

Article

Lao Plantation Policy: Prospects for Change

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Abstract: Policies to promote tree plantations in the Lao People’s Democratic Republic have been developed since independence to support national socio-economic and environmental goals, and in response to domestic and international markets. The effectiveness of these policies has been variable, and the resulting plantation wood value chains are poorly developed due to contradictory and confusing laws and regulations with inconsistent application and high transaction costs. Consequently, there has been limited tree plantation investment, and few investments have realized the anticipated benefits. Renewed interest in plantations from the government, investors and other sectors in Laos has prompted policy reviews and recognition of the need for new policy settings. We reviewed the development of plantation policies in Laos and assessed policy effectiveness and barriers to policy options. Through document analysis, interviews with key stakeholders and actors, stakeholder forums, and field research, we found that smarter regulation, and facilitating value-chain partnerships and knowledge sharing, can motivate smallholders and industry investors in plantations, and increase community-level benefits and financial returns to the Government and private sector. These results are discussed in the context of current international developments in plantation policy and the convergence in related policy processes in Laos.

Keywords: forest policy; Laos; plantation wood value chain; tree plantations



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1. Introduction

There are many reasons for the global promotion of planted forests [1,2]. In this context, and that of increasing demand for wood products [3], tree plantations and their contribution to wood supply are growing globally [4]. The area of planted forests increased from 167.5 to 277.9 M hectares (ha) from 1990 to 2015 [5], and the proportion of industrial roundwood sourced from plantations has grown to nearly 50% [4]. Global demand for plantation-grown industrial wood has been forecast to increase by 300% by 2050 ([6] in [7]), and tree plantations in China, Viet Nam and Laos are amongst the most attractive globally for investment returns [8,9]. However, the expansion of tree plantations has often been problematic (e.g., [10–12]). In contrast, well-planned and managed plantations can provide multiple ecosystem services [13,14], and play important roles in achieving national forest policy goals, particularly where constraints on natural forests limit their role in wood production [15]. Increasing the area of plantations is becoming more challenging [5], and the global rate of establishment of newly planted forests has slowed [16]. Future expansion of tree plantations should not be at the expense of natural forests [17], and is likely to compete with agricultural land uses (e.g., [18]) or with ecological restoration (e.g., [19]). Consequently, forest policies need to support responsible plantation development and good management practices, and the integration of plantations with other landscape objectives [20,21].

A suite of internationally-developed criteria (e.g., the Montreal Processes Criteria and Indicators), principles (e.g., United Nations Food and Agricultural Organisation (FAO)

Planted Forests Principles) and voluntary standards (e.g., those of the Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC)) for good forestry practices have been developed over the past 25 years. These can provide a platform for policy development (e.g., [22–24]), but their adoption is voluntary, and their relevance is context-dependent. Regulatory forest management standards, including international trade measures (e.g., European Union Timber Regulation 2010 and Australian Illegal Logging Prohibition Act 2012), are focused primarily on natural or semi-natural forests, and although they apply equally to plantation wood, significant gaps remain in their implementation [25,26]. The fair and effective application of these instruments is often challenging in countries, commonly in the Global South, where product value chains involve large numbers of smallholder tree growers and of micro, small and medium processing enterprises, for whom compliance is costly and benefits limited [27,28], and which are situated within complex and suboptimal forest governance settings. One consequence is that small and less powerful stakeholders and value chain actors may be neglected in standard-setting processes such as the development of the European Union’s Voluntary Partnership Agreements (VPAs) and excluded from markets for legal wood [29,30]. Similarly, various forms of regulatory capture can be detrimental to the interests of smaller value chain actors [31]. While market-driven standards, principally forest certification [32], have emerged, their focus has primarily been natural forests and large-scale industrial plantations [25,33] and they have also found it difficult to incorporate smaller-scale plantations at an affordable cost, or to bring about many benefits [34,35].

More broadly, there is debate about the extent to which commercial plantations should be included in global forest initiatives such as Reduced Emissions from Deforestation and Degradation (REDD+), the Bonn Challenge for Forest Landscape Restoration (FLR) and the New York Declaration on Forests [19], and concerns about the nature and quality of restoration that includes commercial plantations [36]. While there are strong arguments in support of monoculture plantations for timber production as part of landscape restoration mosaics [14,37,38], their place in this broader context remains contested [2].

In summary, forest governance, and related research, have focused mostly on natural forests, and on deforestation, degradation and illegal or unsustainable logging. Other than where the plantation sector has been an important agent of deforestation (e.g., [39]), or controversial for other reasons [10], it has seldom been a central focus of forest policy development or policy-relevant research. Where such policy research and development have occurred, they have focused on large-scale plantations and industries; as a result, small-scale value chain actors—both tree growers and those in associated value chains—are typically “hidden” and marginalized in policy development processes [35,40,41].

The aim of the research described here is to review the development and effectiveness of plantation policies in Lao People’s Democratic Republic (Lao PDR; hereafter Laos), assess the effectiveness of current policies and barriers to achieving stated policy goals, to identify new and more inclusive policy options and propose measures to advance such options.

1.1. History of Policies for Plantations in Laos

As elsewhere, tree plantation policies in Laos have been set in the broader context of forest and economic development policies. The history of forest policy development up to 2009 in Laos was detailed by Phimmavong et al. [42]. It occurred in phases. Before independence from France in 1945, the focus was plantations of teak (*Tectona grandis*) and rubber (*Hevea brasiliensis*), albeit with limited success [43]. Since independence, and particularly since the establishment of Lao PDR in 1975 and the subsequent *chintanakan mai* (New Thinking) and New Economic Mechanism of 1986 [44], forest policies sought to stimulate investment in tree plantations by domestic and foreign enterprises, and by local people, and encourage a domestic wood processing sector for local and export markets. These policies were multifaceted and multi-scalar, framed to position the forest sector as a contributor to broader national socio-economic and environmental objectives with specific, targeted goals.

During the 1980s, farmers began to adopt tree planting on a small scale with some vigor, particularly of teak in Northern Laos [45], with donor-supported research and extension and trials of different tree crops [46]. Such adoption offered farmers a way to secure and retain access to land; for absentee landowners, tree planting was a way to demonstrate their productive use of land. Additionally, during this period when Laos was “opening up” [44], the Government of Lao PDR (GoL) began to respond to global environmental issues and take note of national forest cover decline. At the first National Forestry Conference in May 1989, a commitment was made to a forest cover target of 70 percent of the land area by the year 2020 [46]. The development of a Tropical Forestry Action Plan (TFAP) followed, and was officially adopted as a national plan in 1991 [46]. Plantation forests were identified as one of the six major program areas of the TFAP, and the following years saw rapid policy and legislation development featuring the promotion of land-based investments, including tree planting [47], fostered by new laws on land, investment, forestry and agriculture between 1991 and 1998.

As part of its national socio-economic development planning, and to help Laos graduate from least developed country (LDC) status by 2020, the GoL introduced a program of Land and Forest Allocation to households, and the granting of land through concessions and leases to companies, especially to foreign investors—articulated under the banner of “Turning Land into Capital” [47]. A key constraint was that land allocated for plantations should only be “degraded” or “barren” forestland, with a major rationale for plantations, including commercial fast-growing species, being to bring degraded forest land “back into productive use” [48]. The rationale for the classification of forestland as “degraded” or “barren”, the causes of degradation, and assumptions about its use and ownership have been contested [49–51], including in relation to land allocation for plantation investment [49,52]. Nevertheless, companies began to invest in larger areas of plantations, and between 1991–1993, around 2300 ha of *Eucalyptus* plantation were established by three companies, with a plan for 24,000 ha more in the following 3 years [53].

The third phase of plantation policy began with the development of a Forestry Strategy to 2020, which commenced in 2000 and was released in 2005, and included a target of planting up to 500,000 ha of trees, to contribute to the forest cover target of 70 percent. This was intended to: increase forest cover directly; help protect and alleviate pressures on remaining natural forests; supply wood to emerging domestic processing and export sectors; and support stable income and sedentary employment options for farmers engaged in shifting cultivation, which was viewed as a key driver of forest loss and degradation [46,50,54].

The Strategy was supported by an “open-door” investment program, resulting in a rapid expansion of plantations, with more than 210,000 ha established between 2006–2011, primarily for rubber production [55]. Increases in plantation area were, however, sporadic due to largely reactionary decree making, often catalyzed by concerns raised by funding organizations and international consultants, to such an extent that Laos became known as “the land of decrees and directives” [56]. Over time, these decrees transformed into legislation; but due to poor regulatory management, some long-standing legislation continued to be implemented long after it was superseded, and new rules were often inconsistently applied or not enforced.

The rise in “large scale” investments, enabled through contracts with the GoL for access to state land (often referred to as “land deals”), was accompanied by concerns over the ways in which approvals for land access were granted, the impacts on, and lack of benefits for, local communities [57,58], and reports of environmental damage [49]. Land deals in Laos became a subject of the international “land grab” debate, resulting in increased scrutiny by researchers [59–61] and non-government organizations (e.g., [62]). Coupled with complaints from Lao citizens to their National Assembly, this resulted in the suspension of the granting of concessions greater than 100 ha in 2007, followed by a review of both practice and policy and a new decree on concessions and leases in 2009 (Prime Minister’s Order No. 135/PM). By 2012 there were 367 land deals for “forestry”, covering over 306,000 ha (although not all the land areas granted had been planted); the majority

were for rubber (129,614 ha) and eucalypts (94,978 ha), with fewer for acacia (39,971 ha) [63]. Following further evaluation of projects [63], concession approvals were again suspended in 2012 (Prime Minister's Order No. 13/PM), impacting on all new, and some existing, rubber, eucalypt and acacia concessions and leases on state land.

This period was characterized by policy and governance uncertainty. In part because of these issues, reviews of the Land and Forestry Laws, and of relevant Ministries, were also taking place. The need for reforms to the Land Law (issued in 2003) was indicated in a Prime Minister's Resolution following the National Land Conference in 2007, and a protracted period of review of the Forestry Law commenced subsequently. Companies aiming to invest in plantations in Laos faced regulatory gridlock, with the implementation of both Land and Forestry Laws becoming inconsistent and unpredictable. There was a lack of a clear vision and common rationale for plantations.

While rubber plantations expanded rapidly based on investment from neighboring China, Viet Nam and Thailand, high expectations of abundant and affordable land for timber plantations were generally not met [64]; and plantation investors tried other arrangements to access land, including through contract farming which was promoted in policy, or by leasing land directly from households or villages. Novel arrangements to find enough suitable land emerged, including by integrating commercial timber production with local land uses and agroforestry models [9,65,66]. These were often determined by the corporate values of investors and through Provincial- and District-level interpretations and application of policies and regulations. Even with these different forms of contract-farming and partnership arrangements [42,67,68], plantation companies continued to find it difficult to source enough suitable land. Lack of information on land condition, suitability, use and ownership further frustrated these efforts.

