

WHITE PAPER

Opportunities for the Development
of Commercial Forest Plantations
and Plantation-Based Industry in
Lao PDR

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Executive Summary

Burgeoning regional demand for wood and wood products, accompanied by supportive legal and regulatory changes, offers opportunities for private sector investment in a modern plantations-based forest industry in Lao PDR. This study complements thorough ongoing studies and proposals by the Government of Lao PDR supported by the World Bank Group, Swedfund and bilateral donor partners such as the Australian Centre for International Agricultural Research (ACIAR). In acknowledging the many recommendations made by these other studies, the following key points are offered:

Global and regional demand for wood and wood products

A mature understanding of the global and regional demand for industrial wood and wood-based industries is critical for supporting investment in plantation development, including with, and by, smallholders. It is recommended that a mechanism be created for independent review and knowledge-sharing of global and regional trends for plantation-based wood industries, involving relevant ministries and public bodies, NGO, donors and the private sector; offering a role for the Lao National Chamber of Commerce and Industry (LNCCI) and the Lao Planted Forests Group.

It is recommended that all feasible steps are taken by all levels of Government and commerce to ensure that the investment environment in Lao PDR functions efficiently and predictably

The forestry sector and plantations in Lao PDR

The opportunity to create a modern, plantations-based industry in Lao PDR and the benefits and challenges which arise are not widely understood within the broader Lao community.

It is recommended that a program of positive communication be initiated which will share the anticipated impacts on:

- Economic, social and environmental development, both qualitatively and quantitatively where possible.
- Various stakeholder groups, especially the local populations.

It is recommended that serious efforts be made to share the positive plantation forestry story widely in Lao PDR, through schools, TV, radio, social media and personal presentations to interested and influential Lao citizens.

Importantly, balancing the interests of stakeholders representing the whole value chain from the plantations, through forest industries and to markets, will require continued interaction with Government agencies and the public about the development of policies and institutions, helping to foster public acceptability.

Opportunities for Plantation Expansion

The Government of Lao PDR explicitly aims to achieve financially and environmentally sustainable, resilient and inclusive economic growth, especially through credible private sector investors. Investments in sustainably managed tree plantations will help to achieve diverse national development goals in Lao PDR. Improving pre-conditions for plantation investment and reducing risks are essential to encourage private sector engagement.

It is recommended that private sector partners liaise with the Government of Lao PDR to seek consistency and clarification on laws and regulations for:

- Financial implications of investment in commercial plantations, especially in relation to taxes and environmental regulations;
- Land use delineation and allocation, especially in and around the PFAs which will profoundly influence investment and partnerships with communities; and

- Simplification of regulations governing land use and wood product marketing to enable all growers, large and small, to register their plantations, and to legally harvest and sell their trees.
It is recommended that Government be encouraged to allocate resources to support all these changes, and should strengthen compliance, monitoring, reporting and correction.
It is recommended that adequate attention is offered to supportive research and development through strengthening domestic research and teaching agencies and links with outside Universities and research agencies.

Investment Challenges

The formal processes involved in delineating areas available for commercial plantations within the PFAs and then allocating suitable areas for commercial plantations are of vital importance for legal, long-term investment.

It is recommended that investors work closely with Government agencies at National, Provincial and District levels of government to provide clear and consistent interpretations of laws and regulations.

Communities and smallholders linked with PFA lands formally allocated to investors for commercial plantations may have pre-existing formal or informal connections to the land. Collaboration with communities is essential to understand the legal interpretations of the rights of affected communities and the legitimacy of their legal tenure claims, placing an onus on private companies to adhere to best-practice standards for investment.

It is recommended that companies commit to a process guided by Free, Prior and Informed Consent (FPIC) in engaging with affected communities, along with publicly-accessible and transparent ESIA or IEE as required by law.

An expanded and sustainably managed plantation sector will bring significant benefits to Lao PDR, providing productive and environmentally sound land use for farmers' lands and large areas of degraded PFAs. These beneficial impacts will only be realised if investors remain confident that conditions for investment remain favourable and that laws and regulations are consistently and uniformly applied.

It is recommended that Government and investors work together to ensure the laws and regulations of Lao PDR are consistently applied and that consideration is offered for the establishment of a National Code of Practice for Plantation Forestry and a National Forest Standard.

FULL REPORT

Global and regional demand for wood and wood products

Issue description

“Wood is good” and is a basic need for traditional and contemporary living. It is a renewable resource which is used to build, furnish and heat homes, cook our food, provide paper for writing, packaging, sanitation and hygiene. Day-to-day life without wood and paper is practically impossible.

Global demand for industrial wood is increasing with annual timber demand forecast to increase from 3,401 million m³ in 2010 to 7,553 million m³ by 2030 and to 13,082 million m³ by 2050¹ and plantation- grown wood will be vital for satisfying this demand. Current predictions forecast a 300% increase in global demand for plantation grown industrial wood over the next 30 years largely driven by emerging economies, and foresees a deficit of plantation roundwood of 4.5 billion m³ per year by 2050². The deficits are imminent and have consequences for the Asian region, with an independent assessment³ of the supply for pulp alone suggesting a looming regional deficit of 4.9 million bdmt⁴ after 2023.

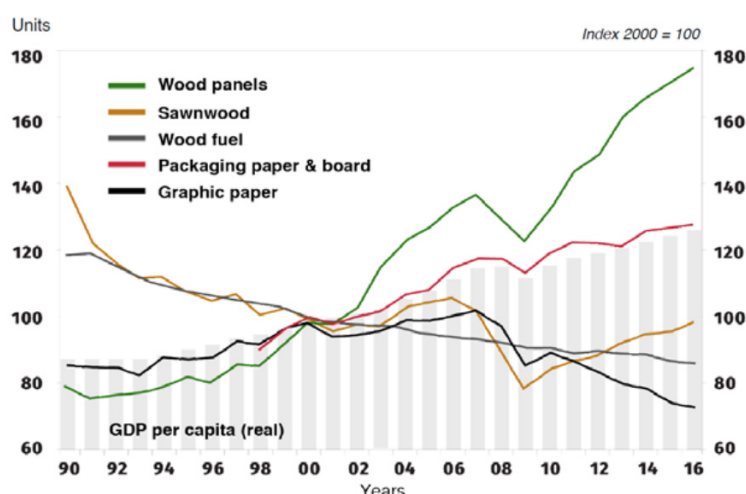


Figure 1. World per capita consumption of forest-based products and GDP, 1990-2016 Data: FAOSTAT, World Bank⁵

Global growth from 2000-2018 saw the world economy grow by 2.7-times, world population increased by 1.5 billion and world middle-income population grew from about 1.5 billion to 3.8 billion⁶. Not only does the world have more people, it has more prosperous people.

