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Green Growth Advisory
Program for Lao PDR



Partnerships and Opportunities for a New
Green Forest Economy in Lao PDR:

Sustaining Forest Landscapes and Livelihoods



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Foreword

The Lao People's Democratic Republic (Lao PDR) is transitioning to a greener, more resilient economy as the government embarks on ambitious reforms in the forestry sector to achieve more sustainable, resilient, and inclusive economic and export growth.

Given abundant natural resources, Lao PDR has the potential to become a major player in sustainable forest management (SFM) and downstream forest industries, but weak forest governance, combined with low levels of reputable, socially and environmentally sustainable private investment, have undermined the potential of the forestry sector to deliver exports, livelihoods and jobs, especially among the rural poor, and to propel broader economic development.

In this context, the government's emerging vision of a new green forest economy presents exciting opportunities. The implementation of SFM will help Lao PDR to achieve its target of 70 percent forest cover. Greater forest cover will help to provide food, medicine and building materials, as well as to support downstream industries such as reconstituted wood and fiber products and furniture production. Achieving this target would also enable the country to meet its Nationally Determined Contribution (NDC) to climate action by reducing climate risks such as flooding, landslides, and erosion that silts strategic reservoirs. Overall, greenhouse gas emissions would be reduced by 60-69 megatons of carbon dioxide equivalent (MtCO₂-e).

To support this transformational reform process and raise complementary public and private investment in forestry, the Government of Lao PDR (GoL) and World Bank Group (WBG) have collaborated on advisory services and analytics (ASA) to enhance understanding and implementation of SFM. This ASA reinforces the GoL's forestry reform process, informing key new policies, regulations, and a new Forestry Law that is expected in 2019. This task has been carried out in close cooperation and partnership with GoL partners, including the Ministry of Agriculture and Forestry (MAF), Ministry of Industry and Commerce (MoIC), Ministry of Planning and Investment (MPI), development partners, and others active in the sector, including private actors and the WBG's International Finance Corporation (IFC). A range of quantitative and qualitative assessments conducted under this task are synthesized in this report.

This is a potentially historic moment: policymakers, citizens, and business leaders increasingly recognize the urgency of the threats facing Lao PDR's forests and the lasting benefits achievable with concerted, coordinated policy and investment actions. This analytical work serves as an essential reference for the continued reform and development of the forestry sector to positively impact livelihoods and the environment, which are critical for poverty reduction, inclusive prosperity, and greener, more resilient economic growth based on Lao PDR's most important comparative advantage – its natural capital.

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List of Abbreviations

3FCs	Three forest categories
AWPD	Aquatic and Wildlife Protection Division of DoF
ADB	Asian Development Bank
ACIAR	Australian Centre for International Agricultural Research
AfCo	Asian Forest Cooperation Organization
APFRD	Afforestation Promotion and Forests Rehabilitation Division
ASA	Advisory services and analytics
ASEAN	Association of South East Asian Nations
ATIF	Australian Timber Importers Federation
BREEAM	Building Research Establishment Environmental Assessment Method
CCD	United Nations Convention to Combat Desertification
CD	Customs Department
CFA	Conservation Forest Areas
CITES	Convention on International Trade in Endangered Species
CLT	Cross Laminated Timber
CO₂	Carbon Dioxide
CoC	Chain-of-Custody
CoO	Certificate of Origin
CW	Controlled Wood (under FSC Certification)
DAFO	District Agricultural and Forestry Office
DERM	Department of Enterprise Registration Management
DNEP	Department of Natural Resources and Environmental Policy of MONRE
DIMEX	Department of Import and Export
DLH	DLH International Company
DoCC	Department of Climate Change of MONRE
DoF	Department of Forestry
DoFI	Department of Forest Inspection
DoIH	Department of Industry and Handicraft
DoM	Department of Medicine of MoH
DoP	Department of Planning of MPI
DoPL	Department of Planning and Legislation of MAF
DoT	Department of Tax
EcPD	Economic Police Department
EHS	Environmental, Health and Safety Guidelines of IFC and World Bank Group
ELS	China's Environmental Labelling Standard
EPFI	Equator Principle Financing Institutions
ERN	European Regional Network of the Green Building Council of Europe
ESG	Environmental and Social Governance
ESIA	Environmental and Social Impact Assessment
ETTF	European Timber Trade Federation
EU	European Union
EU-FLEGT	European Union-Forestry Law Enforcement Governance and Trade
EUTR	European Union Timber Regulation
FAO	Food and Agriculture Organization of the United Nations
FFRDF	Forest and Forest Resources Development Fund
FIPD	Forest Inventory and Planning Division

FINNIDA	Finnish Bilateral Assistance
FLEGT	Forestry Law Enforcement Governance and Trade
FM	Forest Management
FMA	Forest Management Area as applied in Production Forest Areas
FMU	Forest Management Unit as applied in Production Forest Areas
FOMACOP	Forest Management and Conservation Project (1994-2001)
FLTSD	Forestry Legislation and Technical Standards Division
FPIC	Free Prior and Informed Consent
FS2020	Forestry Strategy to 2020
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GG-DPO	Green Growth Development Policy Operation
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoL	Government of Lao PDR
GPP	Green Procurement Policy
IFC	International Finance Corporation of the World Bank Group
ISO	International Organization for Standardization
ITTO	International Tropical Timber Organization
IRR	Internal Rate of Return
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
km	Kilometers
Lao PDR	Lao People's Democratic Republic
LEED	Leadership in Energy and Environmental Design of US Building Council
LEV	Land Expectation Value
LFA	Lao Furniture Association
LFAP	Land and Forest Allocation Policy
LNCCI	Lao National Chamber of Commerce and Industry
LPTP	Luang Prabang Teak Program
MAF	Ministry of Agriculture and Forestry
MoF	Ministry of Finance
MoFA	Ministry of Foreign Affairs
MoH	Ministry of Health
MoHA	Ministry of Home Affairs
MoIC	Ministry of Industry and Commerce
MoITC	Ministry of Information, Tourism and Communication
MoJ	Ministry of Justice
MoNRE	Ministry of Natural Resources and Environment
MoPS	Ministry of Public Security
MPI	Ministry of Planning and Investment
MPWT	Ministry of Public Works and Transport
NA	National Assembly
NAFRI	National Agriculture and Forestry Research Institute
NAPA	National Adaptation Program of Action
NBSAP	National Biodiversity Strategy and Action Plan (2016-2025)
NDC	Nationally Determined Contribution
NGGS	National Green Growth Strategy to 2030
NGO	Non-Governmental Organization

NPV	Net Present Value
NSEDP	National Socio-Economic Development Plan
NSEDP-8	Eighth National Socio-Economic Development Plan
NTFP	Non-Timber Forest Products
NUoL	National University of Lao PDR
NWFA	National Wood Flooring Association in the USA
PAFO	Provincial Agriculture and Forestry Office
PEFC	Programme for the Endorsement of Forest Certification
PFA	Production Forest Area
PFMD	Production Forest Management Division
PFO	Provincial Forestry Office
PFS	Provincial Forest Service
PCD	Planning and Cooperation Department
PM	Prime Minister
PMO	Prime Minister Order
PoIC	Provincial Office of Industry and Commerce
PPP	Public-Private Partnership
PPPP	Public-Private-People Partnership
PRI	United Nations Principles for Responsible Investment
PROFOR	Program on Forests
PSFM	Participatory Sustainable Forest Management
PtFA	Protection Forest Area
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SDGs	Sustainable Development Goals
SFI	Sustainable Forest Initiative in North America
SFM	Sustainable Forest Management
SME	Small and Medium Enterprises
SUFORD	Sustainable Forestry and Rural Development Project (2004-2008)
SUFORD-AF	Sustainable Forestry and Rural Development Project – Additional Financing (2009-2012)
SUPSFM	Scaling-up Participatory Sustainable Forest Management (2013-2019) (or commonly called SUFOR-Scaling Up or SUFOR-SU)
TAFF	Tropical Asia Forest Fund
tCO₂-e	Tons of carbon dioxide equivalent
TLAS	Timber Legality Assurance System
TLD	Timber Legality Definition
TTF	Timber Trade Federation networks
UK	United Kingdom
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
USD	United States Dollar
USA	United States of America
USGBC	United States Green Building Council
VFC	Village Forestry Committee
VPA	Voluntary Partnership Agreement
VUF	Village Use Forest
WBG	World Bank Group
WWF	World Wide Fund for Nature

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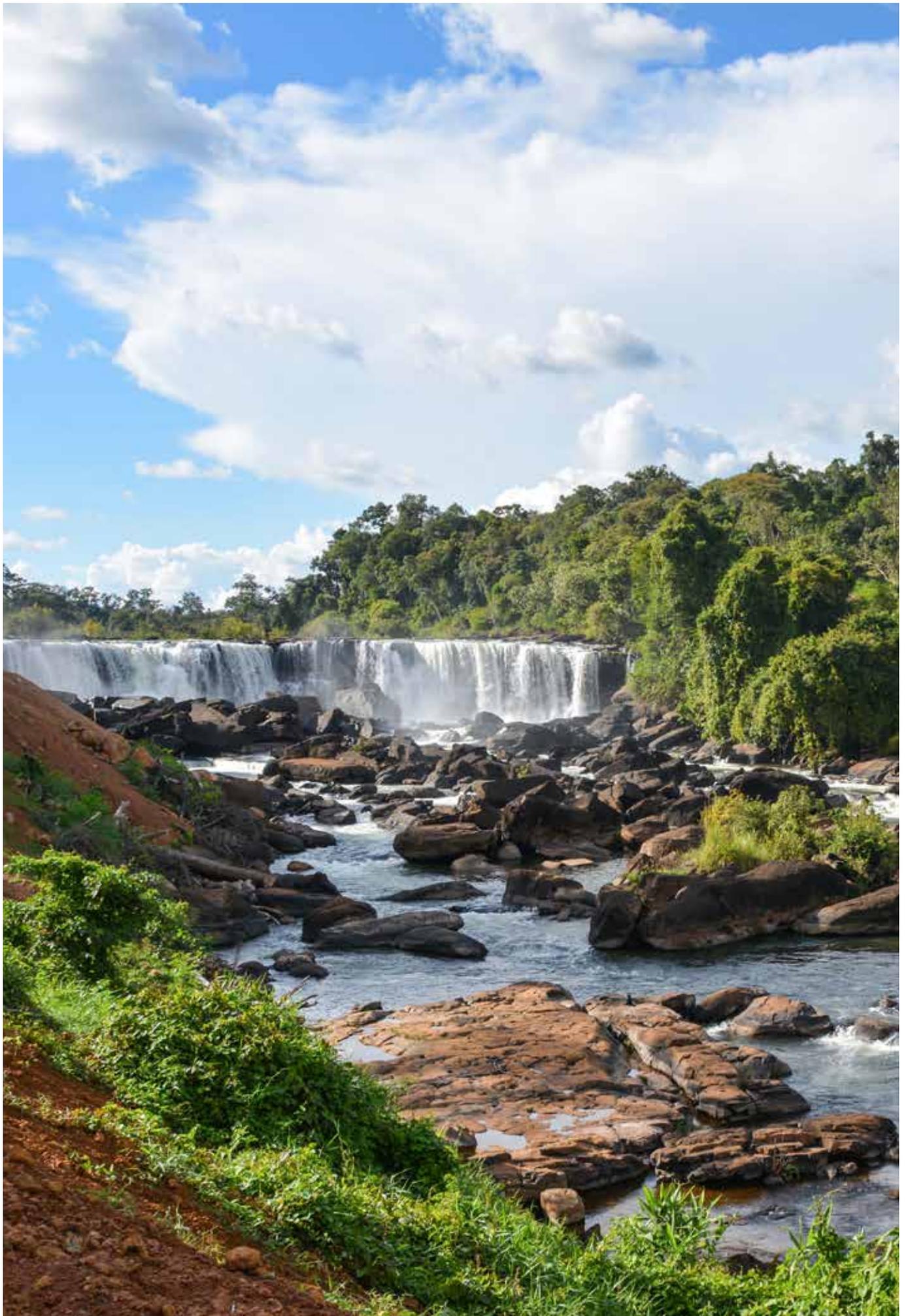
A World Bank Group (WBG) team, in cooperation with the Ministry of Agriculture and Forestry (MAF), carried out this task in consultation with and support provided by other government institutions, development partners, private sector actors, the World Bank Group's IFC, nongovernmental organizations, and academia. The Bank team especially appreciates the close cooperation and engagement by the MAF team, Ministry of Industry and Commerce (MoIC), Ministry of Planning and Investment (MPI). It would like to thank, in particular, Dr. Phouang Parisak Pravongviengkham and Mr. Thongphat Vongmany, Vice Ministers of MAF, for their guidance and vision of a new green forest economy. The team also thanks Mr. Sousath Sayakoummane, Director General of MAF's Department of Forestry, and his dedicated team for technical insights throughout the development of this ASA and the ongoing sector reforms.

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This report is a synthesis of background reports and products led by various team members; each report includes inputs from various team members, government authorities and stakeholders.

- i. Retrospective of the Forest Sector in Lao PDR (Lead authors: Anolay Vongsouthi and Manoly Sisavanh)
- ii. Sustainable Forest Management in Lao PDR (Lead author: Jim Carle)
- iii. Certified Forests and Wood Products in Lao PDR (Lead author: Jim Carle)
- iv. Regulatory Framework and Policy Support for SFM, Certification, Timber Legality and Public-Private-People Partnerships (PPPPs) in Lao PDR (Lead author: Hilary Smith)
- v. Public-Private-People Partnerships for Forest Restoration in Lao PDR (Lead author: Jim Carle)
- vi. Economics of Sustainable Forest Management in Lao PDR (Lead author: Fred Cabbage)
- vii. Validation Workshop Report, May 17, 2018, World Bank Office, Vientiane, Lao PDR
- viii. Various short policy notes (5)





Executive Summary

Lao People's Democratic Republic (Lao PDR) has a comparative advantage in natural capital, which has fueled economic growth averaging around 8 percent per annum since 2000. The natural resource endowment comprises half of the country's wealth. Although forest cover declined 3.6 percent between 2005 and 2015, Lao PDR still has among the highest forest cover percentage of countries in the region, and the value of timber and non-timber forest products is US\$10,740 per capita.

Inefficiencies, including overuse, under-budgeting, and unsustainable and unscientific management, have led to a reduction in forest cover, natural wealth, and public revenues. Lao PDR's recent policy reforms, institution-building and community engagement aim to build a new foundation to sustain the Lao forest estate and the people and sectors that depend on it, including for tourism, agriculture, energy, water, fisheries, and wood products.

Lao PDR's ambitious forest sector reforms aim to achieve financially and environmentally sustainable, resilient, and inclusive economic growth, especially through credible private sector investors. This reform agenda accompanies the Government of Lao PDR's (GoL) plan to expand forest cover to 70 percent from the current 58 percent, which will help to reduce poverty, create green jobs and livelihoods, support local industry and expand participatory sustainable forest management (SFM) and forest restoration, as well as to meet Lao PDR's Nationally Determined Contribution (NDC) to climate action. Auspiciously, credible private sector commercial plantation investors are also starting to scale up investment in the country'.

These developments denote the emerging vision of a new green forest economy in Lao PDR that involves both providing forest-dependent communities with wood and non-timber forest products (NTFPs) and producing commercial wood for export. The poor are most vulnerable to natural resource degradation and climate risks such as flooding and landslides due to their reliance on ecosystem services from forests for livelihoods, nutrition, and as a buffer against disasters. The risks also threaten upstream forests and watersheds as well as downstream agriculture and infrastructure including strategic reservoirs, investments and assets, which impact economic development, food security, jobs and livelihoods.

Key findings: Lao PDR's advantages and disadvantages for building the new green forest economy

Demand for verified legal and sustainable tropical forest products is increasing rapidly in markets that can afford to pay higher prices, and especially in industrialized economies. Lao PDR can access these growing market opportunities by transforming its forestry sector into a central pillar of a new green economy. Players in most major international markets such as the European Union and United States increasingly demand proof of legality and sustainability of imported wood products through certified forest management and chain-of-custody across the supply chain. There is also emerging interest in legal and certified wood within Asia as China, Vietnam, and Thailand are all establishing standards for legal, sustainable wood. Lao PDR has an opportunity to participate if it can meet these standards.

The sustainable business potential for Lao PDR's forest asset is significant

The changing market demand for “good wood” coincides with a global revolution in wood technology, the use of wood in modern new buildings, as well as increased adoption of green procurement policies that require proof of sustainability and legality. International experience suggests that the highest financial benefits can be achieved and maintained with forest governance that features a timber legality assurance system (TLAS), certification throughout the value chain and SFM. Lao PDR cannot yet reach these standards. To pursue these features, the GoL has imposed logging and timber export bans and reformed policies by, for example, committing to and advancing timber legality assurance, pursuing certification, and enhancing governance of state-owned Production Forest Areas (PFAs).

Meeting the growing demand for “good wood” could be highly profitable for planted forests and natural forest management. Based on data from current investors, internal rates of return (IRRs) for Lao PDR's main forest production models (smallholder teak, industrial and outgrower eucalyptus, participatory SFM) were between 6 and 24 percent, which is an internationally competitive range. The results, based on market costs and prices, indicate that the production models have strong economic returns based on land expectation value (LEV) and IRR, as noted by credible private investors consulted during this assessment.

Growth and revenues from production forests depend on good governance

Forestry in Lao PDR has contributed significantly to gross domestic product (GDP), and has the potential to drive Lao's new green economy if facilitated by a policy regime characterized by good governance, policy coherence, sustainability, inclusivity and profitability. Between 1990 and 2000, timber represented 8 to 9 percent of Lao PDR's annual GDP, but its contribution fell to 4 to 5 percent between 2001-2015, although it should be noted that the Lao Statistics Bureau considers these figures to be significant underestimates. This decline in contribution was due in part to high levels of illegal logging and forest products trade, and also to the increasing contribution of other sectors to the national economy. Including ecosystem services would greatly increase the contribution of forests to GDP.

A well-functioning and diversified forestry sector contributes to the economy in several ways through multiplier effects, job and livelihood creation, the production of raw materials for construction and downstream wood processing, and enterprise development around wood and non-timber forest products (NTFPs). In 2010, NTFPs contributed 9 percent of GDP. About 67 percent of the Lao population is rural and depends on forests to support their livelihoods; over 39 percent of rural family income derives from NTFPs.

The contribution of log royalties to government revenues decreased from almost 19 percent in fiscal year 2001-02 to 2 percent in 2016-17, although this reduction was partly due to the relative expansion of the manufacturing and services sectors. Preliminary data for 2018 shows an absolute reduction in forest revenues. Forestry royalties and fees were not often properly levied or collected, and illegal logging further reduced the potential contribution of this significant natural resource to government revenues. This fiscal impact motivated the strengthening of logging and timber export bans.

Annual exports declined in 2016 to 11 percent of the 2015 level after the May 2016 ban on exports of round wood and semi-processed products. The timber industry also shrank from over 2,100 wood processing facilities in 2006 to less than 1,150 in 2018 in response to low wood supply and the large number of unregistered and illegal operators. The downstream processing capacity will remain a challenge the longer the logging and export bans are in place, since they dampen opportunities for product innovation, the proliferation of institutional knowledge and skills, and market penetration.

The export of high-value wood products, such as furniture, has growth potential, but from a low base of 1 percent to 3 percent of total exports value in 2017. Wood product exports from Lao PDR have been dominated by unprocessed and semi-processed products. Barriers to higher value wood processing and exports include the decreasing supply of raw materials, limited access to finance, inadequate downstream processing, a largely unskilled workforce, lack of technology and product innovation, high transaction costs, slow approvals, and an uncondusive regulatory regime. To capture high-end final markets, Lao PDR needs efficient log processing and sawmills. This manufacturing capacity is not currently available, although there are some bright spots that might be scaled up. Current timber supply from “conversion forests” provides unreliable quantities and a level of quality of mixed species, which does not incentivize investment in high-end processing. A predictable timber supply comes from either participatory SFM or forest plantations.

Good governance for good wood

The enforcement of logging and timber export bans is allowing major policy reforms to strengthen standards and compliance, and ultimately will revitalize the sector. However, the logging ban has also reduced the flow of benefits to village forest committees (VFCs) that support village livelihood development, restoration of forests after harvesting, and employment. Local communities have instead pursued alternative livelihoods including agroforestry, agriculture, as well as illegal timber extraction in some instances.

Although the Government is reforming the forestry sector, weak forest governance continues to hinder productivity and sustainability. Weak governance is characterized by the lack of financial and human resources within responsible government agencies; unclear concession licensing and industry regulation for plantations; unsustainable forest management practices and forest conversion; poor timber sales and royalty management systems; inefficient revenue collection and management, which leads to evasion of fees, taxes and royalties; and insufficient enforcement of existing regulations and laws (with some exceptions). Other issues include insufficient intersectoral coordination on spatial planning resulting in violation of protected area boundaries; allocation of concessions to land otherwise legitimately occupied by local people; threats to the livelihoods of forest-dependent people and customary communities, misaligning industry development with resource availability; and stalling of legitimate investments by credible domestic and international forest enterprises that practice corporate social and environmental responsibility. Consistent and clear interpretation and application of policies, principles and practices from central, provincial, district and village levels remain challenges.

Timber salvaged from conversion forests generally has not been subject to a forest inventory or sufficient accountability, and thus has been susceptible to abuse by the mixing of logs from unauthorized areas. Since the 2013 temporary ban on logging in PFAs (PMO31), timber salvaged from conversion areas, together with confiscated wood and pre-ban stockpiles, have been the only significant sources of native species timber for industry.

Delays in providing legal, long-term access to large contiguous areas of suitable and available degraded and barren forest land, including within PFAs, and slow processing of land concession agreements, have constrained plantation investment, forest restoration, and forest industry development. Land access policy is rapidly evolving with proposed reforms to the Land Law and Forestry Law. The Prime Minister’s Order 9 in 2018 promotes investment in plantations of eucalyptus, acacia, teak, bamboo and other native species and permits private sector access to PFAs to invest in restoration and reforestation. Internationally reputable companies have raised funds to substantially expand their investments. The stage has been set for MAF Department of Forestry (DoF), Ministry of Industry and

Commerce (MoIC), Ministry of Planning and Investment (MPI), and Ministry of Natural Resources and Environment (MoNRE) to work with private companies and local communities to prepare restoration and reforestation programs. Stronger cooperation and coordination between ministries will provide investment certainty by improving efficiency and enabling more consistent interpretation of regulations.

How to earn up to US\$2 billion: investment potential that can benefit local people

Out of an estimated 11.2 million hectares (ha) of degraded or understocked forest land in Lao PDR, an estimated 650,000 ha of degraded and barren PFA lands (<6 percent) could be allocated to private sector industrial plantation investment. At least three internationally reputable companies are ready to invest in certified, rapidly growing, industrial plantations based on a hub of 50,000–60,000 ha, with technical support to create a further 10,000–20,000 ha of satellite smallholder outgrower plantations. An industrial plantation forest resource of 300,000 ha could account for 1.2 percent of Lao PDR's land area of 23.7 million ha, attract in-country investment of US\$5 billion, create 100,000 or more new jobs from plantations and expanded downstream wood processing, earn up to US\$1.5-2 billion per year in export earnings, reduce poverty and contribute to climate action. As a commitment to corporate social and environmental responsibility, companies could agree to restore natural forests in up to 30 percent of their concessions.

Regionally and in Lao PDR, smallholders are assuming a larger responsibility for the supply of commercial wood. However, the role of plantations in farmer livelihoods in Lao PDR has been poorly understood and policies and incentives have not promoted good management for quality wood production. Previous modest experiences with outgrower partnerships between companies and smallholders failed to spark interest in scaling up these schemes. Similarly, previous policies encouraged farmers to plant trees, but farmers' insufficient technical knowledge, limited access to finance, and poor germplasm affected the areas planted and quality of wood produced, limiting market potential and financial returns. Overly complex and inhibitive regulations, procedures and interventions in smallholder plantation investments, management, harvesting and marketing have created perverse disincentives for smallholder investment in plantation forests while deterring good plantation management. Global experience shows that successful smallholder engagement requires clear and unequivocal ownership of trees by smallholders, reliable markets, enabling policies, and a robust technical package.

Village forestry can play a substantive role in the new green forest economy. Since rural communities depend on forests for their livelihoods, they have a strong vested interest to manage them well. The current form of participatory SFM engages more with local villagers in all planning and implementation activities compared to earlier models and has led to pilot Village Forest Management Plans that are ready for scaling up. There is potential for villages to partner with the government and plantation operators in the production, conservation, and protection of village forests. Support by district authorities in participatory planning, practices and benefits in village forests for the production of wood and non-wood forest products for customary, household and public-benefit uses has been inconsistent due to weak policies. Regulations regarding the rights to and uses of village forests and village land for household, customary use and commercial production, including timber harvesting and plantation establishment, are unclear and therefore open to misinterpretation or abuse, with negative environmental and social consequences. Given the right and opportunity to participate in planning, implementation and benefit sharing, village forest committees can generate revenues for both communities and government.

Key recommendations for building the new green forest economy

Lao PDR can harness the opportunity for green growth by strategically positioning itself as a global center of green production and by reinvesting in both natural capital (forest) and human capital (people).

Good partnerships for good investments create good jobs from good wood

Lao PDR can benefit from implementing participatory SFM for both planted and native forest. Participatory SFM encourages short- and long-term availability of timber and provides a long-term vision for credible domestic and international investors, smallholders and villages. It would also allow national and international forest enterprises to create jobs by investing in processing quality and capacity, workers' skills and certification.

The combination of SFM implementation, a TLAS, and certification of both forest management and chain-of-custody will help Lao PDR to meet international demand for legal timber from sustainably managed forests. To this end, Lao PDR can aim to facilitate and attract reputable private sector partners that can bring processing capacity to Lao PDR and guarantee chain-of-custody certification. The certification process can be widely promoted to attract investors as partners who share common sustainability standards. Given confidence that forest management certification is occurring, industry partners and the MOIC can drive chain-of-custody certification. Timber from salvage logging also needs to be appropriately licensed if Lao PDR wants to avoid perverse incentives from unsustainable competition with certified legal wood supply. Current certification systems for smallholders should be reformed because the systems tend to be costly, complex and can be discriminatory because they apply similar standards to larger-scale plantations, which are unattainable.

Raising private sector investment requires effective public policies and planning to reduce financial, operational, compliance, sovereign, physical (including climate), and biological risks. Risk mitigation strategies need to be developed inclusively, with central and provincial agencies cooperating to better integrate and inform their decision-making processes. This can be achieved by aligning and sequencing public policies, sharing information on concessions and resources and by adopting best practice guidelines for compliance with operational and social and environmental standards.