The uncertain policy landscape created bottlenecks and hold-ups that extended investment timeframes, and increased transaction costs, which hindered plantation development. Some tree plantation companies withdrew—for example, Aditya Birla Ltd. which was granted a concession for 50,000 ha in Savannakhet Province, sold their investment in 2018, with only 12,500 ha established. In 2020, Stora Enso Lao opted to downsize from a long-standing goal of 35,000 ha, citing lack of conditions necessary for a long-term financially viable plantation industry [69] and it subsequently sold its operation in early 2021. Other companies, such as the Swedish-owned Burapha Agroforestry Ltd., adapted their strategies, finding some success by adopting a more participatory approach to engagement with local governments and communities, and implementing a partnership model. A few others, such as China's Sun Paper, expanded, taking advantage of the space left by those withdrawing (e.g., by buying Birla Lao's plantations) and the policy vacuum.

1.2. Policies for Sustainable Forest Management and Certification

Policies and regulations for sustainable forest management (SFM) in Laos were introduced soon after the TFAP in the 2000s but largely failed to impact forest practices due to lack of information, monitoring, institutional capacity and enforcement [70,71]. Early attempts to certify wood production in natural forests on state forestlands were not successful. In plantations, certification was sought by foreign companies responding to demands from their investors and potential markets, and donor-supported initiatives for smallholder teak. These teak programs subsequently failed because of a lack of demand for certified wood in key markets, which together with high costs to growers for participation, meant there was little benefit and limited incentive for growers to participate [72,73].

While the policies, processes and the performance of land investments were being reviewed, the GoL was also addressing shortfalls in expected budget revenue. Harvesting and trade in illegal wood was part of this problem, and illegal harvesting and log exports were targeted in policy instruments between 1991 and 2013 aimed at curbing unsustainable and illegal practices in natural forests and capturing more revenue from timber production. These instruments were intended to reduce deforestation (and so contribute, in part, to forest cover targets) and redirect the export of unprocessed wood products to support the

development of the domestic wood processing sector. They generally had little effect until 2016, when Prime Minister Thongloun Sisoulith, after hosting a successful Asia Pacific Economic Community summit in Vientiane, issued Prime Minister's Order (PMO) No. 15 (PMO15) banning the export of unprocessed wood, and implementing much stronger enforcement measures, including imprisonment of high-profile Provincial and District Governors and officials found to be contravening the Order [74]. This Order also restricted domestic trade in wood products, including from plantations, with both large and small growers, and plantation wood processors severely affected.

PMO15 maintained a previously established ban on harvesting in state Production Forest Areas (PFAs) without forest management plans, trading wood from unapproved areas converted for infrastructure development and the export of round logs and unfinished wood products. With the aim, in part, to encourage investment in domestic wood processing, the Ministry of Industry and Commerce (MOIC) assessed the whole wood processing sector and tightened regulation of allowable exports. Over 1100 wood processors were closed or had their operations suspended, requiring relocation or upgrading to meet Government standards (Prime Minister's Office Notification No. 1345/PMO.PSO20). In Northern Laos, small plantation wood processors were closed, and several new large joint ventures emerged with mixed outcomes for different value chain actors [75]. In other areas, products from plantation wood were stopped at borders because they did not meet the product specifications set out in new wood export instructions, developed with input only from a few larger processors. Although these instructions were changed following advice from researchers and lobbying from other industry value chain actors, the key restrictions remain. Unprocessed wood from acacia and eucalypt plantations can now be exported, but restrictions have been retained for plantation-grown natural species, including teak.

In support of these measures to curb illegal logging and trade, the GoL announced its interest in negotiating a VPA in February 2012 and opened a Forest Law Enforcement Governance and Trade (FLEGT) Standing Office with support from Germany's Agency for International Cooperation Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in 2013. Negotiations for a VPA formally commenced in 2016 and are ongoing. Other international programs have also been influential in focusing attention on forest policy. These include REDD+ under the United Nations Framework Convention on Climate Change, the Strategic Plan of Action (SPA) for Association of South East Asian Nations Co-operation in Forestry 2016–2025, endorsed by parties in 2016 in Vientiane, and the national response to the Sustainable Development Goals (SDGs). Support for forest and landscape restoration is also growing, with significant investments planned through the World Bank's Laos Landscapes and Livelihood Project, following an analytical study on sustainable forest management [70].

2. Study Area and Methods

2.1. Study Area

The research was undertaken in Laos between March 2016 and December 2019. Laos is a South-East Asian country with a population of about 7 million, situated between Viet Nam, China, Thailand, Cambodia and Myanmar. The economy is heavily dependent on capital-intensive natural resource exports and has benefited from foreign investment in hydropower dams and mines, although these benefits have been unevenly distributed and much of the population remains as poor subsistence farmers [70]. Despite being characterized as having weak forest governance [70], forest cover is high relative to its neighbors, in part due to geography and in part due to relatively low population density. Laos' forests and people were heavily impacted by the American war of 1965–1975 focused in neighboring Viet Nam, with Lao territory some of the most heavily bombed in the world. Forest cover further declined rapidly after independence from 70 percent of the land area or approximately 17 million ha in 1940, to 11.6 million hectares in 1982, and to only 41 percent (about 9.8 million ha) in 2002 [42], during a period in which government revenue was highly dependent on royalties from timber exports, and with increased demand for land

for subsistence and commercial agriculture and infrastructure development [76]. Following independence, all land became the property of the state and was made available to individuals, households and villages under various tenure arrangements to meet subsistence, livelihood and local infrastructure needs. Customary ownership was not formally recognized. Forests were designated as PFAs, Conservation Forests or Protection Forests [77,78]. PFAs were intended to be sustainably managed for timber supply, but many have been over-exploited and heavily degraded, and some are now used informally by local people for shifting cultivation. Actors granted permits to remove commercial timber from areas to be flooded by hydro-power developments often extended harvesting well beyond the impoundment area, resulting in wider impacts on natural forests [79].

Farmers began planting trees in Northern Laos in the late 1980s–1990s following policy, market and social signals. Smallholder teak became widespread [45,72,80,81] and households also planted rubber [66]. There was less local interest in investing in eucalypts and acacias, but these crops were promoted by international lending organizations such as the Asian Development Bank [48] and some foreign companies who were variously trying concession, contract and out-grower approaches following land and foreign investment reforms between 2003–2007. Land concessions (of a kind) were granted to foreign investors such as: Japan’s Oji Lao Plantation Forestry Co. Ltd. who bought and expanded an estate first established by a New Zealand investment group in Khammouane Province; the Indian company Aditya Birla Ltd. (trading as Birla Laos Ltd.) began a major investment in an integrated plantation and pulp mill operation in northern Savannakhet Province; and the Scandinavian-owned Stora Enso Laos Ltd. began a project in heavily bombed areas in the east of Savannakhet and in Salavan Provinces. Investment opportunities were promoted during bilateral visits between the GoL and neighbors China and Vietnam, each with their own outward-looking investment policies [82,83]. Consequently, tree plantations of different species now exist in diverse arrangements of land access, plantation ownership and management [65,72,84] (Table 1, based on unpublished data from the Department of Forestry (DOF) [85]).

Table 1. Proportion of plantation area by ownership in Laos 2016.

| Species | Smallholder | Contract Farming | Company Concession |
|-----------------|-------------|------------------|--------------------|
| Teak | 99.3% | - | 0.7% |
| Rubber | 28.5% | 24.7% | 46.8% |
| Eucalypt/acacia | 1.3% | 10.4% | 88.3% |

By 2018, midway through our research, the Lao National Forest Inventory reported a forest cover percent of 58 percent, well short of the 70 percent policy target [86,87], and 470,000 ha of plantations, around 95 percent of the 500,000 ha target (by 2020, a total of 502,000 ha was reported [55]). These shortfalls, and the reviews of land investments, re-focused the attention of the government on the need to promote plantations for forest restoration and to increase wood supply to the wood processing sector.

2.2. Methods

The data and information utilized in this study were primarily collected through research activities undertaken as part of a project “Improving policies for forest plantations to balance smallholder, industry and environmental needs in Lao PDR and Vietnam” (Project 1). The research design and methods used in that project are described here (Figure 1). Results were supplemented by research undertaken in a second project “Advancing enhanced wood manufacturing industries in Laos and Australia” (Project 2) in which two authors also participated.

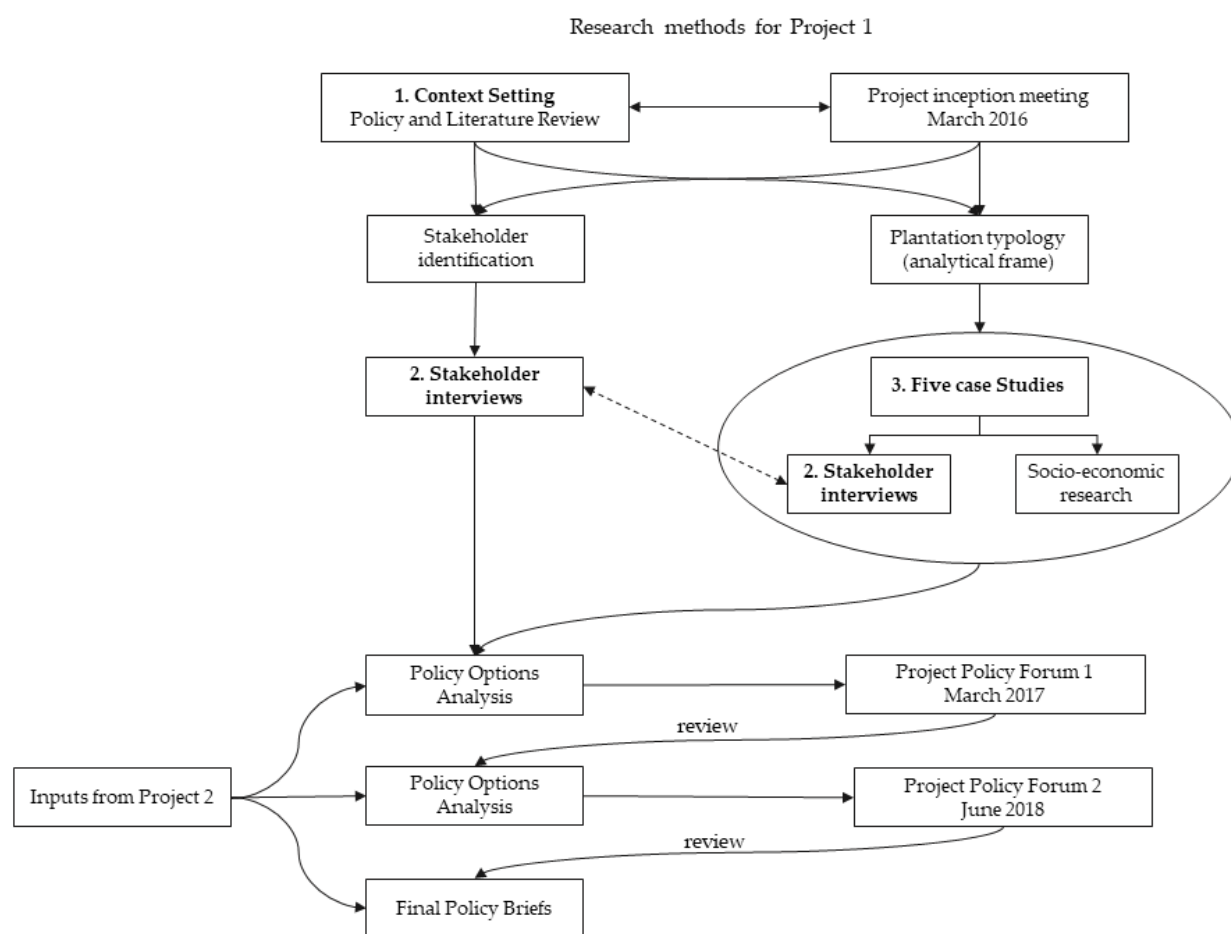


Figure 1. Research Design and Methods.