Prosperous communities consume more wood, and as both global populations and prosperity grow, demand for wood, wood panels and wood fibre products such as tissues, packaging and textiles increases (Figure 1). These trends are demonstrated through economic growth in China where, from 2000 to 2014, as annual GDP per capita increased from

¹ New Generations Plantations (2018). New Generation Plantation Platform 2007 – 2017. *Plantations for people, planet and prosperity*. 103 p. Accessed at: <https://newgenerationplantations.org/multimedia/file/ff98c77e-77cb-11e3-92fa-005056986314>

² Indufor (2012). Strategic review on the future of forest plantations. Report prepared for the Forest Stewardship Council. Helsinki.

³ Hawkins Wright (2019). A review of woodchip supply and demand in the Asian Pacific Rim. An overview of the seaborne trade of woodchips used for pulp production in South East Asia. 51p.

⁴ bdmt = bone-dry metric tonne. A standard unit of measure for the woodchip trade

⁵ Hetemäki, L., Palahí, M. and Nasi, R. 2020. Seeing the wood in the forests. Knowledge to Action 01, European Forest Institute. <https://doi.org/10.36333/k2a01>

⁶ Hetemäki et al 2020. *Op. cit.*

US\$995 to US\$7,588, consumption of sawn timber and wood panels (fibre boards and plywood) increased 20-fold, from an annual consumption of around 0.01 to 0.20 m³ per capita, leading to increased reliance upon both expanded domestic plantations and substantial imports⁷. Increasing urbanised communities use wood and wood fibre in different ways to rural communities.

The increased demand for commercial wood fibre to meet these needs raises the questions: where are, and where will be, the sustainable sources of wood to support these increased needs?

Wood supply can typically come from natural, semi-natural forest or planted forest. Those forests can be publicly or privately owned. As wood from natural forests is either depleted or set aside in reserves, supply is increasingly expected to come from planted forests. Plantations, which represent 7% of the world's forests provide 47% of all harvested wood⁸ (Figure 2). Areas of fast-growing commercial plantations have increased. The global estate of commercial eucalypt plantations, for example, has increased from 10 M ha to over 30 M ha over the past 30 years (Figure 3).

Intensively managed commercial plantations in tropical regions can produce wood fibre particularly efficiently: while a semi-natural conifer forest in Scandinavia requires 720,000 hectares to produce a million tonnes of pulp a year, a eucalypt plantation in Brazil can produce the same amount on just 100,000 hectares⁹. Whilst roundwood demand will vary between countries and regions¹⁰, it has been estimated that up to 250 million hectares of new plantations will be required to meet commercial wood demand by 2050¹¹ – an area 10 times the size of Lao PDR.

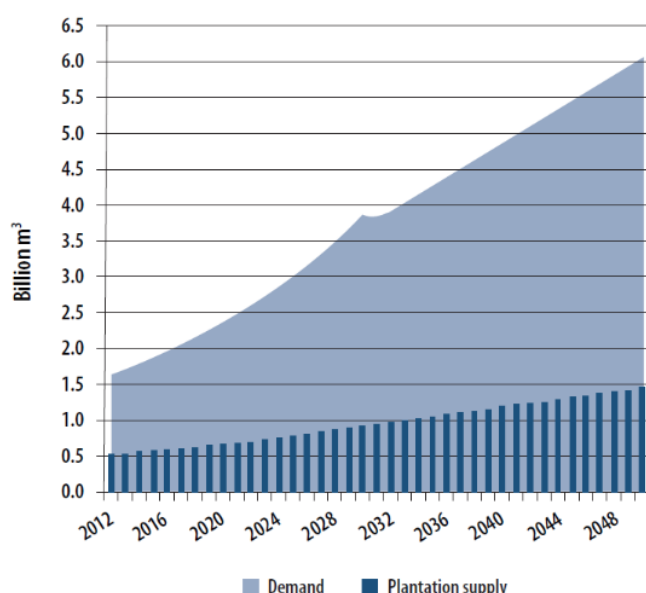


Figure 2. Supply and demand scenarios, 2012 – 2050 (Source: Indufor (2012)¹²

Commercial plantations provide the cornerstone of wood resources for modern forest industries, offering consistent quality, predictable costs and reliability of supply. The market response to this strong demand has been a dramatic increase in global areas of fast-growing commercial plantations. Over the past 30 years, regional countries (China, Thailand and Vietnam) have expanded their areas of commercial plantations in a planting boom (Figure 4, Figure 5, Figure 6) which has fostered industry investment and enabled many millions of smallholder farmers to increase their incomes, support industry and generate billions of dollars in export revenue.

⁷ Midgley, S. J., Stevens P.R. & Arnold R.J. (2017). Hidden assets: Asia's smallholder wood resources and their contribution to supply chains of commercial wood. Australian Forestry, DOI: 10.1080/00049158.2017.1280750

⁸ Food and Agriculture Organization of the United Nations (2015). Forest Resources Assessment.

⁹ Poyry (2012). Future from Fibre: From forest to finished product. Technical report for WBCSD/WWF, Gland, Switzerland. [Hyyp://wbcspdpublications.org/project/futurefrom-fibre-from-forest-to-finished-product](http://wbcspdpublications.org/project/futurefrom-fibre-from-forest-to-finished-product)

¹⁰ Hetemäki et al (2020). *Op. cit.*

¹¹ WWF. (2012). Living Forests Report. Chapter 4.

¹² Indufor (2012). *Strategic review on the future of forest plantations*. Report prepared for the Forest Stewardship Council. Helsinki.