Ensure that local people are partners in production and receive economic benefits

Revitalizing smallholder plantation development would diversify land use, improve socioeconomic conditions and provide environmental benefits. Smallholders need clear tree tenure, harvesting rights, reliable markets and a robust technical package, including access to quality germplasm and the provision of effective extension services. Further enhancements to the regulatory framework would simplify and clarify procedures and provide enabling legal and policy conditions for smallholder plantation investors, particularly those planting indigenous species.

In PFAs, the potential for village forests can be realized by giving rights to the village to plant trees and harvest wood for commercial purposes, in addition to customary and household use and for NTFPs, under clearly defined requirements. Such requirements could include, among others, clear land use rights; an approved land use plan demarcating available area and forest quality to allow for viable commercial operation; and a village forest management plan and benefit distribution agreement coordinated through an established village forest committee (VFC) as the decision-making body working in close collaboration with district authorities.

Public-Private-People Partnerships (PPPPs) offer a viable approach for villages to participate in forestry via direct employment, production and outgrower schemes. This approach requires (i) concerted outreach; (ii) definition of criteria for private sector engagement with communities; (iii) standardized and robust consultation with interested communities; (iv) 'honest 'brokers to facilitate and build trust and experience among parties; and (v) clear market and profit-making opportunities. PPPPs work well when enabled by clarification and formalization of land use rights and land access agreements, transparent decision making, robust and fair contracts and access for all parties to mediation, arbitration and dispute resolution processes.

Carefully calibrate policy and incentives

Lifting the timber harvesting and export bans for natural production forests could be carefully considered once SFM, appropriate licensing procedures, and strengthened government capacity for revenue management and distribution are firmly in place. Lifting bans could be implemented initially in pilot locations where there are agreements on instruments, criteria and processes, SFM and chain-of-custody certification, legality of salvage logging, and auction platforms. Measures by MoIC to enforce the ban on the export of round logs and semi-processed products, such as the list of acceptable manufactured products for export, have constrained product innovation and industry development. Ministries and industry should collaborate to revise the list and focus on prohibited products. Lifting prohibitions on plantation-sourced wood products would send a strong message to growers and reinvigorate the plantation sector.

While participatory SFM and planted forests can be profitable and therefore incentivize farmers and enterprises to invest, appropriate and carefully considered fiscal measures are necessary to support future forest management. Royalties, fees, fines and taxes could be integrated into a regulatory environment that enables SFM and other activities that protect natural and human capital. However, given current knowledge and policy gaps, further assessment of the fiscal impacts of policy and regulatory reforms is required.

Investing in research, development, and extension is a basic element of sector sustainability and growth. Global experience shows that research institutions, universities and technical colleges play a vital role in disseminating knowledge and developing a workforce necessary for native forest and plantation management, harvesting and haulage, product design, wood processing, downstream industries, conservation, tourism, etc.

Tangible benefits accrue from sustaining allocation of resources to continuously build regulatory capacity at central and local levels. A wide array of fundamental institutional mandates exist to maintain, enhance, and effectively enforce regulatory capacity, such as environmental and social impact assessment, forest law enforcement, and concession and revenue management.

A government-led, long-term, large-scale investment program to manage the full forest estate would convene sectors, stakeholders and partners, leverage diverse financing sources, and enhance information, institutions, and incentives. The World Bank Group and interested partners are ready to provide financing and non-financial services to build this platform, program and related public and private sector investments.

1 Introduction: Lao PDR and the New Green Forest Economy

1.1 Opportunities from Forest Sector Reforms

- 1 **Lao People's Democratic Republic (Lao PDR) has a comparative advantage in natural capital, which has fueled economic growth averaging around 8 percent per annum since 2000.** Natural resource endowment comprises half of the country's wealth.¹ Although forest cover declined 3.6 percent between 2005 and 2015,² Lao PDR still has among the highest forest cover percentage of countries in the region, and the value of timber and non-timber forest products is US\$10,740 per capita.
- 2 **Lao PDR has embarked on an ambitious reform agenda for the forestry sector to achieve more economic growth that is more sustainable, more resilient, and more inclusive than has been possible under business as usual.**
- 3 **An emerging vision of a new green forest economy presents numerous opportunities for Lao PDR to secure greener and more resilient growth, sustainable livelihoods and jobs, and ecosystem services by implementing sustainable forest management³ (SFM) and private sector solutions that will help expand forest cover to Lao PDR's target of 70 percent.** Achieving this target can help to provide food, medicines and building materials from forests, and to support downstream industries like furniture production and reconstituted and fiber products as well as nature tourism in forest landscapes.⁴ It would also help the country to meet its Nationally Determined Contribution (NDC) to climate action by reducing climate risks such as flooding, landslides, and erosion that silts strategic reservoirs, and by reducing greenhouse gas emissions of 60-69 MtCO₂-e according to the NDC.
- 4 **Lao PDR currently has 13.7 million hectares (ha) of forest cover (58 percent of land area) and the 8th National Socio-Economic Development Plan 2016-2020 (NSED-8) and National Green Growth Strategy 2019-2030 aim to raise forest cover from the current 58 percent to 70 percent.** Forest is valuable, but deforestation rates are high, with about 80 percent of the country's forests considered degraded or highly degraded. Deforestation is mainly due to the expansion of agriculture and clearing for hydropower projects, mining sites and other infrastructure development. Forest degradation stems

1 <https://datacatalog.worldbank.org/dataset/wealth-accounting>.

2 Ministry of Agriculture and Forestry (MAF) of Lao PDR, Forest Inventory and Planning Department (FIPD), 2018.

3 Chapter 3 contains an expanded definition of SFM.

4 The term "landscape" has permeated discussions regarding forest and conservation management during the past few decades, and climate change action more recently. A landscape is often defined as a geographical area that includes not only biophysical features but also its cultural and institutional attributes. A landscape is not necessarily defined by its size; rather, it is defined by an interacting mosaic of land cover and land-use types relevant to the processes or services being considered or managed. Examples of forest landscapes can range from large tracts of forests used for multiple purposes to mosaics of forests, protected areas, home gardens, rice terraces, villages, wetlands and waterbodies. Multiple uses and benefits accrue from landscapes including production, conservation, cultural, spiritual, recreational, environmental services, flood risk reduction, etc.

from poor or absent management, unsustainable wood and non-timber forest product (NTFP) harvesting and shifting cultivation. Illegal logging and cross-border trade have contributed to both deforestation and degradation and until recently were widespread. These losses undermine the economic promise of the sector to contribute jobs, livelihoods and environmental services.

- 5 **Since May 2016, government efforts through Prime Minister’s Order No. 15 (PMO15) demonstrate a strong commitment to reversing these negative trends through stronger enforcement.** Illegal logging and trade have significantly declined, and forest crimes and rent-seeking behavior are being prosecuted with greater frequency. Statistical evidence verifies the positive impact and effectiveness of PMO15 and associated regulations (To and Canby 2017). When assessed in 2017, wood imports (round logs and lumber) from Lao PDR dropped demonstrably in both China and Vietnam since the order’s inception. Anecdotal evidence from the field points to substantially improved governance in the sector as well as a more sustainable long-term vision for sustainable forestry. However, the ongoing impacts on the forest sector must continue to be monitored for impacts on actors including the most vulnerable and least resilient smallholder plantation owners and small and medium enterprises.
- 6 **Despite recent progress, the past 10 years’ inventories of Lao PDR’s Production Forest Areas (PFAs) show dramatic reductions in commercial grade timber stocks, which is prompting three important changes in the way the GoL is now orienting its forest management approach.** First, management regimes in many PFAs are now being focused on rehabilitating degraded stocks since viable commercial harvesting is no longer an option. Second, in areas where commercial harvesting is still viable, the government is committing to pursue participatory sustainable forest management (PSFM), including timber legality and third-party forest management and chain-of-custody certification. The GoL is developing a timber legality assurance system (TLAS) that will apply to all forests and forest products including infrastructure areas where forest management certification is not applicable. Proving sustainably managed and legally produced and traded wood from Lao forests and forest industries is one of the most important factors for ensuring that businesses can access both national and international markets and thrive.
- 7 **Moreover, in the past decade, international markets have changed rapidly and significantly, creating opportunities for Lao PDR.** Increasingly, governments, multinational companies and timber and construction foundations and associations representing a significant proportion of wood importers and users have introduced green procurement policies that require forest and wood certification by internationally recognized and credible certification authorities for proof of sustainability. International banks, lending agencies and donors require proof of sustainable management of forest resources as a condition of lending or granting funds. Additionally, planners, architects and engineers that are required to uphold green building standards around the globe are increasing their use of wood in innovative new construction designs, however, they require that the wood has proof of sustainability through an independently assessed, credible certification authority.
- 8 **A major global deficit is anticipated in the supply of wood in the foreseeable future.** At the same time, there is a global renaissance in the use of engineered wood, with campaigns such as “Wood is Good,” “Wood Works,” and green building ratings encouraging innovative ways to use wood for construction and other uses. Renowned architect Alex de Rijke noted that, “timber, despite being the world’s oldest construction material, is now the most modern” (Miles 2014). And Amy Frearson writes, “the 18th century was the peak of brick; the 19th century the era of iron; the 20th century the century of concrete and the 21st century is fast becoming the time for wood (Frearson 2017). Advanced timber technology has the potential to contribute substantially to reducing global greenhouse gas emissions compared to steel and concrete which have large carbon footprints. Figure 1 shows the use of high-quality, certified, legal timber. Lao PDR’s forest sector can play a strong role in this market if ongoing sector reforms continue.

FIGURE 1: WORLD BANK LAO PDR OFFICE BUILDING



1.2 A Partnership on Forest Sector Development

- 9 **To support this reform process and raise complementary public and credible private investment in forestry, the Government of Lao PDR (GoL) and World Bank Group (WBG) have together engaged in advisory work to enhance understanding and implementation of SFM.** This engagement process involved meaningful dialogue among the government, WBG, private sector actors and other stakeholders to support ongoing forest policy, legal and regulatory reforms, to identify investment opportunities, and to strengthen partnerships, including PPPs. Other development partners such as the Australian Centre for International Agricultural Research (ACIAR), the Food and Agriculture Organization of the United Nations (FAO), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Japan International Cooperation Agency (JICA) and others have aligned in support of the government's forest reforms.
- 10 **The Ministry of Agriculture and Forestry (MAF) has been advancing three main measures for forest sector development and SFM in particular,** including: (i) restoring deforested areas and highly degraded forests through reforestation, regeneration, and by adopting public-private partnerships; (ii) promoting certification throughout the supply chain including for SFM and chain-of-custody; and (iii) developing and applying a TLAS for verification of legality across the supply chain, including from Production Forest Areas (PFAs), planted forests and salvage logging from conversion forests.
- 11 **To improve planning, policy and programs on these topics, MAF requested advisory services and analytics (ASA) from the World Bank to explore three key questions that anchor the policy and investment dialogue around SFM:**
 - > What is the value to Lao PDR of forest certification and participatory SFM?
 - > How can Lao PDR best assure that all timber sources and markets are legal?
 - > How can Lao PDR invest in forest restoration using public-private-people partnerships?

12 The WBG/GoL engagement has been addressing these questions and reinforcing the GoL's forestry reform process by informing new policies, regulations, and the emerging new Forestry Law. This task has been carried out in close cooperation and partnership with GoL institutions, including MAF and its Department of Forest (DoF) in particular, the Ministry of Industry and Commerce (MoIC), Ministry of Planning and Investment (MPI), Ministry of Natural Resources and Environment (MoNRE), development partners including the WBG's International Finance Corporation (IFC), and others active in the sector as well as private actors. A series of quantitative and qualitative assessments, technical background reports and policy dialogues conducted under this task are synthesized in this report. Appendix C details the approach and methodology taken in this task. The various assessments and other outputs are available separately and include the following:

- i. *Retrospective of the Forest Sector in Lao PDR*
- ii. *Sustainable Forest Management in Lao PDR*
- iii. *Economics of Sustainable Forest Management in Lao PDR*
- iv. *Certified Forests and Wood Products in Lao PDR*
- v. *Regulatory Framework and Policy Support for SFM, Certification, Timber Legality and Public-Private-People Partnerships in Lao PDR*
- vi. *Public-Private-People Partnerships for Forest Restoration in Lao PDR*
- vii. *Various policy notes*

1.3 Structure of this Report

13 This report is structured into four chapters, starting with this introduction as Chapter 1. Chapter 2 presents a short history of the forest sector in Lao PDR and includes forest sector characteristics; important policy developments, and economic contributions to the economy, jobs and livelihoods. Chapter 3 assesses the potential for SFM in Lao PDR including (i) certification throughout the supply chain; (ii) legal timber assurance; (iii) forest restoration; (iv) access to new, growing, and often innovative markets for "good wood"; (v) potential to build partnerships between people, public, and private sectors; and (vi) economic and financial assessments for key SFM models with expansion potential. Chapter 3 concludes with a summary of key recommendations for building incentives (including policies and markets), institutions, information and investments that can help Lao PDR transform the sector. Recommended actions are described in detail in Appendix B.

2 Characteristics of the Forest Sector in Lao PDR

2.1 Trends in the forest sector in Lao PDR

- 14 About 67 percent of Lao PDR's population is rural (GoL Population and Housing Census 2015) and depends on forests and forest products to support various needs; over 39 percent of rural family income derives from NTFPs (Foppes and Samontri 2010).** In 2010, the total combined NTFP income for the rural population was estimated at US\$510 million per year, representing approximately 9 percent of GDP that year (Foppes and Samontri 2010). The economic value of subsistence consumption of NTFPs to households has been estimated at US\$489 per year and at US\$204 per household per year for cash income. The poor are the most vulnerable to environmental change and particularly to forest loss due to 'reliance on forests' provision of environmental services.
- 15 Lao forests are also important to mitigate risks from floods, fires, droughts, storm-related damage and erosion.** These risks threaten upstream forests and watersheds and downstream infrastructure, investments and assets, which can further impact economic development, food security and livelihoods. Climate risks are amplifying these challenges. A preliminary financial risk assessment estimated annual economic losses for Lao PDR due to natural disasters as equivalent to 0.7 percent of GDP (ASEAN 2012). Lao PDR's forests provide wood for domestic and export markets, subsistence and customary use for construction, fuelwood and NTFPs including for food and medicine, and significant ecosystem services including habitat for flora and fauna, eco-tourism services, carbon storage, soil and water protection, hydropower and other infrastructure investments, as well as spiritual places for indigenous people and religious groups (Table 1).

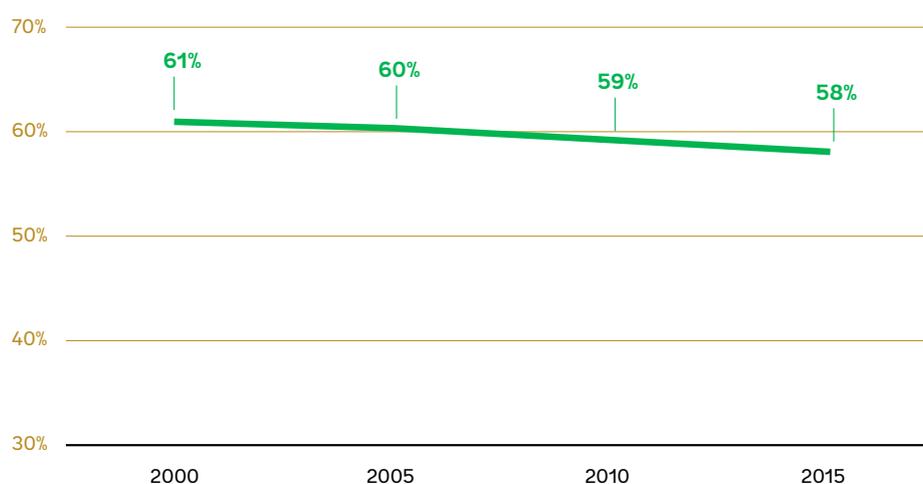
TABLE 1: ENVIRONMENTAL SERVICES FROM FORESTS IN LAO PDR

Function	Natural Forests			Planted Forests		Trees Outside Forests
	Primary	Modified	Degraded	Native	Exotic	Native & Exotic
Biodiversity	High	Moderate	Low	Moderate	Low	High
Soil and Water	High	Moderate	Low	Moderate	Moderate	Moderate
Carbon and CO ₂ e	High	Moderate	Low	High	High	High
Spiritual/Customary	High	Moderate	Low	Low	Low	Low
Wood and Fiber	Low	Moderate	Low	High	High	High
NTFPs	Low	Moderate	Low	Moderate	Low	High
Sustainable Livelihoods	Low	Low	Low	High	Moderate	High
Eco Tourism	Low	Low	Low	Low	Low	Low
Climate and Disaster Risk Reduction	High	Moderate	Low	Moderate	Moderate	Moderate

2.1.1 Forest Cover Trends

16 Among mainland Southeast Asian countries, Lao PDR has the highest proportion of land area in natural forest cover, which is an asset for driving green growth. The 13.7 million ha of natural forest in Lao PDR are composed mainly of mixed deciduous evergreen and dry dipterocarp types, plus an additional 6.3 million ha of bamboo and regenerating vegetation. The forests and their biodiversity have been threatened and degraded with unsustainable management and areas converted for infrastructure (i.e. “conversion forests”) being the largest source of timber, which has been enabled by conflicting, discretionary, or ambiguous regulations. Based on the GoL’s Fifth National Report to the UN Convention on Biological Diversity, deforestation has denuded large areas of Lao PDR since the 1940s, when forest covered over 70 percent of the country’s land area. By the 1990s, forest cover had shrunk to less than 40 percent (MoNRE, 2016). The GoL started its first national forest inventory in 1982 and continues on a 10-year basis. Since 2010, it has shifted to a five-year basis to measure the implementation results of the NSEDP, as well as providing a baseline for the next government planning cycle. Based on the inventories, ‘Current Forest’ cover in Lao PDR declined from 60.9 percent in 2000 to 60.2 percent in 2005, 59.3 percent in 2010, and 58 percent in 2015⁵ (Figure 2).

FIGURE 2: FOREST COVER CHANGE IN LAO PDR 2000-2015



Source National Forest Inventory, MAF Forest Inventory and Planning Department (FIPD) 2018.

17 Forest losses during 2005 to 2015 primarily occurred in forests outside the three official Forest Categories (3FCs)⁶ in village forests. Due to lack of clear ownership and management systems, and their proximity to residential areas; these forests are subject to open access and clearance for expansion of crop production, road construction and logging.⁷ Across the 3FCs, Production Forest Areas (PFAs) have lost 4.2 percent of their forest cover, Protection Forest Areas (PtFAs) 3.3 percent, and Conservation Forest Areas (CFAs, also referred to as protected areas) 1.8 percent, for a total of 318,000 ha. On average, official Current Forest experienced a decline of -0.36 percent per year (Table 2).

⁵ Between 1982 and 2010, the national forest inventory was carried out four times using satellite imagery ALOS/AVNIR-2 in 52,000 sampling plots of 100x100 meters throughout the country. This method does not deliver high quality processing, so in the 2015 inventory, DoF used Rapid Eye, which delivered more detailed results that closely match the ground inventory (ground truth) resulting in 58 percent forest cover.

⁶ See appendix A for designations and definitions of forests in Lao PDR.

⁷ Forthcoming: National REDD+ Strategy, GoL 2019.

Dense forest with a canopy cover of over 70 percent decreased from 29.1 to 8.3 percent of total forest area, while open forest (<40 percent canopy cover) increased from 16.3 to 28.9 percent. At the same time large neighboring forest areas (>1000 ha) decreased from 88 to 52 percent of the total forest area during 2010 to 2015.

TABLE 2: FOREST LOSS FROM 2005 TO 2015

Category	Hectares of forest cover in 2005	Hectares of forest cover in 2015	Forest loss	
			Hectares	Percent change
Production Forest Areas	2,237,000	2,142,000	-95,000	-4.2%
Protection Forests	4,779,000	4,619,000	-160,000	-3.3%
Conservation Forests (protected areas)	3,532,000	3,470,000	-62,000	-1.8%
Sub-total of the three forest categories	10,548,000	10,230,000	-318,000	-3.0%
Other forests outside the 3FCs	3,328,000	3,139,000	-189,000	-5.7%
Overall total	13,875,000	13,369,000	-506,000	-3.6%

Source MAF Forest Inventory and Planning Department (FIPD), 2018

18 Forest quality has also deteriorated. Forest fragmentation has increased, with small forest parcels (less than 10 ha) rising from 0.9 to 6.7 percent of the total forest area between 1992 and 2005. Large forest parcels (larger than 1,000 ha) decreased in proportion from 88 percent in 1992 to 54 percent in 2015. An estimated 60 to 80 percent of the intact forests were already degraded by 2015. Regenerating vegetation, which consists of bamboo and fallow land for shifting cultivation, decreased by an average annual rate of 4,500 hectares between 2000 to 2015.

2.1.2 Production Trends

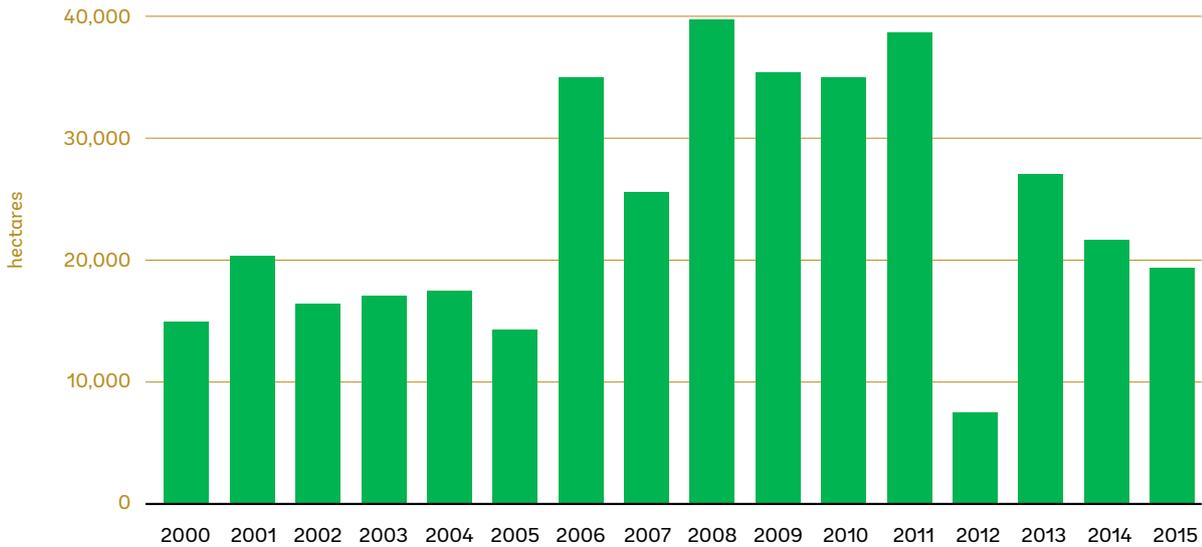
19 Trends in timber harvesting are variable but have come under increasing regulatory control. Commercial logging activities in natural forests have mostly been concentrated in central and southern areas and timber harvesting is based on a quota system for resource allocation. Conversion forests are harvested using a special quota system. Since 1991 there have been a series of Prime Minister Orders to regulate logging, most recently PMO31 (2013) temporarily banning logging in PFAs and PMO15 (2016) to strengthen inspection of timber harvesting, transport and business.

20 Since the 1990s, there have been several attempts to improve community forestry and participatory forest management with the aim of producing shared benefits. These continued until 2012 when along with harvesting in PFAs, participatory SFM ended, and the benefits derived from harvesting ceased to flow to villages. Consequently, villages sought alternative pathways to benefit sharing, which had become important for development.

21 Over 478,600 ha of plantations have been established in Lao PDR (figure 4); private enterprises on their own or with outgrowers own 67 percent, smallholders own almost 33 percent, and the state 0.3 percent (DoF 2018). Policies to promote plantations were introduced in the 1990s, resulting in quick uptake which accelerated planting in the mid-2000s, primarily of rubber. In 2012, the government placed a temporary ban on concessions for some new plantations (Prime Minister's Order 13, PMO13), including rubber; in 2018, the ban was lifted for eucalyptus and acacia (Prime Minister's Order 9, PMO9) and there is renewed vigor in these sub-sectors for both companies and smallholders.

22 Plantation investment by companies faces technical and institutional constraints, particularly the GoL’s inability to administer requests, regulate activities, and identify suitable land. Competition for land with high-value agricultural crops remains an issue. After initially rapid uptake, the expansion of smallholder plantations has stagnated, and productivity and quality have been limited.

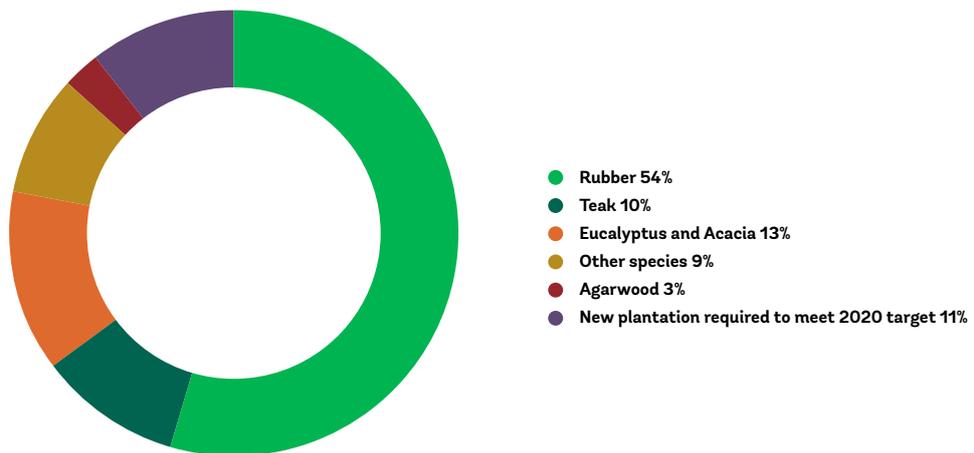
FIGURE 3: ANNUAL PLANTATION ESTABLISHMENT, 2000-2015



Source DoF 2015

23 In 2005, the government issued the Forestry Strategy to Year 2020, which set a target of 500,000 ha of plantations established by 2020 which has almost been achieved (Figure 4). An area of 650,000 ha of severely degraded, treeless lands within PFAs has recently been identified as potentially suitable for forest plantation investment. The GoL has recognized that Public-Private-People Partnerships (PPPPs) offer a potential solution for reforestation and restoration of this large contiguous area.