A number of qualitative tools were adopted, drawing on the principles of “description, interpretation, verification and evaluation” [88]. Firstly, document analysis provided the basis for describing current governance, policy and legislative context and identifying problems and issues with these arrangements. We sourced and reviewed a substantial body of policies, legislation and literature to describe the framework for plantation policies generally [89] and specifically with respect to environmental management and environmental protection measures for plantations [73]. Documents were sourced from various repositories accessed frequently throughout the project such as the Lao Trade Portal (<https://www.laotradeportal.gov.la>), LaoFAB (<https://www.laofab.org>) and The Lao Gazette, based on keyword searches (e.g., “forest” or “plantation” and “policy” or “strategy”) and drew on sources and literature compiled by the authors and identified during interviews. The analysis considered, inter alia:

- Current and recent past policy setting and legislation.
- Governance, and interactions between different levels of government (national, provincial, district), between relevant government agencies, and between government and other stakeholders and value chain actors.
- Administration and procedures, identifying impediments to plantation investment and ensuring security for investors and integration with other land uses.
- Current risks to plantation production and the availability and utility of current risk management arrangements such as insurance.
- Incorporation of environmental management and protection measures into policy design.

Secondly, based on stakeholder identification undertaken at the project inception meeting in March 2016, we interviewed stakeholders and value chain actors at different levels (international, national and sub-national) through structured and semi-structured interviews. Between June and October 2016, policy-focused interviews were conducted with Government stakeholders from relevant sectors at different levels, and with industry and non-government organizations. Interviews were undertaken by Lao and Australian team members, where necessary in Lao and translated to English. In total, including interviews in complementary research activities described below, forty interviews were conducted in total to collect information about organizational roles and responsibilities, past and present policies—their objectives and performance, future challenges and opportunities, and to elicit perceptions about the influence of other stakeholders on plantation policies (Table 2). Policy narratives from the literature and during interviews were identified and described, together with drivers and counteracting forces [90], and perceptions of the performance of plantations as revealed through the case study research, enabling a systematic assessment against policy objectives. We applied an analytical framework based on stated government objectives, framing a matrix around production options in a typology of plantation models ranging from independent smallholder production driven by household decisions to extensive, large-scale plantings managed by a single corporate entity, to identify and assess different policy options. The options were discussed and reviewed by the primary investigators and verified with the case-study researchers.

Table 2. Stakeholder Interviews.

| Type of Stakeholder | Level | | | | | Total |
|---------------------|----------|------------|----------|-----------|---------|-------|
| | National | Provincial | District | Household | Village | |
| Company | 9 | - | - | - | - | 9 |
| Donor | 3 | - | - | - | - | 3 |
| Individual | | - | - | 7 | - | 7 |
| Industry | 1 | - | - | - | - | 1 |
| Village | | - | - | - | 1 | 1 |
| Government | 6 | 9 | 4 | - | - | 19 |
| Total | 19 | 9 | 4 | 7 | 1 | 40 |

Thirdly, results from five discrete but interconnected case studies representing a continuum of plantation types found in Laos (see [90]) were incorporated. Details of these case studies, including the research-specific methods used, are described separately for plantation policies and governance [73,88], social outcomes from tree plantation development [67,73,88], supply chain analysis and the economic contribution of plantations [65,89,91,92] and plantation value chains generally [93] and by others in this special issue on Forests, Plantations, and Land Use. They were, by design, also used to collect information of relevance to this exploration of plantation policies, thus providing a rich source of contextual/real information for our policy analysis and recommendation-making.

Finally, based on the first three activities, the project iteratively presented interim findings and policy options, in the format of presentations, reports and Policy Briefs [94–98] at multi-stakeholder policy forums held in Vientiane in March 2017 and June 2018 where these were tested, evaluated and discussed with policymakers, practitioners and industry, and refined into potential policy solutions that were presented as a Policy Brief.

3. Results

3.1. Policy Review

Results were developed in the context of evolving national developments relevant to plantation policy and some convergence in related policy processes in Laos. A chronology of key forest-related policy initiatives or measures was constructed for analytical context and is illustrated in Appendix A (updated from [89]) and summarized in Appendix B.

3.2. Key Barriers and Challenges to Tree Plantation Development

Five broad themes of barriers and challenges emerged from the research:

- (i) Lack of a clear vision and rationale for plantations. The policy review found a lack of clear vision and a bricolage of ill-defined plantation measures creating room for inaction, inconsistency and misapplication, and local interpretation. Beyond the goal of expanding forest cover, stakeholders interviewed reported multiple and often competing policy objectives. As a result, plantation expansion has not met the expectations of the government or investors.
- (ii) Lack of information on land suitability and land use. Company representatives indicated that the absence of accurate and legal land use plans and land tenure maps, and imprecise descriptions of land tenure boundaries, has meant that land granted to them may actually be used by, or allocated to, others—e.g., to villages, individuals, other companies (e.g., agriculture or mining)—or has been locally zoned for land use that does not permit plantations. Unclear definitions of eligible land and the absence of verified land cover and forest condition mapping have made it difficult for companies to meet legal requirements on the conversion of natural forests because, for example, many potential plantation sites are occupied by regrowth following shifting cultivation. Currently, much of this information is dispersed across various government agencies, research and development projects, and companies. This needs to be consolidated, updated and made available to support consistent land use planning and allocation.
- (iii) Unrealistic expectations of land availability. Interviews and case studies revealed that policies to support foreign plantation investment were not supported by a sound understanding of the extent of land actually available within communities [64,68]. Strategic planning and assessment of land availability are hindered by poor or absent maps of forest conditions, and land-use planning is incomplete. Government and company understanding about land needs differed, and this caused confusion. Government officials tended to assume that all companies want access to large contiguous areas of land, whereas alternatives that facilitate access to smaller parcels may be equally preferable for companies and more acceptable to local communities. Companies reported that they were unable to achieve plantation establishment targets. They often had inflated expectations about land availability, created by national government agencies, and the potential costs of acquiring land and local-level hurdles to land access were not clearly established before they began projects. Delays in accessing land and local surprises led to investors withdrawing from the country. Those companies persisting were negotiating land access directly with communities, and used local, informal land ownership as a basis for identifying available land. This proved more successful than “top-down” approaches, but local-level approvals were not necessarily endorsed by district or provincial officials. Companies also face challenges where they aim to undertake inclusive village-level negotiations; these take time and involve additional costs and may leave companies open to criticisms of unlawful or unfair behavior.
- (iv) Inconsistent application of policy and regulations. Companies referred to ad hoc and inconsistent application of rules and procedures for access to land as creating an uneven playing field and disadvantaging those that try to comply. Lack of regulatory certainty and an absence of clear delegation cause regulatory gridlock—with authorities unable to make decisions, and in some cases, with local decisions inconsistent with national regulations. In particular, procedures for identifying and allocating land by National, Provincial, District and Village authorities were found to be unclear, inconsistently applied and sometimes misunderstood, compounding existing problems where local tenure was complex and contested due to incomplete land adjudication and registration. Administrative processes and negotiations with communities and central, provincial and district governments were reported as being lengthy and costly.

- (v) Transaction costs along the supply chain are high. Plantation growers, processors and the government all reported supply chain problems. Policies and regulatory arrangements developed to manage and control timber production from natural forests have generally been applied equally to plantations, with high rents (formal or informal) for permits to establish plantations and harvest and transport plantation grown wood. Supply chain relationships between smallholder tree growers and processors are poorly formed.

3.3. Policy Options and Recommendations

Based on the key barriers and challenges identified, policy options were developed and articulated as recommendations. These are summarised below, and detailed in Appendix C:

- (i) Set a clear vision and plan for plantations [95]. The government, together with stakeholders should set a clear vision for tree plantations with goals and plans for forest restoration, poverty alleviation and timber industry development, and clear roles for larger private investors and smallholders. The plans need to be explicit about opportunities for large- and small-scale investors, including independent tree growers, company out-grower arrangements, land leases, and collaborative agroforestry investment models.
- (ii) Undertake strategic land use planning [95,97]. There is a critical need to develop functional land use planning that identifies legally eligible, biophysically suitable and economically viable land for plantations. The identification of land must be consistent with the National Land Use Master Plan. Strategic plantation and wood processing sector investment zones should be identified to guide investment, based on proximity to infrastructure, markets and enough suitable forestland. Within these zones, industries must actively engage local land authorities and communities in inclusive planning to identify specific locations for plantations.
- (iii) Allocation of land use rights requires consideration of local context [68]. Land should be allocated based on its capability for tree growing and operational suitability, considering the interests and rights of local people, including access for rotational swidden land for food security. The identification of the most suitable locations for plantation development requires clear definitions and parameters and up-to-date and accessible land information. Degraded or bare forestland for plantations should be mapped using consistent definitions and datasets, based on ecological zone, tree cover, land condition, biodiversity values, tree growth capability and suitability. Free, prior and informed consent by local people must be ensured with mechanisms to mediate and resolve disputes and to review land lease payments and other conditions and these made accessible to all stakeholders. Contracts for land leases between foreign investors and villages or individuals need to be fair and transparent, and clearly identify and assign responsibilities, benefits and risks between all parties.
- (iv) Clarify, simplify and improve administrative processes and approvals through “smart regulation” [91]. “Smart regulation” refers to governance arrangements that embrace flexible, imaginative and innovative approaches to regulating behavior [92]. Smart regulation looks for synergies between the roles of government, business and community, and to reflect the interests and roles of each in regulatory design and implementation. The resultant “hybrid governance” encompasses self- and co-regulation and can be more effective and efficient than conventional government regulation. For example: plantation regulations and approvals should be based on degree of risk of environmental or community impact. Individual smallholder tree growing (<20 hectares) is lower risk, and approvals for timber harvest and transport could be granted by village-level authorities. The regulations for larger plantation growers (>20 hectares in a district) could be based on local monitoring and control with environmental and social impact standards set with the community who participate in regular reviews. Those not causing problems could be permitted to operate freely but if problems occur, regulation can be escalated to the district or provincial levels,

requiring companies to make good on impacts. Provisions for fines, sanctions or terminating licenses for companies making repeated offences should be included. Larger investors could be required to meet international best practice Corporate Social Responsibility (CSR) standards such as FSC or PEFC certification or International Finance Corporation (IFC) Performance Standards, especially when established within PFAs, and be rewarded with, for example fee exemptions or expedited approvals. This could provide surety of company *bona fides* to the government and ease the administrative burden.