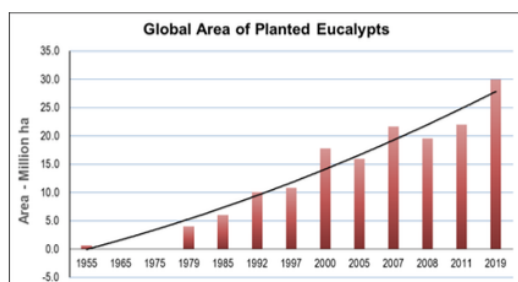


Figure 3. Global expansion of planted eucalypts (ha) (1955 -2019) (Source Arnold et al. 2020)

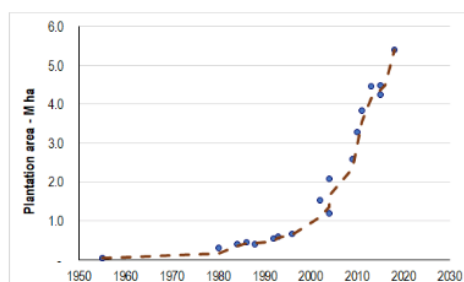


Figure 4. Expansion of planting in China (1955-2019). (Source Arnold et al. 2020)

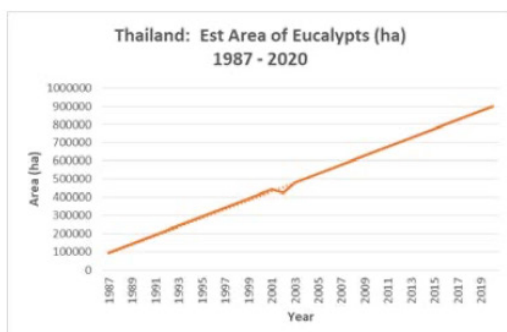


Figure 5. Expansion of eucalypt planting in Thailand (1987 – 2020). Source: Midgley S. J. and Ruenrith, P. (2020).

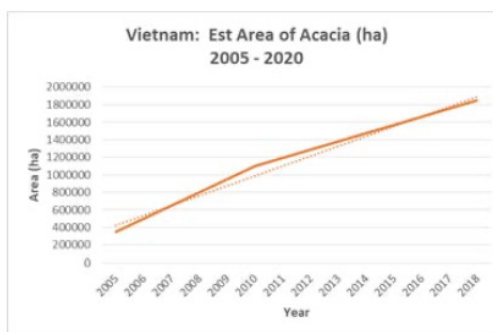


Figure 6. Expansion of acacia planting in Vietnam (1987 – 2020). Source: <https://insights.risiinfo.com/vietnam-hardwood-chip-exports/index.html>

Smallholder supply of wood can supplement conventional plantation resources and, while estimates are difficult, a significant portion of the world's supply of commercial wood now comes from smallholders. Globally, smallholders are estimated to produce between \$2 - \$4 billion worth of gross product each year¹³. As demand for wood products continues to grow, the need to blend wood supply from both conventional plantations and smallholders will continue to intensify. This has been the experience in neighbouring countries:

- In Thailand, some 4 million smallholders grow trees on about 900,000 ha to meet the commercial needs of pulp mills, panel factories and biomass power generation.
- In Vietnam, smallholder plantation resources comprise an estimated 800,000 ha of the country's 2 million ha acacia estate offering annual returns to smallholders exceeding USD 500 million.
- In Guangxi Province in southern China, smallholders grow eucalypts over an estimated 800,000 ha, and produce in excess of 12 Mm³ of wood annually supporting an industry with an annual product value of USD 2.4 billion.

Impact on Lao PDR

Regional demand for commercial wood will continue to increase and supply will remain tight, offering opportunities for Lao PDR which has underutilised lands that the Government, communities and individuals might wish to use to grow commercial wood. Fast-growing commercial species such as eucalypts and acacias grow very well in Lao PDR and improving infrastructure of roads and the Chinese railway provide new links to markets.

¹³ Verdone, M (2018). *The world's largest private sector? Recognising the cumulative economic value of small-scale forest and farm producers*. Gland, Switzerland: IUCN, FAO, IIED and Agricorn. X +22pp.

Lao PDR has a small eucalypt estate totalling some 50,000 ha and can capitalise on the success enjoyed by neighbouring countries and the excellent professional relations that exist with growers in those countries. There are welcome opportunities for collaboration to share technologies and to participate in markets across borders within the spirit of ASEAN trade agreements.

A significant expansion of commercial plantations of 200,000 ha in Lao PDR would attract a notional investment of USD 440 – 500 million for the plantations alone, depending on negotiated land costs, requirements for clearance of unexploded ordnance (UXO), roading and contingencies. The creation of wood processing industries expands this investment even further: recent investments in plywood mills and veneer mills of USD 15 – 20 million and integrated pulp/ recycled fibre/ packaging paper facilities of USD 1 billion provide indications of current and possible levels of investment.

In addition, the investments to establish 200,000 ha estate of commercial plantations are likely to foster associated smallholder engagement of potentially 70,000 ha, and create 9,000 permanent jobs in associated industries skills and capacity development

A number of barriers exist for the efficient development of plantations and related processing sectors. Some of these barriers are well known and include land tenure, administrative restrictions and access to markets and are the focus of attention by the Government of Lao PDR, donor partners and the private sector.

Wood production and its associated processing offers Lao smallholders important livelihood benefits. A sustainable and efficient wood production and processing sector, based on plantations, offers a range of benefits including rural development and poverty alleviation, and climate change mitigation opportunities. While planted forests can foster some biodiversity they can also complement sustainably managed natural forests and/or take the pressure off remaining natural forests thereby conserving the rich biodiversity that exists in natural forests.

Recommendations

Supporting Knowledge A mature understanding of the global and regional demand for industrial wood and wood-based industries is critical for supporting investment in plantation development, including with, and by, smallholders. It is recommended that a mechanism be created for independent review and knowledge-sharing of global and regional trends for plantation-based wood industries, involving relevant ministries and public bodies, NGO, donors and the private sector; offering a role for the Lao National Chamber of Commerce and Industry (LNCCI) and the Lao Planted Forests Group.

- It is recommended that all feasible steps are taken by all levels of Government and commerce to ensure that the investment environment in Lao PDR functions efficiently and predictably.