FIGURE 4: AREA OF PLANTATION SPECIES AND TARGET FOR 2020



Source Smith et al. 2017

24 Certification of legal and sustainable harvesting and trade has been limited mostly to externally funded, voluntary efforts in PFAs, although some private companies and smallholder groups investing in forest plantations have certified small areas for forest management and chain-of-custody. Certification has not been successful among smallholders in Lao PDR, and the experience in other countries has been mixed. Certification of smallholder plantation forests for SFM through the Forest Stewardship Council (FSC) has been effective in central Vietnam where the World Bank-financed Forest Sector Development Project funded a certification process that improved smallholder plantation forest management and product differentiation and resulted in premiums ranging from 10 percent to 30 percent for certified wood (above the base case non-certified). This led to better financial returns to smallholders (Frey et al. 2018). Another study of smallholder plantation forests in central Vietnam showed that while net returns from both certified and non-certified timber products were positive, they were higher for certified than for non-certified timber production; however, when the full costs of certification were included, the benefits to smallholder growers were reduced or negative unless they were spread over a group of smallholder growers. Under current models, the viability of certification seems to be constrained by dependence on international agencies and donor support. Additionally, in recent years the price difference between the certified and non-certified wood has been narrowing, possibly discouraging farmers from pursuing certification (Maraseni et al. 2017). Sustaining group certification can be challenging (Ling et al. 2018) especially when the minimum group size required to make certification cost effective can be large; in Lao PDR, the estimated minimum group size is 3,000 members (Midgley 2016).

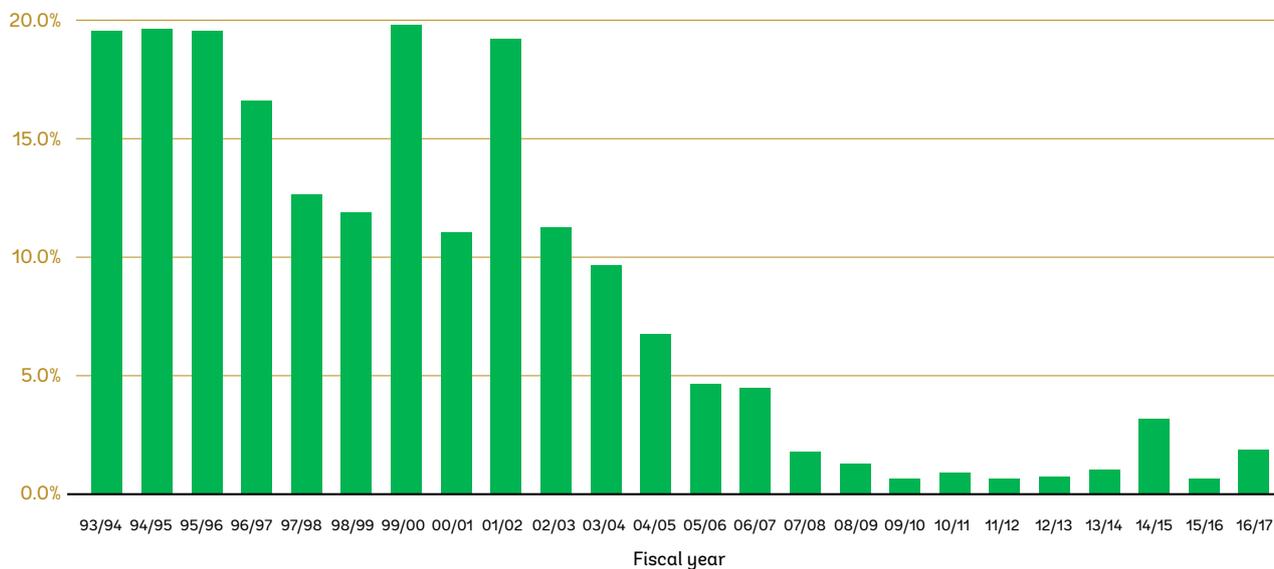
2.2 Contributions to the Economy and Livelihoods

2.2.1 Economic Contribution

25 Forestry revenues have historically contributed significantly to GDP. Between 1990 and 2000, the forestry sector contributed 8 percent to 9 percent of Lao PDR's annual GDP—a figure that has been consistently underestimated. However, the sector's contribution fell to an estimated 4 percent to 5 percent of annual GDP from 2001 to 2015 (World Bank 2017). This decline was due in part to high levels of illegal logging and forest products trade and the increasing contribution of manufacturing, mining, hydropower, and tourism to the economy. Forestry has the potential to once again be a larger part of the economy, under the emerging new policy regime characterized by good governance, policy coherence, sustainability, inclusivity and profitability. Official data shows that the share of timber royalties to total tax revenue decreased from over 19 percent in fiscal year 2001/02 to only 2 percent in 2016/17 (Figure 5). Preliminary data from MOF show revenues fell in 2018 in absolute terms.

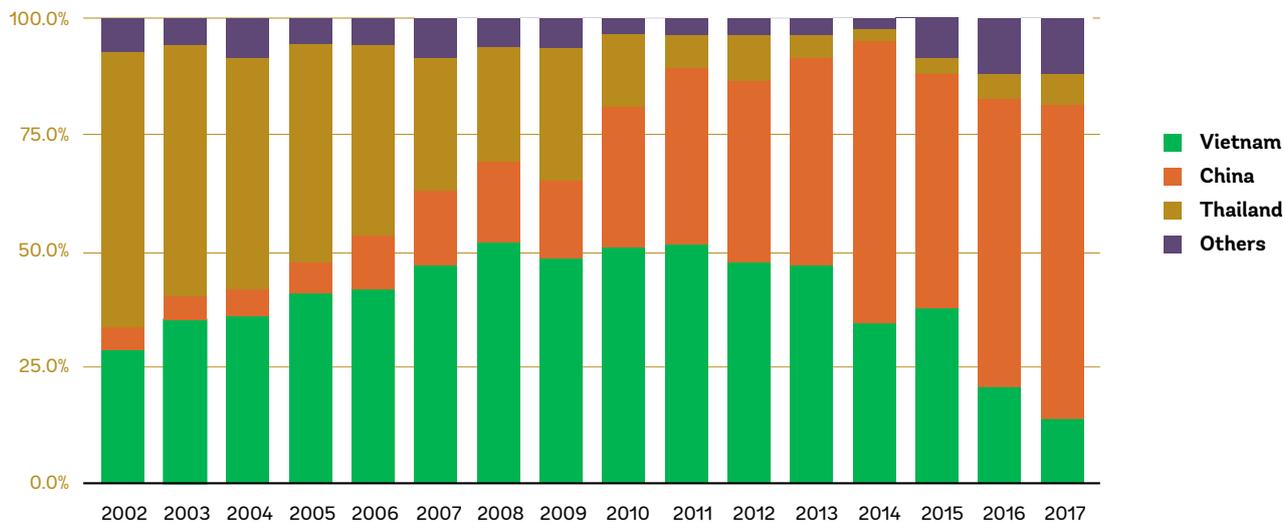
26 A well-functioning and diversified forestry sector contributes to the economy through multiplier effects, job creation, raw materials for construction and downstream wood-processing, the provision of subsistence wood and NTFPs for customary use, and the provision of ecosystem services, which make the actual GDP contribution larger than from timber sales only. China (63 percent) and Vietnam (33 percent) were responsible for consumption of 96 percent of Lao PDR's wood products exports in 2014 and the value (legal and illegal) was estimated at US\$1.7 billion (World Wildlife Fund (WWF) 2015). The contribution could have been much greater if forestry royalties and fees were properly levied or collected. Illegal logging reduced the potential contribution of this significant natural resource even further. Recent figures show a total wood export volume of 659,000 cubic meters (m³)

FIGURE 5: TIMBER ROYALTIES AS A SHARE OF THE TOTAL TAX REVENUE (1993/94-2016/17)



Source Bank of Lao PDR, Annual Economic Report 2017

FIGURE 6: LAO PDR WOOD EXPORTS BY IMPORTING COUNTRIES (2002-2017)

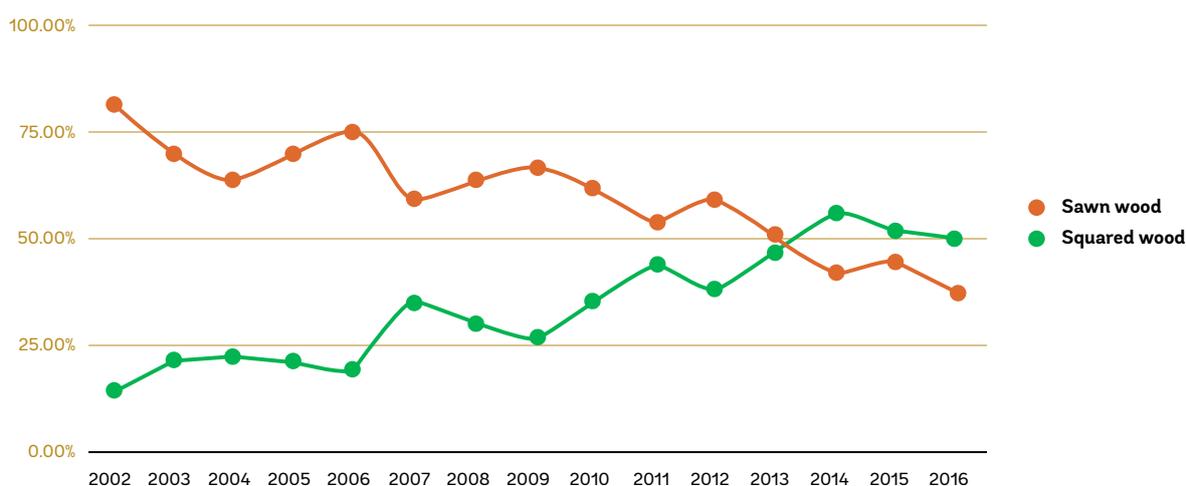


Source Food and Agriculture Organization (FAO), 2018

in 2015 (International Tropical Timber Organization (ITTO) 2016). Annual exports declined in 2016 to 11 percent of the 2015 levels after the PMO15 ban on the export of round-wood and semi-processed products. Although this order has been strongly enforced, forests continue to be converted for other land uses. In 2017, the main destinations for export included China (68 percent) followed by Vietnam (13 percent), Japan (6 percent) and India (5 percent). China has become the main importing country over the past fifteen years (Figure 6).

27 Wood product exports from Lao PDR have historically been dominated by unprocessed and semi-processed products (Figure 7). The export of higher value wood products such as high-quality furniture has room to grow and create jobs in the process. These exports only accounted for between 1 and 3 percent of the total value in 2017. Factors obstructing higher value wood processing and exports include the decreasing supply of raw materials, limited access to finance, inadequate downstream processing, poorly skilled workers, and lack of modern technology. Many attempts have been made to regulate and develop the wood processing sector. Downsizing of the sector has been occurring since 2005 in response to reduced wood supply following logging bans introduced by the GoL, and industry assessments by MoIC which developed a set of standards for the sector in 2007. In addition, forest-based industries shrank from over 2,100 facilities in 2006 to less than 1,150 in 2018, largely in response to low wood supply and the large number of unregistered and illegal operators being closed. At the end of 2016, there were around 1,300 wood processing facilities, directly employing more than 25,000 people in Lao PDR⁸ (Table 3). The wood processing sector remains dominated by furniture manufacturing (51 percent) and wood processing facilities (44 percent), with fewer veneer producers (2 percent) and sawmills (3 percent). It is envisaged that new investment, technological upgrading, upskilling staff and redesigning forest products will result in more efficient processing, improved recovery rates and a transition to higher value end products.

FIGURE 7: WOOD PRODUCTS EXPORTED BY LAO PDR (2002-2017)



Source Food and Agriculture Organization 2018

- 28 Current wood industry operating capacity is difficult to estimate due to unreliable and inconsistently reported data.** In 2009 annual wood processing capacity was estimated at 3 million to 3.4 million m³ per year, with industry recovery rates estimated at 40 to 50 percent on average from logs to sawn timber (European Forest Institute 2012) which is about 10% lower than other countries. Recovery rates from sawn timber to finished goods were estimated to be 70 to 85 percent, resulting in an average 40 percent recovery from raw material to finished goods. Recoveries could be improved with modern equipment and properly trained operators.
- 29 The forest industry remains dominated by individuals and micro-, small- and medium-sized enterprises (MSMEs).** While they are an important source of employment, these entities contribution to the sector remains poorly understood since they largely operate outside the formal sector despite some initiatives aimed at improving and formalizing these businesses. Recent policies focus on large export-oriented manufacturers.

TABLE 3: TYPE AND SIZE OF WOOD PROCESSING INDUSTRIES IN LAO PDR (2016)

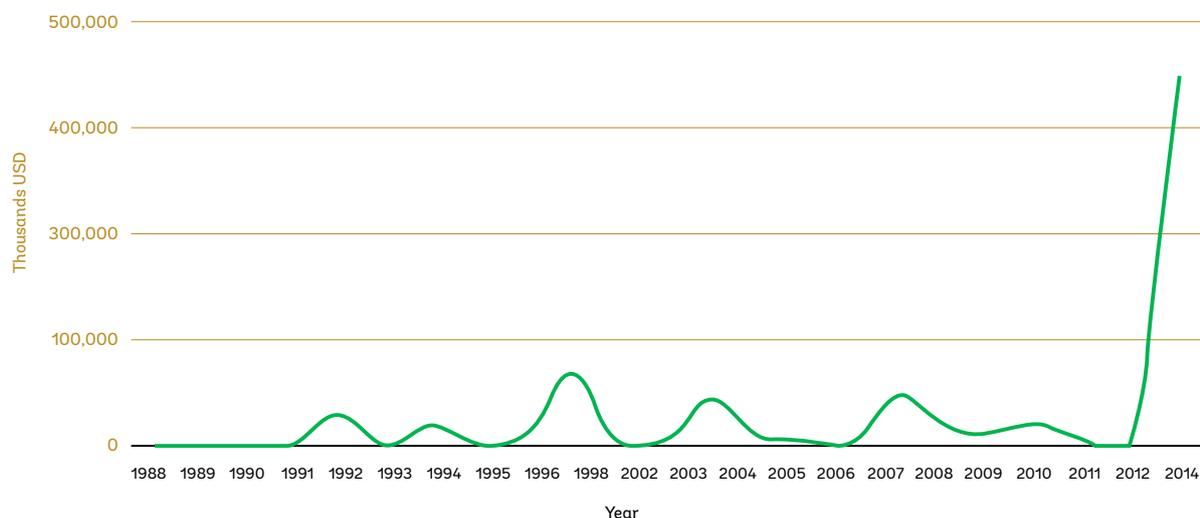
Type of industries	Large	Middle	Small	Total
Saw mills	28	11	-	39
Wood processing factories	264	201	114	579
Veneer	19	9	1	29
Furniture	18	170	490	678
Total	329	391	589	1325

Source FSIS 2018

- 30 In the agriculture and forestry sector, commercial industrial plantation forests and wood processing are the largest areas for foreign investment and have increased significantly in recent decades (Tong 2009).** Increased investment in the wood and wood products industries and better integration into regional and global markets are seen as ways to increase technical and managerial capacity in Lao PDR through technology and knowledge transfer.⁹ However, lack of investment by existing operators or new entrants remains an issue in the secondary wood manufacturing industry (Figure 8).
- 31 Wood supply is an ongoing constraint and has been unpredictable since the ban on timber harvesting in PFAs (PMO31).** Most sawmills and factories survive on unsustainable sources of wood salvaged from conversion forests or the auction of confiscated illegal logs. The contribution of plantations has been limited, although it is expected to increase in the future as resources mature. The current logging and export bans are providing an opportunity to evaluate the raw material supply and value chains and to revise policies and encourage private investors.

⁹ In July 2018, Sun Paper Holding Lao PDR completed the construction of the first pulp factory in Lao PDR at an estimated cost of US\$43 million.

FIGURE 8: DOMESTIC AND FOREIGN INVESTMENT IN WOOD PROCESSING INDUSTRY APPROVED BY MPI



Source FSIS 2018

32 Intensively managed, fast-growing and short rotation industrial plantation forests, particularly if associated with agroforestry systems, can provide excellent opportunities for employment in wood production, processing, and manufacturing (FAO 2018). The forest sector provides a variety of jobs including in the government sector in administration, management, research and enforcement; in the primary sector in nurseries, tree planting, harvesting, log extraction, trading, transportation and processing, with rural people the main beneficiaries; and in the manufacturing sector in wood processing industry, product manufacture, wholesale and retail. According to the 2015 Population and Housing Census, there are 2.5 million people employed in agriculture, forestry and fishing industry, of which 5,253 are employed in forestry and logging industries. In 2016, an estimated 25,000 people were employed in the wood manufacturing sector (Table 4), up from 22,000 in 2005. With continual growth, the forest sector could fuel sustainable social and economic development and employment generation, especially in rural areas. It is possible that a renewed forest sector, supported with stronger and facilitated private investment in plantations, could generate approximately 7,500 full-time direct jobs per 100,000 ha. (The global average for developing economies is one job per 10 ha). An additional 100,000 or more jobs could be supported throughout the value chain.

TABLE 4: JOBS IN DOWNSTREAM WOOD PROCESSING INDUSTRIES (2016)

Region	Sawmills	Wood processing	Veneer	Furniture	Total
Northern	454	3,104	269	1,059	4,886
Central	207	10,860	1,062	4,243	16,372
Southern	136	2,574	416	885	4,011
Total	797	16,538	1,747	6,187	25,269

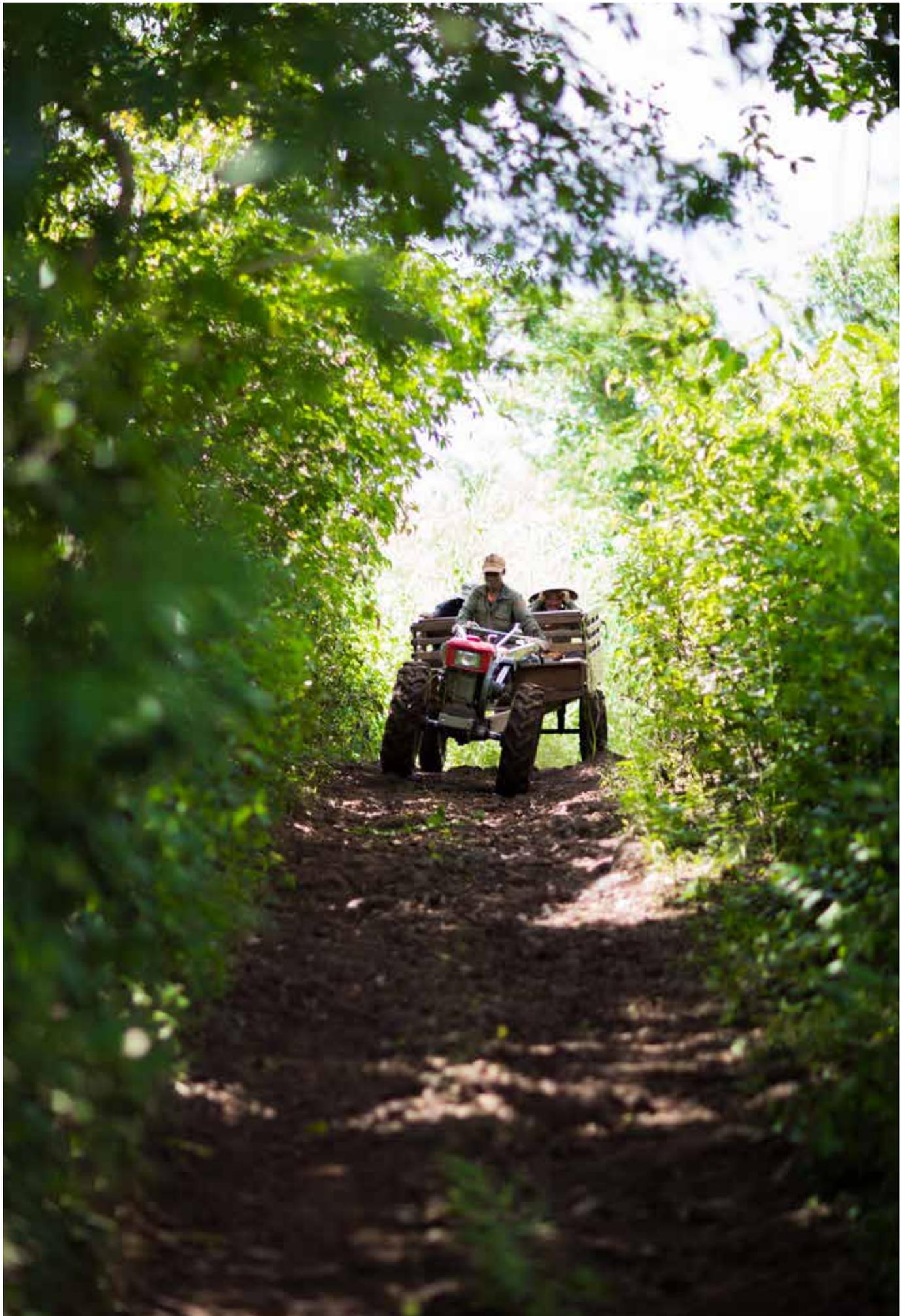
Source FSIS 2018 and data provided by Department of Industry and Handicraft, MOIC as of June 2016.

2.2.3 Forest and Livelihoods

- 33 Since about 73 percent of rural Lao people depend on forests and agriculture for livelihoods, optimal utilization and management of forest resources are important to help eradicate poverty.** The prevailing strengths and weaknesses of the forestry sector are listed in Table 5. NTFPs are a main source of food, income, medicine, and other subsistence items for those living within and close to forest areas (Sophathilath 2009). Wild animals and plant species such as mushrooms, bamboo shoots, wild fruits, vegetables, herbs, spices, and honey, for instance, provide a wide range of products for consumption and harvesting occurs in controlled use zones. Commercial harvesting of NTFPs is also permitted in PFAs based on annual quotas. NTFP traders play an important role in providing access to markets and trading is regulated from harvesting to the point of consumption or export (Chokkalingam and Phanvilay 2014).
- 34 In 2010, the total combined NTFP income for the rural population was estimated at US\$510 million, representing approximately 9 percent of GDP that year.** The economic value of subsistence consumption of NTFPs to households has been estimated at US\$489 per year and at US\$204 per household per year for cash income. Compared to other sources of household income such as livestock sales, crop sales and labor, NTFPs contribute on average 39 percent of the total average household income. Forest degradation could reduce total cash income from NTFPs by as much as 3 percent per year (Foppes and Samontri 2010).
- 35 Forests are also an important source of household energy for both rural and urban populations; fuelwood accounts for an estimated 80 percent of total energy consumption in Lao PDR.** Fuelwood and charcoal are often produced in rural areas and sold for urban consumption, providing another source of income. Consumption by urban dwellers has been estimated at more than 280,000 m³ per year, with a value equivalent to more than US\$45 million. Efforts to enforce sustainable management of forest resources should consider the significant value of fuelwood (Sophathilath 2009). The role of forests in protecting the watersheds of strategic reservoirs and waterways important for hydropower generation undoubtedly is also critical. Lao PDR has long recognized this vital ecosystem service from forested watersheds through the designation of Protection Forests throughout the country.
- 36 Participation of local communities and their forest use rights are recognized as necessary for improved forest management and protection.** Local people have important use rights in forests for household use and consumption, some limited commercial opportunities, as well as for important public services, such as the use of timber for schools and village facilities. Customary rights that allow for the use of non-prohibited species of plants and animals are also recognized.

TABLE 5: SUMMARY OF STRENGTHS AND WEAKNESSES OF THE FORESTRY SECTOR IN LAO PDR

Strengths	Weaknesses
Lao PDR has the highest proportion of its land area in natural forest cover among the countries in mainland Southeast Asia.	<p>Prior focus on the harvesting of the most valuable species and larger sized trees from PFAs has reduced standing volumes and resulted in future production being increasingly dependent on lesser known species and smaller log sizes and grades. This presents issues for wood processing, end-use potential, and realizing market value.</p> <p>Forests have not been fully valued.</p> <p>Salvage logging was not subject to a forest inventory or sufficient accountability which led to clear-cut logs from unauthorized areas.</p>
Significant sustainable business potential for Lao PDR's forest. High land expectation value (LEV) and internal rate of return (IRR) for planted forest and natural forest are potentially among the highest in the world if best management practices are used and timber prices remain high.	Delays in providing legal, long-term access to large contiguous areas of severely degraded forest land within and associated land concession agreements have been serious constraints to emerging forest restoration and reforestation efforts, and to attract and scale up plantation investment.
Significant contribution of the forestry sector to GDP (through export) and rural livelihoods (food, energy, employment and domestic use). Historic interest in wood products processing that could be reinvigorated with the right mechanisms.	Limited extension support and investment in research and development (R&D), training in forest restoration in different forest types, indigenous forest silviculture, improved germplasm for planted forest species and monitoring growth and yield.
Opportunity for green growth, jobs, livelihoods, climate change benefits, based on investment in natural capital (the forest) and related human capital.	Unclear concession licensing and industry regulation. Low-skilled labor outdated and inefficient equipment, poor designs and a lack of investment in forest industries processing and manufacturing plants have resulted in low volume recovery and poor-quality forest products more suited to the domestic market than international markets. Product export lists constrain industry innovation.
TLAS plus on-going certification of both forest management and chain-of-custody will allow Lao PDR to meet international demand for sustainable, legal timber.	There is low availability of legal wood. There are no organizations with chain-of-custody (CoC) certification for natural timber in Lao PDR and certification of sustainable forest management is limited to very few plantation companies. Challenges remain in developing and maintaining the institutional capacity and resources to develop and implement a TLAS across the whole forest industry sector and promoting the benefits of sector wide certification.
Progress in reforming the forestry sector. Enforcement of the logging and timber export bans provides space for major policy reforms to continue to be developed in order to revitalize the forestry sector.	<p>A significant body of legislation needs to be reviewed, revised, implemented and enforced to bring reforms into effect. Forestry royalties and fees are not properly levied or collected.</p> <p>Inefficient revenue management leads to evasion of fees, taxes and royalties</p>
Large areas of degraded or understocked forest land (around 650,000 ha) that could be allocated to private sector plantation investment, with potentially high rates of return.	Insufficient inter-sectoral coordination on spatial planning and associated violation of production, protection and conservation forest area boundaries.
Village forestry can play a substantive role in achieving government objectives. Current form of participatory SFM engages more with local villagers in all planning and implementation activities, leading to village forest management plans	As a consequence of the logging ban, there have been fewer benefits to VCFs that support village livelihood development, restoration of forests after harvesting, and the provision of employment.



3 The Potential of Sustainable Forest Management in Lao PDR

37 The GoL's emerging vision of a new green forest economy presents numerous opportunities for Lao PDR to secure greener and more resilient growth, sustainable livelihoods and jobs, and secure ecosystem services through the implementation of SFM. SFM places forests in the wider context of sustainable landscapes, people and their livelihoods. Partners including the WBG have aligned their support behind the concept of SFM.¹⁰ SFM builds on the foundation of (i) Lao PDR's new and emerging legal, policy, regulatory and institutional frameworks and instruments; (ii) good forest governance; (iii) knowledge, extension, R&D; (iv) social and environmental sciences; (v) market intelligence; (vi) participatory forestry, and ideally (vii) legal timber certified throughout the supply chain.