- (v) Reduce transaction costs by facilitating value-chain partnerships and knowledge sharing [95]. Partnerships to support value-adding among growers, traders, primary processors, manufacturers, exporters and researchers should be promoted and supported through knowledge sharing platforms and dialogue enabled through, for example, collaborations between industry associations, the National University of Laos and related research hubs. Technical information on desired species, seedling quality, management for required log sizes and qualities, and prices for different types of logs and products should be provided by investors to others along the value chain, and by government and research and development organizations, where appropriate. The formation of partnerships should be promoted and incentivized through a combination of institutional and organizational measures, and regulatory reforms that make these easier to establish.

4. Discussion

4.1. Laws, Planning and Information

In 2018, while the research was ongoing, and soon after, some decisive policy measures were introduced by the GoL. In July 2018 the Prime Minister (through Order No. 9/PM; PMO09) lifted the moratorium on the approval of new concessions for plantations of acacias, eucalyptus, and teak, including more explicit promotion of opportunities for plantation investment through concessions on degraded areas in PFAs. In January 2019, a Decree on the Approval of Controlled Businesses, including plantations, was issued (Decree No. 03); and in June that year the GoL issued an updated Decree on the Promotion of Tree Planting for Commercialization (Decree No. 247). Soon after, the long-awaited revised Forestry Law was promulgated, with specific revisions that enabled increased plantation investment, including some policy responses to the issues identified above, that had been explored during our project activities. These changes collectively provide a clearer picture of the GoL's plan for commercial-scale tree plantations. The Land Law, made in 2003, was also revised.

These recent processes revising the Land Law and the development of regulations supporting the implementation of the new Forest Law are potentially fundamental in ensuring the contribution of tree plantations to enhanced rural livelihoods and environmental services, but uncertainties for investors will remain while potential areas of degraded forestland suitable for concessions are not delineated and supporting regulations under the Land Law remain unresolved. Other key issues include land use planning for plantations (including agroforestry) and agriculture, and land allocation and land use agreements for different actor and stakeholder groups (e.g., land use rights for smallholders and villages and leases and concessions for corporate investors).

A successful plantation-based timber sector requires a clear, stable, and consistent policy environment, and alignment of policies for plantations with those of other sectors [93,97,98]. Policy measures often include financial incentives (grants or low-interest loans), tax concessions, support for market and processing sector development, support for research and development and extension services for small-scale growers [97,98]. The GoL remains keen to promote plantations, but several confounding factors make it difficult to realize their aspiration. Our review of governance settings [89] and stakeholder mapping shows that several sectoral ministries play fundamental roles in administering plantations and in promoting and setting the standards for responsible investment practices, including

through various policies and legislation. We found that strategies and policies have been developed in isolation, and laws are complex and rarely consistently applied and enforced.

In the absence of an enabling environment with clearly defined and transparent administrative and governance processes, reputable investors remain frustrated and therefore cautious. For companies, experiencing regulatory barriers to market access, compliance is difficult because the rules of the game constantly change, or are unclear, and non-compliance with these shifting regulations impacts their reputation and the appeal of Laos as an investment destination. For those seeking large areas of land in which to invest, concessions focused on degraded land within PFAs have recently been recognized as an option and are being promoted in Decree No. 247/PM and PMO09, but we found that supporting regulations and necessary safeguards needed for implementation do not yet exist [99]. These policies that aim to promote plantations therefore simultaneously constrain investment, through the lack of supporting mechanisms and clear and consistently applied regulations. Overlapping responsibilities of national, provincial and district governments, procedural complexity [75,89] and differences in interpretation of policies and regulations also create obstacles to efficient decision-making. Slow governmental processes impact the time-critical nature of plantation investment decisions and may lead investors to look elsewhere.

Among policymakers and the broader community, perceptions about plantations are based on a poor and inconsistent evidence base; with no nationally agreed framework against which the environmental and socio-economic performance of plantations can be assessed [73]. The benefits of plantation development to local communities have often been relatively limited and employment opportunities are concentrated in certain time periods and are spread across many individuals. Intermittent opportunities for local plantation labor alone may not be sufficient to replace lost forest economic value once a plantation investment is made [94,95]. Land rental payments are modest and, for state forestland, accrue to higher levels of government through the National Treasury [100], while local-level and village development contributions are mostly concentrated in the establishment phase of plantation projects.

While the benefits of well-designed plantations that are integrated with local land use and forest conservation objectives are increasingly recognized, negative perceptions about their impacts on communities and the environment remain, resulting in political and social barriers and reticence to promote them in some government sectors. Certain stakeholders expressed concern over “benefits of foreign direct investment to the Lao community”, and while the case studies suggested that plantation forests are not inherently positive or negative for local livelihoods, and all plantation models have the potential to contribute positively to local livelihoods [65,67,101], others we interviewed noted that policymakers are not generally aware of these research results or how the findings might be incorporated in policy. Thus, strategies and policies developed in isolation may be contradictory.

While the national economic contribution of plantations and their associated industries in Laos are relatively small [102,103], the regional economic contributions of plantations and their associated industries in Laos can be substantial [104,105]; nevertheless, safeguards are needed to minimize potentially detrimental impacts [106]. Public–Private Partnerships are receiving considerable attention in Laos as vehicles for linking government priorities with private sector investment in ways that also benefit people. The tree plantation sector is an obvious focus for such partnerships, which—through well-directed responsible private sector investment—can contribute national economic development, environmental protection and restoration, and social and community goals.

Strategic assessments to identify suitable areas for plantations are important to facilitate investment but lacking. These can provide the basis for environmental and social impact assessments of larger projects and can facilitate community engagement in identifying suitable areas. Better information can also support the enforcement of laws to ensure that plantations are established only on well-defined degraded or bare forest land. Proper planning requires a detailed understanding of the local institutional context and role of

local state actors in forest governance, and how they go about implementing national policy goals and enforcing regulations at a local level. In the absence of clear guidelines and mandates, front-line technical officers often use their personal discretion to translate formal standards for local application and negotiate between companies, local communities and the central government [72,75].

4.2. Smarter Regulation, and Managing Environmental Impacts

Once strategic regions are identified, the mechanisms establishing rights of both companies or households to plant, harvest and process trees remain unsettled. For households that were encouraged to plant trees by early promotional policies, or who wish to participate in emerging markets, plantation registration is onerous and costly, and it is impractical for the government to implement at scale. Despite efforts to address this, it remains a significant barrier to smallholder participation in legal wood markets [72]. Without reforms, any policies for enabling smallholder participation in wood value chains will stall at this first hurdle, and private landowners are unlikely to plant or harvest and replant trees if financial returns from tree growing are lower than those from other land uses [107] or other drivers prevail. New approaches are needed that harness the capacity of local level institutions.

Compliance with environmental and social protection measures have been an ongoing concern for some corporate investors, and other stakeholders [73]. The role of planted forests in meeting national targets for increasing forest cover and protecting other environmental values is central in forest policies and was emphasized repeatedly by policy stakeholders we interviewed. It was recognized that, while planted forests are primarily managed for timber, they also provide environmental benefits and services (e.g., carbon sequestration, soil conservation, water quality and flood control). These benefits are not generally measured or valued. However, concerns about the risk of environmental harm associated with plantation operations, such as forest cover loss or impacts on soil and water quality during site preparation, harvesting and replanting were also raised. Residual negative perceptions and concerns about plantations following their rapid expansion in the 1990s are evident in political and social caution about plantation development, and in mixed policy messages which are only just changing.

Without regulatory reform and stabilization, it is unlikely that Laos will achieve policy objectives for either farmer- or company-based tree plantations for wood production, or for plantation-wood value chains. Regulatory reform should seek to minimize the differences for farmers or companies in investing in tree growing versus other crops, and the differences in value chain regulation between wood and other products. Smarter regulation can maximize the benefits to the government, economy, communities and the environment from plantations, and motivate farmers and industry to invest in plantations and wood processing [91]. A combination of clear and complementing laws, enabling regulations, consistent implementation with monitoring and enforcement, and incentives for best-practice such as self-regulation are needed.

Environmental protection through smart regulation could include enforcing existing regulations and applying penalties for non-compliance, incentives for “beyond compliance” behavior—e.g., companies with certification could receive prior recognition of environmental and social credentials for subsequent investments, and there could be recognition of industry codes of practice and use of self-regulation of low-risk and small-scale activities.

Rules governing ownership, harvesting, transport and processing of plantation trees should enable and facilitate participation by legitimate value chain actors. A smart regulation approach could include encouraging farmers to comply with regulations by allowing local oversight of farmer-owned plantations through empowering village authorities and grower-groups to undertake more administrative tasks, retaining fees charged at the local level to provide services that add value to the supply chain, e.g., market information or facilitation [72,108], encouraging regulatory compliance by micro, small and medium enterprises (mSMEs) by clarifying rules, reducing fees and strengthening information services.

For plantations of native tree species such as teak, the risks of illegal harvesting in natural forests should be the focus of enforcement efforts rather than imposing regulatory controls on, mostly household, plantation growers. A smart regulation approach could include incentives to encourage local people to undertake activities that discourage illegal logging in natural teak forests and increased detection and enforcement efforts targeting illegally harvested natural species in strategic natural forest zones. Performance measures should be applied before allowing companies to access land in PFAs, and tax or fee reductions, or payments for environmental services, could be applied to forest restoration activities.

Achieving environmental policy objectives while promoting investment in plantations requires a well-designed and enabling policy environment with supportive governance structures and processes that incentivize good practice. Our research found that for foreign companies profit and shareholder value are key drivers for plantation investment, and these are determined by broader corporate environmental, social and governance (CESG) goals. For smallholders, the motivations for investing in planted trees can be more diverse and compliance with the minimal regulations on environmental impacts is important, but there is little interest in delivering public environmental benefits from which they gain little direct value [73]. Despite considerable foreign donor support voluntary forest certification has largely failed to take hold amongst smallholders in Laos because the combined cost of regulatory compliance and meeting the standards is not offset by increased income from certified products [72,108], a phenomenon observed elsewhere [34,35].