The forestry sector and plantations in Lao PDR

Issue description

Culturally, physically and economically, the people of Lao PDR maintain strong links with their biodiverse forests which provide a range of materials and services ranging from food and traditional medicines, fuel for cooking, mitigating risks for agriculture, hydro-electric and infrastructure investments, spiritual values, opportunities for eco-tourism, and the provision of commercial wood and fibre. Forest cover exceeds 13 million hectares comprising, in 2015, some 58% of the land area, the highest proportion of natural forest cover among the mainland Southeast Asian countries. However there has been a decline in cover over recent years and this is associated with deteriorating forest quality¹⁴. The forest estate comprises three officially designated categories – conservation, production, and protection forest areas. These forestlands are managed by the Ministry of Agriculture and Forest (MAF) Department of Forestry (DOF) and account for 70 percent of the country's total land area¹⁵.

About 67 percent of the population of the Lao PDR is rural and maintains a subsistence dependence on forests and forest products to support basic needs; the poor are particularly vulnerable to forest loss due to their reliance on forests. As an acknowledgement of the national importance of forests, increasing forest cover to 70% is now a national policy objective.

The forest industry has traditionally been built upon a rich resource of native timbers. Wood and processed wood products have played a significant role in the economy of the Lao PDR. In the 1990s, wood and wood products accounted for 40 percent of export earnings¹⁶, almost half of which was from the export of tropical hardwood logs to neighbouring countries. Much of this did not appear in trade statistics. Official concerns about the low value of export logs and the depletion of the country's precious forest resources led to a ban on the export of raw logs in 2001 and subsequently to a ban on unprocessed timber exports in 2016 which resulted in structural adjustment for the sector.

Recognising the potential of plantations to contribute to rural livelihoods and to the national economy, policies to promote plantations were introduced in the 1990s. The private sector responded and a Lao-Swedish joint venture Burapha Agroforestry Company Ltd began tree planting and smallholder engagement in 1990, with a vision to establish a wood processing industry based on plantation-grown wood. From 1994 - 2001, the Government of Lao PDR managed the Industrial Tree Plantation Project with financial support from the Asian Development Bank (ADB) with the objectives to *"re-establish tree cover on unstocked and degraded forest, produce wood raw materials for industrial use, and establish a policy and institutional framework for the development of sustainable industrial plantations"*. About 8000 ha of plantations were established and in 2001, a further ADB-supported extension to the activity sought *"to prepare an investment project that will improve livelihoods of the rural population through tree plantations" and that "plantations will be placed on degraded forest land, and no primary forest will be touched or opened to traffic"*¹⁷. The ADB continued its interest in the plantation forestry sector with a proposal in 2005 to establish the Lao Plantations Authority, which would *"facilitate the creation of an extensive plantation resource to provide wood and non-wood products, protection to implement the Government's policy for plantation development in Lao PDR and rehabilitation of natural forests that have been degraded, and reduce rural poverty by creating an extensive plantation resource to provide wood products, to earn foreign exchange through exports"*¹⁸. The Government did not proceed with this initiative.

These initiatives were supported administratively through the legal and regulatory framework. Besides the Forestry Law, and Decree 96/PM on plantation promotion and investment, MAF Regulations No 196/2000 on Tree Plantation

¹⁴ The World Bank (2019). *Partnerships and Opportunities for a New Green Forest Economy in Lao PDR: Sustaining Forest Landscapes and Livelihoods*. 88p. Available at: <http://documents.worldbank.org/curated/en/706711560546421547/pdf/Partnerships-and-Opportunities-for-a-New-Green-Forest-Economy-in-Lao-PDR-Sustaining-Forest-Landscapes-and-Livelihoods.pdf>

¹⁵ The World Bank (2019). Project Information Document (PID). Lao Landscapes and Livelihoods Project (P170559) 8p.

¹⁶ Sounsath Sayakoummane and Vongxay Manivong (2007). Environmental Impacts of Trade Liberalization in the Wood and Wood Products Sector, Lao PDR. Background Research Paper, Rapid Trade & Environment Assessment Project. International Institute for Sustainable Development (IISD). 15 p. Available at: https://www.iisd.org/pdf/2008/rtea_lao_wood.pdf

¹⁷ ADB (2001). Technical Assistance to the Lao People's Democratic Republic for preparing the Tree Plantation for Livelihood Project (LAO 31344), financed from the Japan Special Fund.

Development, and No 1849/2000 on Tree Plantation Registration and the annual PM Orders regulating forestry activities have provided important support for tree planting.

In 2005, the Government issued the “Forestry Strategy to Year 2020”, which set a target of 500,000 ha of plantations to be established by 2020. In 2012, responding to concerns surrounding community equity, the government issued Prime Minister’s Order 13 (PMO13) which restricted concessions for new plantations including rubber, however in 2018 this was adjusted to encourage eucalypt and acacia plantations through Prime Minister’s Order 9 (PMO9) and the associated guidelines 1758/MAF on “incentive land use management for concessions of industrial and other plants across the country”. Further, in 2019 Prime Minister’s Decree No. 247/PM on “promotion of tree planting for commercialization” provided renewed impetus to plantation development for both companies and smallholders. An expanded plantation sector accompanied by modern processing industries is consistent with national aims and with the UN’s Sustainable Development Goals (SDG), particularly SDG 9, *Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*.

Over 478,600 ha of plantations, primarily rubber, have now been established in Lao PDR with private enterprises on their own or with outgrowers owning 67 percent, smallholders owning almost 33 percent, and the state 0.3 percent. It is estimated that the actual area of commercial eucalyptus and acacia plantations is only some 52 000 ha¹⁹.

Responding to the steady improvement in the Lao investment climate, wood processing investments based upon plantations have increased and recent examples include:

- Sun Paper – USD500 million investment in a pulp mill at Sepone²⁰;
- Burapha – USD15 million investment in a veneer/ plywood facility at Hin Heup; and
- Mekong Timber Plantations is considering a USD12 million veneer processing investment.

An area of 650,000 ha of severely degraded lands within Production Forest Areas (PFAs) has recently been identified as potentially suitable for forest plantation investment. The Government has recognized that Public-Private-People Partnerships (PPPPs) offer a potential solution for reforestation and restoration of these areas. These lands and those outside the Government’s official forest categories form the land base for possible plantation establishment.

Plantation investments by companies face technical and institutional constraints, particularly the Government’s unclear processes 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, primarily because of market uncertainty, and productivity and quality have suffered.