3.1 Concept of Sustainable Forest Management

38 The concept of SFM applies across all forests and all forest categories, and across landscapes in all geographic and climatic regions and ecological zones in Lao PDR. The social, cultural, environmental services, and economic sustainability effects should be considered through the participatory process for SFM.

39 SFM can be defined as a holistic approach to using and conserving forests to maintain and enhance multiple forest values through human interventions. SFM is a dynamic and evolving concept that aims to maintain and enhance the economic, social and environmental values of all types of forests for the benefit of present and future generations. The economic dimension refers to the generation of socioeconomic benefits through economically viable forest utilization and management; the social dimension acknowledges that forest utilization, protection and management should equitably and inclusively benefit local populations and contribute to local development; the environmental dimension recognizes that forests provide a range of functions and benefits when they are utilized and managed holistically. To achieve SFM, economic, social, and environmental objectives need to be pursued through an integrated approach that encourages participation by local communities and key stakeholder groups and that considers and balances each dimension.

¹⁰ The World Bank, with support from the International Development Association and Forest Investment Program, is financing the GoL's Scaling-Up Participatory Sustainable Forest Management project, which supports 41 of 51 PFAs nationwide, covering 2.3 million ha.

- 40 SFM also requires a legislative and institutional framework for transparent and accountable governance to supports its implementation.** At the national level, strategic planning documents provide the framework for priorities for investment in SFM and forest landscapes, including: the NSEDP; the localization of Sustainable Development Goals (SDGs); the 2030 National Green Growth Strategy; Forestry Strategy to 2020; the National REDD+ Strategy 2025 (being finalized in 2019); the NDC (2015) and National Adaptation Program of Action for the UNFCCC; and the National Biodiversity Strategy and Action Plan (NBSAP). These strategic documents provide key objectives and priorities that are increasingly being reflected in new policies and laws in Lao PDR.

3.2 Building the Foundation for Sustainable Forest Management

3.2.1 Participatory Sustainable Forest Management

Village Forest Management and FOMACOP

- 41 Various models of participatory forest management have been implemented in PFAs since 1995.** The concept was tested by MAF's Forest Management and Conservation Project (FOMACOP 1996-2001).¹¹ Under this model, villagers were given extensive rights to manage State forests within their village territory under forest management plans prepared by the village in collaboration with district and provincial authorities. Responsibilities in resource inventory, management planning, implementation, monitoring and evaluation were delegated by the State to a group of villagers that organized themselves into Village Forest Associations (VFA). The VFA signed an agreement with the Provincial Agriculture and Forestry Office (PAFO) to manage the production forests within proximity of their village. Revenues from forest management activities, after payment of government royalties and taxes and business costs, went to the VFA for village development activities. Net benefits were accrued by the VFA on behalf of the village. Logs were sold on a standing stumpage basis and were marketed to local wood industries and sold by Provincial authorities.
- 42 After a few years of implementation, the GoL reconsidered giving rights to villagers to legally sell timber from “national production forests.”** In 2002-2003 the government firmed up its policy for turning the national production forests into PFAs and decided that PFAs were to be managed by local forestry offices with village participation and oversight from DoF.

Transitioning to Participatory SFM

- 43 The Sustainable Forestry for Rural Development Project (SUFORD 2004-2012) financed government support for participatory SFM, which continues today through a subsequent series of investment operations.** The legislative framework for participatory SFM included specific details concerning the roles and responsibilities of all stakeholders at all administrative levels and laid out a clear percentage-based breakdown for the sharing of net revenues from timber sales (Presidential Decree No. 001, 2012). Forest management plans were developed with participation of local villagers, with the expectation of sharing benefits from timber revenues. Timber harvesting continued until 2011.

¹¹ Supported by the World Bank and Finland.

Implications of the Logging Ban

- 44 The 2013 introduction of the temporary logging ban (PMO31) in PFAs has hampered the ability to implement participatory forest management plans, except forest restoration work.** These plans created expectations regarding benefit sharing that have not been realized. The economic viability of SFM helps maintain incentives to continue to implement SFM and avoid illegal felling.
- 45 After the 2013 introduction of the logging ban in PFAs (PMO31), local communities lost control over forest management and found alternative activities to generate livelihood benefits from forests.** These activities included a return to arrangements with local companies to turn the degraded forests into commercial plantations and also the illegal extraction of resources from national CFAs and PtFAs. Although the logging ban continued into 2019, illegal activities have been curtailed. However, successive logging for valuable hardwood species from PFAs and the lack of post-harvest forest management (assisted natural regeneration, silviculture, and protection) have resulted in poor regeneration. The residual forest stands now comprise mostly lesser known species (LKS) and smaller trees for which there is lower demand and weak domestic technical capacity to process.
- 46 The relatively effective implementation of the logging ban in PFAs also diminished opportunities for villagers to participate in forest management, except for in the revision of forest management plans (required for the lifting of the ban), forest restoration through paid work for assisted natural regeneration, certification training in selected areas, and forest protection.** Potential revenue streams have been deferred and villagers' incentives for PSFM have been reduced, at least for the time being. The resulting lack of ongoing forest management activities also caused a loss of institutional knowledge, capacity and experience, and a decline in motivation through lost revenue among relevant government agencies. Nevertheless, a significant body of information exists and can be used to revive economically viable participatory SFM in Lao PDR if and when conditions are acceptable for a partial lift of the ban in areas that are ready, possibly including villages trained and ready to implement participatory SFM.

Strategic Planning and Regulatory Framework for Village Forest Management

- 47 The National Forestry Strategy to the Year 2020 highlights the need to enhance “village-based natural resource management for poverty eradication” as a key policy direction.** Achieving this goal, according to the strategy, requires the establishment of “a clear legal framework covering village land and forest resources that enable effective community based natural resource management including participatory land use planning at village level reflecting actual land and forest use.”
- 48 Community forestry is a key aspect of the country’s rural development strategy, driven by the idea that securing local management and user rights over local forests facilitates long-term poverty reduction and environmental conservation.** However, this vision has not yet been realized. Various projects have trialed village development plans, village land use plans, and village forest management plans with mixed results. Recently, new models have been proposed, and an expected change in the pending (as of April 2019) Forestry Law is anticipated to give the go-ahead for village forest management to proceed. An April 2019 draft includes a clause that for the first time allows village forestry for commercial use. Successful village forest management will also require secure, clear and well understood land use rights for villages.

3.2.2 Timber Legality and Certification of Forest Management and Chain-of-Custody

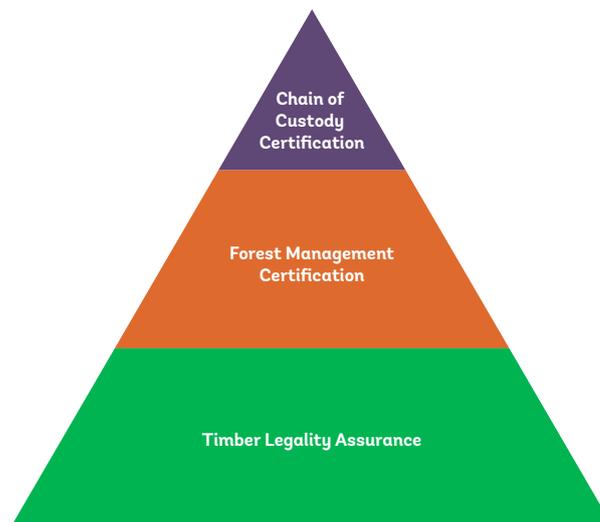
Timber Legality

- 49 Lao PDR has developed an extensive legal framework for forest management and timber supply chains, with strengths and weaknesses.** One strength is the ongoing shift to legal timber and certified supply chains that will help boost sustainability and sector performance. The framework is extensive but also complex and sometimes inconsistent, and it incorporates substantial regulatory costs and fees. Compliance is not comprehensive, and enforcement has been limited due to weak capacity and resources.
- 50 Increasingly, legislative measures such as laws detailing the standards, licensing and reporting of legality for wood imports exist in many timber-consuming countries, such as the European Union (EU), United States (U.S.), Australia and Switzerland, and approaches are emerging in other countries including China and Vietnam.** The GoL is currently negotiating a voluntary partnership agreement (VPA) with the EU. VPAs are legally binding, bilateral trade agreements that aim to address illegal logging by improving forest governance and promoting legal trade in timber. A VPA is underpinned by a TLAS, a country-specific system based on the existing regulatory control mechanisms and legislative framework of the partner country. The TLAS aims to identify, monitor and license legally produced timber to ensure that only legal timber is exported. Lao PDR has decided that its VPA will cover all sources of timber including PFAs, plantation timber, timber salvaged from conversion areas and imported timber, all exports and the domestic market. The Forestry Law Enforcement Governance and Trade (FLEGT)-VPA negotiating process is actively contributing to the dynamic policy environment for forests and forest products and driving the development of the TLAS. The extensive scope of the negotiations related to the EU-Lao PDR VPA suggests that the VPA will intersect with reforms across many sectors, thereby providing synergistic opportunities for collaboration and support. Under the advisory services in this report, a roadmap to support the development of a TLAS was developed and a Ministerial Instruction committing the government to this process was issued.
- 51 Timber legality is also the first and mandatory step toward forest management and chain-of-custody certification (Figure 9).** The Forest Stewardship Council (FSC) and Program for the Endorsement of Forest Certification (PEFC) have revised their legality standards to ensure harmonization with the EU Timber Regulation, the U.S. Lacey Act, the Australian Illegal Prohibition Act, and the EU-FLEGT Action Plan.

Certification

- 52 In addition to timber legality, major international markets such as the EU, the U.S. and other countries with green policies increasingly demand proof of sustainability of the wood products that they import by way of forest management and chain-of-custody certification across the supply chain.** These combined international markets total over three times China's annual wood imports, although this could change going forward: there is emerging interest in certified wood within Asia as China, Vietnam, and Thailand establish national standards for SFM to meet import requirements of their trading partners for legal and sustainable wood.

FIGURE 9: BUILDING BLOCKS TO CERTIFICATION



- 53 Forest certification is a market-based mechanism that aims to promote and support SFM through preferential purchasing.** In broad terms, forest certification is a system for verifying the sustainability of managed forests and branding products from these forests for markets. Products from forests certified as sustainably managed can, through chain-of-custody certification, move into production streams with labelling that allows consumers to know that the product they are purchasing came from a certified sustainably managed forest.
- 54 Third-party forest management certification is generally based on field evaluation of forest management practices conducted by an accredited organization applying internationally developed principles and criteria with locally developed and approved standards.** Certification of the chain-of-custody is a process undertaken to ensure accurate tracking of products from the forest to the consumer. Voluntary, third-party forest management and chain-of-custody certification and legality verification and monitoring are effective as tools to prove sustainability and legality in forest management, forest products processing and manufacturing, and forest products trade internationally, including in Association of Southeast Asian Nations (ASEAN) countries.
- 55 Two certification standards currently dominate the market—Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC), although other standards are emerging:**
- > **Forest management certification** is a tool to demonstrate sustainable, or at least responsible, forest management, mitigation of environmental impacts and demonstration of social accountability.
 - > **Chain-of-custody certification** is a tool to monitor compliance with supply laws, regulations and standards as proof of legality and to separate legal wood from non-certified and non-controlled forest products production and trade.
 - > **Controlled wood or controlled source certification** is granted based on a risk assessment that demonstrates that the supply of wood is from acceptable sources.

- 56 In the transition from exploitative and unsustainable forest management toward more integrated and sustainable management of PFAs, the GoL is working with stakeholder groups to reformulate policy, legal and regulatory frameworks, and to implement principles, standards, criteria and indicators with the aim of attaining and maintaining SFM.** Forest management and chain-of-custody certification and legality verification are nascent in Lao PDR as the Government builds an enabling policy, legal, and regulatory framework and identifies technical, administrative and cost barriers to be alleviated, particularly for smallholders.

Experience in Lao PDR with certification

Forest Management and Controlled Wood Certification

- 57 Lao PDR is making steady progress on forest management, reaching nearly 110,000 ha, which has created a strong foundation for scaling up certification.** In January 2019, a certification process was undertaken (FSC FM 85,000 ha; FSC CW 90,000 ha) in four PFAs supported by SUFORD-Scaling Up (SUFORD-SU) through a compliance audit by Nature Economy and People Connected (NEPCo, formerly Rainforest Alliance). This resulted in 39,925 ha certified for forest management, which brought the area certified for forest management to 50,874 ha, including the already certified area of 10,949 ha in 2018.¹² Adding the 57,534 ha for controlled wood, a grand total of 108,408 ha has been certified as of January 2019. Going forward, it will be easier for the GoL to expand the area certified.^{13 14}
- 58 MAF is preparing a policy to establish an effective and transparent third-party certification procedure for PFAs that includes group certification.** It is anticipated that the revised Forestry Law also will have an article to encourage PFA managers and forest industries to use FM and CoC certification for proof of sustainability. The DoF Group Certificate expired at the end of 2015 and re-assessment was conducted in May 2016 and again in October 2018 and January 2019.
- 59 MAF/DoF, the private sector and donors have demonstrated interest to develop a national certification system, independent national accreditation body, independent engagement of local stakeholders and tailored to the national context.** This results in national ownership of SFM and the capacity to monitor and improve forest products trade. If the system is proven robust and is recognized by PEFC, international market recognition and acceptance can be achieved. Vietnam is well advanced in establishing a new national certification system which presents potential lessons for Lao PDR.
- 60 Plantation companies are generally supportive of forest management certification because it allows them to both meet their priority of sustaining a return on investment and meeting commitments to shareholders to demonstrate corporate social and environmental responsibility.** There have been three private corporate plantation certification initiatives in Lao PDR, and over 7,000 ha of planted forest has been certified.

¹² Certified in Jan 2018 for another five years: 10,949 ha for rattan in two villages in Bolikhan District, Bolikhamxay.

¹³ Note that the FM and CW certificates of 108,408 ha are both Group Certificates, so DoF can add other FMUs and their forest areas to the FSC certified group, as much as DoF can handle without putting the certificate at risk, i.e. by including unqualified FMUs.

¹⁴ In Lao PDR, certification in PFAs commenced in 2004 with the formation of two provincial forest management groups which obtained FSC certificates in 2004 and 2005. The two provincial Group Certificates were combined into a single Department of Forestry (DoF) Group Certificate in 2007 (until 2010). The total area initially covered in the scope of FSC certification was 50,788 ha. The DoF Group of Forest Management Units (FMUs) was re-assessed in 2010, resulting in an extension of its FSC certificate to 2015. During the certification period an FMU and six Village Forestry FMUs were included. The total area covered was 132,162 ha.

- 61 There are no certified smallholder plantations in Lao PDR.** Lao PDR farmers have primarily planted teak in the north with support from government programs, and out-grower eucalyptus in central provinces supported by third-party investment. Despite previous donor-driven pilot projects, there are currently no certified independent farmer-owned or smallholder timber plantations in Lao PDR. The Luang Prabang Teak Plantation (LPTP) obtained FSC certification but let it lapse because the expense, technical standards, administrative complexity and lack of a premium market price did not warrant the extra cost of retaining the certification.
- 62 There have been some efforts to establish group certification to improve the supply of certified wood from smallholder plantation forests.** Group certification in Lao PDR has been trialed for teak plantations with the support of the Forest Trust and the LPTP, and more recently for bamboo and rattan with the support of WWF. Group certification is intended to ameliorate significant barriers to certification by individuals, such as (i) the limited financial income of small forest owners, (ii) periodicity of management activities and cashflow, and (iii) limited access to information and knowledge.
- 63 Under the system of group certification, a group entity represents the individual forest owners, with the overall responsibility for ensuring conformity of forest management in the certified area.** Individual forest owners who join the group on a voluntary basis are in turn required to comply with all requirements, to provide full cooperation and assistance in the implementation of forest certification, and to implement relevant corrective and preventive actions established by the group entity. Efforts for group certification have had limited success due to farmers being unwilling to commit to membership while other cheaper and easier avenues for wood sales were available (Ling 2014; Smith, Ling and Boer 2017; Ling et al. 2018). Certification for smallholders has been costly, complex and discriminatory against smaller growers (Midgley 2016).

Chain-of-Custody Certification

- 64 To maximize the benefits of certification, both forests and wood industries should be certified.** Partnerships between managers and owners of certified forests and certified business can result in shared value and sustainability of business. While there is currently no legal timber harvesting in PFAs, the government aims to strengthen the implementation of relevant regulations for forest management, timber businesses, harvesting, and processing since SFM will create opportunities to recommence harvesting from the areas. Together with forest management certification, chain-of-custody certification will better enable these products to be exported. Additionally, there is a need to address the supply chain control of wood products from harvesting in conversion areas and from stockpiles of wood held by individual mills, as well as from a national stockpile of primarily confiscated timber. Additionally, natural wood continues to flow from timber in conversion forest areas and this overwhelmingly constitutes the highest wood production in Lao PDR, including in the 2017/18 logging quotas. There is some wood harvested from privately owned native trees. At present, there are no organizations with chain-of-custody certification for natural timber in Lao PDR, but the GoL is developing guidelines on chain-of-custody and processes for timber sales through auctions.

- 65 The plantation wood industry has advanced chain-of-custody (CoC) certification through company-driven efforts.** This process has been most successful for companies with integrated plantation processing businesses that source wood from their own plantations. There are currently two private corporate plantation companies with FSC CoC certification. However, in some cases private corporate plantation companies may also source wood from smallholder outgrowers, smallholder organizations (groups) or individuals which typically have limited supply chain control. Where there is a direct relationship between grower and purchaser such as grower to local sawmill to manufacturer, CoC could be encouraged through improved value chains and benefits distribution. However, smallholders continue to face barriers in SFM certification, which in turn limits their ability to achieve CoC certification unless specific provisions are made for them.
- 66 Smallholder plantations are a major source of wood for timber supply chains in Lao PDR and involve a potentially extensive network of actors in harvesting, transport, processing and trade.** Many micro, small, medium and large timber enterprises utilize teak and, in some cases, smallholder-grown eucalyptus. One company includes teak in their listed species for CoC certification. To enable this, it has a small area of farmer-grown teak under its FM certification. Otherwise, there are no areas of independent smallholder plantation that are FM certified and able to supply CoC certified supply chains.

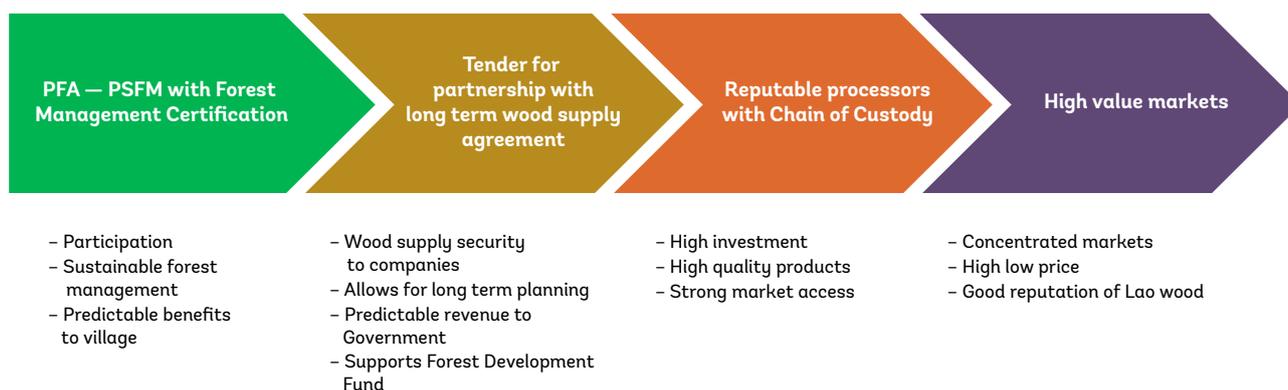
The Role of Timber Legality Assurance in Certification

- 67 Laws and regulations for timber legality, forest management and chain-of-custody are a basic requirement for certification.** On its own, compliance with legislation may not achieve SFM. Certification provides both a supporting framework for SFM and potentially opens market opportunities for industry. However, timber legality, forest management certification, or CoC certification on their own are not enough; they are complementary and mutually supporting.
- 68 Lao PDR is now working toward institutionalizing and implementing the TLAS, which will form the essential basis for certification.** Existing processes and experiences with forest management and CoC certification are being reinvigorated to develop a new and more supportive framework. Industry partners with current experience on attaining and maintaining certification can share lessons, including through the support of donor partners. To be useful in the long term, however, certification will need to be self-supporting, with partnerships that can share the costs and benefits (e.g. forest industry and grower partnerships).
- 69 The certification process could be widely promoted at the outset as a means to attract investors that share common sustainability standards and goals.** Value addition will not occur, and international market opportunities will be missed unless certification occurs throughout the supply chain. If they have confidence that forest management certification is occurring, industry partners can drive chain-of-custody. Timber from salvage logging of conversion forests is not from sustainable management of a forest resources, so it is ineligible for FM or CoC certification (Figure 10). However, if salvage logging of conversion forests is authorized and managed in a responsible manner and monitored for compliance with best practices (forest inventory, demarcation of boundaries and harvesting, transporting and marketing), then this timber would comply with legality criteria and be eligible for a TLAS license.
- 70 Effective partnerships for certification require the development or refinement of new procedures.** For example, best-practice models for tendering contracts and making agreements for wood supply include a requirement for companies to demonstrate their credentials with respect to certification and market access (Figure 11).

FIGURE 10: FORMER PROCESS (PRE-PSFM) MANAGEMENT IN PFAS AND CONVERSION AREAS



FIGURE 11: POTENTIAL PROCESS FOR CERTIFIED PSFM IN PFAS



3.2.3 The Role of Markets¹⁵

71 Discerning importing countries, companies, financial and funding institutions, federations and associations increasingly require producers and forest products traders to prove legality and sustainability for forest product market access. In addition, evidence suggests that Chinese wood industry alliances, such as the Solid Wood Flooring Alliance and Sustainable Paper Alliance, are requiring proof of sustainability and legality of import or domestic wood supplies. Many governments are also increasingly promulgating green public procurement policies. Local governments, engineers, and architects are increasingly establishing green building standards and companies are increasingly adopting green purchasing policies to demonstrate corporate social and environmental responsibility (including in China). Lastly, development and multinational commercial banks require proof of compliance with social and environmental safeguards such as IFC Performance Standards and the Equator Principles. As these standards become increasingly common, import buyers and consumers may be less willing to pay a premium for proof of legality and sustainability. These developments present both opportunities and challenges for Lao PDR forestry sector, which needs export revenue to support SFM, including smallholders.

¹⁵ For details on the industry's platforms, standards and principles see appendix E

3.2.4 Renaissance in Wood Use for Green Buildings

72 Another factor driving global demand for certified, legal wood is a renaissance in the use of wood for construction. Studies by independent organizations have demonstrated that wood has outperformed steel and concrete in terms of energy use, greenhouse gases, air pollution, solid waste and ecological resource impact and that wooden buildings offer clear environmental advantages. In 2012 the World Resources Institute and the World Business Council for Sustainable Development launched a “Wood for Good” campaign that applied to all wood derived products from sustainably harvested forests. The scope included compliance with standards for traceability, legality and specific requirements for sustainable forest management. Forest management and chain-of-custody certification by the FSC and PEFC were recognized and promoted. The 2008 “WoodWorks” initiative of the Wood Products Council, which includes all major North American Wood Associations, highlights that wood can achieve sustainability objectives whether used in designing a structure to achieve green building certification, adherence to new energy or climate change legislation, or simply to set construction apart as aesthetically superior.

FIGURE 12: MARKET DRIVERS FOR CERTIFIED, LEGAL TIMBER



3.3 Support for Sustainable Forest Management through Partnerships

73 Historically, forest management and the provision of forest products and ecosystem services in Lao PDR has relied heavily on government budgets and institutions and has been supported by external development financing. The GoL recognizes that unacceptable levels of deforestation, forest degradation and illegal harvesting and forest products trade have occurred that insufficient investment has been directed to forest restoration, reforestation and afforestation, and that forest resources were managed in ways that threatened long-term supply of forest products, ecosystem services, and associated jobs, livelihoods and economic growth.

- 74** **Successive NSEDPs have identified the private sector as the main engine of growth and the GoL has committed to fostering a transition to a private sector-led market economy with recent policy reforms to facilitate this transition.** In line with this approach, the GoL has pursued an increased role of Public-Private Partnerships (PPPs) for infrastructure and rural development programs and improved performance of public services in the country.
- 75** **The private sector can be a strong agent of change and development, particularly in emerging economies.** PPPs can be used as a way for private and public sector (usually state) actors to share benefits, risks and responsibilities. A PPP is a contract between a public agency and a private sector entity (usually of medium- or long-term duration), typically awarded through competition, where the private partner performs a public function (e.g. provides infrastructure, a service to the public, or both) and is allowed to develop a propriety way to provide the infrastructure or service but also carries the risk that if it does not perform well, its payments will be affected. PPPs have typically been used for infrastructure development and service delivery.
- 76** **Acknowledging that public and private investment are both equally important to the socioeconomic development of Lao PDR, the GoL emphasizes the importance of PPPs as a tool in the delivery of public goods, infrastructure, and services, ensuring social benefits with sustainability, transparency and accountability principles (Ministry of Planning and Investment 2018).** The GoL, led by the Investment Promotion Department (IPD) of the Ministry of Planning and Investment (MPI), is developing a decree on PPPs. The initiative focuses on three main areas: (i) institutional capacity building, (ii) policy and legislation framework development, and (iii) pilots in education and healthcare.
- 77** **However, a draft decree on PPPs, still under preparation in April 2019, has not sufficiently defined the role of people as active participants or direct beneficiaries.** Rather, the draft decree views people as stakeholders for consultation to obtain consent or minimize opposition. There is, however, growing recognition of the role of people as active and necessary participants in PPPs.
- 78** **Creating a framework for PPPs depends on the recognition of people as legitimate partners and private companies as commercial enterprises with shareholders who expect a return on their investment, within responsible social and environmental covenants.** PPP agreements need to recognize that companies need to make profits to be able to provide benefits to their shareholders, the public sector, or to the people involved.

3.3.1 Partnerships in the Forest Sector

- 79** **Lao PDR has developed and implemented few successful PPP projects in the forest sector.** This is due to a number of compounding factors, including the absence of clear policy and strategic planning, insubstantial supporting legal and institutional frameworks, agencies' weak capacity, and a lack of dedicated funding mechanisms to fund project development. Complex processes and cumbersome procedures implemented inconsistently across the administrative hierarchy have exacerbated the problem.