Principles, guidelines and codes of practice that have been developed for plantation forestry in other countries [25], including scaled approaches (e.g., the American Tree Farm System, <https://www.treefarmssystem.org> (accessed on 24 June 2021)) could guide national standards in Laos. However, the following factors need to be addressed in Laos if these are to be effective:

1. Appropriate guidelines for environmental and social impact assessments for plantations.
2. Mechanisms for regular monitoring and assessment of environmental impacts and benefits of plantations.
3. Design of low-cost, simple systems to certify sustainability and legality of plantation timber that acknowledge the generally low risk of environmental harms associated with smallholder timber production and national goals for using plantations for poverty alleviation.
4. A national code of practice for plantation timber production based on industry best practice.
5. Incentives to forest growers to maintain and increase land under tree cover, including plantations such as through incentives to replant trees after harvest, payments for environmental services, carbon payments, tax alleviation and land use rights security.
6. Integrating requirements for forest restoration into agreements for plantation establishment within PFAs, in a way that is cost-effective for investors.

4.3. Value Chain Partnerships

With early the dominance of round log exports, and a processing sector focused on markets for wood based on timber sourced from natural forests, value chains for plantation-grown wood have emerged very slowly in Laos. In Northern Laos, smallholder plantation teak has flowed mostly to low-value domestic and Chinese export markets, involving round or rough-sawn square logs; a market that has some benefits for smallholders, mSMEs and traders, due to low transaction costs [109]. Domestic processing of this wood has been mostly low quality, low-value furniture [110]. Some larger Lao and foreign investors attempted to develop more integrated value chains with some shared benefits, while others strived to dominate supply chains and control products and prices [110]. The impacts of interventions such as PMO15, which banned the export of roundwood and squared logs, have been mixed—some processors shifted into Laos, increasing investment and

employment, but returns to plantation owners operating outside integrated value chains were reduced [75,110].

The influence of large individual industry stakeholders has been particularly evident in the emergence of policies intended to improve the wood processing sector through structural reforms and standardization. The development of a prescriptive product export list that collaterally favors a minority of influential industry participants has had adverse impacts on smallholder teak growers and mSMEs forced to comply with the standards, and has impacted larger plantation companies unable to export intermediate unprocessed products (such as poles from plantation thinning) resulting in sub-optimal resource utilization. For mSMEs, and timber traders, the policy signals are conflicting and options for upgrading are not straightforward.

The mSME sector generally lacks the capital to invest in the technology necessary to meet export industry standards and lacks business management skills that would enable them to meet emerging timber legality requirements, a phenomenon reported in other countries progressing VPAs such as Indonesia [111], Ghana [112] and Viet Nam [113]. Lack of information about this sector, and perceptions of it being “informal” [28] and therefore illegitimate, as well as disorganized, are reasons given for exclusion from policy-making processes; supportive reforms have thus lagged behind those for other value chain actors. Informality makes mSMEs and smallholders largely invisible, and the process of formalization and addressing the lack of regulations can be daunting for legislators [114]. For mSMEs, the benefits of participation in policy-making and formal markets may not outweigh the costs, for example of increased taxes or requirements to meet standards; staying hidden can be in their own interest, and this creates a conundrum for those processes which strive for high standards in transparency and openness. There are examples of methods [115] to establish inclusive partnerships in supply chains for timber [108,116] and for other crops such as coffee [117]. These provide a framework through which smaller value chain actors can be drawn into formal, and increasingly international, markets; but issues such as the role of the state in setting policies and mediating development strategies, power asymmetries, benefit capture and local context and relationships, pose persistent challenges and nuanced approaches are required to address constraints specific to each case.

5. Conclusions

With an increasing focus on plantations for timber production globally, and in the developing world, there is an evident need for policies that facilitate responsible investment, sustainable management and improved market access for tree growers of all scales. Laos has had policies to support plantation development for over 30 years, but this study found that they lack a clear vision, sufficient detail, a common understanding of accountability, and the capacity to bring them into effect. New policies for Laos, and elsewhere, need to be locally specific, cooperative, comprehensive and flexible to accommodate the diverse models and value chains required for plantations to contribute to national sustainable development goals. As Ferguson [118] stated for Australia, there is no silver bullet to solve tree plantation policy problems, which are complex and depend on many inter-related factors.

Laos offers several comparative advantages for investment in tree plantations, including its geographic location, rapidly improving regional connectivity and the extent of potentially suitable land. Our research has confirmed that, under the right conditions, foreign investment in plantations can contribute to national development strategies, improve local income and provide wider community benefits, but achieving these outcomes requires alignment in several factors. Firstly, a stable, clear and consistently applied set of policies and rules that make the process of investment decision making for companies predictable, efficient and cost-effective is required. If Laos is to secure the interest and commitment of responsible plantation companies, it needs to send a clear, consistent and positive message. Next, this message must be backed up by supportive policies and legislation, and institutional processes that facilitate access to appropriate land in a timely manner and that integrate the needs of local communities. Without these, reputable investors will

be deterred by the costs and start-up timeframes associated with current policies. A properly resourced and responsive bureaucracy with clear agency responsibilities is needed to effectively implement these. Appropriate environmental and social safeguards and incentives for good practice in plantation development and management are also needed. The rights and interests of local people across the value chain must be addressed, with opportunities to participate in design and benefit in self-determined ways. International guidelines and standards can be used to build a context-specific platform for responsible plantation investment. The people of Laos have the right to demand a strong commitment by plantation companies to environment protection and improvement, and to the delivery of adequate social and local economic benefits as an appropriate return on Laos' investment of land and supporting infrastructure.

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Appendix A

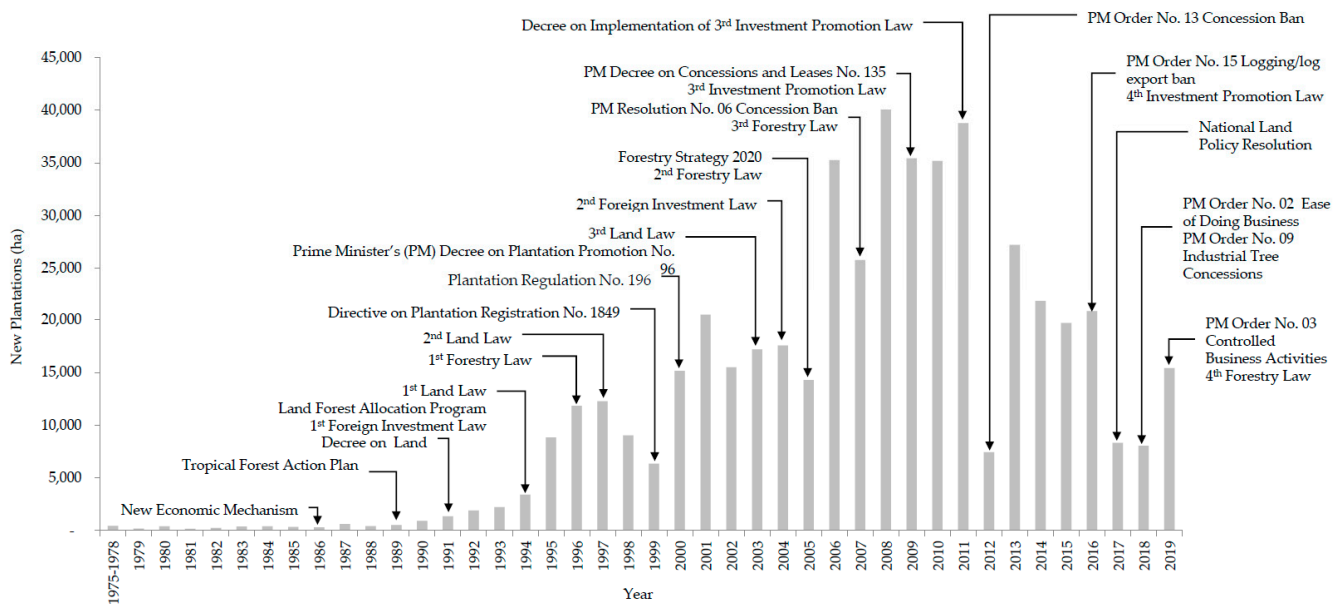


Figure A1. Policies and Plantation Establishment in Laos 1975–2019.

Appendix B

Table A1. Chronology of key forest-related policy initiatives or measures in Laos.

| Year | Initiative/Document | Matter Relevant to Plantation Policy |
|------|--|--|
| 1900 | French Occupation | Promoted of teak and rubber plantations. |
| 1975 | Independence from France | |
| 1979 | CM Instruction 74 on Forest Protection | Promoted development and management of tree plantations. |
| 1986 | New Economic Mechanism | Opening of Lao economy. |
| 1989 | National Forestry Conference | Set forest cover target of 70% by 2020 |
| 1989 | Decree No. 117/CPM Management and Use of Forest and Forest Land | Allocated degraded forestland to individuals for planting trees |
| 1990 | Foreign investment promotion starts | ADV Industrial Tree Plantations Project. Foreign plantation companies arrive in Laos. |
| 1991 | Lao Tropical Forest Action Plan | Introduced Plantation Development Program |
| 1991 | Investment Promotion Law | Opening to domestic and foreign investors. |
| 1992 | No 99/PM Decree on Land | Established the rights of individuals and collectives to possess land for agroforestry and industrial production. |
| 1993 | Land Use Planning and Land Allocation | Allocated forest land for villager use. |
| 1993 | No 169/PM Decree Management and Use of Forests | Established the rights of individuals who plant or maintain trees with their own labour or capital. |
| 1993 | Decree on Land Tax | Set land tax rates and exemptions for planted trees. |
| 1994 | No 186/PM Allocation of Land and Forests for Tree Planting. | Promoted the allocation of degraded and bare land for plantations, specifying fast growing species and teak. |
| 1995 | No 0234/ MAF Management of plantations and planted forests | Allowed for planting on an individual's own land with supporting documentation; but discouraged planting on agricultural land. |
| 1996 | Forestry Law | Promoted the rehabilitation and planting of forest resources. Set limits of 3 ha per labourer, per family for planting trees. |
| 1996 | No 03/PM Instruction on Land-Forest Allocation for Management and Use | Reiterated the continuation and expansion of Land Management and Land and Forest Allocation. Further promoted tree planting. |
| 1997 | No 01/N 97 Land Law | Assigned to MAG responsibility for managing forestland. Gave people the right to be allocated land for plantations. |
| 2000 | No 0196/AF Development and Promotion of Long-term plantations | Promoted the development of long-term plantations. |
| 2003 | Land Law | Allowed for the allocation of 3 ha per labourer per household of degraded or barren forest land and temporary land use rights. |
| 2003 | Prime Minister's Order No 96/PM on Commercial tree planting and environmental protection | Promoted tree planting with financial incentives. |
| 2004 | Revised Investment Promotion law | Reformed foreign and domestic investment rules and incentives. |
| 2005 | Forestry Strategy 2020 | Set a target for plantation establishment at 500,000 ha. |
| 2007 | President's Order No. 01/PO Land Tax | Set land tax exemptions for registered tree plantations. |
| 2007 | Land Conference Resolution | Temporarily banned state-land concessions > 100 ha. |
| 2007 | No. 06/NA Forestry Law | Promoted the planting of trees. |
| 2008 | Prime Minister's Order No. 17/PM | Specified that the origin of timber harvested from plantations must certified by PAFO based on the plantation registration. |
| 2009 | Decree on Concessions and Leases No 135/PM | Re-set the processes for granting permission for investment in plantations on state land concessions. |
| 2013 | Prime Minister's Order No. 13/PM | Suspended approval of some types of new plantation concessions; promoted contract farming |
| 2016 | Prime Minister's Order No. 135PM | Prohibited the export of unfinished wood products, including from plantations. |
| 2018 | Prime Minister's Order No. 09/PM on Concessions | Lifted the suspension on plantation concessions (not rubber) and promotes plantations inside production forest areas. |