Impact on Lao PDR

Expectations from expanded investments in plantations, sustainably-managed for positive social, environmental and economic outcomes, include:

- improved rural livelihoods and improved employment opportunities; • greater economic productivity from underutilised lands;
- development of skills and increased industrial capacity;

¹⁸ ADB (2005). Experience from the Industrial Tree Plantation Project and the future of forest plantations in Lao PDR. Forest Plantations Development Project Appraisal Workshop, 4th October 2005

¹⁹ Stuart Ling, Hilary Smith, Stephen Midgley, Keith Barney and Peter Kanowski (2020). Value Chain Assessment: Interim Summary Report – Eucalypt plantations in Laos from a smallholder perspective. DRAFT. ACIAR Project FST/2016/151: Advancing enhanced wood manufacturing industries in Laos and Australia

²⁰ Sun Paper’s pulp mill in Sepone is designed to produce both Bleached Hardwood Kraft Pulp (BHKP) and Dissolving Pulp (DP)

- contribution to forest cover;
- increased Foreign Direct Investment; and
- increased export revenue.

Despite identified areas of underutilised and suitable land, a significant challenge to establishment of sustainably managed plantations remains access to land, whether by companies (both foreign and domestic including joint ventures) or local people as communities or individuals.

Prior experience with the rapid expansion of rubber plantations in Lao PDR showed that the development of the plantation sector might not provide benefits to the broader community and issues such as compensation for loss of land, provision of genuine employment opportunities and sensitive environmental management remain important considerations. Social and environmental sustainability remain the pillars for the financial sustainability of investments.

A suite of eucalypt and acacia species and hybrids popular with commercial plantation forestry grow well in Lao PDR, where the sector can build upon 50 years of domestic experience^{21 22} and the long and successful experience from neighbouring countries. Approaches to plantation management which enhance productivity and maintain site quality have been developed and are available to Lao PDR²³.

Recent studies²⁴ conclude that the possible impacts of climate change on popular eucalypt species and hybrids within the region are likely to be low. Managers of eucalypt plantations in the region will have a high degree of adaptive capacity, as their plantations are often grown on short rotations of six to eight years, or even less. If climate change causes problems, it would be relatively quick and easy to change the material planted to genotypes better suited to higher temperatures.

There is a Lao expectation that, in addition to employment, a modern plantation sector will develop new technical skills to meet needs for nurseries, planting, management harvesting and haulage, and create skills and capacities in modern industrial processing. Companies report difficulties in finding qualified people for jobs requiring advanced skills. An expanded plantations and wood processing sector will require skills development at professional and vocational levels and associated business management skills.

Recommendations

The opportunity to create a modern, plantations-based industry in Lao PDR and the benefits and challenges which arise are not widely understood within the broader Lao community.

It is recommended that a program of positive communication be initiated which will share the anticipated impacts on:

- Economic, social and environmental development, both qualitatively and quantitatively where possible.
- Various stakeholder groups, especially the local populations.

It is recommended that serious efforts be made to share the positive plantation forestry story widely in Lao PDR, through schools, TV, radio, social media and personal presentations to interested and influential Lao citizens.

Importantly, balancing the interests of stakeholders representing the whole value chain from the plantations, through forest industries and to markets, will require continued interaction with Government agencies and the public about the development of policies and institutions, helping to foster public acceptability.

²¹ Midgley, S. J. (2006). The Tree Plantation Sector Development in Lao PDR. Position Paper for Forestry Strategy 2020 Implementation Promotion Project (FSIP), Department of Forestry, Lao PDR. 119pp.

²² Phimmavong, S., Ozarska, B., Midgley, S., and Keenan, R. (2009). Forest and plantation development in Laos: history, development and impact for rural communities. *International Forestry Review*, 11(4), 501-513.

²³ Nambiar EKS, Harwood CE. 2014. Productivity of acacia and eucalypt plantations in Southeast Asia. 1. Bio- physical determinants of production opportunities and challenges. *International Forestry Review* Vol.16(2), 225- 248.

²⁴ Midgley, S. J. (2019). The prospects for eucalypts in northern Laos. Client report to The University of Queensland as part of the ACIAR Project FST/2012/041 *Teak-based agroforestry systems to enhance and diversify smallholder livelihoods in Luang Prabang province of Lao PDR*. 27 pp.

Opportunities for Plantation Expansion

Issue description

Investments in *sustainably* managed tree plantations represent promising opportunities for investors²⁵ and contribute to several national development goals in Lao PDR. Globally, institutional investment in timberlands is increasing and investors navigate emerging opportunities to benefit from shifts in market conditions and competitive dynamics. Plantation investment provides opportunities for investors seeking both production and conservation values to offer sustainable and reliable sources of return on capital, but requires a long-term view of economic and market trends. It also requires an emphasis on positive environmental, social, and development outcomes²⁶ and compliance with local laws and regulations, while also considering sovereign risks and physical, biological and climatic risks.

The proven success of species of commercial interest in Lao PDR and the strong regional demand for wood and wood fibre provide robust foundations for plantation investments. A changing legal and regulatory environment in Lao PDR is supportive of the development of a sustainable plantation estate and related processing industries. In recognition of the benefits of natural wealth enjoyed by Lao PDR, the 2030 National Green Growth Strategy (NGGS) and Forest Law were both approved in 2019. These chart a sustainable development path prioritising forest-based development as an important driver for growth, jobs, and livelihoods - including conservation, nature-based tourism, village forestry, timber and non-timber production, and wood industries. The Government explicitly aims to achieve financially and environmentally sustainable, resilient and inclusive economic growth, especially through credible private sector investors, to take advantage of regional resource shortages and demand for wood fibre and wood products. The 2019 Forest Law recognizes that a sustainable, productive forestry sector built on a combination of sustainable forest management (SFM) and high quality private investment could restore degraded areas.

The recent logging controls and timber export bans are allowing policy reforms to strengthen standards and compliance, but weak forest governance hinders productivity and sustainability. Problems include the lack of resources in government agencies, unclear concession licencing and industry regulation, inefficient revenue collection from businesses, and uncoordinated attention to evasion or non-compliance with concession licencing.

Transport infrastructure is steadily improving: as a landlocked country Lao PDR depends heavily on road transport for trade links both externally and internally²⁷. Road connectivity is a key element of the Lao government's plan and roads account for more than 98% of passenger travel and 86% of freight movement. The nation's road network continues to expand at an annual rate of 5%–8% for goods and 8%–10% for passengers, in line with economic growth²⁸ and receives substantial international support.