- 80 In 2006, the Lao Plantation Authority was proposed to identify land suitable and available for forest plantation development in central and southern provinces to facilitate large company investment in forest plantations; provide technical, financial, and marketing support for medium-sized plantations; and to support the development of associated small- and medium-sized enterprises, such as charcoal and furniture manufacturers.** Forest plantation development was identified as an effective way to reduce poverty, create jobs and assets, and provide an additional and alternative source of income for poor households. However, due to the lack of enabling legal and policy frameworks, ineffective extension service, inefficient disbursement of grant financing through the Agricultural Promotion Bank, and a lack of marketing intelligence, the initiative was not pursued by external financiers (Phimmavong et al. 2010).
- 81 Recently, there has been some progress on PPPs in the forestry sector PMO9 (2018), which lifts the ban on concessions for plantations of eucalyptus, acacia, teak, bamboo and native species, and has initiated access to PFA lands for private industrial plantation forests.** An assessment of severely degraded forest lands in PFAs suitable for industrial plantation forests has been completed under the Government's SUFORD-SU project.
- 82 Although not formally known as PPPs, there are examples of public-private, public-people and private-people partnerships in Lao PDR's forest plantations.** These models include (i) fast growing industrial plantation forests; (ii) out-grower fast-growing industrial plantation forests; and (iii) smallholder plantation forests. Where viable, these partnerships might be expanded.

Fast Growing Industrial Plantations of Eucalyptus and Acacia

- 83 A partnership between the government and companies (figure 13) to grow eucalyptus and acacia provides opportunities for large-scale fast-growing plantations.** Under this model the GoL provides the policy, legal and regulatory framework, a negotiated land concession agreement stipulating the terms of the public-private company partnership. The agreement would typically include allocation of land, the scale and scheduling of the investment and development, the land-use and crop ownership rights, social and environmental safeguards, and harvesting, wood processing and marketing rights. The company provides investment funds, technical expertise (particularly the germplasm, seedling production, tending and silviculture); new technology for harvesting and wood processing of the crop; protection or restoration of riparian reserves; and pays the GoL for use of the land. In turn, where appropriate, the company enters into agreements with local communities that live in or near the proposed plantation to provide social services, livelihood activities, employment, and in certain instances, markets for smallholder-grown wood or access for farmers to grow their agricultural crops within the plantation using agroforestry systems.

Outgrower Fast-Growing Industrial Plantation Forest

- 84 Outgrower partnerships expand on models for government-company partnerships to increase the participation of local communities (figure 14).** Under the model the GoL provides the policy, legal and regulatory framework for the formalization of smallholder land-use and crop ownership and harvesting rights, and wood processing; and monitors compliance with legal, policy and regulatory frameworks. Smallholder plantation out-growers may provide one or all of land (with secure land use rights) in close proximity to the large hubs of company plantations or near their forest industries factories, labor for the tending and silviculture, the crop/wood production, and the harvesting and transporting to the factory gate. The private company provides the germplasm and seedling production, technical support/advice in

FIGURE 13: PARTNERSHIP FOR FAST GROWING INDUSTRIAL PLANTATIONS OF EUCALYPTUS AND ACACIA

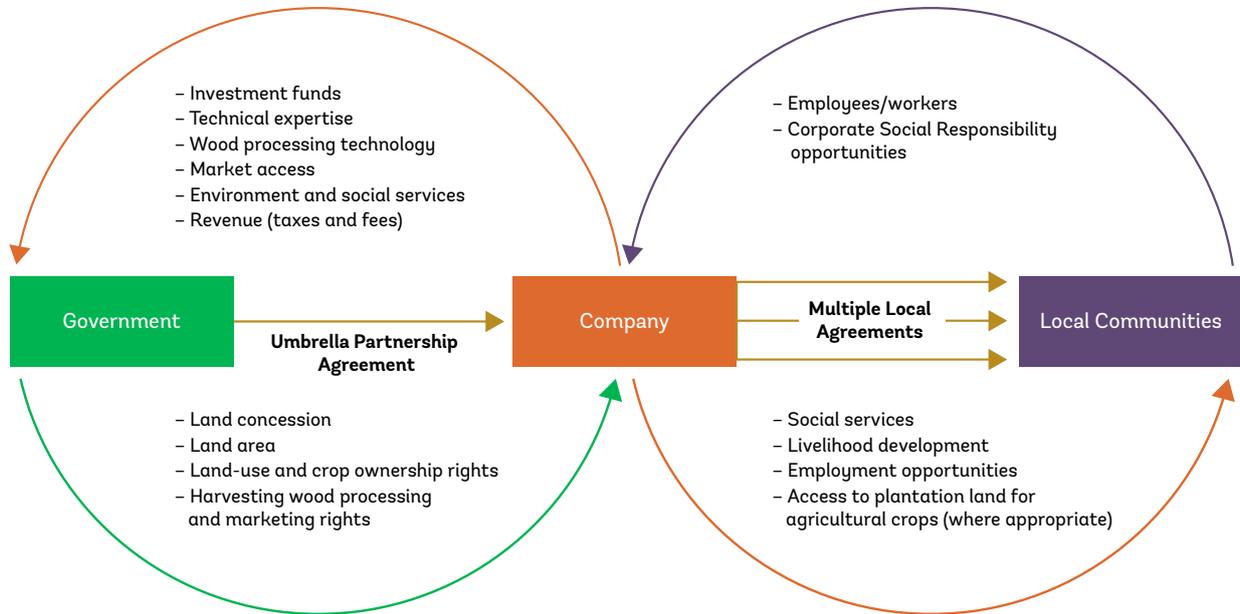
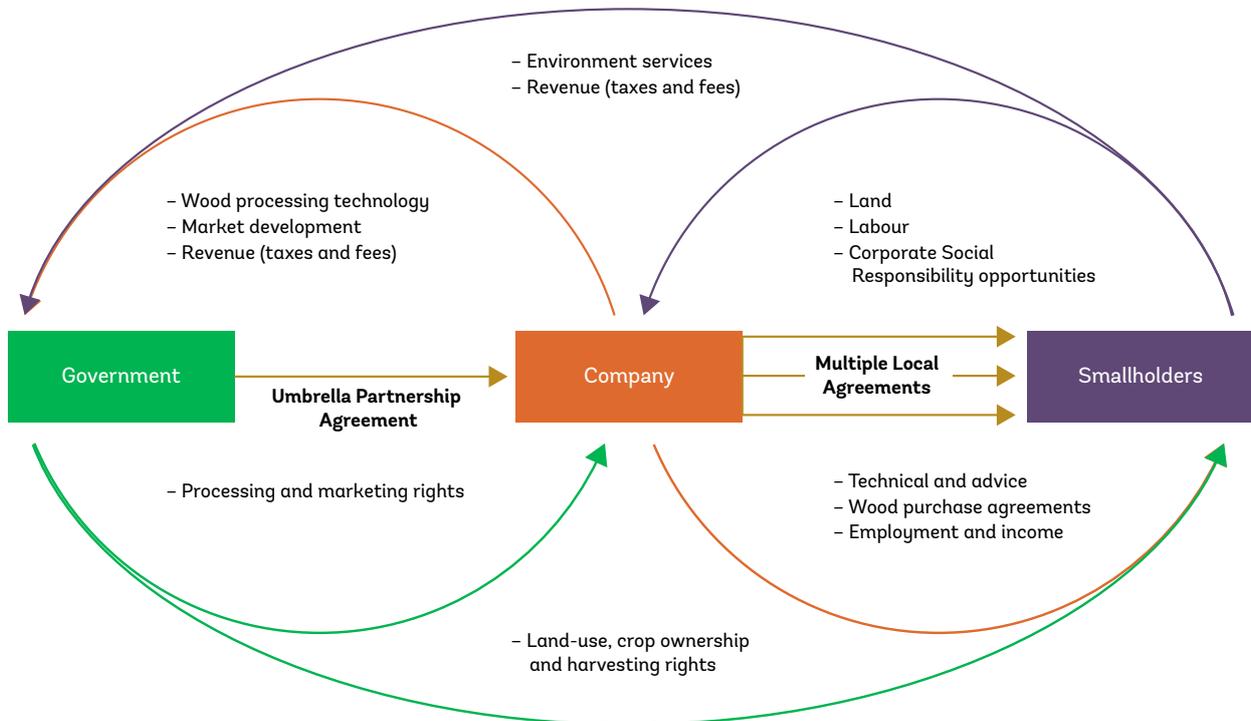


FIGURE 14: PARTNERSHIP FOR OUT-GROWER FAST-GROWING INDUSTRIAL PLANTATION FORESTS

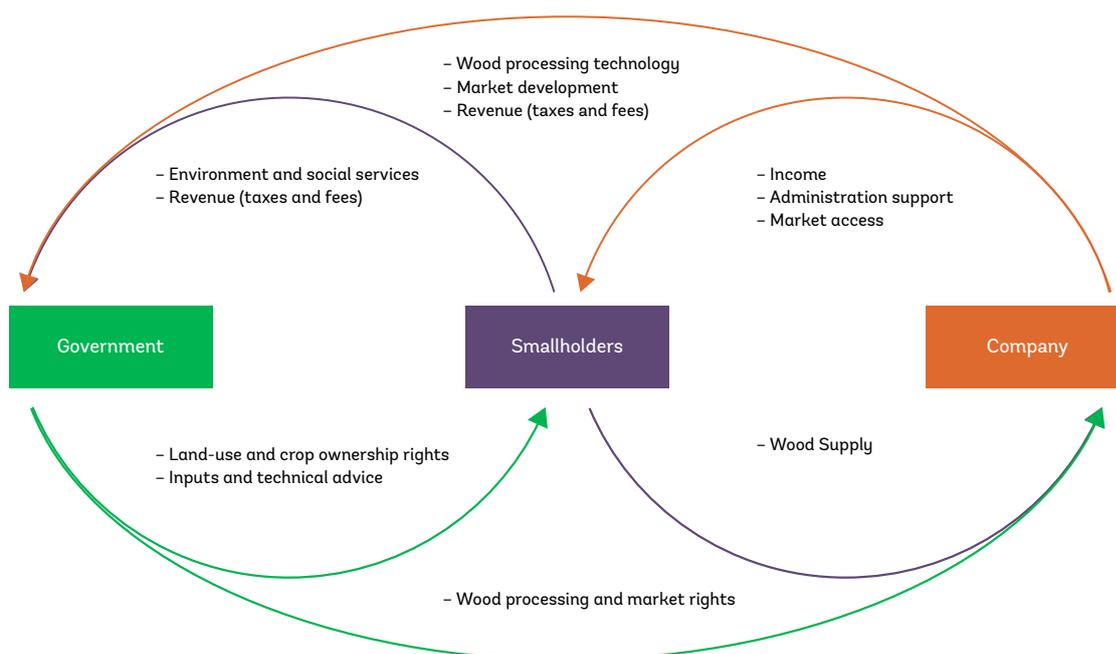


site preparation, planting, tending, silviculture and harvesting; provision of fertilizer and other inputs; and an undertaking to purchase the wood at the going market prices on maturity. The government benefits through the receipt of revenue through taxes and fees and contributions to targets for forest cover, poverty reduction and socio-economic development. More detailed analyses of smallholder concepts, opportunities, challenges and recommended actions are included in an IFC diagnostic assessment of outgrower schemes (IFC 2017).

Independent Smallholder Plantation Forests

85 Where smallholder plantation owners act independently (Figure 15), the GoL provides the policy, legal and regulatory framework for formalization of land-use and tree-ownership rights and technical advice on silviculture, harvesting and marketing. In return plantation expansion contributes to national goals for forest cover and socio-economic development through poverty reduction. The smallholder accesses the land-use right and undertakes all the preparation, planting, tending, silviculture, protection, as well as harvesting. Marketing is done by the smallholder primarily through traders. The land remains owned by the State but is made available to the smallholder through a legally recognized, consistent, and long-term land-use right. The tree crop is owned by the smallholder who benefits from the sale of wood products and production of any agroforestry crops produced in earlier years. While few formal partnerships exist with independent smallholders, companies benefit from wood supply and provide growers with income through sales, and in some cases support for administration associated with navigating complex regulations, although this may incur a price reduction to the grower. Nationally the government benefits from the company's activities through industry development, job creation, livelihood opportunities, environmental services and market access, as well as from the receipt of taxes and fees.

FIGURE 15: PARTNERSHIP FOR INDEPENDENT SMALLHOLDER PLANTATION FORESTS



3.3.2 Transforming the forestry policy, legal, regulatory frameworks for PPPs

- 86 The GoL recognizes that substantial reforms are needed to achieve sustainable forest management.**¹⁶ At this stage, the GoL does not have a specific enabling policy or strategy in place for PPPs in the forest sector nor a strong supporting regulatory framework. However, features of existing forest and investment policies could be broadened, and amendments to existing legislation or new legislation could be made to incorporate forest sector PPPs. An effective institutional framework for PPPs needs to clearly specify the roles and responsibilities of all partners (public, private and people), and to encourage communication and stakeholder engagement strategies at all levels (national, provincial, district, village) to ensure transparency and consideration for the concerns of gender and ethnic groups.
- 87 Expanding public-private partnerships to include communities will be challenging in the current regulatory environment in Lao PDR.** Some findings and key considerations are outlined below:
- > The more degraded the landscape, the higher the cost of restoration and the investment risk. Understanding the productivity potential (restorability) of degraded landscapes will be important for aligning these with potential investors.
 - > Forest related definitions are used inconsistently. People often mean different things when discussing the terms “forest,” “plantations,” “degraded forests,” “degraded forestlands,” “rights,” “finance,” “investment,” “value,” “benefit” or “restoration.”
 - > Companies need to be profitable to scale their investments and attract capital, which will consequently enable environmental protection and restoration and the provision of jobs.
 - > Matching opportunities to investors requires careful consideration since investors have varying needs and requirements, including the size and type of investments, the duration of funding, and risk sharing requirements.
 - > Local conditions and requirements also vary. Concrete and realistic data on the characteristics of local stakeholders (including communities), markets, productivity, volumes, qualities, costs and prices, capacities and rules are essential for evaluating the viability of business models.
 - > Smallholder farmers and SMEs are key stakeholders, but few businesses and investors are tapping into these groups because policy messages are unclear, and their value is not well-understood.
 - > Local financial systems and enabling environments are not sufficiently strong and resilient to accommodate a variety of investment and funding models.

¹⁶ Includes revision of the policy, legal and regulatory frameworks; implementing guidelines; clear and consistent contractual agreements; well-defined and consistently implemented procedures; introduction of new knowledge and technologies for forest restoration, reforestation; harvesting and utilization of wood products; putting a priority on unlocking private sector investment (company and smallholder) in forest restoration and reforestation; clarifying the land-use, crop ownership, harvesting, transporting and marketing rights for smallholders and companies; strengthening the social and environmental safeguards; providing incentives to encourage investment; clarifying procedures to access land, particularly in severely degraded lands in PFAs; and encouraging investors to provide social services and livelihoods options to communities.

- > Existing concession systems can work in ensuring environmental and social impact assessment (ESIA) and Corporate Social and Environmental Responsibility (CSER) requirements if implemented properly. The problem lies not with the concession model per se, but rather in how it is approved, the conditions it includes, and how these are implemented, monitored and enforced.
- > Clear rules all along the process (contract) and monitoring (measures) are important and must be enforced, ideally through objective institutional oversight.

88 In short, Lao PDR's faces some challenges to maximizing the use of PPPPs. Key areas to work on include (i) consistency in governance; (ii) collaboration and coordination toward a common goal; (iii) timely decision making; (iv) relevant skills sets; (v) pertinent research, extension and education; (vi) contracting and concessions management; (vii) social inclusion; and (viii) risk management and grievance mechanisms. See Appendix H for details of these key elements of successful partnerships.

89 To face these challenges, it is useful to understand the complex set of key interests among stakeholders, which are summarized in Table 6.

TABLE 6: PUBLIC, PRIVATE AND PEOPLE'S INTERESTS IN FOREST PARTNERSHIPS

Public	Private	People
Government on behalf of Lao People:	Company on behalf of shareholder investors:	Community on behalf of local people:
<ul style="list-style-type: none"> > Sustainable wood and NTFP supply for economic development of forests and forest industries sectors > Sustainable provision of ecosystem services (forest cover, carbon sinks, biodiversity soil and water, recreation) > Sustainable socioeconomic development (reducing poverty, increasing food security, employment) > Sustainable capture of forest and forest industry-based rentals and funds > Meeting of international commitments > Political, institutional, and financial risks 	<ul style="list-style-type: none"> > Return on investments > Green investments in wood, NTFPs, ecosystem services > Stable long-term investment policies, laws, regulations > Development and maintenance of assets > Sustainable growth and long-term return on investments (profits) for shareholders > Maintaining company corporate social and environmental responsibility > Risks, mainly policy, technical, financial and reputational 	<ul style="list-style-type: none"> > Reduced poverty, increased food security, sustainable livelihoods > Increased resilience to climate change, markets fluctuations > Access to community development funds to maintain roads and social services > Access to stable jobs and income; > Participation in planning and development of communal lands > New business opportunities > Risks mainly related to land access and livelihoods

3.4 The Economic Potential for Sustainable Forest Management

90 Meeting the growing demand for “good wood” through SFM would be highly profitable for planted forests and natural forest management. Based on data from current investors, internal rates of return for Lao PDR's main forest production models (smallholder teak, industrial and outgrower eucalyptus, participatory SFM) were 6-24 percent, which is internationally competitive. The results based on market costs and prices indicate that all of them have large economic returns based on land expectation value (LEV) and internal rate of return (IRR), indicating that forestry opportunities in Lao PDR are promising—among the best in the world, which is a perspective backed up by credible private investors consulted during this assessment.

- 91 The approach of SFM applies across all forests and forest categories and across landscapes in all geographic and climatic regions and ecological zones in Lao PDR.** At the same time, the social and cultural, environmental and ecosystem services and economic sustainability needs to be considered in the SFM scope. This report focuses on the production purposes of SFM, which primarily involve modified or degraded natural forests in PFAs, plantation forests and trees outside forests. These forests produce wood, fiber, fuel, non-wood forest products, and provide a wide range of ecosystem services.
- 92 Financial and economic analyses provide useful information about prospective returns to forest owners from four production forest models: eucalyptus industrial plantation (company); eucalyptus outgrower plantation; smallholder teak plantation; and participatory SFM in native forests.** Using an assumed 8 percent discount rate for the capital budgeting criteria, the results (Table 7) suggest that forest investment returns for all four types of forest management can be quite attractive; the estimates are similar to returns calculated in China and Vietnam (Cubbage et al. 2018, Frey et al. 2018), and greater than most other regions in world (Cubbage et al. 2014, 2018). However, realizing this potential will take dedicated, conscientious and persistent efforts by all actors in the forest products value chains, from the forest to the mill and export point to global markets. It also will require good in-country processing or export to higher value-added markets. Developing practical and successful field skills and broader institutional capacity will be a challenge for Lao PDR. More details are provided in Appendix F for the elements to build PSFM and Appendix G for scenarios for Production Forest Areas.

TABLE 7: SFM SCENARIOS, IN U.S. DOLLARS

Scenario	Eucalyptus Industrial Plantation		Eucalyptus Outgrower Plantation		Smallholder Teak Plantation		Participatory SFM	
	LEV	IRR	LEV	IRR	LEV	IRR	LEV	IRR
Base Case	\$6,282	22%	\$5,801	61%	\$2,383	13%	\$603	14%
Potential Situation	\$2,500	15%	-\$563	6%	\$5,000	18%	\$2440	24%
Base Case + Carbon (\$5/tCO ₂ -e)	\$6703	22.9%	\$6192	69%	\$3225	16%	\$1645	33%

- 93 Payments for carbon storage can be a viable add-on for improving afforestation, management and retention of Lao PDR's forests and cutover lands.** At price of US\$5 per tCO₂-e, the added carbon payment returns were found to increase LEVs from about US\$500 to US\$1000 per ha for the four different management regimes.

4 Conclusions and Recommendations for Building the New Green Forest Economy

94 Lao PDR's main opportunity for sustainable, green economic growth and improved livelihoods from the forest sector is to strategically position itself as a global center of green production by investing in the primary source of Lao PDR's wealth: its natural capital (the forest) and human capital (the people). Key recommendations below center on strengthening conducive institutions, incentives (policies and markets), and information that will drive investment across a variety of instruments including private and public models for both native and planted forests.

Good partnerships for good investments create good jobs from good wood

95 Planted and native forest management can be pursued in parallel to support job creation, inclusive benefits sharing, poverty reduction, and environmental sustainability. This approach would allow short- and long-term availability of timber, while providing a long-term vision for investment from international and domestic industrial plantation owners, smallholder plantation owners, as well as village forestry. It would also allow national and international forest enterprises to invest in processing capacity, workers' skills, and certification. Most SFM production models in Lao PDR are calculated to be profitable with solid returns on investment if the enabling environment is conducive to credible, responsible business operations.

96 Raising private sector investment requires reducing risk to investors. GoL can help develop mitigation strategies for each major risk category. DoF, Department of Forest Inspection (DoFI), MoIC, MoNRE and provincial agencies would need to work together to address the key risks including financial risk (Will the investment be safe?); operational risks (Is the labor market sufficient? Are villages and government ready to participate?); compliance risk (Is it possible to comply with all regulations and still be profitable?); sovereign risk (Would the investment be exposed to serious public policy changes?); physical risk (such as floods, fire, landslides, and storms, all amplified by climate risk); and biological risks (pests and diseases).

97 PPPPs are a viable instrument for investment in planted forests as well as for participatory SFM in native forests. While a thorough assessment of options for instruments to engage the private sector in participatory SFM is lacking, PPPPs seems to be highly applicable. In this context, a thorough assessment of the auction platform needs to take place to determine its ongoing applicability and whether there are more appropriate alternatives. To move toward a greener, more integrated and prosperous forest economy, timber from salvage logging needs to be appropriately licensed to avoid perverse incentives from unsustainable competition with certified legal wood supply from production forest.

98 Timber legality and certification of both forest management and chain-of-custody are key management tools that Lao PDR can employ to meet demand for sustainable, legal timber.

The benefits of forest management certification will not be realized unless there is a combined forest management and chain-of-custody certification across the whole value chain from the producer to the wood processor to the buyer. Lao PDR should aim to attract private sector partners that can bring processing capacity and guarantee chain-of-custody certification. Lao PDR should also widely promote the certification process to attract investors that share common sustainability standards and sustainability goals. With confidence that forest management certification is occurring, industry partners can drive chain-of-custody and help Lao PDR to harness market opportunities. Serious international companies seek reliable long-term supply of certified and legal timber and a predictable, consistent legal framework. PPPs seem to a viable instrument to build on the timber asset and attract processing capacity. Under these partnership arrangements, forest management certification for smallholders and outgrowers can become viable.

Ensure that local people are partners in production and receive economic benefits

99 Revitalization of smallholder plantation development can diversify land use, improve socioeconomic conditions and provide environmental benefits.

Regionally, smallholders are assuming a larger responsibility for the supply of commercial wood. Further enhancements to the regulatory framework are needed to simplify and clarify procedures and remove perverse disincentives for smallholder plantation investors, particularly planting indigenous species. Additionally, access to quality germplasm and the provision of effective extension services to improve site-species matching and silviculture are necessary. It would be useful to support smallholder plantations as household assets through which the typically small plantation becomes an asset against which a family might borrow money in times of need, which is an opportunity for concessional finance. PPPs offer viable benefits for villages, including direct employment and production as well as outgrower schemes, depending on specific locations. To harness these benefits requires (i) concerted outreach, (ii) definition of criteria for private sector engagement with communities, (iii) standardized and robust consultation with interested communities, and (iv) “honest brokers” to facilitate and build trust and experience among parties.

100 Consider granting rights to villages to plant trees and harvest wood for commercial purposes, in addition to subsistence use and for NTFPs, under clearly defined requirements.

Such requirements could include, among others, available area and forest quality which will allow for viable commercial operation, an approved land-use plan, village forest management plan, and an established VFC as the collective decision-making body working in close collaboration with district authorities, and management of a bank account to share benefits with the village. In addition, the role of communities in logging operations in PFAs can be included in assessments of possible instruments to engage in and license timber extraction in designated PFAs.

101 To ensure that forests deliver balanced socioeconomic and environmental benefits, it is useful to base SFM on the lessons learned and international best practices proven in similar contexts.

The ITTO Voluntary Principles and Guidelines for the Sustainable Management of Natural Tropical Forests, the FAO Voluntary Guidelines for Making Forest Concessions in the Tropics Work to Achieve the 2030 Agenda for Sustainable Development Voluntary Guidelines and the Criteria and Indicators (C&I) processes provide the framework for implementation and monitoring SFM. This framework informs policymakers, forest managers, international organizations, investors, local communities, environment and development inter- and nongovernmental organizations, and research and academic institutions and could support Lao PDR’s opportunity to increase the productivity and sustainability of production forests.

Carefully calibrate policy and incentives

- 102 Lifting the logging and timber export bans (PMO31 and PMO15) and processing high quality timber into low-quality products would be unwise without an agreement on licensing procedures and strengthening the government capacity on managing partnerships with licensed companies and partners.** The ban could be lifted under certain conditions and in certain locations when there is agreement on relevant instruments for processing, forest management and chain-of-custody certification, legality of salvage logging, and the auction platform, as relevant. The lifting of the bans could also take place progressively, building on lessons learned and pilot operations that could, if carefully managed, help maintain financial incentives for implementing SFM among local actors.
- 103 Fiscal instruments for both participatory SFM and planted forests need to be further assessed.** Appropriate fiscal instruments are necessary to support future forest management. These instruments would be implemented within an overall regulatory environment that promotes SFM and discourages degradation of natural and human capital.
- 104 Strengthening research and extension is critical to improve and maintain sector performance.** Experiences of other countries shows that research institutions, universities and technical colleges play a vital role in providing scientific results and developing a body of skilled professionals and technicians necessary for indigenous forest and plantation management and restoration, improved germplasm, nursery practices and silviculture, harvesting and haulage, wood processing, downstream industries, conservation and eco-tourism, forest protection (abiotic and biotic agents), people-centered approaches, social and environmental monitoring and other topics. There is a need for suitably trained and skilled Lao specialists to operate and manage sawmills, veneer/plywood mills and pulp mills and to understand the wide range of new-generation wood products and manufacturing processes. This might be achieved through strengthening the existing facilities at the National University of Lao PDR (NUoL) and Pakpasak Technical College. In addition, MoIC could routinely provide “market updates” for smallholders and SMEs that do not have the resources to conduct their own market studies.
- 105 Sustained allocation of resources is necessary to strengthen capacity of regulatory agencies at central and local levels to undertake compliance monitoring and law enforcement duties more effectively.** These agencies and duties include, among others (i) DoFI to oversee TLAS implementation across value chains; (ii) DoF to oversee certification; (iii) MoIC support to chain-of-custody certification, regulation and monitoring of compliance of processing and export; (iv) MoNRE Department of Natural Resources and Environmental Policy to oversee implementation of the new ESIA regulations following the new Prime Ministerial Decree (2019), that includes public participation and disclosure. Consider reinforcing collaboration between MoIC, MPI, MAF, MoNRE to ensure policy and investment consistency.
- 106 Move toward strategic new investment in forest landscapes and livelihoods.** A GoL-led long-term, large-scale investment program to achieve resilient landscape management can (i) convene multiple sectors, stakeholders and partners, (ii) leverage multiple financing sources, and (iii) enhance information, institutions, and incentives. The WBG is ready to provide financing and non-financial services to build this platform, program, and contributing projects, and the Government and WBG have been discussing these issues with other interested parties.