Table A1. Cont.

| Year | Initiative/Document | Matter Relevant to Plantation Policy |
|------|--|--|
| 2019 | Prime Minister's Order No. 03/PM on controlled business activities | Includes plantations as a controlled business activity. |
| 2019 | Revised Forest Law No. 64/NA | Re-set national legislation on all forests including plantations. |
| 2019 | Revised Land Law No. 70/NA | Removed specific reference to allocation of forest land for plantations. |

Appendix C

Table A2. ACIAR Project Policy Recommendations.

| Issue | Goal | Policy Recommendations |
|---|--|--|
| A. Land information, planning and allocation | | |
| Strategic landscape land use planning to guide plantation investment. | Agreement on the most suitable locations for plantations and processing investments. | A1—Master planning to identify strategic investment zones. A2—A process consistent with the land allocation master plan. A3—A process based on accurate, up-to-date and accessible information. A4—A process with stakeholder engagement: government, investor and community |
| Coordinated and inclusive local land use planning and allocation. | A stepwise and transparent land suitability assessment process identifies the most-suitable areas for plantation development. | A5—Guidelines for local land use planning and allocation that address local communities' interests and preferences and that accommodate different scales and forms of investment. |
| Principles for land allocation for plantations | Rights to establish forest plantations and sell and harvest wood are clear and secure. | A6—Rules for land allocation for plantations to companies, villages and smallholders. A7—Land titling of Village Use Forests as part of the commitment to plantation establishment in PFAs. A8—A Contract Farming Decree with accessible mediation and dispute resolution. |
| B. Smarter regulation and environmental management | | |
| Easier investment in plantations and plantation wood processing. | Effective and efficient regulation that encourages investment and ensures costs and benefits are fairly distributed along the value chain. | B1—Smart regulation principles using a mix government-, private- and self-regulation, and community participation. B2—Clear rationale for costs and charges that are consistently applied. B3—Adequate resources and training to local government officials to support and facilitate plantation investment. |
| Integrated governance and regulation. | Plantation specific codes and systems that are practical and reflect the risk associated with the scale of investment. | B4—Simple and scale-appropriate, affordable codes of practice, legality verification and certification systems. |
| Up-to-date extension for smallholders about plantation management and value chains. | Improved and well-resourced extension systems that reach smallholder farmers and communities. | B5—Develop research-based extension materials delivered locally. B6—Adequately resource extension services, including through industry associations and groups. |
| Plantations delivering net-positive environmental and social benefits. | Improved systems of oversight of environmental impacts and benefits of plantations. | B7—Revise processes to better assess plantation development and management at a range of scales and proportionate to risk. B8—Design affordable processes with consistent monitoring and enforcement. B9—Introduce incentives for demonstrated good performance e.g., self-regulation. |

References

1. Korhonen, J.; Nepal, P.; Prestemon, J.P.; Cubbage, F.W. Projecting global and regional outlooks for planted forests under the shared socio-economic pathways. *New For.* **2021**, *52*, 197–216. [[CrossRef](#)]
2. Chazdon, R.; Brancalion, P. Restoring forests as a means to many ends. *Science* **2019**, *365*, 24–25. [[CrossRef](#)]
3. Hetemäki, L.; Palahí, M.; Nasi, R. *Seeing the Wood in the Forests*; Knowledge to Action 1, 2020; European Forest Institute: Joensuu, Finland, 2020.
4. Nepal, P.; Korhonen, J.; Prestemon, J.P.; Cubbage, F.W. Projecting global planted forest area developments and the associated impacts on global forest product markets. *J. Environ. Manag.* **2019**, *240*, 421–430. [[CrossRef](#)] [[PubMed](#)]
5. Payn, T.; Carnus, J.-M.; Freer-Smith, P.; Kimberley, M.; Kollert, W.; Liu, S.; Orazio, C.; Rodriguez, L.; Silva, L.N.; Wingfield, M.J. Changes in planted forests and future global implications. *For. Ecol. Manag.* **2015**, *352*, 57–67. [[CrossRef](#)]
6. INDUFOR. *Strategic Review on the Future of Forest Plantations in the World*; Study done for the Forest Stewardship Council (FSC): Bonn, Germany, 2012.
7. Barua, S.K.; Lehtonen, P.; Pahkasalo, T. Plantation vision: Potentials, challenges and policy options for global industrial forest plantation development. *Int. For. Rev.* **2014**, *16*, 117–127. [[CrossRef](#)]
8. Cubbage, F.; Kanieski, B.; Rubilar, R.; Bussoni, A.; Olmos, V.M.; Balmelli, G.; Donagh, P.M.; Lord, R.; Hernández, C.; Zhang, P.; et al. Global timber investments, 2005 to 2017. *For. Policy Econ.* **2020**, *112*, 102082. [[CrossRef](#)]
9. Phimmavong, S.; Maraseni, T.N.; Keenan, R.J.; Cockfield, G. Financial returns from collaborative investment models of *Eucalyptus* agroforestry plantations in Lao PDR. *Land Use Policy* **2019**, *87*, 104060. [[CrossRef](#)]
10. Malkamäki, A.; D’Amato, D.; Hogarth, N.J.; Kanninen, M.; Pirard, R.; Toppinen, A.; Zhou, W. A systematic review of the socio-economic impacts of large-scale tree plantations, worldwide. *Glob. Environ. Chang.* **2018**, *53*, 90–103. [[CrossRef](#)]
11. Gerber, J.-F. Conflicts over industrial tree plantations in the South: Who, how and why? *Glob. Environ. Chang.* **2011**, *21*, 165–176. [[CrossRef](#)]
12. Carrere, R.; Lohmann, L. *Pulping the South: Industrial Tree Plantations and the World Paper Economy*; Zed Books: London, UK; Atlantic Highlands, NJ, USA, 1996; 280p.
13. Baral, H.; Guariguata, M.R.; Keenan, R.J. A proposed framework for assessing ecosystem goods and services from planted forests. *Ecosyst. Serv.* **2016**, *22*, 260–268. [[CrossRef](#)]
14. Silva, L.N.; Freer-Smith, P.; Madsen, P. Production, restoration, mitigation: A new generation of plantations. *New For.* **2019**. [[CrossRef](#)]
15. Pirard, R.; Petit, H.; Baral, H. Local impacts of industrial tree plantations: An empirical analysis in Indonesia across plantation types. *Land Use Policy* **2017**, *60*, 242–253. [[CrossRef](#)]
16. FAO. *Global Forest Resources Assessment 2020—Key Findings*; Food and Agriculture Organisation: Rome, Italy, 2020.
17. Pirard, R.; Dal Secco, L.; Warman, R. Do timber plantations contribute to forest conservation? *Environ. Sci. Policy* **2016**, *57*, 122–130. [[CrossRef](#)]
18. Sunderland, T.C.H.; O’Connor, A.; Muir, G.; Nerfa, L.; Rota Nodari, G.; Widmark, C.; Bahar, N.; Ickowitz, A. SDG 2: Zero Hunger—Challenging the Hegemony of Monoculture Agriculture for Forests and People. In *Sustainable Development Goals: Their Impacts on Forests and People*; Pierce Colfer, C.J., Winkel, G., Galloway, G., Pacheco, P., Katila, P., de Jong, W., Eds.; Cambridge University Press: Cambridge, UK, 2019; pp. 48–71.
19. Chazdon, R.L.; Brancalion, P.H.S.; Lamb, D.; Laestadius, L.; Calmon, M.; Kumar, C. A Policy-Driven Knowledge Agenda for Global Forest and Landscape Restoration. *Conserv. Lett.* **2017**, *10*, 125–132. [[CrossRef](#)]
20. Carle, J.B.; Duval, A.; Ashford, S. The future of planted forests. *Int. For. Rev.* **2020**, *22*, 65–80. [[CrossRef](#)]
21. Kanowski, P. *The Forest Dialogue: Tree Plantations in the Landscape*; The Forests Dialogue, Initiative Paper; Yale University: New Haven, CT, USA, 2016.
22. FAO. *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*; Food and Agriculture Organisation: Rome, Italy, 2012; p. 40.
23. FAO. *Planted Forests in Sustainable Forest Management. A Statement of Principles*; Food and Agriculture Organisation: Rome, Italy, 2010; p. 16.
24. Kanowski, P.; Murray, H. *TFD Review: Intensively Managed Planted Forests toward Best Practice*; The Forests Dialogue, Yale School of Forestry & Environmental Studies: New Haven, CT, USA, 2008; p. 64.
25. Masiero, M.; Secco, L.; Pettenella, D.; Brotto, L. Standards and guidelines for forest plantation management: A global comparative study. *For. Policy Econ.* **2015**, *53*, 29–44. [[CrossRef](#)]
26. Kleinschmit, D.; Mansourian, S.; Wildburger, C.; Purret, A. *Illegal Logging and Related Timber Trade—Dimensions, Drivers, Impacts and Responses. A Global Scientific Rapid Response Assessment Report*; International Union of Forest Research Organizations (IUFRO): Vienna, Austria, 2016; p. 145.
27. Setyowati, A.; McDermott, C.L. Commodifying Legality? Who and What Counts as Legal in the Indonesian Wood Trade. *Soc. Nat. Resour.* **2017**, *30*, 750–764. [[CrossRef](#)]
28. EU FLEGT Facility. *Small and Micro-Sized Entities in the Mekong Region’s Forest Sector: A Situational Analysis in the FLEGT Context*; European Forest Institute: Barcelona, Spain, 2019; p. 8.