Consistent with an ambition to change from a land-locked to land-linked country, Lao PDR is a signatory to the Intergovernmental Agreement on Dry Ports which aims to promote "*international recognition of dry ports, facilitating investment in dry port infrastructure, improving operational efficiency and enhancing the environmental sustainability of transport*". Dry Ports designated in Lao PDR include several in close proximity to areas of plantation interest and which will serve regional markets²⁹: Thanaleng (Vientiane); Houyxi (Bokeo); Laksao (Borikhamxai); Luangprabang (Luangprabang); Nateuy (Luangnamtha); Oudomsai (Muangxai); Pakse (Champasack); Seno (Savanakhet); and Thakhek (Khammouane).

²⁵ Frederick Cubbage et al (2020). Global timber investments, 2005 to 2017. Forest Policy and Economics Volume 112. <https://doi.org/10.1016/j.forpol.2019.102082>

²⁶ Cubbage et al (2020). Op. cit.

²⁷ Open Development Laos (2018). Infrastructure. Accessed at: <https://laos.opendevlopmentmekong.net/topics/infrastructure>

²⁸ ADB (2010). Sector Assistance Program Evaluation for the Transport Sector in the Lao People's Democratic Republic.

²⁹ Vannitha Kimanivong (2018). Strategy on Freight Transport and Logistics Development in Lao PDR. Presentation to Workshop on Strengthening Transport Connectivity among CLMVT. Yangon, Myanmar 9 – 10 October 2018. Department of Transport, Ministry of Public Works and Transport, Lao PDR.

The 471 km Laos-China railway from the Chinese border at Boten to Vientiane is a joint investment of the Lao and Chinese governments and scheduled for completion in 2021. The Chinese government will invest 70% of the \$6 billion required, with the Lao government contributing the remaining 30%. The single, standard-gauge track will have 31 stations, nine of which³⁰ will provide “hubs” for development and have a design capacity to undertake container transportation and facilitate the movement of raw materials and wood and wood products north to China and, eventually, to sea ports in Thailand (Annex 1). Opportunities exist to create clusters of forest industries around the major railway “hubs” which could then profitably ship forest products both domestically and internationally, expanding market prospects for forest industries and generating significant income for the railway and Lao PDR.

Internet and mobile phone coverage functions in most locations in Lao PDR. Internet use increased dramatically from 0.3% of the population in 2004 to 18.2% in 2015, improving communications and offering benefits for all supply-chain stakeholders involved with growing, processing, marketing and sales of wood products.

Global demand for verified legal and sustainable forest products is increasing rapidly in markets that can afford to pay higher prices, and in economies with active wood-using industries. Wood products destined for such economies demand proof of legality and sustainability through credible verification schemes. Reputable companies must be scrupulous in their adherence to the prevailing legal and regulatory framework. There are revolutions in “green technology” but all demand proof of legality for their raw wood products.

There remains uncertainty surrounding the administrative processes required for delineating and allocating land for commercial plantations within the PFAs. Delays in providing legal access to large contiguous areas of suitable and available degraded and barren forest land, and slow processing of land concession agreements, all constrain investments in plantation development, forest restoration and forest industry development.

Impacts on Lao PDR

Contributions to the national economy. Notwithstanding the ban on exports of timber, forestry in Lao PDR has contributed significantly to GDP and has the potential to drive a “green economy” if facilitated by a policy regime of good governance, policy coherence, sustainability, inclusivity and profitability. A well-functioning forestry sector will contribute to the national economy through multiplier effects on job and livelihood creation, production of raw materials for construction and wood processing, more efficient and profitable use of national infrastructure such as the railway and development of many enterprises related to the forest products supply chain.

Smallholder plantations as important contributors to wood supplies. Large-scale commercial investments stimulate smallholder tree-farming, both by individuals and within Public-Private- Partnerships offering viable and sustainable approaches for villages to participate in forestry through direct employment and outgrower schemes. Commercial plantation investments benefit through effective engagement with local communities via increased wood supplies and community cooperation. Smallholder plantation development offers an opportunity for farmers to share in the opportunities offered³¹ by a plantations industry, creating employment and profiting from the sale of plantation wood as experienced in neighbouring China, Vietnam and Thailand³². Such synergy would diversify land use, improve socio-economic conditions and provide environmental benefits.

Sustainable outcomes for investments in commercial forest enterprises in Lao PDR will require strengthened standards and compliance, recognising that weak forest governance will hinder productivity and sustainability. Specific constraints in the plantation sector include: (i) difficult access to land under restrictive policies and procedures for accessing land and ensuring secure rights; and (ii) current difficulties matching tree plantation objectives and procedures with Initial Environmental Examination (IEE) and Environmental and Social Impact Assessment (ESIA) requirements which cover harvesting, haulage and processing activities.

³⁰ Vientiane Times: Laos China Railway Company Ltd. Freight Promotion: Boten, Namtha, Meungxay, Mengna, Luang Prabang, Kasi, Vang Vieng, Phonghong and Vientiane. Annex 1.

³¹ IFC (2018). Diagnostic Assessment of Outgrower Schemes and Demonstration Pilots in Lao PDR. IFC Lao Agro Forestry Project #594367 Prepared by IFC Manufacturing Agribusiness and Services (MAS), Advisory Services. February 2018, Vientiane, Lao PDR. 56p.

³² Midgley, S. & Stevens, P. & Arnold, R. (2017). Hidden assets: Asia’s smallholder wood resources and their contribution to supply chains of commercial wood. Australian Forestry. 1-16. 10.1080/00049158.2017.1280750

Sustainability. The best guarantee of sustainability of both large commercial plantations and smallholder tree-farms is to minimize dependence on externally-sourced inputs (material and advisory), the unexpected removal of which might have serious impacts on productivity. This precautionary approach should be combined with a commitment to improve productivity of the plantations over several rotations, employing disease, pests and weed control, maintenance of soil fertility, and effective forest management based on best possible information.

Sustainable production, the capacity to maintain or improve productivity through successive rotations, will require new knowledge based upon strengthened research and development, and related extension activities supporting better plantation establishment and management.

Recommendations

The Government of Lao PDR explicitly aims to achieve financially and environmentally sustainable, resilient and inclusive economic growth, especially through credible private sector investors. Investments in sustainably managed tree plantations will help to achieve diverse national development goals in Lao PDR. Improving pre-conditions for plantation investment and reducing risks are essential to encourage private sector engagement.