- > A strategic investment program can leverage existing and new investments, partners, projects, and private actors to contribute to the shared goals and benefits of sustainably managed landscapes, all of which contribute to sustainable livelihoods. Actions, projects, partners, sectors, and stakeholders would converge in spatially explicit landscapes to achieve larger impacts at scale.
- > Lao PDR recognizes the need to develop and maintain necessary biological connectivity among the natural assets and conservation systems of the landscape, which can be thought of as the backbone of Lao's resilient green infrastructure. Supporting this infrastructure can help de-risk investment and growth. For example, the famous forested Annamites mountain range that forms the Lao-Vietnam border serves as a green wall against destructive cyclones from the east that cause landslides and floods. Continued progress on institutional and policy performance, and adoption of a landscape approach to forestry affords opportunities to increase the productivity and sustainability of Lao PDR's production forest and support the 67 percent of the population that is dependent on it.

107 More detailed suggestions for enhancing incentives (policies and markets), institutions, information and investments are provided in Appendix B.

APPENDIX A:

Characteristics, Designations and Definitions of Forests in Lao PDR

The GoL's official designations and definitions provide the basis for managing the resource, including planning, conserving, monitoring, and reporting. Lao PDR designates three main forest categories (3FCs) owned by the State and under MAF's mandate. These designated lands account for 70 percent of the country's total land area and are: Production Forest Areas (PFAs), Conservation Forest Areas (CFAs, also known generally as protected areas), and Protection Forest Areas (PtFAs):¹⁷

- > **Production Forest Areas (PFAs)** are managed primarily for production of wood, fiber, fuel and non-timber forest products (NTFPs) in 51 national PFAs (105 FMAs in 17 provinces) that total over 3.1 million ha, of which 2.2 million ha (70.8 percent) are forested. Forty of 51 PFAs have been formally delineated.
- > **Protection Forest Areas (PtFAs)** are managed primarily for soil, water and natural disaster protection, such as for strategic reservoirs, and a total 8 million ha of national, provincial and district PtFAs, of which 4.8 million ha (59.8 percent), are forested. Most have not been formally delineated.
- > **Conservation Forest Areas (CFAs)**, also known generally as protected areas, are managed primarily for biodiversity conservation in two national parks, 22 national protected areas, 66 provincial and 143 district protected areas or CFAs, with a total area of 4.8 million ha, of which 3.5 million ha (73.4 percent) are forested. Many have not been formally delineated.

In addition to the three main forest categories, the following designations are often used:

- > **Forests outside the three forest categories** are managed or used by families and communities under customary rights to meet subsistence needs such as housing, fuel, food, and medicines, and total about 3.2 million ha. This land use overlaps with designated village forest as described below.
- > **Designated Village Forests** are within or outside PFAs, CFAs, or PtFAs and are managed according to the land and forest plan (LFAP) and in some places, village forest management plans (VFMPs). Official designations of village forest are at an early stage with only a handful of pilots having been completed; the process is ongoing. DoF aims to support 1,500 villages to prepare VFMPs through participatory processes. Authorized timber from village forests is intended to be used for local use. Harvesting timber in village forests for commercial purposes is being considered for inclusion in the new forestry law currently under advanced preparation.
- > **Planted or plantation forests** are included in the forest areas inside and outside PFAs, CFAs, or PtFAs, and according to DoF the cumulative planted area is 478,000 ha.

The different types of forest land in Lao PDR are also divided into natural forests, plantation forests and trees outside forests, all with varying characteristics and fulfilling different functions.

- > **Natural Forests** are forests where trees and NTFP species have occurred and developed in nature without human assistance. They are mainly found in 3FCs and can be primary, modified or degraded forests.
 - **Primary Forests** are forests of indigenous species with little or no human activity in which the ecology is undisturbed. Often primary forests remain un-modified because of accessibility issues.
 - **Modified Forests** are forests altered by visible human activity or disturbances, and where natural regeneration of indigenous species is occurring.
 - **Degraded Forests** are natural forests that are severely disturbed by human activities and where natural regeneration may not occur due to such factors as shifting cultivation, encroachment, competing weed species, pests, or possibly intermittent wildfire.

- > **Plantation Forests** are intensively managed planted forests which are mainly owned by the private sector, including private companies (67 percent), smallholders (33 percent) and the government (0.3 percent), and can include native or exotic species.
 - **Native species plantation forests** contain a majority of indigenous species, planted as a single species or a mixture of several species, in rows or clusters. Native species can be grown in longer rotations for production of valuable hardwoods (e.g. teak, agarwood) or fast-growing, short-rotation wood (e.g. mai tieu for white charcoal production).
 - **Exotic species plantation forests** are planted with primarily exotic species, with a single species or a few different species, generally planted in lines or blocks and are even aged. Exotic species can be grown in longer rotations for production of valuable hardwoods (e.g. mahogany in some ASEAN countries) or more commonly in fast, shorter rotations for the production of veneer, plywood, sawn timber, cross laminated timber (CLT) and pulp (e.g. eucalypts, acacia, casuarina).

- > **Trees Outside Forests** are considered “non-forest” and are grown in a diverse range of natural or planted forest species or fruit trees, mainly owned by smallholders in agroforestry systems, urban plantings, roadside plantings, around agricultural lands (e.g. rice paddy borders) and home gardens. Non-forest is not considered forest for reporting purposes, although they are critical to local livelihoods, nutrition, and provide environmental services such as shade for livestock and villages and erosion prevention. These plantings also are an important component of regional flows of industrial wood despite regulations that control harvest, transport and marketing, particularly if indigenous species.

- > **Conversion Forests** refer to the change of a forestland type to another land use type (i.e. clearing forests for roads, mining, agriculture, hydropower, and residential land).

GoL's forest definitions are compatible with the following definitions commonly used internationally:

- > **Current Forest** includes natural forests with an area of land larger than 0.5 ha with a crown density of more than 20 percent and minimum tree trunk diameter of 10 centimeters (cm) at breast height (DBH); and plantation forests with an area of land larger than 0.5 ha regardless of the crown density and DBH. "Current Forest" includes evergreen, mixed deciduous, dry dipterocarp, coniferous, mixed coniferous and broad leaved, and Plantation Forests.¹⁸
- > **Potential Forest** is a preexisting forest area where the crown density has been reduced below 20 percent for any reason. It includes bamboo and "regenerating vegetation" which is a subset that refers to a specific area left to regrow undisturbed to one day become Current Forest again.
- > **Natural Forest** refers to forests where trees and NTFP species have occurred and developed in nature without human assistance (GoL Forestry Law 2007). They are mainly found in 3FCs and can be primary, modified or degraded forests.
- > **Plantation Forest** includes all planted forests, including one or mixed species with the same age, same height and same tree spacing. Their crown density can be less than 20 percent and DBH can be less than 10 cm. Rubber plantations and fruit trees are also classified as Plantation Forest. However, coffee, tea and shade-providing trees for coffee and tea are not classified as Plantation Forest.

Other useful definitions according to the Forestry Law 2007 include the following:

- > **Degraded Forest** refers to forest areas that have been heavily damaged such as land without forest or barren forestland, which are allocated for tree planting, agriculture, tree products, permanent animal husbandry areas or using land for other purposes in accordance with the socioeconomic development plan.
- > **Degraded Forestland** identifies areas where forests have been heavily and continually damaged and degraded, causing the loss of balance in organic matter. These areas may not be able to regenerate naturally or become rich again. Typical species of plants and trees growing in this area are: alang alang (*Imperata cylindrica*), mai tiew (*Cratoxylon sp.*), small bamboo, broom grass (*Thysanolaena maxima*) or other various species.

APPENDIX B:

Priority Actions

Key: immediate (Bold text); near term (< 1 year); medium (< 2 years); continuous

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
Forestry Sector Governance				
The GoL's commitments to international conventions, instruments and agreements and the key concepts and definitions, objectives, issues and actions have been insufficiently incorporated into national strategic documents impacting forestry, including the new Land Law and Forestry Law and other laws where relevant.	Incorporate relevant concepts, objectives, issues and key actions from international conventions, instruments and agreements into national strategic planning documents and the Forestry Law and other laws where relevant.	Update Forestry Law and Wildlife and Aquatic Law with an article specifying commitments to international obligations.	MAF/DoF MAF/ DoFI MAF/Department of Policy and Legislation (DPL)	Immediate
		Update the Land Law with an article specifying commitments to international obligations.	MoNRE/Department of Land (DoL)	Immediate
		Update the Customs Law, the Enterprise Law, the Law on Industrial Processing, the Law on Tourism, the Law on Medicine, and the Law on Food with articles specifying commitments to international obligations.	MoF-Customs Department MoIC- DoIH and DIMEX Ministry of Information, Culture and Tourism (MoICT) Ministry of Health (MoH) - Department of Medicine	Near term
Insufficient resource allocation for technical support and monitoring of production forest activities (PSFM and plantation forests).	Review and strengthen mechanism to generate resources to support SFM such as timber auctions, the collections of fees, charges, taxes, fines, and levies. Reform the Forest and Forest Resources Development Fund (FFRDF). Once in place, sustain resource allocation to strengthen capacity of DoF and DoFI to undertake compliance monitoring	Revise the Decree on the FFRDF to include royalties from the sale of timber from conversion areas. Consider the development of a forest loss tax for forest conversion for development activities. Review budget mechanisms to increase allocation to forest management activities.	MAF – DoF MAF/FFRDF	Near term
			MoF/Department of Tax (DoT)	Near term
40 of 51 PFAs have management plans and are demarcated. However, most of CFAs and PtFAs have not been demarcated, inventoried, have no management plan.	Review the categorization of forestland and the demarcation of boundaries, including through appropriate spatial analysis and mapping.	Gazette (issue decrees) that clearly define (both maps and words) the boundaries.	MAF/DoF	Near Term

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
Policies, procedures and practices are inconsistently understood and applied, particularly at provincial and district levels.	Strengthen monitoring, evaluation and follow-up actions regarding compliance with policies, operations manuals, ESIA, management plans, TLAS, forest and land concession agreements and other key forestry governance guidelines.	Develop and implement compliance checklists for forest management and TLAS.	MAF/DoFI	Near Term
		Develop and implement compliance checklists for ESIA and ESIA monitoring.	MoNRE/DNEP	Near Term
		Develop and implement compliance checklists for the wood auctions, transport and wood processing sector.	MoIC/Department of Inspection	Near Term
		Undertake joint (inter-departmental) training in TLAS compliance monitoring.	MAF/DoFI lead	Near Term
Benefits in the use of satellite imagery supported by ground-based forest inventory (pre- and post-harvest) and geographic information system (GIS) database to consolidate forest information are not fully realized for monitoring the status of forests, forest area change, and forest uses and users (legal and illegal).	Establish and maintain GIS database to consolidate information on PFAs, concessions, company and smallholder plantations.	Obtain recent satellite imagery and works with companies and partner projects to build capacity in imagery interpretation.	MAF /DoF/Forest Planning and Inventory Division (FIPD)	Immediate
		Establish a GIS database to consolidate information on PFAs, concessions, company and smallholder plantations. Collate existing information from relevant projects.	MAF /DoF/FIPD	Near Term
Lack of knowledge of the potential role that a mosaic of natural (production, protection and conservation forests) and plantation forest land use can contribute to the social, environmental and economic landscapes and weak land use planning for SFM; natural and planted forests can complement and supplement each other.	Strengthen knowledge of different dimensions of SFM and complementary roles that natural and plantation forests play in contributing positively to social, environmental and economic landscapes.	Review or develop operations manuals and management plans for integration of planning and management of PFAs, Protection Forest, Conservation Forest and Plantation Forests.	MAF/DoF/Production Forest Management Division (PFMD), Protection Forest Management Division, PAMD, and APFRD	Near Term
		Strengthen capacity and consistency in understanding of integrated approaches to SFM in the forest landscape at all levels of governance.	MAF/DoF, MAF/PAFO and DAFOs, VFCs	Near Term
The influence of the forestry sector in the inter-sectoral planning of national strategic developments that require forest conversions has been overshadowed.	Encourage proactive forestry participation and voice in inter-sectoral planning for projects and developments impacting forest resources and causing forest conversion.	Proactively engage with Ministry of Energy and Mining (MEM), MPI, Ministry of Public Works and Transport (MPWT), MoIC, and MAF's Department of Agriculture for proposed infrastructure investments (dams, reservoirs, transmission lines, land concessions, road), major wood processing, manufacturing, and agriculture investments impacting forest resources.	MAF/DoF/DPC MAF—Department of Planning and Finance (DPF)	Continuous

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
The policy, legal and regulatory frameworks related to production forestry (PFAs and plantation forests) are complex, inconsistent and unclear and not consistently interpreted (central-provincial-district-village).	Strengthen SFM in PFAs and plantations through simple, consistent and clear enabling policies, laws, regulations, guidelines and operational practices.	Review the policies, laws, regulations, guidelines and operational practices for SFM.	MAF/DoF/Forest Legislation and Technical Standards Division (FLTSD)	Continuous
	Encourage consistent interpretation and application of policy, legal and regulatory frameworks at all levels.	Develop and undertake regular training on the application of policy, legal and regulatory frameworks at all levels.	MAF/DoF/FLTSD	Continuous
Insufficient knowledge, information and capacity within GoL to support families and communities to assert customary rights to meet subsistence needs without over-exploitation for housing, fuel, food and medicine from forests outside state forest areas.	Strengthen knowledge, information and capacity to support livelihoods of forest dependent people.	Undertake research in social sciences, poverty alleviation, food security, environmental and social safeguards and alternative livelihoods.	MAF/National Agriculture and Forestry Research Institute (NAFRI)	Continuous
		Incorporate research results and lessons learned into education curricula and training resources, and into	MAF/Agriculture and Forestry Colleges/ Universities Technical Colleges	
		Incorporate research results and lessons learned into extension resources to transfer knowledge to communities, smallholder farmers.	MAF/DoF, Forestry Training Centre MAF/PAFO and DAFOs	Continuous
	Strengthen knowledge, information and capacity to achieve SFM in all types of production forests (PSFM in natural forests, plantation forest and agroforestry) to enhance the productivity and sustainability of the forest resources and the wood industries sectors.	Undertake research in improved genetic planting stock, nursery practices, silviculture, regeneration, growth and yield agroforestry systems, harvesting, supply chain management, permanent sampling plots (PSPs), sustaining productivity, CO ₂ sequestration and sinks, market intelligence, wood processing.	MAF/NAFRI Regional research institutions Forest Industry MAF/Agriculture and Forestry Colleges Universities Technical Colleges	Continuous
		Incorporate research results and lessons learned into production forestry education curricula and training resources.		
		Enhance capacity to sustain extension services for PSFM, plantation forests and agroforestry at provincial, district and village levels.	MAF/DoF MAF/PAFO and DAFOs	Continuous
	Review and consolidate support to the forest industries sector to upgrade and modernize equipment, upskill workers, review wood products design and adopt CoC certification.	Ministry of Education Universities/colleges MoIC/DoIH Timber Industry Associations	Continuous	

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
The role and contribution of plantation smallholders and micro- and small-medium enterprises (MSMEs) in the forest industry is poorly understood and not well represented in policy or regulatory frameworks.	Strengthen the understanding and inclusion of the role of smallholder plantation and micro and SME investors in the forestry sector in policy, legal and regulatory frameworks.	Draw on empirical research to strengthen understanding of the role of smallholder, outgrowers and agroforestry producers in the forestry sector and revise policy and regulatory frameworks to enhance their participation.	MAF/NAFRI MAF/DoF/APFRD Universities	Continuous
		Draw on empirical research to strengthen understanding of MSMEs' role in the forest industry, and revise policy and regulatory frameworks to enhance their participation.	MoIC/DIMEX	Medium-term
		Promote participation of smallholders and SMEs in existing industry and trade initiatives such as "One District One Product" (ODOP) and <i>PLaoSME.com</i> platform for trade in products produced by registered and verified Lao SMEs.	MoIC/Department of Trade Promotion (DTP) LNCCI	Continuous
Insufficient transparency and understanding of the fiscal and financial management aspects of the supply chain and the current and potential financial contribution of forestry to the Lao economy.	Improve fiscal instruments, management and transparency along the supply/value chain.	Explore opportunities to encourage SMEs, traders and service providers to comply with regulations through reduced fees.	MoIC/DoIH MoIC/Enterprise Registration Management (DERM)	Immediate
		Reform revenue management: enhance fiduciary management capacity of the FFRDF to be able to mobilize and provide technical support to SFM in all forest types.	MoF/Department of Fiscal Policy	Immediate
		Explore credit options for plantation forests.	MoF/Bank of Lao PDR	Immediate
		Apply financial penalties (forest loss tax, offsets) to investment projects permanently converting natural forests, based on long-term sustainable timber valuation.	MoF and MAF	Near Term
		Explore the use of digital tools within the forest sector such as for the payment of fees and registration. This may enhance compliance in more-remote areas.	MoF	Near Term
The scale of the wood renaissance driving demand for sustainable and legal wood and wood products for innovative uses is not well understood by GoL or private sector.	Strengthen the understanding of the scale of the global wood renaissance by enhancing the research capacity of MoIC and improving connections with industry.	Undertake market R&D communication materials and promote international "expositions or conferences that display innovative wood products.	MoIC/DoIH Timber Industry	Near Term

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
The strong global movement toward greener private and public procurement and construction policies and increasingly innovative uses of wood that require proof of sustainability and legality are not well understood.	Strengthen awareness of opportunities for greener procurement and construction policies that require proof of sustainability and verification of legality.	Conduct producer and industry fora to highlight green procurement policies by countries, industry associations, multi-national companies, financing institutions, engineers, local authorities.	MoIC/DoIH Timber Industry	Near Term
		Pursue international markets; China and Vietnam have insatiable wood demand including for legal and sustainable wood and could provide opportunities in addition to industrialized countries.	MoIC/DIMEX Timber Industry	Near Term
Weak understanding of 'regulated markets' and the impact that mandatory laws and regulations from consumer countries and the VPA will have on tightening the supply chain procedures and standards and increasing the confidence of importers and end-users in legal sources.	Strengthen knowledge of wood producers and wood processors on the EU Timber Regulation, VPA, Timber Legality Assurance System (TLAS) and implications on supply chain management and procedures.	Provide information materials (documents, videos, radio programs, social media), field days, training days for the forest, forest industries and wood manufacturers to improve understanding of the role that mandatory laws and regulations and the VPA will have on tightening the supply chain procedures and standards as well as improving market access for their products.	MAF/DoFI/FLEGT Office Forest and Wood Industry NUOL-Faculty of Forestry	Near Term
Participatory SFM in Production Forest Areas				
The logging ban has set back PSFM planning, skills and practices as there has been no opportunity to apply international best practices. It has also reduced the flow of benefits to VFCs that support village livelihood development, restoration of forests undertaken after harvesting and the provision of employment. Local communities have pursued alternative livelihoods and income sources, including in some instances illegal forest use.	Lifting the timber harvesting and timber export bans (PMO31 and PMO15) could be carefully considered once SFM, appropriate licensing procedures, and strengthened GoL capacity for revenue management and distribution are firmly in place. The ban lift could begin in pilot locations where there are agreements on instruments, criteria and process, SFM and chain-of-custody certification, legality of salvage logging, and the auction platform, as relevant.	Establish prerequisite criteria for lifting the logging ban (e.g. sufficient resource within an operational work circle, completed recent forest inventory, approved revised management plans, approved harvesting quota, FM or CW certification, compliance with social and environmental safeguards, functional village forest committees, integrated SFM approaches, alternative livelihoods).	Prime Minister's Office MAF	Immediate
		Define the evaluation, monitoring and approval process for lifting the ban.	Prime Minister's Office MAF/DoF	Near Term
		Evaluate conformity of PFAs, FMAs, SFMAs with the prerequisite criteria and recommend for approval of a logging quota.	MAF/DoF/PFMD	Near Term

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
Institutional and procedural arrangements for log tracking across the supply chain from the forest to auctions, the mill and export, are excessively complex, unclear and inconsistently enforced.	Simplify, clarify and make transparent the supply chain procedures from the forest to the mill, including the auction system at Log landing II.	Simplify the harvesting, transport and delivery to Log Landing II.	MAF/DoF	Immediate
		Simplify and clarify the procedures for the auction process at Log Landing II, the supply chain to and through the forest mill to the end user in Lao PDR or export border.	MoIC/DoIH	Immediate
		Simplify and clarify the procedures for payment of fees and charges at Log Landing II.	MoIC/DoIH MOF/Department of Treasury	Immediate
		Simplify and clarify the procedures for payment of taxes at Log Landing II and at export borders.	MOF/Department of Treasury	Immediate
		Simplify and clarify the procedures for payment of fees and charges at export borders.	MoF/Customs Department (CD)	Immediate
Industrial Plantation Forests and Public-Private-People Partnership (Forest Production and Wood Industries Processing)				
A lack of available and accessible contiguous areas of land has constrained scaling up plantation forest investments by credible companies within a group of proposed wood processing plants or major potential markets.	Continue to pursue partnerships with the corporate private sector for industrial plantation forest development on degraded forest and forestlands within PFAs.	Expand macro-level planning to identify PFA areas with large contiguous barren landbank suitable for industrial plantation investment.	MAF/DoF	Immediate
		Pilot plantation investment inside selected PFAs through a bidding process, and micro-level participatory planning with communities, including tenure arrangements, ESIA, technical and financial feasibility, and a compensation mechanism to ensure that the establishment of plantations does not shift deforestation to another site due to displacement of local people or deterioration of local livelihoods.	MAF/DoF MoNRE/DNEP Forest Industry MPI/Department of Investment Promotion (DIP)	Immediate
Unclear and inconsistent policies and legal and regulatory environment for large scale investment in wood production or wood processing in Lao PDR	Develop, promote and enforce consistent policies that provide clarity for GoL, a stable investment climate for private sector and greater certainty for local people.	Revise and strengthen Decree 96 on Plantation Investment Promotion.	MAF/DoF/FLTSD MAF/DoF/ Afforestation Promotion and Forests Rehabilitation Division (APFRD)	Immediate
		Develop a clear supporting regulation for the Land Law that articulates all arrangements for accessing and making land available for plantations.	MoNRE/Department of Land (DoL)	Near term

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
No robust screening procedures to identify reputable companies with proven social and environmental responsibilities or partnership checklist of procedures to negotiate and finalize agreements.	Promote credible private investment in industrial plantation forests in PFAs under forest concession agreements with PPP principles, ESIA, GoL/ company agreements, company/community agreements and clearly articulate commitments, risks and benefits.	Develop a set of standard screening criteria for plantation investment project.	Ministries (MPI, MAF, MoIC, MoF, MONRE) Forest and Wood Industry Communities	Immediate
No arrangements, agreements, guidelines and procedures for PPPs in place in Lao PDR.	Expand the research beyond the case studies on PPPs in forest restoration and forest management.	Further research suitable PPP agreements and guidelines used around the world that are suitable for Lao forest restoration and reforestation context.	MAF/DoF MPI Ministry of Justice (MoJ)	Immediate
Criticisms of the appropriateness, monitoring, enforcement and reporting under the environmental compliance certificate (ECC) or ESIA for large-scale investments in plantation forests.	Strengthen environmental regulatory capacity needed commensurate with the scale of investment, type and location of land involved (e.g. Environmental compliance certificate (ECC) or ESIA for industrial plantations).	In appropriate regulations, clarify the scale at which different types of assessment are required for plantations.	MoNRE/DNEP MAF/DoF/APFRD	Immediate
Inconsistency in the interpretation and application of governance from central-provincial-district-village levels, particularly for investments in industrial plantations.	Consistently implement regulations that support investment in industrial plantation forests, including the use of fast-growing exotic species.	Revise Decree 96 on Plantation Investment Promotion to clarify the policy on industrial plantations of exotic species.	MAF/DoF/APFRD MAF/PAFOs and DAFOs	Immediate
Since the PPPP concept is new, there are no supporting regulations to encourage investments in forest restoration and reforestation.	Strengthen the new Forestry Law and supporting regulations to encourage investments in restoration and reforestation.	Revise a decree on forest restoration and reforestation.	MAF/DoF/FLTSD MAF/DoF/APFRD	Near Term
No experience with sharing risks, investments and benefits between partners in the forestry sector.	Develop new benefit distribution models for the range of possible partnership products and beneficiaries.	Develop new benefit distribution models for the range of possible partnership products and beneficiaries.	MAF/DoF MoF/Department of Fiscal policy	Near Term
Limited land, socioeconomic and site-specific data to identify the most suitable sites and communities for restoration and reforestation.	Develop and make available accurate land information (tenure, planning, site suitability, socio-economic setting) to ensure the right investment is made in the right place at the right time for the right reasons.	Update land tenure mapping (especially of Forest categories/types). Update land suitability mapping.	MoNRE/DoL MAF/DoF/FIPD	Near Term

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
Model PPP procedures, agreements, guidelines and terms and conditions do not yet exist in Lao PDR.	Develop appropriate regulations for contracts, agreements, ownership, sales and marketing rights and benefit sharing models and dispute resolution and mediation.	Strengthen existing forest/ land concession agreements used with plantation companies for land use and crop-ownership rights, social and environmental safeguards, new ESIA procedures, sharing of risks and benefits, etc.	MPI MAF	Immediate
		Develop appropriate regulations for contracts and agreements, including model contracts.	MPI	Near Term
		Develop benefit sharing models.	MPI	Near Term
		Develop and communicate dispute resolution and mediation mechanisms.	MoJ	Near Term
The monitoring and evaluation capacity of MAF and MoNRE have been weak for compliance with ESIA, management plans, legality, forest and land concession agreements.	Develop clear and practical guidelines to standardize and strengthen monitoring and evaluation and follow-up regarding compliance with PPP agreements, ESIA, management plans and forest/ land concession agreements.	Develop clear and practical guidelines to standardize and strengthen monitoring and evaluation and follow-up regarding compliance management plans and forest/ land concession agreements.	MAF/DoFI	Near Term
		Develop clear and practical guidelines to standardize and strengthen monitoring and evaluation and follow-up regarding compliance with ESIA	MoNRE/DNEP	Near Term
		Develop clear and practical guidelines to standardize and strengthen monitoring and evaluation and follow-up regarding compliance with PPP agreements.	MPI	Near Term
Procedures for investors to access degraded and barren PFA land do not yet exist.	Define new procedures in policy.	Develop and communicate appropriate regulations and procedures that allow investor to access PFAs for plantation and forest restoration activities. These must include social and environmental safeguards.	MAF/DoF/FLTSD MAF/DoF/PFMD MAF/DoF/APFRD	Near Term
Forest concession agreements are inconsistently made, managed and monitored. Transparent information about concessions is lacking.	Improve key regulations and develop new regulations. Publicly disclose concession locations and characteristics to help resolve overlaps and promote accountability.	Revise the Decree on State Land Lease or Concession to clarify the procedures.	MPI MoNRE	Near Term
		Build on PMO9 by developing a regulation to improve governance in the granting of concessions for industrial plantation and planting other crops	MAF/DoF/FLTSD	Near Term