29. Ramcilovic-Suominen, S.; Lovric, M.; Mustalahti, I. Mapping policy actor networks and their interests in the FLEGT Voluntary Partnership Agreement in Lao PDR. *World Dev.* **2019**, *118*, 128–148. [[CrossRef](#)]
30. McDermott, C.L.; Acheampong, E.; Arora-Jonsson, S.; Asare, R.; de Jong, W.; Hirons, M.; Khatun, K.; Menton, M.; Nunan, F.; Poudyal, M.; et al. SDG 16: Peace, Justice and Strong Institutions—A Political Ecology Perspective. In *Sustainable Development Goals: Their Impacts on Forests and People*; Pierce Colfer, C.J., Winkel, G., Galloway, G., Pacheco, P., Katila, P., de Jong, W., Eds.; Cambridge University Press: Cambridge, UK, 2019; pp. 510–540. [[CrossRef](#)]
31. Shapiro, S. The Complexity of Regulatory Capture: Diagnosis, Causality and Remediation. *IO Regul.* **2011**, *102*, 101–172. Available online: <https://ssrn.com/abstract=2004521> (accessed on 13 May 2020).
32. van der Ven, H.; Cashore, B. Forest certification: The challenge of measuring impacts. *Curr. Opin. Environ. Sustain.* **2018**, *32*, 104–111. [[CrossRef](#)]
33. Diaz-Balteiro, L.; Alonso, R.; Martínez-Jauregui, M.; Pardos, M. Selecting the best forest management alternative by aggregating ecosystem services indicators over time: A case study in central Spain. *Ecol. Indic.* **2017**, *72*, 322–329. [[CrossRef](#)]
34. Karsenty, A. Certification of tropical forests: A private instrument of public interest? A focus on the Congo Basin. *For. Policy Econ.* **2019**, *106*, 101974. [[CrossRef](#)]
35. Flanagan, A.C.; Midgley, S.J.; Stevens, P.R.; McWhirter, L. Smallholder tree-farmers and forest certification in Southeast Asia: Productivity, risks and policies. *Aust. For.* **2019**, *82*, 18–28. [[CrossRef](#)]
36. Lewis, S.L.; Wheeler, C.E.; Mitchard, E.T.A.; Koch, A. Restoring natural forests is the best way to remove atmospheric carbon. *Nature* **2019**, 25–28. [[CrossRef](#)] [[PubMed](#)]
37. Ghazoul, J.; Bugalho, M.; Keenan, R. Plantations take economic pressure off natural forests. *Nature* **2019**, *570*, 307. [[CrossRef](#)]
38. Guariguata, M.R.; Chazdon, R.L.; Brancalion, P.H.S.; David, L. Forests: When natural regeneration is unrealistic. *Nature* **2019**, *570*, 164. [[CrossRef](#)] [[PubMed](#)]
39. Dohong, A.; Aziz, A.A.; Dargusch, P. A review of the drivers of tropical peatland degradation in South-East Asia. *Land Use Policy* **2017**, *69*, 349–360. [[CrossRef](#)]
40. Midgley, S.J.; Stevens, P.R.; Arnold, R.J. Hidden assets: Asia’s smallholder wood resources and their contribution to supply chains of commercial wood. *Aust. For.* **2017**, *80*, 10–25. [[CrossRef](#)]
41. Byron, N. Keys to smallholder forestry. *For. Trees Livelihoods* **2001**, *11*, 279–294. [[CrossRef](#)]
42. Phimmavong, S.; Ozarska, B.; Midgley, S.; Keenan, R. Forest and plantation development in Laos: History, development and impact for rural communities. *Int. For. Rev.* **2009**, *11*, 501–513. [[CrossRef](#)]
43. Stuart-Fox, M. The French in Laos, 1887–1945. *Mod. Asian Stud.* **1995**, *29*, 111–139. [[CrossRef](#)]
44. Yamada, N. Legitimation of the Lao People’s Revolutionary Party: Socialism, Chintanakan Mai (New Thinking) and Reform. *J. Contemp. Asia* **2018**, *48*, 717–738. [[CrossRef](#)]
45. Newby, J.C.; Cramb, R.A.; Sakanphet, S.; McNamara, S. Smallholder Teak and Agrarian Change in Northern Laos. *Small Scale For.* **2012**, *11*, 27–46. [[CrossRef](#)]
46. MAF. *Forestry Strategy to the Year 2020 of the Lao PDR*; Ministry of Agriculture and Forestry: Vientiane, Laos, 2005; p. 127.
47. Dwyer, M. *Turning Land into Capital: A Review of Recent Research on Land Concessions for Investment in Lao PDR*; Parts 1 and 2. Working Group on Land issues’ Report; Land Issues Working Group: Vientiane, Laos, 2007.
48. ADB. *Lao Industrial Tree Plantation Project*; Project number: 20067 and loan number: 1295 (Completion report); Asian Development Bank: Metro Manila, Philippines, 2005; p. 103.
49. Baird, I.G. Degraded forest, degraded land and the development of industrial tree plantations in Laos. *Singap. J. Trop. Geogr.* **2014**, *35*, 328–344. [[CrossRef](#)]
50. Lestrelin, G.; Vigiak, O.; Pelletreau, A.; Keohavong, B.; Valentin, C. Challenging established narratives on soil erosion and shifting cultivation in Laos. *Nat. Resour. Forum* **2012**, *36*, 63–75. [[CrossRef](#)]
51. Lestrelin, G. Land degradation in the Lao PDR: Discourses and policy. *Land Use Policy* **2010**, *27*, 424–439. [[CrossRef](#)]
52. Barney, K. *Power, Progress and Impoverishment: Plantations, Hydropower, Ecological Change and Community Transformation in Hinboun District, Lao PDR. A Field Report*; York Centre for Asian Research (YCAR), York University: Toronto, ON, Canada, 2007; p. 139.
53. Mounda, B. *Eucalyptus Lao PDR*. In *Reports Submitted to the Regional Expert Consultation on Eucalyptus*; Kashio, M., White, K., Eds.; FAO RAP Publication: Bangkok, Thailand, 1996.
54. Fox, J.; Fujita, Y.; Ngidang, D.; Peluso, N.; Potter, L.; Sakuntaladewi, N.; Sturgeon, J.; Thomas, D. Policies, Political-Economy, and Swidden in Southeast Asia. *Hum. Ecol.* **2009**, *37*, 305–322. [[CrossRef](#)] [[PubMed](#)]
55. DOF. *Statistics on Forest Plantation in Laos Department of Forestry*, 1st ed.; Ministry of Agriculture and Forestry: Vientiane, Laos, 2020.
56. Hlaing, K.Y. LAOS: The State of the State. *Southeast Asian Aff.* **2006**, 129–147. Available online: <http://www.jstor.org/stable/27913307> (accessed on 18 August 2021). [[CrossRef](#)]
57. Kenney-Lazar, M. Plantation rubber, land grabbing and social-property transformation in southern Laos. *J. Peasant Stud.* **2012**, *39*, 1017–1037. [[CrossRef](#)]
58. Baird, I.G. Turning Land into Capital, Turning people into Labour: Primitive Accumulation and the Arrival of Large-Scale Economic Land Concessions in the Lao People’s Democratic Republic. *Marx. Interdiscip. Inq.* **2011**, *5*, 10–26.
59. Dwyer, M.; Vongvisouk, T. The long land grab: Market-assisted enclosure on the China-Lao rubber frontier. *Territ. Politics Gov.* **2017**, *7*, 96–114. [[CrossRef](#)]

60. Baird, I.G.; Barney, K. The political ecology of cross-sectoral cumulative impacts: Modern landscapes, large hydropower dams and industrial tree plantations in Laos and Cambodia. *J. Peasant Stud.* **2017**, *44*, 769–795. [CrossRef]
61. Hanssen, C.H. Lao Land Concessions, Development for the People? In Proceedings of the Proceedings: International Conference on Poverty Reduction and Forests, Bangkok, Thailand, 3–7 September 2007; p. 20.
62. Global Witness. *Rubber Barons: How Vietnamese Companies and International Financiers Are Driving a Land Grabbing Crisis in Cambodia and Laos*; Global Witness: London, UK, 2013.
63. Schönweger, O.; Heinemann, A.; Epprecht, M.; Lu, J.; Thalongsechanh, P. *Concessions and Leases in the Lao PDR: Taking Stock of Land Investments*; Bern and Vientiane, Centre for Development and Environment (CDE), University of Bern: Bern, Switzerland, 2012.
64. Lu, J.; Schönweger, O. Great expectations: Chinese investment in Laos and the myth of empty land. *Territ. Politics Gov.* **2019**, *7*, 61–78. [CrossRef]
65. van der Meer Simo, A.; Kanowski, P.; Barney, K. Economic returns to households participating in different models of commercial tree plantations in Lao PDR. *Int. For. Rev.* **2020**, *22*, 132–152. [CrossRef]
66. Smith, H.; Lu, J.; To, P.X. *Rubber Report 2020 Land, Labour, Latex and Wood: Plantation Value Chains in Laos: Opportunities and Constraints in Policy, Legality and Processing Technology*; ACIAR Project FST/2016/151; Advancing Enhanced Wood Manufacturing Industries in Lao PDR and Australia: Canberra, Australia, 2020.
67. Barney, K.; van Der Meer Simo, A.; Huynh, T.B.; Kanowski, P. *Social Outcomes from Tree Plantation Development in Central and Southern Lao PDR: Evidence from Six Villages*; Policy Brief, ACIAR Project ADP/2014/047; Improving policies for forest plantations to balance smallholder, industry and environmental needs Project; ACIAR: Canberra, Australia, 2019.
68. Barney, K.; Smith, H. *Policy Brief-Land Tenure for Plantations in Lao PDR*; ACIAR Project FST/2014/047; Improving policies for forest plantations to balance smallholder, industry and environmental needs Project; ACIAR: Canberra, Australia, 2019; p. 3.
69. Stora Enso Laos. *Stora Enso to Downsize Plantation Operations in Laos 2020*. Available online: <https://www.storaenso.com/en/sustainability/latest-updates-and-stories/stora-enso-to-downsize-plantation-operations-in-laos> (accessed on 1 June 2020).
70. World Bank. *Partnerships and Opportunities for a New Green Forest Economy in Lao PDR: Sustaining Forest Landscapes and Livelihoods*; The World Bank Office: Vientiane, Laos, 2019.
71. Koch, S. The struggle over Lao PDR's forests: New opportunities for improved forest governance? *Pac. Geogr.* **2017**, *47*, 4–13. [CrossRef]
72. Smith, H.F.; Ling, S.; Boer, K. Teak plantation smallholders in Lao PDR: What influences compliance with plantation regulations? *Aust. For.* **2017**, *80*, 178–187. [CrossRef]
73. Smith, H.F.; Carmichael, E.; Keenan, R.; Kanowski, P.; Phompila, C.; van der Meer Simo, A. *Tree Plantations in Lao PDR: Environmental Management and Protection Measures*; Working Paper 3. ACIAR Project FST/2014/047; Advancing Enhanced Wood Manufacturing Industries in Lao PDR and Australia: Canberra, Australia, 2017.
74. RFA. Laos Removes Governor of Attapeu Province Amid Logging Scandal. Available online: <https://www.rfa.org/english/news/laos/governor-11222017133554.html> (accessed on 10 May 2021).
75. Smith, H.F.; Ling, S.; Barney, K.; Kanowski, P. *Value Chain Assessment: Interim Summary Report—Teak Plantations in Northern Lao PDR*; ACIAR Project FST/2016/151; Advancing Enhanced Wood Manufacturing Industries in Lao PDR and Australia: Canberra, Australia, 2018.
76. Phompila, C.; Lewis, M.; Ostendorf, B.; Clarke, K. Forest Cover Changes in Lao Tropical Forests: Physical and Socio-Economic Factors are the Most Important Drivers. *Land* **2017**, *6*, 23. [CrossRef]
77. Berkmüller, K.; Southammakoth, S.; Vongphet, V. *Protected Area System Planning and Management in Lao PDR: Status Report to Mid-1995*; Lao-Swedish Forestry Cooperation Programme and IUCN: Vientiane, Laos, 1995.
78. World Bank; SIDA; Ministry of Foreign Affairs; Government of Finland. *Lao PDR Production Forestry Policy: Status and Issues for Dialogue*; World Bank, Sida, Ministry of Foreign Affairs and Government of Finland: Vientiane, Laos, 2001; Volume I, p. 43.
79. Anonymous. Aspects of forestry management in the Lao PDR. *Watershed* **2000**, *5*, 57–64.
80. Boer, K. *Luang Prabang Province Teak Inventory 2019*; Project FST/2016/151; Advancing Enhanced Wood Manufacturing Industries in Lao PDR and Australia: Canberra, Australia, 2019.
81. Midgley, S.; Bennett, J.; Smonty, X.; Stevens, P.; Mounlami, K.; Midgley, D.; Brown, A. *Scoping Study Payments for Environmental Services and Planted Log Value Chains in Lao PDR*; ACIAR: Canberra, Australia, 2011.
82. Lu, J.N. Tapping into rubber: China's opium replacement program and rubber production in Laos. *J. Peasant Stud.* **2017**, *44*, 726–747. [CrossRef]
83. Lang, C. Laos: Vietnamese Companies Set Up Rubber Plantations in the South. Available online: <https://wrm.org.uy/articles-from-the-wrm-bulletin/section2/laos-vietnamese-companies-set-up-rubber-plantations-in-the-south/> (accessed on 10 May 2021).
84. Castella, J.-C.; Bouahom, B.; Albery, E.; Douangsavanh, L. Emergence of diverse rubber institutions from local negotiations in Laos. In Proceedings of the ASEAN Rubber Conference 2009: The 5th Conference and Exhibition, Vientiane, Laos, 18–20 June 2009; p. 26.
85. DOF. *Unpublished Plantation Statistics*; Department of Forestry, Ministry of Agriculture and Forestry: Vientiane, Laos, 2017.
86. Pha Khao Lao. 2020 Target of 70 Percent Forest Cover Unlikely to Be Met: Report. Available online: <https://www.phakhaolao.la/en/news/2020-target-70-percent-forest-cover-unlikely-be-met-report> (accessed on 10 May 2021).