It is recommended that private sector partners liaise with the Government of Lao PDR to seek consistency and clarification on laws and regulations for:

- Financial implications of investment in commercial plantations, especially in relation to taxes and environmental regulations.
- Land use delineation and allocation, especially in and around the PFAs which will profoundly influence investment and partnerships with communities, and
- Simplification of regulations governing land use and wood product marketing to enable all growers, large and small, to register their plantations, and to legally harvest and sell their trees.

It is recommended that Government be encouraged to allocate resources to support all these changes, and should strengthen compliance, monitoring, reporting and correction.

It is recommended that adequate attention is offered to supportive research and development through strengthening domestic research and teaching agencies and links with outside Universities and research agencies.

Investment Challenges

Issue description

The commercial and smallholder forest plantation sector in Lao PDR, currently covering only about 70,000 ha, has often experienced inadequate management, limited market access and complex government policies, all tending to reduce financial returns and to discourage investment in new plantations. In the teak plantation sector, outdated policies and poor silvicultural approaches based on old knowledge have created risks of low returns to teak growers and poor quality timber supplied to processors.

Several recent initiatives seek to address the challenges to plantation forestry. In its proposed *Sustaining Forest Landscapes and Livelihoods Project*³³ with the Government, The World Bank explicitly includes development of a facilitating regulatory and administrative environment which will leverage private sector investment. Various dialogues sponsored by the Government, the Australian Centre for International Agricultural Research (ACIAR)³⁴, The World Bank, IFC and the Interlaken Group³⁵, have identified some of the emerging challenges and opportunities associated with the planned opening of degraded National Production Forest Areas (PFAs) for plantation forest investment, and identified opportunities for collective action amongst responsible forestry sector stakeholders. Among these are:

Government structures in National, Provincial and District jurisdictions. Many of the challenges in establishing and managing commercial plantations relate to unclear responsibilities and respective functions between agencies and jurisdictions. All three levels of government have overlapping responsibilities for planning, delineating and allocating land, for legal and regulatory control of land use and forest management, for collecting various forms of fees and taxes before and after harvesting timber, and for marketing wood products legally harvested and processed from legal plantations.

In particular, the processes involved in delineating the areas available for commercial plantations within the PFAs and then allocating defined areas are vitally important to investors in commercial plantations, and investors should know and collaborate with the personnel in all relevant levels of government. Intersections with environmental laws and regulations are likewise important in this process.

With so many agencies at all levels involved in all aspects of establishing and managing forest plantations there is some potential for confusion and contradictions to become evident, so investors need to remain constantly aware of the status of any proceedings which are of concern to their operations.

Ministries: Several Ministries are deeply involved in approving and governing various aspects of the supply chains involved with plantation forestry and associated processing industries and investors. The main Ministries involved in aspects of commercial forest plantations are the Ministry of Finance (MOF), Ministry of Agriculture and Forestry (MAF), Ministry of Natural Resources and Environment (MONRE), Ministry of Industry and Commerce (MOIC), and Ministry of Planning and Investment (MPI). Overall responsibilities lie with the Prime Minister's Office. All Ministries have their own mandates and responsibilities, which may not necessarily coincide with those of other Ministries.

Collaboration with communities and smallholders. Effective collaboration between the investors and communities and smallholders, even if they are not tree-farmers, is vital because the PFA lands formally allocated to investors for commercial plantations may already be committed to pre-existing formal or informal land-use. An approach incorporating the principles of Free, Prior and Informed Consent (FPIC) will be necessary.

³³ The World Bank (2019). Partnerships and Opportunities for a New Green Forest Economy in Lao PDR: Sustaining Forest Landscapes and Livelihoods. The World Bank. 88p."Available at: <http://documents.worldbank.org/curated/en/706711560546421547/pdf/Partnerships-and-Opportunities-for-a-New-Green-Forest-Economy-in-Lao-PDR-SustainingForest-Landscapes-and-Livelihoods.pdf>

³⁴ See: <https://www.aciar.gov.au/>

³⁵ Interlaken Group (2020). Joint Action and Collaboration for the Promotion of Responsible Tree Plantation Investment in National Production Forest Areas. Minutes of meeting. February 2020

See: <https://www.interlakengroup.org/>

The legal interpretations of the rights of communities within the PFAs and the legitimacy of their tenure claims, and the generally-weak regulatory oversight, place a responsibility on private companies to adhere to best-practice social standards. Failure to do so will have serious negative social implications for local communities and consequences for the companies. There may be detrimental environmental consequences through further deforestation associated with shifting cultivation, as local communities might seek new forestland to cultivate.

Strengthening effective governance. Despite reforms to the forestry sector, weak governance continues to hinder productivity and sustainability and is evidenced by the lack of financial and human resources within responsible government agencies; unclear concession licensing and industry regulation for plantations; and insufficient enforcement of existing regulations and laws³⁶. Other constraining issues identified in World Bank studies include insufficient inter-sectoral 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.

In some Districts which have suitable lands for plantation development, an additional challenge is the presence of Unexploded Ordnance (UXO) over wide areas of land, requiring clearance incurring considerable, unpredictable, costs to protect personnel, communities and commercial investments.

Wood processing industries. Opportunities to export wood and wood products offer both legitimate market options and competition for local processing industries. Processing facilities not aligned with domestic resource capacity might require developing the capability to import wood from neighbouring countries. This capacity to export or import wood to meet processing needs should be maintained.

Markets and sales, locally and regionally. Whilst investors in commercial plantations will have their own interests and involvement in markets, information on regional and global market trends for wood products is helpful for informed decision-making. Systems to share knowledge on markets and new technologies and products are not yet in place. Technical and biological challenges. In parallel with the social and administrative challenges involved with allocation of land lie numerous technical and biological challenges, including selection of suitable tree species matched to local soils and conditions, mitigation of technical risks such as pests and diseases, and silvicultural systems which enable plantations to be managed and harvested in a productively sustainable fashion over several rotations.

Research, development and training. To ensure the most effective use is made of available land and available resources, plantation assets should be managed to ensure the best physical, biological, social and environmental outcomes using the best available practices. Knowledge to maintain site productivity and manage risks will depend on access to up to date research and development. Whilst some large plantation investments will draw upon their own research, development and training facilities, cooperation with national agencies such as Universities, Vocational Colleges and research institutes will be essential.