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
There have been few successful partnerships between growers (particularly smallholders), wood industries processors and/or importers to share the costs and benefits of certification (FM and CoC).	Undertake research into and communicate the value of timber supply chains for all products; develop effective strategies and regulations to develop and support them (e.g. for timber, NTFPs, PES, carbon etc.).	Continue to undertake value chain studies and disseminate research findings with recommendations for policy and regulatory change.	MAF/NAFRI NUOL/Faculty of Forest Sciences	Near Term
Demand for timber from native species remains high but investment has been limited due to an unsupportive regulatory environment.	Encourage smallholders to invest in valuable indigenous hardwood species and to seek partnerships with reputable forest industries investors to share risks, obtain FM and CoC certification and access to markets.	Review and revise the policies that promote the planting of native species (e.g. Decree 96) and the relevant regulations to ensure they are mutually supportive.	MAF/DoF/APFRD	Near Term
There are perverse disincentives causing uncertainty, increased costs and decision delays for smallholder plantation owners, particularly those growing indigenous species.	Review regulations and policies to clarify and strengthen the tree and wood ownership, harvesting and sales right for these trees.	Continue to review regulations and procedures for plantation registration, harvesting and sales procedures.	MAF/DoF/APFRD MAF/DoF/FLTSD	Immediate
		Continue to assess the potential use of remote sensing, apps and digital tools to make administrative processes more accessible, cost effective and faster.	MAF/DoF/APFRD	Continuous
There is limited GoL understanding of the private sector's role and the level of investments, scale of land required, and employees needed to establish an industrial plantations and associated wood industries processing capacity.	Strengthen knowledge of potential roles, scope and productivity that industrial plantations can contribute to major scaled wood industries and manufacturing sectors, foreign investment and foreign earning, plus added value to the Lao economy.	Produce information briefs based on appropriate case studies.	Forest and Wood Industry	Medium Term
Past modest experiences with outgrower partnerships between companies and smallholders did not instill confidence for scaling up outgrower schemes. Pilots supported by IFC on outgrower have only recently occurred.	Continue to support new generation outgrower pilots to encourage smallholder investments in fast growing plantation forests to complement and support industrial forest plantation and forest industries expansion.	Revise Decree 96 on Plantation Investment Promotion to specifically include outgrower models.	MAF/DoF/APFRD MAF/DoF/FLTSD	Immediate
		Continue to expand pilots and encourage smallholder outgrower plantations and tailor partnership agreements accordingly.	MAF/DoF Companies Farmers and Communities	Continuous
There is weak extension and transfer of knowledge and technology to support smallholder plantations.	Draw on current research to improve technical knowledge and extension support to smallholder plantation investments.	Update extension materials based on new research	MAF/DoF/APFRD MAF/NAFRI	Near Term
		Undertake training of provincial, district and village staff in new approaches and techniques.	MAF/PAFOs, DAFOs and VFCs	Near Term
		Establish a plantation and agroforestry knowledge portal.	MAF/NAFRI	Medium Term

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Low-skilled workers, outdated and inefficient equipment, poor designs (due to weak market linkages) and a lack of investment funds in forest processing and manufacturing plants have resulted in low volume recovery and poor-quality forest products more suited to the domestic market than international markets.	Support investment in forest industries and manufacturing for new technology and knowledge, enhance labor skillsets, improve designs, to meet international standards and market access.	Continue to work with partners and industry to develop training centers, such as the wood processing training facility at NUOL.	MoIC/DoIH NUOL/Faculty of Forestry Industry Associations Research Partners	Near Term
		Increase exposure to new products designs by promoting the Lao Wood Fair to international companies.	MoIC/DTP	Annually
There has been little past nature-based tourism practiced within PFAs and within designated conservation and protection forests within PFAs. <i>See sister assessment where this topic is assessed in detail.</i>	Support nature-based tourism in conservation and production landscapes by improving licensing for tourism operators, concession management in forests, and respond to market demand. <i>See sister assessment where this topic is assessed in detail.</i>	Support nature-based tourism in conservation and production landscapes by improving licensing for tourism operators, concession management in forests, and respond to market demand. <i>See sister assessment where this topic is assessed in detail.</i>	MoICT/Department of Tourism	Medium Term
Smallholder and Outgrower Plantation Forests				
The role of plantations in farmer livelihoods has been poorly understood and policies and incentives have not been sufficient to promote good management/quality wood production.	Promote plantation expansion through smallholder, outgrower, agroforestry, industrial models and supporting scale-appropriate partnership mechanisms and species of different rotation lengths and products.	Continue to encourage industrial plantation investment by corporate private sector investors and tailor partnership agreements accordingly.	MAF/DoF/APFRD Forest Industry	Immediate
		Provide credit and other incentives to private sector investors to invest in industrial plantation forests.	MPI/DIP BOL	Immediate
		Continue to expand pilots and encourage smallholder and outgrower plantations and tailor partnership agreements accordingly.	MAF/DoF/APFRD Forest Industry Farmers and Communities	Immediate
		Continue to encourage smallholder plantation in indigenous valuable hardwood species by removing barriers and provide technical/extension support services.	MAF/DoF/APFRD MAF/DoF/FLTSD	Immediate
Insufficient R&D and technical knowledge, land and funds; as well as poor germplasm have constrained the area planted and the quality of smallholder plantation forests (e.g. teak) which limits market potential/ financial return to growers.	Pursue action research partnerships across GoL, universities and the private sector to undertake research in key technical and social sciences areas.	Undertake research in social sciences, and environmental and social safeguards for smallholder plantation investors sector.	MAF-NAFRI, Universities Regional and international research institutions and NGOs	Near Term
		Undertake research in improved genetic planting stock, nursery practices, silviculture, harvesting, Permanent Sampling Plots (PSPs), sustaining productivity, market intelligence, resistance to insects, pests and diseases for the forest production sector.		Near Term

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
Overly complex and inhibitive regulations, procedures and interventions in smallholder plantation investments, management, harvesting and marketing have provided perverse disincentives for smallholder investment in new plantations and threaten re-planting of existing plantations. They also deter good plantation management.	Continue to simplify regulations for plantations for private sector investment and smallholder plantation grown wood.	Continue to simplify regulations on land use rights, approvals for silviculture, harvesting, transporting, marketing indigenous plantation species.	MAF/DoF/APFRD MAF/DoF/FLTSD	Near Term
	Carefully consider potential conflicts between policies that promote the planting of indigenous species and those that control the harvesting and trade of these species to avoid perverse outcomes.	Continue to simplify policies, regulations and procedures that handicap the flow of indigenous plantation species along the supply chain, and along the wood processing supply chain.	MAF/DoF/APFRD MAF/DoF/FLTSD MoIC/DoIH	Near Term
Village Forests				
There are unclear regulations regarding the uses of village forests and village land for household, customary use, public benefit and commercial production, including timber harvesting and plantation establishment.	Clarify the role of village forests and strengthen the legal and regulatory base for village forests, including for commercial and subsistence use of wood and NTFPs.	Continue to clarify the role of VFs and right of villagers to use these in the new Forestry Law and supporting regulations.	MAF/DoF, village forests and NTFPs management divisions (VF&NMD) VFCs	Immediate
		Agree upon management plan approval procedures and VFC mechanisms.	MAF/DoF/VF&NMD VFCs	Near Term
Support by district authorities in participatory planning, practices and benefits in village forests for the production of wood and non-wood forest products for customary uses has been inconsistent, particularly regarding opportunities for VFs.	Simplify, clarify and make governance roles consistent in support of village forests from central, provincial, district to village levels.	Undertake capacity building training to transfer knowledge consistently through all levels of governance on the roles and rights of VFs under the new Forestry Law.	MAF/DoF/VF&NMD MAF/PAFOs, DAFOs, VFCs	Near Term
Conversion Forests				
Salvage logging of conversion has not been subject to a forest inventory to determine species, tree/log sizes, volumes and other specifications; it has been subject to a low level of accountability, and susceptible to abuse by the mixing harvesting from salvage logging with logs harvested from unauthorized areas.	In the new Forestry Law, strengthen the procedures allowing for conversion of forestland to other land uses. In supporting procedures, specify the need to adopt best practices (designate and demarcate the area, conduct forest inventory, conform with social and environmental standards and adopt third party independent legality verification across the supply chain) for salvage logging in Conversion Forest areas.	Review the Forestry Law to strengthen the articles related to the conversion of forestland for other uses. With consultation, develop supporting regulations and procedures that specify pre-conversion and restoration requirements.	MAF/DoF	Immediate

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
Since the ban on logging in PFAs timber salvaged from conversion areas (together with confiscated wood and pre-ban stockpiles) have been the only sources of native species timber. This has resulted in some areas being converted without the subsequent (approved) development.	Revisit the strategy for long-term wood supply from Lao forests to attain and maintain an increasing proportion from sustainable sources from PFAs and less from unsustainably managed Conversion Forests.	Carefully consider the logging ban on sustainable flow of wood and benefits from PFAs, and gradually lift in a controlled manner when/where key criteria are met.	Prime Minister's Office MAF	Near Term
		Proactively participate in strategic planning where forest conversion is planned.	MAF/DoF/Planning and Cooperation Department (PCD) National Assembly/ Provincial People's Assemblies	Continuous
Auction processes are not supported by information for valuing lesser known species (LKS).	Pilot lesser known species from Conversion Forests to test specifications, properties, end use potential and value.	Analyze forest inventory data to identify LKS.	MAF/DoF/FIPD	Immediate
		Monitor LKS, volumes, specifications through the supply chain process to the Log Landing II.	MAF/PAFOs MoIC/POICs	Continuous
		Progressively collect data on LKS auction prices.	MoIC/POICs/Auction committee	Continuous
		Collect data on LKS end-use from conversion forest areas.	MoIC/DoIH	Continuous
		Analyze export trade data on LKS volumes, values, end-use and specifications.	MoIC/DIMEX	Continuous
Timber Legality (TLAS) and Certification				
There is a need to strengthen capacity within agencies for systematic regulatory review, for succession planning and to foster interest and knowledge in good regulation for forest management and timber supply chains.	Develop an accessible legal database for all laws and regulations associated with forests, forest use and forest industry (similar to <i>The Lao Trade Portal</i>). Incorporate within the database a mechanism that triggers the review of regulations after specified intervals.	Seek partner support to establish a legal database on forests, forest use and forest industry.	MAF MoIC MoJ	Near Term
	Develop and promote curricula within the universities (Law and Forestry Schools) for natural resources law, governance and policy.	Work with education partner to develop curricula.	Universities MoJ Lao Bar Association	Medium Term
Despite recent progress, significant challenges remain in developing and maintaining institutional capacity and resources to develop, implement and monitor compliance of TLAS and across the whole forest industry sector.	Strengthen support and capacity building to develop, implement and monitor compliance with the VPA and TLAS across the forests and forest industries sectors.	Allocate and sustain resources to strengthen capacity of DoFI/POFIs to undertake compliance monitoring and law enforcement duties more effectively, including in implementation of the TLAS across supply chains.	MAF/DoFI	Immediate
		Develop capacity through provision of technical assistance to all administrative and management agencies, to DoFI and to forest producers and industries on the VPA and TLAS.	MAF/DoFI/FLEGT Office	Near Term

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
While the TLAS will be based on the existing laws and sub-laws, there are areas that require further reforms. A dynamic and responsive regulatory environment is needed.	Strengthen the draft Forestry Law, supporting regulations and governance to: (i) integrate and implement TLAS Ministerial Instruction, (ii) encourage FM and CoC certification as proof of SFM through PSFM in PFAs and plantation supply chains, (iii) clarify forestland access rights, and (iv) promote PPP in the forest sector.	Revise the Forestry Law to ensure consistency with the TLAS Ministerial Instruction.	MAF/DoF/FLTSD	Immediate
	Strengthen the Industrial Processing Law and supporting regulations and governance to: (i) require compliance with TLAS; (ii) review regulations to support CoC are fully connected and supportive; and (iii) encourage CoC certification.	Review the Industrial Processing Law and supporting regulations to require CoC certification.	MoIC/DoIH	Near Term
Further consideration is needed with respect to orders, decisions and instructions issued by provincial, district or municipal governors, and village regulations the TLAS, and how guidelines and other instructional documents that are not legal instruments <i>per se</i> , but which should be complied with as a matter of policy, can be incorporated in it.	Clearly specify in the timber legality definition (TLD) of the TLAS and annexes of the VPA how the hierarchy of laws (set out in the Law on Making Legislation) applies.	Clearly specify in the TLD of the TLAS and annexes of the VPA how the hierarchy of laws (set out in the Law on Making Legislation) applies.	MAF/DoFI/FLEGT Office	Near Term
Regarding supply chain control, many departments have roles in the issuance of approvals along the supply chain and this makes verification complex and challenging.	Clarify roles, administration, monitoring, compliance and enforcement responsibilities for all agencies along the supply chain.	Update the Forest Legality Compendium to consider department restructures and functions.	MAF - DoFI, FLEGT Office	Near Term
		Review all relevant Departmental mandates to ensure all relevant supply chain steps are clearly described.	MAF - DoFI, FLEGT Office	Near Term
Despite piloting for more than a decade, uptake of certification is slow. As a result, there are insufficient incentives to support commitments to FM and CoC certification.	In the new Forestry Law, encourage forest management and chain-of-custody certification as proof of SFM.	Revise the Forestry Law with FM and CoC as proof of SFM.	MAF/ DoF/FLTSD	Immediate
		Revise Decree No 96 on Plantation Investment Promotion to encourage certification.		
		Include certification in criteria for concessions in PFAs	MPI	Immediate
		Recognize CoC certification in TLAS for fast-track licensing.	MAF/DoFI/FLEGT Office	Near Term

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
FM certification costs are not equitably distributed among beneficiaries. There is a reluctance of GoL and plantations to bear full certification costs while benefits accrue to producers, wood industries, buyers, and end users who do not share in the additional costs and do not pay a premium for sustainable, legal forest products.	Promote Lao wood (indigenous and plantation grown) as sustainable once appropriate measures are in place.	Encourage reputable forest industries investors to form partnerships with smallholder (family or farmer) plantation forest investors to share risks and costs of compliance and certification, support FM and CoC certification and provide market access.	MAF/ DoF, APFRD MoIC/ DoIH Forest and Wood Industry	Near Term
Markets do not clearly encourage managers of PFAs or plantations to pursue FM and CoC certification and for wood industries and manufacturing processors to adopt CoC or legality verification across the supply chain.	Assist wood producers, wood processors and wood traders to better understand advantages to access wood markets that require proof of sustainability and/or legality.	Encourage wood producers, processors and manufacturers to access international markets that respect sustainability and legality of wood and potentially pay higher prices than buyers from China, Vietnam and Thailand.	MoIC/DoIH MoIC/DIMEX	Near Term
		Encourage wood processors to distribute higher prices down the supply chain to growers.	MoIC/DoIH Industry Associations	Near Term
Measures to develop a more coordinated management approach, such as through the development of grower groups or cooperatives selling into markets for legal or certified wood, have had limited success because markets for Lao wood have not paid a premium for certified products to justify the costs of certification. There are social and cultural barriers to collaborative approaches. While GoL has policies and regulations to support group formation, they have been largely unsuccessful for long-rotation plantation production systems; they are more effective for short-rotation plantations and crops.	Harmonize policies and procedures to support the establishment of plantation grower groups and MSMEs. Support close collaboration and cooperation between MoIC and plus consultation of smallholders and SMEs.	Revise policies among MAF and MoIC to ensure consistency.	MAF/DoF/APFRD MAF/PAFOs/DAFOs MoIC/DoIH MoIC/POICs	Near Term
	To facilitate the development of smallholder plantation groups, develop specific regulations and guidelines with appropriate incentives (such as tax exemptions). Establish simple low-cost procedures for establishing, registering and managing groups.	Revise the MAF Strategy on Developing Farmer Cooperatives and Associations. Review the Decree on Cooperatives No 136/PM to make it easier for smallholders to establish small enterprises.	MAF/DPF	Near Term
		Develop extension and information services to assist in groups start-up and for ongoing advice.	MAF/DoF, Forestry Training Centre	Near Term
		Promote development of household and SME processors with simplified operating standards for CoC via improved regulations.	Review policies for household and SME processors and introduce regulations measures into the decree on SMEs that incentivize compliance.	MoIC/DoIH

Key Findings	Key Recommendations	Priority Actions	Institution	Timeline
Many regulations are not appropriate to smallholder plantations, and regulations or guidelines on forest management for smallholder plantations are absent. Even minimum legal requirements for plantation registration are unattainable for most individuals and households. Smallholder plantations are therefore mostly "informal, which curtails their ability to comply with laws, the first principle of certification standards. They therefore risk being non-compliant and excluded from these markets.	Draw on current research to identify regulations that adversely impact smallholders and, where possible revise and simplify these.	Revise the regulation on plantation registration and approvals for harvesting and sale of plantation timber.	MAF - DoF, APRFD	Immediate
	Explore mechanisms to simplify FM and CoC certification standards for smallholder plantation forest producers.	Provide evidence to certifying bodies of the areas in which standards are not currently appropriate, have unnecessarily adverse impacts or are excessively costly.	MAF/DoF/FLTSD Development partners Certifying bodies	Medium Term
Continued heavy dependence on international technical support and funds for piloting certification in PFAs and smallholder/group certification in smallholder plantations has obscured costs and benefits of the market mechanism.	Encourage partnerships between smallholder groups and reputable wood processing industries or importing companies to share in the costs and benefits of FM and CoC certification through simplified and efficient processes.	Review the Decree on Cooperatives No 136/PM to make it easier for smallholders to establish small enterprises.	MoIC/DoIH MoIC/DERM	Near Term
The low level of forest management certification to prove sustainability and legality is a disincentive to the uptake of chain-of-custody certification across the supply chain.	Strengthen the understanding for and the advantages of having both FM and CoC certification across the supply chain.	Provide technical support and capacity building to the forest industries and manufacturing sub-sectors to understand the need for chain-of-custody certification to access international markets, and how to implement.	MoIC/DoIH MAF/DoF/FLTSD Forest and wood industry NUoL	Medium Term

APPENDIX C:

Approach and Methodology

1. Approach

The ASA on “Sustainability in Lao PDR Forests” supported the government, private sector (corporate and smallholder), nongovernmental organizations (NGOs), industry and other stakeholders in collaboration with other donors and international agencies, to strengthen knowledge and understanding in PSFM, restoration and reforestation in production forests (PFAs and plantation forests).

The team undertook preliminary desk research to identify facts, figures, case studies, best practices, practical manuals, policies and lessons learned in similar contexts in other countries in the region that could potentially apply to strengthening PSFM, restoration and reforestation in Lao PDR. An Inception Report was prepared in July 2017 to detail the approach and the proposed methodology.

The participatory process adopted engaged with key stakeholders and adopted a partnership approach to facilitate the assimilation of ideas and knowledge on a continuous basis. This process included the following actions:

Meetings with technical specialists to ascertain the current status of their work, their understanding, challenges and priorities for action, as well as to exchange ideas about best practices, case studies and lessons learned from other countries.

Field visits to view sites and meet key people involved with PSFM and restoration of PFAs and village forest management areas, industrial and smallholder plantation sites (including communities), forest industries’ primary and secondary processing plants and visits to ascertain forest products markets in Vietnam.

Meetings with stakeholder representative bodies including Lao Furniture Industries Group (Cluster), Lao Wood Processing Industry Association, Lao National Chamber of Commerce and Industry (LNCCI), Luang Prabang Teak Plantation Owners, Wood Fibre Industry Association, the National University of Lao PDR and the Lao Planted Forest Products (LPFP) Working Group.

Meetings at all levels of governance, from central (MAF, Department of Forestry (DoF), Department of Forest Inspection (DoFI), Ministry of Industry and Commerce (MoIC), Department of Import-Export (DIMEX), Department of Industry and Handicraft (DoIH), and Ministry of Planning and Investment (MPI)); provincial (Provincial Agriculture and Forestry Office (PAFO), Provincial Forestry Section (PFS), Provincial Forest Inspection (POFI), Provincial Industry and Commerce Office (PoIC); District Agriculture and Forestry Office (DAFO), and commune and village forest committee levels to understand the different perspectives, priorities and unique institutional settings.

Collaboration through technical support and interaction with technical and review teams of other World Bank-supported projects in Lao PDR, including the Scaling-Up of Participatory Sustainable Forest Management Project (SUFORD-SU/SUPFSM), the REDD+¹⁹ Project, the Forest Carbon Partnership Facility (FCPF) processes to develop a sound national REDD+ Strategy and Emissions Reduction Program, and the Second Programmatic Green Growth Development Policy Operation series.

Meetings with collaborating partners that included International Finance Corporation (IFC), Australian Bilateral Aid Assistance (AusAID) and Australian Centre for International Agricultural Research (ACIAR) in planted forests and forest industries; and European Union and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in the EU-Forestry Law Enforcement, Governance and Trade (FLEGT) process to prepare a voluntary partnership agreement (VPA) and a timber legality assurance system (TLAS).

Participation in forest management-related events, workshops, seminars and conferences hosted by FIP/FCPF, AusAID, ACIAR, GIZ, Prime Minister's Office, MAF, DoF, MoIC, DIMEX, Pro-FLEGT, REDD+, SUFORD-SU, GG-DPO, IFC, Lao Furniture Industries Group, Lao Plantation Group, National University of Lao PDR, and Wood Fibre Industry Association.

Preparation of production forest models jointly with key stakeholders that represented the main mechanisms for PSFM, restoration and reforestation in Lao PDR. These included:

- i. Participatory SFM based on the actual Kathong Neua Sub-Forest Management Area (SFMA) within the Thapangthong Forest Management Area (FMA), Dongsithuan PFA, Savannakhet Province
- ii. Industrial eucalyptus plantations as practiced by corporate investors in the central region of Lao PDR
- iii. Smallholder eucalyptus outgrowers as practiced by smallholder investors in association with corporate investors in the central regions of Lao PDR
- iv. Smallholder teak plantations (current) as practiced by smallholders in the northern provinces of Lao PDR, specifically Luang Prabang Teak Plantation Owners (LPTP)
- v. Smallholder teak plantations (potential) based upon prescribed silviculture, rotations and harvesting, but generally not practiced

Financial and economic analyses were conducted on each production forest model to ascertain net present value (NPV), land expectation value (LEVs), internal rate of return (IRRs) benefit/cost ratios and carbon balances.

Hosting of a validation workshop on May 17, 2018 in collaboration with MAF/DoF and key stakeholder groups to present and discuss preliminary findings of the draft six technical background reports that were reflected in the Validation Workshop Report, May 17, 2018.

Submission of six technical background reports as mentioned above.

19 REDD+ stands for countries' efforts to reduce emissions from deforestation and forest degradation, and foster conservation, sustainable management of forests, and enhancement of forest carbon stocks.

A draft synthesis report to summarize the key findings and recommended actions from the six technical background reports was prepared, presented and discussed at a learning workshop with participants from MAF/DoF, MOIC, MPI, and World Bank Group on November 20, 2018.

This synthesis report (for decision review meeting) incorporates the key findings and recommended actions from the six technical background reports, the validation and learning workshops, and peer review feedback from the World Bank Quality Enhancement Review (QER) held on December 14, 2018.

2. Methodology

Retrospective of the forest sector in Lao PDR. Desk research of existing documentation and close collaboration with MAF/DoF informed the technical background report to better understand the drivers of deforestation and degradation. This report included an examination of the role of PSFM, conversion and salvage logging, corporate and smallholder plantation forests and wood products trade impacts on the economy; and the involvement of communities and the role of villagers in PFA management.

Technical background report on sustainable forest management in Lao PDR. The technical background report captured a combination of best practices and case studies from other countries and forest management practices in Lao PDR to better understand the various advantages, options for different approaches to SFM in Lao PDR under different production models, including PSFM including forest restoration and livelihoods development; industrial eucalyptus plantations; smallholder outgrower eucalyptus plantations; and smallholder teak plantations. For each production model, the actual work norms, costs, productivities, yields, annual allowable cuts and stumpage prices were collected using actual operations in Lao PDR. The challenges facing SFM and the recommended policy and technical actions were outlined for consideration. The role of forest management and chain-of-custody certification and TLAS legality verification and the international market pressures for proof of sustainability and legality were synthesized in the technical background report.

Technical background report on certified forest and wood products in Lao PDR. The technical background report was prepared partly from desk research from Lao PDR, the Southeast Asian region and globally; meetings with the government and the private sector (both corporate and smallholder) producers and wood processors; and a survey of Lao forest products marketing in Vietnam. The role of forest management and chain-of-custody certification and legality verification were reviewed and the trends in international markets for proof of sustainability and legality recorded. In the absence of significant forest certification (forest management or chain-of-custody), it was not possible to analyze with/without certification with any hard data. Studies from Vietnam were indicative of results that could be expected in Lao PDR. A national market survey, chain-of-custody analysis and timber industry study were proposed for the technical background report, but specialists within these fields were not available to conduct these studies within the tight time frame of the ASA.

Technical background report on the regulatory framework and policy support for SFM, certification, timber legality and PPPs in Lao PDR. The technical background report was prepared by a regulatory and policy specialist who worked with, and in close collaboration with other projects (AusAID, ACIAR, GIZ, ProFLEGT, GG-DPO, IFC) complementing the ASA work. An analysis of the existing legal and regulatory framework was undertaken to identify gaps, shortcomings and areas to strengthen certification of sustainable forest management and chain-of-custody, as well as for promoting the use of legal wood through a timber legality assurance system. In close collaboration with the government, the study drafted recommended policy and other instruments to support PSFM, certification and TLAS and PPPs.

Technical background report on Public-Private-People Partnerships for forest restoration in Lao PDR. The technical background report was prepared in close collaboration with the Ministry of Planning and Investment (MPI), the institution coordinating the PPP initiatives on behalf of the government. Desk research identified case studies and PPP agreements and checklists of background use for Lao PDR. The report captured the spirit of cooperation and identified key areas of ongoing work required by the government and the private sector (both corporate and smallholder) as a foundation for various types of partnerships: government-company, company-community and company-outgrower. Additionally, the prerequisite corporate social and environmental responsibility track record of companies was highlighted as a foundation for any stable PPP.

Technical background report on economics of certified sustainable forest management. The study was based on the production models representing natural and planted forests with input costs and productivities and output yields and prices provided from data collected in the field. Economic and financial analyses of alternative forest management model options were undertaken (with and without carbon payments). Discounted cash flow analyses and capital budgeting procedures developed with the World Bank previously in Mexico and Vietnam were used to determine net present value (NPV), land expectation value (LEV), annual equivalent value (AEV), internal rate of return (IRR), benefit/cost ratios and carbon balances. Variance analyses were done using variations in wood and carbon prices, yields and other parameters. The Lao PDR model building and external comparisons with other countries helped to ascertain the practicality and reasonableness of the assumptions in the models for Lao PDR and were used to iteratively revisit some of the input production activities, costs, and prices to ensure accuracy of the results.

