bans in natural forests in Asia-Pacific.* RAP Publication: 2001/08. Bangkok, Thailand: Food and Agriculture Organization of the United Nations.

Guiang ES, Borlagdan SB, Pulhin JM. 2001. *Community-based forest management in the Philippines: a preliminary assessment.* Quezon City, Philippines: Institute of Philippine Culture, Ateneo de Manila University.

Guiang ES, Castillo G. 2006. Trends in forest ownership, forest resources, tenure and institutional arrangements in the Philippines: are they contributing to better forest management and poverty

reduction? In: *Understanding forest tenure in South and Southeast Asia*. FAO Forest Policy and Institutions Working Paper No. 14. Rome, Italy: Food and Agriculture of the United Nations. pp 281–324.
Hajjar R, Oldekop JA. 2018. Research frontiers in community forest management. *Current Opinion in Environmental Sustainability* 32:119–125.
Haltia O, Keipi K. 1997. *Financing forest investments in Latin America: the issue of incentives.* Washington DC, USA: Inter-American Development Bank.
Israel DC. 2016. *Taking stock of the National Greening Program six years hence.* Policy Notes Vol. 2016-26. Quezon City, Philippines: Philippine Institute for Development Studies.
[ITTO/IMM] International Tropical Timber Organization, Independent Market Monitor. 2019. *FLEGT VPA partners in EU timber trade 2018.* Main report. Yokohama, Japan: International Tropical Timber Organization. https://www.flegtimm.eu/images/IMM_2018_Annual_Report/Final_clean_version_Natalie_VPA-Partners-in-EU-Timber-Trade-Annual-Report-2018.pdf.
Kaimowitz D, Erwidodo D, Ndoye O, Pacheco P, Sunderlin W. 1998. *Accommodating multiple interests in forestry: considering the impact of structural adjustment policies on forests in Bolivia,* Cameroon and Indonesia. Unasylva 49(3) Issue No. 194.
Karousakis K. 2006. *Initial review of policies and incentives to reduce GHG emissions from deforestation.* Paris, France: Environment Directorate, International Energy Agency, Organisation for Economic Co-operation and Development.
Keipi K. 1997. Financing forest plantations in Latin America: government incentives. *Unasylva* 48(1) Issue No. 188.
Keong CH, Hewitt J, Chiew TH. 2012. *Philippines: scoping baseline information for forest law enforcement, governance and trade.* Baseline Study 9. Kuala Lumpur, Malaysia: Forest Law Enforcement, Governance and Trade Facility, European Union.
Korten F. 1994. Questioning the call for environmental loans: critical examination of forestry lending in the Philippines. *World Development* 22(7):971–981.
Lacuna-Richman C. 2001. Incorporating participatory management in reforestation programmes for carbon trading in the Philippines. In: Lacuna-Richman C, Kaisti H, eds. *Tropical forests facing new modes of governance in the global era*. Joensuu, Finland: Faculty of Forestry, University of Joensuu. pp 163–174.
Lal P. 2004. Integrated development of farm-forestry plantations and wood-based industries. *The Indian Forester* 130(1):71–78.
Laarman JG, Stewart EJ, Dugan PD. 1995. The economics of extraction in Philippine forests: when timber turns to gold. *Mountain Research and Development* 15(2):153–164.
Lasco RD, Pulhin JM. 2006. Environmental impacts of community-based forest management in the Philippines. International *Journal of Environment and Sustainable Development* 5(1):46–56.
Lu WM, Landell-Mills N, Liu JL, Xu JT, Liu C. 2002. *Getting the private sector to work for the public good: instruments for sustainable private sector forestry in China*. London, UK: International Institute for Environment and Development.
Ploeg JVD, Weerd MV, Masipiquena AB, Persoon GA. 2001. Illegal logging in the Northern Sierra Madre National park, the Philippines. *Conservation and Society* 9(3):202–215.
Pulhin FB, Reyes LC, Pecson DN. 1998. *Mega issues in Philippine forestry: key policies and programs*. Forest Development Center, College of Forestry and Natural Resources, University of the Philippines Los Baños.
Pulhin JM. 2002. *Trends in forest policy in the Philippines.* Policy trend report. n.l. n.p. pp 29–41.
Pulhin JM, Dizon JT. 2003. *Politics of tenure reform in the Philippine forest land.* n.l. n.p.
Pulhin JM, Dizon JT, Cruz RVO. 2008a. *Tenure reform and its impacts in the Philippine forest lands.* Paper, 12th Biennial Conference International Association for the Study of the Commons, 14–18 July 2008. Cheltenham, UK: University of Gloucestershire.

Pulhin JM, Dizon JT, Cruz RVO, Gevana DT, Dahal G. 2008b. *Tenure reform on Philippine forest lands: assessment of socio-economic and environmental impacts.* Los Baños, Philippines: College of Forestry and Natural Resources, University of the Philippines Los Baños; Bogor, Indonesia: Center for International Forestry Research; Washington DC, USA: Rights and Resources Initiative.