Some other challenges. Anticipated social and environmental outcomes remain major considerations for investment and examinations are based upon transparent Environmental and Social Impact Assessments (ESIA) and Initial Environmental Examination (IEE). Current IEE and ESIA requirements, based upon the requirements for hydro and mining investments, may not be appropriate for tree plantation investments, potentially creating unnecessary expense and delays that do not substantively contribute to responsible investments.

Issues around increased carbon sequestration from plantation-dominated landscapes have yet to be rationalised. Other potential procedural and regulatory questions which have been identified include:

- land bound up in unutilised mineral survey and exploration concessions;

³⁶ The World Bank (2019). Sustaining Forest Landscapes and Livelihoods

- unclear commitment to legally-assured incentives within the Investment Promotion Law;
- revision and restructuring of fees and taxes for areas reforested with native tree species within a concession area;
- standardization of benefit-sharing arrangements across tree plantation investments; and
- standardization and enforcement of regeneration practices and requirements prior to project closure.

Impacts on Lao PDR

The investment challenges described above will affect the establishment and management of commercial plantations to varying degrees according to locations and circumstances, and all will require attention, mitigation and solutions by investors. Other immediate beneficial impacts on Lao PDR will include the establishment of vigorous plantation forests which are assets for the investors, and which will produce early benefits for those involved in plantation management, especially communities and individual farmers employed in the plantations. Well managed plantations will produce considerable income for the investors, communities and the Government when the wood is harvested and processed and will provide resources for a modern processing industry. Second and later rotations will produce similar benefits. The nation will benefit greatly from the sustainable plantation assets created by the investors, and the jobs, incomes and opportunities created for Lao citizens, gaining revenues from export of wood products, and from taxes paid by the plantation enterprises. New and efficient wood processing facilities will be created and will thrive on the reliable supplies of wood from sustainably-managed plantations. The plantation managers will benefit the nation by supporting and developing valuable forest research, and trained research personnel, helping to improve forest management by Government agencies and smallholders elsewhere in Lao PDR.

A significant beneficial impact for Lao PDR will be much more productive and environmentally beneficial land use for large areas of degraded PFAs, and an enhancement of forest cover.

These beneficial impacts will only be achieved if investors are confident that conditions for investment are favourable and that barriers to investment can be removed or mitigated. Revised requirements and processes are needed to streamline investment opportunities while ensuring that necessary requirements and safeguards—including FPIC and others—are clearly in place, consistently applied across all tree plantation investments, and regulated in a transparent manner.

Recommendations

The formal processes involved in delineating areas available for commercial plantations within the PFAs and then allocating suitable areas for commercial plantations are of vital importance for legal, long-term investment.

It is recommended that investors work closely with Government agencies at National, Provincial and District levels of government to provide clear and consistent interpretations of laws and regulations regarding land allocation.

Communities and smallholders linked with PFA lands formally allocated to investors for commercial plantations may have pre-existing formal or informal commitments to the land. Collaboration with communities is essential to understand the legal interpretations of the rights of affected communities and the legitimacy of their legal tenure claims, placing an onus on private companies to adhere to best-practice standards for investment.

It is recommended that companies commit to a process guided by Free, Prior and Informed Consent (FPIC) in engaging with affected communities, and to complete transparent, publicly accessible ESIA or IEE as required by law.

An expanded and sustainably managed plantation sector will bring significant benefits to Lao PDR, providing productive and environmentally sound land use for farmers' lands and large areas of degraded PFAs. These beneficial impacts will only be realised if investors remain confident that conditions for investment remain favourable and that laws and regulations are consistently and uniformly applied.

It is recommended that Government and investors work together to ensure the laws and regulations of Lao PDR are consistently applied and that consideration is offered for the establishment of a National Code of Practice for Plantation Forestry and a National Forest Standard.

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Annex 1. Laos-China Railway Company Ltd. Freight Promotion:

Vientiane Times

Laos-China Railway Freight Business Promotion Announcement

The Laos China Railway, Boten to Vientiane Line (referred to as "Laos China Laos China Railway") starts from the Lao border from Boten, and passes south to the northern part of Laos through the province of Luang Namtha, Udomxay, Luang Prabang, Vientiane Province and finally arriving in Vientiane, the capital city of Laos, it is scheduled to officially open for service by the end of 2021. The Laos China Railway is the most convenient railway link between China and ASEAN. It is built and operated by Laos China Railway Co., Ltd. ("LCRC"). In 2018, the trade volume between China and ASEAN exceeded US\$580 billion. Railway transportation has the advantages of large transportation volume, low freight rate, fast speed, safety and reliable, and environmental friendly. China and ASEAN have a large railway transportation demand for trade and economic exchange.

By the end of 2021, Laos China Railway will begin cargo transportation from Boten to Vientiane South station. Laos China Railway will operate international freight transport train between China and Laos, China and Thailand and between China and ASEAN, and will be able to reach Europe. It can undertake container transportation and steel cargo transportation. 9 stations will be in service at Boten, Namtha, Meungxay, Mengna, Luang Prabang, Kasi, Vangvieng, Phonghong and Vientiane South handling cargo transportation, and can provide loading, unloading, warehousing and logistics, distribution, customs clearance, cargo insurance and other services according to the needs of customers.

In order to promote China's "One Belt and One Road" initiative and the transformation of Laos from a landlocked country into a land linked country strategy, and quickly promote the economic development of Laos and Lao-China railway, LCRC is currently conducting cargo business investigations to support construction, warehousing logistics, loading and unloading facilities and the purchase of corresponding railway vehicles. LCRC will give priority to customers who have signed the freight intent agreement in advance, and provide a convenient, fast and punctual cargo service.

To establish a good partnership with customers in advance, companies interested in using rail transportation must fill out their business requirement form as per attachment and send them to the company's email. LCRC will organize related business negotiations according to the business needs of the customers. Sincerely look forward to working with you to create a better future.

At the same time, we sincerely invite customers to contact us to discuss the use of the Laos China railway buildings/structures and vehicle interior facilities to carry out advertising business cooperation.

This announcement is valid for a long time. The first batch of submission deadline is October 31, 2019.

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