Synthesis report. The synthesis report was prepared to summarize the key issues, findings and recommended actions emanating from the six technical background report reports, packaged for senior decision-makers. The draft synthesis report was presented at a learning and feedback workshop for GoL officials in November 2018, for feedback which was received positively, and was subjected to a Quality Enhancement Review by the World Bank Group in December 2018 and finally a Decision Review with World Bank and IFC management in March 2019.

3. Engagement, Dissemination and Communication

Engagement, dissemination and communication plan. An Engagement, Dissemination and Communication Plan was prepared. The objectives of the plan were to strengthen the engagement with the government and key stakeholder groups; and build knowledge and awareness of the content in this ASA.

Meaningful dialogue. The ASA process has helped to maintain meaningful dialogue between the World Bank and the government to support approved and ongoing forest policy, legal and regulatory reforms and identification of future investment and strengthening partnerships between the public, private and people institutions.

Significant reforms during the ASA process. The ASA process has engaged with the government, other international agencies and a wide range of stakeholders through their forestry reform process since June 2017. The following are some key reforms achieved during this period:

- i. MAF Ministerial Instruction on Development of the TLAS
- ii. On-going inputs to new Forestry Law (TLAS implementation; FM and CoC certification; PSFM; Plantation forestry in PFAs; Promoting and streamlining smallholder plantation forestry; and promoting private industrial plantation forestry).
- iii. MoIC draft Decision on the use of CoC certification in the supply/value chain.
- iv. MoIC draft Regulation of Sale and Purchase of Timber in Log Landing 2.
- v. PMO9 on use of PFA lands for private industrial plantation forests and the support in MAF instruction on implementation.
- vi. PMO2 on the ease of doing business and the supporting MAF/MoIC instruction for implementation.
- vii. SUFORD-SU satellite assessment of severely degraded forest lands in PFAs suitable for industrial plantation forests (completed).
- viii. Draft Decree 96 on promotion of commercial plantation forests.
- ix. Process for enabling private sector for reforestation & restoration in PFAs commenced.
- x. Certification process ongoing (FSC FM certification on 85,000 ha; FSC Controlled Wood on 90,000 ha) supported by SUFORD-SU.

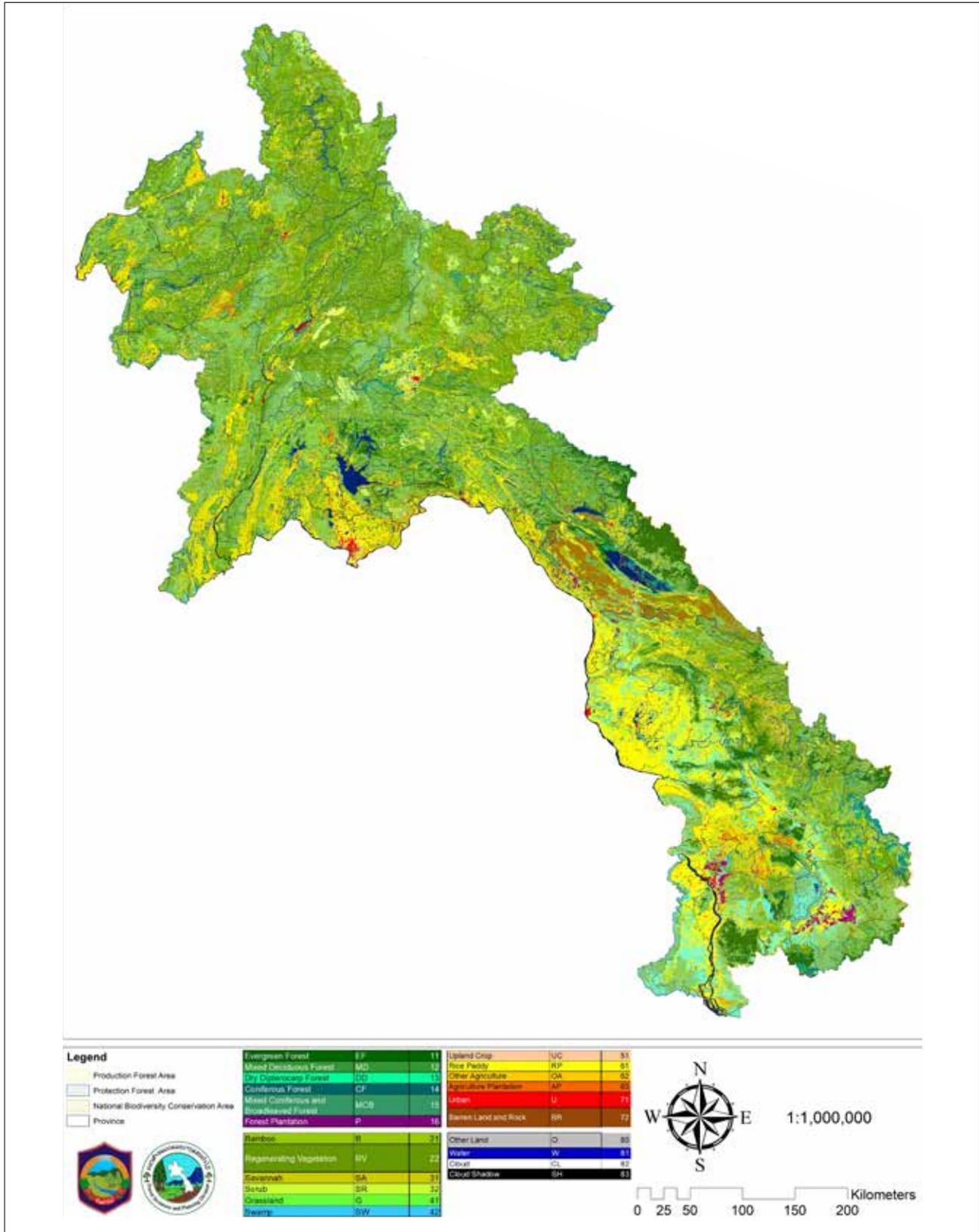
Forestry policy notes. Very short policy notes were prepared in English and Lao to assist the government and other stakeholders to formulate forestry policies and incorporate recommendations into strategic planning.

ASA contribution to strategic planning. The recommended actions from the ASA process are and can continue to provide a sound basis for including forestry in the new Forest Law; NSEDP-9; Forestry Strategy 2030; National Green Growth Strategy and the Nationally Determined Contribution (NDC) and National Adaptation Program (NAP) for the UN Framework Convention on Climate Change (UNFCCC) in Lao PDR, and Strategic Plan for Disaster Risk Management.

ASA contribution to new public and private investment. Additionally, the dialogue during the ASA preparatory process has helped shape potential investment opportunities and strengthen partnerships between private and public institutions.

APPENDIX D:

Map of Land Use and Forest Types in Lao PDR (2015)



APPENDIX E:

Industry platforms, standards and principles for certified wood

Green Procurement Policies

Green Procurement Policies (GPPs) that require proof of sustainability have been adopted by the EU and other countries, helping drive the demand for certified wood. For example, a “Buying Green” handbook helps public authorities to plan and implement GPPs in the EU (European Commission 2016). Japan and New Zealand have national GPPs, while the U.S., China, Mexico and Brazil have introduced GPPs at city, regional or national levels. Those countries with GPPs accept FSC and PEFC and their associated certification systems as proof of sustainability.

Green Building Standards

Increasing adoption of green building standards is also driving demand for certified wood. For example, the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED), 24 national and regional Green Building Councils in the European Regional Network (ERN), and the Green Building Standard of Australia have all recognized internationally reputable voluntary forest certification standards such as FSC and PEFC and their associated certification systems as credible proof of sustainability.

Global Principles and Standards in Forestry Sector Financing

The IFC and World Bank Environmental and Social Framework reflects the evolution in good practice for better development outcomes, risk mitigation and transparency. IFC and the WBG require their clients to comply with globally, regionally or nationally recognized standards for primary production and to implement SFM practices such as those compliant with appropriate, independent, accredited certification bodies.

The Equator Principles, which were derived from the IFC and World Bank safeguards frameworks, offer a risk management approach that has been adopted by international commercial financial institutions for determining, assessing and managing environmental and social risks in project finance. They are primarily intended to provide minimum standards for due diligence to support responsible decision making. International financing institutions that have adopted the Equator Principles will not provide project finance where their client does not comply with their principles. Financing institutions using Equator Principles are encouraged to consider using independent, third-party forest certification systems. Other useful standards have also been developed, such as China’s 2007 “Guide on Sustainable Overseas Forests Management and Utilization by Chinese Enterprises” (China Forestry Network 2007).²⁰

20 “Guidelines for the Sustainable Use of Forests by Chinese Enterprises.”

The UN Principles for Responsible Investment (PRIs) provide a global standard for responsible investing as it relates to Environmental, Social and Corporate Governance (ESG) factors to better manage risk and generate sustainable, long-term returns. Financial institutional signatories to the PRIs undertake to implement the ESGs to positively impact the performance of investment portfolios. If signatories do not report on progress toward achieving the PRIs, they are removed from the responsible investors list. Third-party certification from a reputable certification system is considered an effective means of demonstrating and reporting compliance with legality and sustainability standards and practices for PRI purposes. The target markets for forest products trade from Lao PDR may have major clients that are signatories to the PRIs that will require legality verification and/or certification for proof of legality and sustainability of forest products.

Private Sector Procurement Responses

Timber trading associations or federations play an important role in defining and disseminating general policies and standards for selected market areas and enhancing further development of procedures and guidelines. Some timber trade federations and wood products associations require that members comply with legality and sustainability standards when importing timber products. Companies join these federations and associations to subscribe to the codes of conduct or codes of ethics and to commit to the third-party verified or certified forest products. This is desirable for various reasons, such as to meet national public procurement requirements, maintain market share, ensure corporate social responsibility, improve supply chain efficiency, or with a view to proactive marketing of the positive uses of renewable wood products in construction and building. The following are some examples of these types of associations:

- > The Timber Trade Federation (TTF), whose members account for about 70 percent of forest products trade in the UK.
- > The European Timber Trade Federation (ETTF), which represents sixteen key importing trade federations from thirteen countries across Europe.
- > The National Wood Flooring Association (NWFA) in the US.
- > The China Solid Wood Flooring Alliance, which represents 19 leading companies and the China Pulp and Paper Alliance, which represents most of China's pulp and paper producers.

End-Use Companies

Increased public awareness of environmental issues in industrialized countries can be seen in end-user company wood procurement policies. In general, the EU and U.S. markets require major operators to demonstrate responsibility to authorities and shareholders in securing the legality of wood origin as well as the sustainability of production. Most major companies have consequently developed wood procurement policies, usually built on stepwise improvements and strict minimum requirements for their timber suppliers.

APPENDIX F:

Elements for Building the Foundation for PSFM

Building Blocks	Natural Forests			Plantations		
	PFA	Village use	Other Sources	Industrial	Out-grower	Smallholder
Procedures	Timely decisions on land allocation for Public-Private-People Partnerships > Concessions > Wood supply agreements > Local participation > Benefit distribution > Restoration	Timely decisions on land allocation for Public-Private-People Partnerships > Land use Plan > Village Forest Management Plan > Village Forest Management Agreements > Wood supply agreements	Timely decisions on land allocation for Public-Private-People Partnerships > Concessions > Wood supply agreements > Local participation > Compensation > Benefit distribution > Restoration	Timely decisions on land allocation for Public-Private-People Partnerships > Concessions > Leases and duration > Environmental and social impact assessment > Benefit distribution > Wood supply agreements > Local participation > Benefit distribution > Restoration	Timely decisions on land allocation for Public-Private-People Partnerships > Leases > Inputs (company, smallholder) > Wood supply agreements > Benefit distribution > Local participation	Timely decisions on land Allocation for Public-Private-People Partnerships > Land use certificates > Tree registration > Inputs (GoL, company, smallholder) > Smallholder grower groups > Wood supply agreements > Enterprise registration
Fiscal Instruments	Fiscal incentives; Forest and Forest Resources Development Funds (FFRDF); Auction procedures	Village Development Fund; Auction procedures	FFRDF; Village Development Fund Auction procedures	Village Development Fund (payment for social services)	Market-based prices at time of sale	Secured land use rights; Inputs and extension; Prevailing market prices
Community	Free prior and informed consent; Benefit distribution models; Access and tenure; Grievance procedures	Free prior and informed consent; Benefit distribution models; Access and tenure; Grievance procedures	Free prior and informed consent; Benefit distribution models; Compensation; Grievance procedures	Free prior and informed Consent; Benefit distribution models; Access and tenure; Employment; FPIC; Grievance procedures	Benefit distribution models; Access and tenure; Employment; Free prior informed; consent; Grievance procedures	Access and tenure to land and tree crops
Governance	Planning; Management Plan; Information; Supervision; Certification; TLAS; R&D (LKS, PSPs, yield, silviculture, harvest, VFAs & village livelihoods) Enforcement; Education and training	Planning; Management Plan; Information; Supervision; Certification; TLAS; R&D (land, crop, harvest & market rights, social & environmental science) Enforcement; Education, extension, training	Planning; Information; Supervision; TLAS; Enforcement; Education and training R&D (inventory, LKS, social, environmental & economic impacts of conversion)	Planning; Information; Supervision; Certification (voluntary); TLAS; R&D (improved germplasm, nursery, silviculture, social & environmental science, markets); Education and training	Planning; Information; Supervision; Certification (voluntary); TLAS; R&D (improved germplasm, site spp. Match, silviculture, harvest & market); Education, extension and training	Information, extension & training; Certification (voluntary); TLAS R&D (land, crop, harvest & market rights, social & environmental science)

APPENDIX G:

Scenarios for Production Forest Areas

Industrial Eucalyptus Plantations

Investments in existing eucalyptus industrial tree plantations have been based on forecasts of good financial returns driven by high estimated growth rates and competitive pricing. Modelling undertaken by this ASA shows that an internal rate of return (IRR) of 22 percent and a land expectation value (LEV) of more than US\$6,000 at the 8 percent discount rate are possible from plantations managed on seven-year rotations with a stumpage price of US\$35 per cubic meter. While assumptions are based on information provided by existing investors, there are some areas worthy of consideration to ensure this approach is compatible with SFM: attaining access to land with the potential to achieve the modelled growth rates is a significant issue, and lower growth rates are likely to be the reality in some areas; the reported growth rate for eucalyptus appears optimistic and would be the highest of any country in Asia despite the country's relatively low levels of technological development. Vietnam, for example, has much lower growth rates for eucalyptus (Harwood and Nambiar 2014a, b), so achieving such high productivity across all land in Lao PDR is likely to be difficult, although it is promising to note that it has been accomplished in some areas. Returns based on lower growth rates of 26 m³/ha/year but with the same input costs were modelled, and this made a large difference in the returns. The LEV decreased to around US\$2,500 per ha, and the IRR fell to 15 percent. On areas of lower site quality, management and monitoring will be essential to enhance plantation productivity.

Outgrower Eucalyptus Plantations

Outgrower eucalyptus plantations were found to be extremely profitable from a financial standpoint for prospective outgrowers, based on available information and as long as their labor costs and the contributed inputs from a partner forestry firm were not included as costs. With lower growth rates (18m³/ha/year), shorter rotations (five years) and the same stumpage price of US\$35/m³ as the industrial model, the resultant LEV for outgrowers was US\$5,801 per ha at the 8 percent discount rate. However, since planting costs were lower, the outgrower model had a much higher base IRR of 61 percent compared to 22 percent under the industrial model.

Despite the apparent advantage from a financial analysis viewpoint, the exclusion of imputed costs for labor, company-provided inputs, and lower growth rates are significant. Including the cost of labor reduced the LEV to US\$2,955 per ha; a lower growth rate reduced LEV to US\$4,239; and when combined (labor cost plus low growth rates), LEV was as little as US\$563 per ha. These added costs reduced the IRR from 61 percent to 6 percent.

Outgrower plantations can have excellent financial returns for smallholders if their input costs, technical services and access to market at competitive market prices are subsidized by a forestry firm or by the government, and if they contribute their own labor to manage the plantation. High returns are likely to be realized only if new planned forestry investments and good timber markets occur and scale up in Lao PDR.

Smallholder Teak Plantations

Smallholder teak plantations are currently much less productive than their potential. Due to poor site selection, low quality germplasm, and inadequate management, they have relatively low growth rates of 9m³/ha/year. While typically grown on long rotations, the reality is that most plantations are rarely managed on a rotational basis; harvesting is irregular and product quality and size are highly variable. By applying a hypothetical 24-year rotation and a stumpage price of US\$91, a LEV of US\$2,383 per ha and IRR at 13 percent are possible.

Improved early management could increase growth rates and consequently piece size, and the quality of wood could be improved through thinning, pruning and competition control. Modelling with more intensive management, higher growth rates of 14m³/ha/year and shorter rotations from 24 to 18 years improves returns to perhaps as much as a LEV of about US\$5,000 per ha, and an IRR of 18 percent. While achieving the necessary management level for new teak plantations may be possible, it will increase costs. Improved information, training and capacity building as well as better germplasm and land use planning are needed. For existing plantations, however, many plantations are past the age at which silvicultural interventions are likely to have a significant impact on growth or quality, and adoption of new techniques has been limited (ACIAR 2017). Other interventions are required to address grower attitudes to plantation management and realize the full potential of these forests. While good teak management is possible, it is not common practice in Lao PDR since plantations are established more to secure land tenure and to fund emergency needs rather than for commercial timber production (Newby et al. 2014; Smith et al. 2018). Teak plantations are rarely clear-felled – the norm is to selectively harvest the best trees in times of need (Ling et al. 2018). On the other hand, there are reasonable regional and domestic markets for teak, and these could be increased through improved processing and manufacturing practices and a reduction in regulatory processes and costs that both limit returns to growers and inhibit their ability to attain and demonstrate legality.

Participatory SFM Model

Timber harvesting in natural forests in Lao PDR has occurred at unsustainable levels and has exceeded known growth rates by about 1m³/yr. Harvesting has historically been on a 15-year, periodic rotation, and growth rates have been low, at 3.19 m³/ha/yr. With a stumpage price of US\$57.50/m³ this has provided a low LEV of US\$603 per ha at the 8 percent discount rate and an IRR of 13.8 percent. However, if forest rights holders are capable of managing existing stands carefully and sustainably and harvest a range of useful timber products with good access to markets and reasonable prices, the potential is much greater. With a stumpage price of US\$150/m³, a LEV of US\$2,440 per ha and an IRR of 24.2 percent are possible.

A challenge for PSFM is that good quality, well-managed, high volume natural stands are scarce in Lao PDR and remaining stands tend to have decreasing volumes of commercially desirable species in current markets and poor-quality regeneration. This is correctable through the application of good silviculture and by providing for forest restoration through adequate capital and technical knowledge. Higher stumpage prices, if realized, could have a very positive impact on PSFM in PFAs.

The current ban on logging in PFAs and the export of unprocessed wood is a constraint. To capture the higher prices offered by high-end final markets, good domestic log processing is required; this capacity is not currently available. Instead, the structural adjustment of the processing sector associated with the implementation of PMO15 has resulted in a reduction in overall processing capacity. Even if good native hardwoods are valuable in theory, it may not be possible to realize this value within the country given current laws and infrastructure. Furthermore, informal costs and unofficial processes, which have been a persistent feature of hardwood supply chains in Lao PDR, are difficult to model to determine the potential gains for the SFM model.

APPENDIX H:

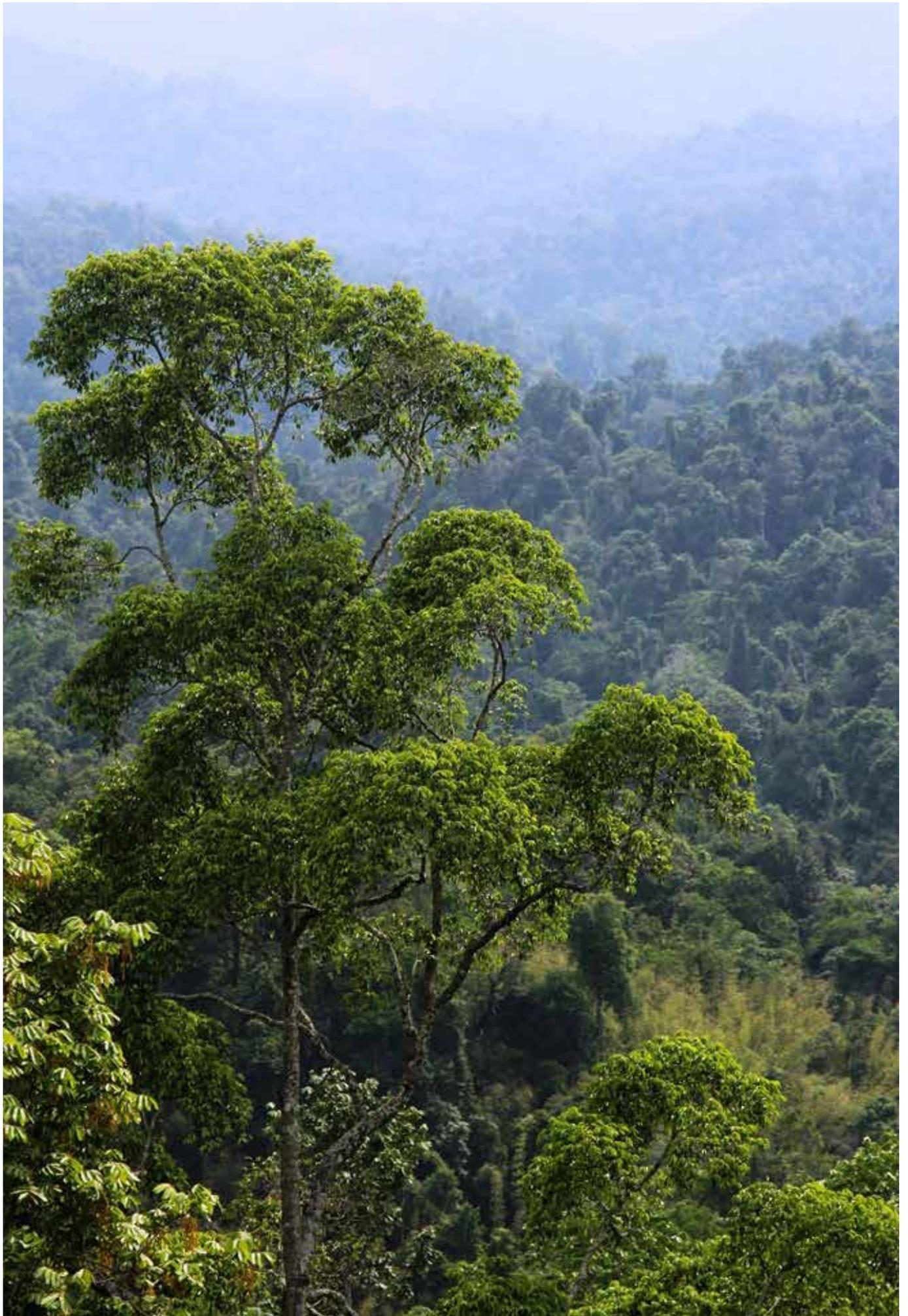
Key Elements of Successful Partnerships

Principles	What is needed?
Consistency in Governance	<ul style="list-style-type: none"> > Consistent application of the policy, legal and regulatory frameworks at central, provincial, district and village levels. Inconsistency causes strained relationships, undermines confidence, adds a significant investment risk and constrains expansion of investments.
Working together for a common goal	<ul style="list-style-type: none"> > PPPPs require all partners to earn and embrace mutual trust and respect and to exercise transparency and clear communication across institutions. Partnership objectives should be clearly articulated and well understood.
Timely Decisions	<ul style="list-style-type: none"> > Delays in decision making, such as providing access to large contiguous areas of land or in making concession agreements, can create serious constraints to achieving the objectives and targets for PPPPs.
New Skillsets	<ul style="list-style-type: none"> > Past action reflected was strongly oriented toward “harvesting concessions” rather than “forest management” concessions. As a result, there was a heavy emphasis in expertise and experience with inventory, management planning and surveys related to harvesting of forests, with limited focus on holistic forest management required of SFM. > New skills should focus on sustainable forest management including post-harvest silviculture, regeneration, forest protection and productivity are needed. The realization of opportunities to undertake forest restoration and expand reforestation to increase forest cover have led to the potential to upscale and strengthen PPPPs.
New Research, Extension and Education	<ul style="list-style-type: none"> > The policy/legal/regulatory priorities are changing and institutions at all levels need to adapt, including giving greater focus to forest research/education/extension/training. > More focused research and education is required on forest restoration in different forest types, indigenous forest silviculture, improved germplasm for planted forest species, resistance to insects, pests and diseases, monitoring growth and yield and market intelligence. More people-centered approaches, together with provision of technical and extension services and new social skillsets are needed to facilitate free, prior and informed consent, social and environmental monitoring and a better understanding of the business functioning of companies, communities and smallholders.
Contracting and Grievance Mechanisms	<ul style="list-style-type: none"> > Partnerships can be strengthened through transparent contracts/agreements, strong supporting regulations and accessible mediation and grievance resolution systems. > Generic laws supporting contracting and dispute resolution exist but could be strengthened to ensure that the rights, duties and benefits for each party involved in forest partnerships are clearly established, defensible and grievance mechanisms are accessible to all. > Template agreements are available and could be adapted to the specific circumstances of Lao forest PPPPs such as i) the Report on Recommended PPP Contractual Provisions (World Bank Group, 2015, revised in 2017), which sets out language for a selection of typically encountered provisions in any public-private partnership; ii) an Information and Communication Technology Sample Contract and Schedules (Australian Bilateral Aid and the Philippines-Australia Partnership for Economic Governance Reforms); and iii) a Standard on Public-Private Partnerships in Renewable Energy (United Nations Economic and Social Council 2018). > Customary and informal dispute resolution and mediation mechanisms can be included in PPPP agreements.
International Support	<ul style="list-style-type: none"> > Numerous partners support Lao PDR’s development of an effective investment environment for forest partnerships. > IFC has been supporting private companies to pilot and demonstrate partnerships with smallholders in reforestation, through outgrower mechanisms. > The WB, IFC, Australian Bilateral Aid Assistance (AusAID), ACIAR, GIZ and others have been working with the GoL, companies and other stakeholders to identify opportunities for upscaling restoration and reforestation in PFAs and neighboring land and providing technical advice on reforms necessary in the policy, legal, regulatory and institutional frames. The GoL wishes to upscale restoration and reforestation immediately, so awaiting set up of a PPP framework and mechanism is not the most viable route forward.

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