Pulhin JM, Dressler WH. 2009. People, power and timber: the politics of community-based forest management. *Journal of Environmental Management* 91(1):206–214. DOI:10.1016/j.envman.2009.08.007.

Pulhin JM, Ramirez MAM. 2016. Timber regulation and value chain in community-based timber enterprise and smallholder forestry in the Philippines. *Forests* 7:52. DOI:10.3390:f7080152.

Rasch ED. 2014. Ecotourism not mining, in Palawan! Territorial narratives on the last frontier (Palawan, the Philippines). In: Buscher B, Davidov V, eds. *The ecotourism-extraction nexus. Political economies and rural realities of (un) comfortable bedfellows.* London, UK: Routledge. pp 236–254.

Rebugio LL, Carandang AP, Dizon J, Pulhin JM. 2010. Promoting sustainable forest management through community forestry in the Philippines. In: Mery G, Katila P, Galloway G, Alfaro RI, Kanninen M, Lobovikov M, Varjo J, eds. *Forests and society: responding to global drivers of change*. IUFRO World Series Vol. 25. Vienna, Austria: International Union of Forestry Research Organizations. pp 355–368.

Repetto R. 1987. Creating incentives for sustainable forest development. *Ambio* 16(2–3):94–99.

Repetto R, Gillis M, eds. 1988. *Public policy and the misuse of forest resources*. Cambridge, UK: Cambridge University Press. pp 59–65.

Rohadi D, Herawati T, Padoch C, Race D. 2015. *Making timber plantations an attractive business for smallholders.* CIFOR Infobrief No. 114. Bogor, Indonesia: Center for International Forestry Research.

Sajise PE. 1998. *Forest policies in the Philippines: a winding trail towards participatory sustainable development. A step towards forest conservation strategy: current status on forests in the Asia-Pacific Region.* Interim Report. Tokyo, Japan: Institute of Global Environmental Strategies.

[SEPO] Senate Economic Planning Office. 2018. *Delineating the Philippines' specific forest limits.* SEPO Policy Brief PB-18-01, June 2018. Manila, Philippines: Senate Economic Planning Office.

Sheppard JP, Chamberlain J, Agundez D, Bhattacharya P, Cirwa PW, Gontcharov A, Sagona WCJ, Shen H-l, Tadesse W, Mutke S. 2020. Sustainable forest management beyond the timber-oriented status quo: transitioning to co-production of timber and non-wood forest products: a global perspective. *Current Forestry Reports* 6:26–40. https://link.springer.com/article/10.1007/s40725-019-00107-1.

Tacconi L, Williams DA. 2020. Corruption and anti-corruption in environmental and resource management. *Annual Review of Environment and Resources* 2020 45:5.1–5.25. https://odi.org/10.1146/annurev-environ.012320-083949.

US Forest Service. 2011. *Sustainable landscapes assessment for the Philippines.* Prepared for USAID Philippines. Manila, Philippines: USAID.

Wardell DA. 2020. *Report on policy review and institutional analysis for development of commercial forestry investment sub-projects*. Los Baños, Philippines: World Agroforestry (ICRAF).

Wardell DA, Lund C. 2006. Governing access to forests in northern Ghana. Micro-politics and the rents of non-enforcement. *World Development* 34(11):1887–1906.

Williams J. 2001. Financial and other incentives for plantation forestry. In: P*roceedings of the International Conference on Timber Plantation Development.* Manila, the Philippines, 7–9 November 2000. Quezon City, Philippines, Department of Environment and Natural Resources. pp 87–101.

World Bank. 2001. *Combating corruption in the Philippines.* Update Report No. 23687 PH. Manila, Philippines: Philippines Country Management Office, World Bank.

World Bank. 2000. *Philippines. Combating corruption in the Philippines*. Report No. 20369- PH. Manila, Philippines: Philippines Country Management Office, World Bank.

Annexes

Annex 1: Laws and policies

Presidential Decree 705, Series of 1975. Revising Presidential Decree No. 389, otherwise known as the Forestry Reform Code of the Philippines. Office of the President, Manila. https://officialgazette.gov.ph/1975/05/19/presidential-decree-no-705-s-1975/

Presidential Proclamation No. 2152, s. 1981 declaring the entire Province of Palawan and certain parcels of the public domain and/or parts of the country as mangrove swamp forest reserves. 29 December 1981.

Letter of Instruction No. 1260. (1982). Official Gazette of the Philippines. https://www.officialgazette.gov.ph/1982/07/28/letter-of-instruction-no-1260-s-1982/

Executive Order No. 192. (1987) Providing for the reorganization of the Department of Environment, Energy and Natural Resources, renaming it as the Department of Environment and Natural Resources, and for other purposes. Office of the President, Manila. https://www.officialgazette.gov.ph/downloads/1987/06jun/19870610-EO-0192-CCA.pdf

Republic Act No. 7160. (1991). An Act Providing for A Local Government Code of 1991. Official Gazette of the Philippines. http://extwprlegs1.fao.org/docs/pdf/phi93246.pdf