87. DOF. *Basic Study for Updating FS2020 Forestry Sector Indicator Survey; Sustainable Forest Management and REDD+ Support Project (F-REDD)*; Department of Forestry: Vientiane, Laos, 2018.
88. Peshkin, A. The Goodness of Qualitative Research. *Educ. Res.* **1993**, *22*, 23–29. [[CrossRef](#)]
89. Smith, H.; Barney, K.; Byron, N.; Simo, A.V.D.M.; Phimmavong, S.; Keenan, R.; Vongkhamso, V. *Tree Plantations in Lao PDR: Policy Framework and Review*; Project Working Paper 1, Improving policies for forest plantations to balance smallholder, industry and environmental needs Project; ACIAR: Canberra, Australia, 2017; p. 85.
90. Keenan, R.; Barney, K.; Byron, N.; Cockfield, G.; Hai, V.D.; Huynh, T.B.; Kanowski, P.; Maraseni, T.; Nghia, T.D.; Phimmavong, S.; et al. *Improving Policies for Forest Plantations to Balance Smallholder, Industry and Environmental Needs in Lao PDR and Viet Nam*; ACIAR: Canberra, Australia, 2019.
91. Smith, H.; Kanowski, P.; Keenan, R. *Policy Brief—Smarter Regulation of Plantation Wood Value Chains in Lao PDR*; ACIAR Project FST/2014/047; Advancing Enhanced Wood Manufacturing Industries in Lao PDR and Australia: Canberra, Australia, 2019; p. 3.
92. Gunningham, N.; Sinclair, D. Smart Regulation. In *Regulatory Theory: Foundations and Applications*; Drahos, P., Ed.; ANU Press: Canberra, Australia, 2017.
93. Dong, H. Impact of Forest Policy on Plantation Development in China. In *IUFRO Eucalypt Conference Scientific Cultivation and Green Development to Enhance the Sustainability of Eucalypt Plantations*; IUFRO: Zhanjiang, China, 2015.
94. Van Der Meer Simo, A.; Kanowski, P.; Barney, K. Revealing environmental income in rural livelihoods: Evidence from four villages in Lao PDR. *For. Trees Livelihoods* **2019**, *28*, 16–33. [[CrossRef](#)]
95. Barney, K.; Simo, A.V. *Forest Plantations and Smallholder Livelihoods: Evidence from Community Case Studies in Lao PDR*; Component Report. ACIAR Project ADP/2014/047; Australian National University: Canberra, Australia, 2019; p. 69.
96. Rhodes, D.; Stephens, M. Planted forest development in Australia and New Zealand: Comparative trends and future opportunities. *N. Z. J. For. Sci.* **2014**, *44*, S10. [[CrossRef](#)]
97. Low, K.; McInnis, T.; Burns, K.; Mahendrarajah, S. *Models for a Sustainable Forest Plantation Industry: A Review of Policy Alternatives*; Australian Bureau of Agriculture and Resource Economics: Canberra, Australia, 2010; p. 40.
98. Enters, T.; Durst, P.B. (Eds.) *What Does It Take? The Role of Incentives in Forest Plantation Development in Asia and the Pacific*; FAO RAP Publication: Bangkok, Thailand, 2004; p. 278.
99. Smith, H.; Kanowski, P.; Keenan, R.; Phimmavong, S. *Policy Brief: Options for Orest Plantations in Laos*; ACIAR Project ADP/2014/047; Australian National University: Canberra, Australia, 2019; p. 6.
100. NLMA. Instruction As regards the implementation of decree on state-owned land approval for lease or concession. In *No. 20/PMO.NLMA*; Prime Minister's Office: Vientiane, Laos, 2010.
101. van der Meer Simo, A.; Kanowski, P.; Barney, K. The role of agroforestry in swidden transitions: A case study in the context of customary land tenure in Central Lao PDR. *Agrofor. Syst.* **2020**, *94*, 1929–1944. [[CrossRef](#)]
102. Phimmavong, S.; Keenan, R.; Ozarska, B. Impact of Forest Plantation Development in Laos: A Dynamic General Equilibrium Analysis. *FORMATH* **2020**, *19*. [[CrossRef](#)]
103. Phimmavong, S.; Keenan, R. Forest plantation development, poverty, and inequality in Laos: A dynamic CGE microsimulation analysis. *For. Policy Econ.* **2020**, *111*, 102055. [[CrossRef](#)]
104. Phimmavong, S.; Chanthavong, H.; Smith, H.; Keenan, R.; Phouthavong, S.; Midgley, S. *Past, Present and Future of Commercial Plantation Forestry in Lao PDR*; National University of Laos: Vientiane, Laos, 2020.
105. Phimmavong, S.; Phouthavong, S.; Keenan, R. *Policy Brief—Regional Economic Effects of Plantation Industries Lao PDR*; ACIAR Project FST/2014/047; Melbourne University: Melbourne, Australia, 2019; p. 3.
106. Phouthavong, S.; Phimmavong, S.; Keenan, R.J.; Midgley, S.; Gnophanxay, S. Impact of Pulp Mill Project in Laos: Regional and National Level Economic Modeling Analysis. *FORMATH* **2020**, *19*. [[CrossRef](#)]
107. Arvola, A.; Brockhaus, M.; Kallio, M.; Pham, T.T.; Chi, D.T.L.; Long, H.T.; Nawir, A.A.; Phimmavong, S.; Mwamakimullah, R.; Jacovelli, P. What drives smallholder tree growing? Enabling conditions in a changing policy environment. *For. Policy Econ.* **2020**, *116*, 102173. [[CrossRef](#)]
108. Ling, S.; Smith, H.; Xaysavongsa, L.; Laity, R. The Evolution of Certified Teak Grower Groups in Luang Prabang, Lao PDR: An Action Research Approach. *Small Scale For.* **2018**, *17*, 343–360. [[CrossRef](#)]
109. Said, A. *Transaction Costs Associated with Growing and Selling Smallholder Plantation Grown Wood in Lao PDR—Incidence and Mitigations*; ACIAR: Canberra, Australia, 2015.
110. Maraseni, T.N.; Phimmavong, S.; Keenan, R.J.; Vongkhamso, V.; Cockfield, G.; Smith, H. Financial returns for different actors in a teak timber value chain in Paklay District, Lao PDR. *Land Use Policy* **2018**, *75*, 145–154. [[CrossRef](#)]
111. Maryudi, A.; Myers, R. Renting legality: How FLEGT is reinforcing power relations in Indonesian furniture production networks. *Geoforum* **2018**, *97*, 46–53. [[CrossRef](#)] [[PubMed](#)]
112. Maryudi, A.; Acheampong, E.; Rutt, R.L.; Myers, R.; Dermott, C.L. “A Level Playing Field”?—What an Environmental Justice Lens Can Tell us about Who Gets Leveled in the Forest Law Enforcement, Governance and Trade Action Plan. *Soc. Nat. Resour.* **2020**, *33*, 859–875. [[CrossRef](#)]
113. To, P.X.; Dang, Q.V. Village Based Wood Products Manufacturing in Vietnam: Implications for FLEGT and REDD+ implementation. In *Information Brief No 5; Forest Trends*: Washington, DC, USA, 2012.

114. Smith, H. *Rethinking the Role of Traders, Micro, Small and Medium Enterprises in Efficient Plantation-Wood Markets: Insights from Laos*; ACIAR Project FST/2016/151; Advancing Enhanced Wood Manufacturing Industries in Lao PDR and Australia: Canberra, Australia, 2021.
115. RECOFTC. *Facilitating Agreements for Community-Private Sector Partnerships in Forest Landscapes in Lao PDR*; Center for People and Forests is an International Organization: Bangkok, Thailand, 2021; p. 56.
116. Nguyen, V.Q.; To, X.P.; Nguyen, T.Q.; Cao, T.C. *Linking Smallholder Plantations to Global Markets: Lessons from the IKEA Model in Vietnam*; Forest Trends: Washington, DC, USA, 2018.
117. Vicol, M.; Neilson, J.; Hartatri, D.F.S.; Cooper, P. Upgrading for whom? Relationship coffee, value chain interventions and rural development in Indonesia. *World Dev.* **2018**, *110*, 26–37. [[CrossRef](#)]
118. Ferguson, I. Australian plantations: Mixed signals ahead. *Int. For. Rev.* **2014**, *16*, 160–171. [[CrossRef](#)]