Republic Act No. 7586. (1992). An Act Providing for the Establishment and Management of National Integrated Protected Areas System. Official Gazette of the Philippines. https://www.officialgazette.gov.ph/1992/06/01/republic-act-no-7586/

Republic Act No. 7611 (1992) adopting the Strategic Environment Plan for Palawan, creating the administrative machinery to its implementation, converting the Palawan Integrated Area Development Project Office to its support staff, providing funds thereof, and for other purposes, 19 June 1992

Office of the President/Palawan Council for Sustainable Development, 1993. Amended rules and regulations implementing the Strategic Environmental Plan for Palawan, 25 May 1993

Palawan Council for Sustainable Development, 1994. PCSD Resolution No. 94-44 adopting the guidelines in implementing the environmentally critical Areas Network (ECAN), the main strategy of the Strategic Environmental Plan for Palawan, 18 February 1994

Administrative Order 93-60. (1993). DENR. Revised Regulations and Guidelines Governing the Establishment of Industrial Forest Plantations and Management of Residual National Forests for Production Purposes. http://policy.denr.gov.ph/1993/FOR_DAO-93-60.pdf

Executive Order No. 263. (1995). Adopting Community-Based Forest Management as the National Strategy to Ensure the Sustainable Development of the Country's Forest lands Resources and Providing Mechanisms for its Implementation. Official Gazette of the Philippines. https://www.officialgazette.gov.ph/1995/07/19/executive-order-no-263-s-1995/

Administrative Order 96-24. (1996). DENR. Rules and Regulations Governing the Socialized Industrial Forest Management Program. http://policy.denr.gov.ph/1996/FOR_DAO_1996-24.pdf

Administrative Order 96-29. (1996). DENR. Rules and Regulations for the Implementation of Executive Order 263, Otherwise Known as the Community-Based Forest Management Strategy (CBFMS). http://policy.denr.gov.ph/1996/FOR_DAO_1996-29.pdf

Republic Act No. 8371. (1997). An act to recognize, protect and promote the rights of indigenous cultural communities/indigenous peoples, creating a national commission on indigenous peoples. Official Gazette of the Philippines. https://www.officialgazette.gov.ph/1997/10/29/republic-act-no-8371/

Administrative Order 99-53. (1999). DENR. Regulations Governing the Integrated Forest Management Program (IFMP) http://policy.denr.gov.ph/1999/fordao99-53.pdf

Executive Order No. 318. (2004). Promoting sustainable forest management in the Philippines. Official Gazette of the Philippines. https://www.officialgazette.gov.ph/2004/06/09/executive-order-no-318-s-2004/

Republic Act No. 9275. (2004). An act providing for a comprehensive water quality management. Official Gazette of the Philippines. https://www.officialgazette.gov.ph/2004/03/22/republic-act-no-9275/

Executive Order No. 23. (2011). Declaring a moratorium on the cutting and harvesting of timber in the natural and residual forests and creating the anti-illegal logging task force. Official Gazette of the Philippines. https://www.officialgazette.gov.ph/2011/02/01/executive-order-no-23-s-2011/

Executive Order No. 26. (2011) Declaring an interdepartmental convergence initiative for a National Greening Program. Official Gazette of the Philippines. https://www.officialgazette.gov.ph/2011/02/24/executive-order-no-26-s-2011/

National Commission on Indigenous Peoples, 2012. NCIP Administrative Order NO; 3 Series of 2012. The Revised Guidelines on Free, Prior and Informed Consent (FPIC) and Related Processes of 2012. Resource Management Division, Ancestral Domains Office, NCIP, Manila

DENR-Caraga Region (2014); Registration of tree plantations within untenured/open public forest land areas by forest occupants. Memorandum to all PENROs and CENROs, 22 April 2014. DENR, Butuan City.

Executive Order No. 193 (2015) Expanding the coverage of the National Greening Program. Office of the President, Manila. https://www.officialgazette.gov.ph/2015/11/12/executive-order-no-193-s-2015/

Senate Economic Planning Office, 2015. Philippine forests at a glance. AG-15-01. https://www.senate.gov.ph/publications/SEPO/AAG%20on%20Philippine%20Forest_Final.pdf

DENR-Caraga Region (2018) Registration of tree plantations within untenured/open public forest land areas by forest occupants. Memorandum to all PENROs and CENROs, 11 April 2018. DENR, Butuan City.

Senate Economic Planning Office (2018) Delineating the Philippines's specific forest limits. Policy Brief PB-18-01, June 2018.

INREMP Technical Bulletin 2018-03. (2018). Forest Management Bureau, DENR. Guide for the implementation of the accreditation of People's Organizations (POs) / Indigenous People's Organizations (IPOs) engaged in INREMP. http://inremp.com.ph/images/Technical_Bulletin/ITB%202018-03%20Implementation%20of%20the%20Accreditation%20of%20POs%20and%20IPOs%20Engaged%20in%20INREMP.pdf

Senate Bill No. 402 (2019) An act providing for Sustainable Forest Management, and for other purposes. Congress of the Philippines, Manila. https://www.senate.gov.ph/lisdata/2383920510!.pdf