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## Social Outcomes from Tree Plantations Development in Central and Southern Lao PDR: Evidence from 6 Villages

By Keith Barney, Alex van Der Meer Simo, Thu Ba Huynh and Peter Kanowski

### Summary

The Government of Laos (GoL) views commercial plantation forestry as a key sector for promoting economic development in rural areas, particularly in upland and priority poor districts. Commercial timber plantations have been implemented through different investment ‘models’, such as company-led concessions, agroforestry systems, contract farming arrangements, smallholder-led plantations, and village lease schemes. Foreign investors in plantations have used different models to access land for plantation development under past land concessions. Evidence from household surveys and participant-observation in six villages in central and southern Lao PDR indicate that these different models of commercial timber plantations concessions have different outcomes for local livelihoods.

Under the right conditions, foreign investment in plantations has significantly improved local incomes and provided wider community benefits. These outcomes require local participatory planning to identify suitable land, engaging local people in regular, appropriately-paid employment, providing lease payments to community members and satisfactory contributions to community development funds. Unless these conditions are in place, some households can earn equivalent or greater incomes from traditional uses of degraded forest-lands or be worse off with plantation projects. To maximize the local benefits from tree plantation investment, plantation companies and governments should adopt local landscape planning that recognises diverse local land-uses; ensure adequate local employment income and land leasing payments, and improve communication and collaboration between communities and private companies in timber production and forest conservation.

### Recommendations

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Household livelihood strategies in rural Laos are diverse. Commercial plantations projects should take account of these livelihood strategies and the ‘environmental incomes’ they generate from ‘degraded’ forest. Companies and government should ensure that plantation development provides improved livelihoods for those communities compared to the pre-plantation situation. by: payment of competitive land rental fees or land compensation; provision of extensive labour benefits to local people; facilitating intercropping systems in the plantations; and retention of sufficient land for households to continue rotational swidden systems.

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Land use planning and land allocation for plantations should respect the wishes and needs of communities about land and forest use. High-practice standards for Participatory Land Use Planning and Free Prior and Informed Consent should be incorporated into all land use planning policies and land development mechanisms; and a comprehensive, viable system for the recognition of customary tenure and communal land titling should be developed. Models for commercial tree plantation development should be based upon locally-tailored design options; these could serve as a stronger foundation for company-community collaborations and public-private sector partnerships.

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The GoL should consider policy options that: (i) facilitate more substantial and secure employment benefits, (ii) support innovative land leasing arrangements, enabling locally-controlled, community-private sector partnerships; (iii) support more independent commercial smallholder tree growing, to complement and amplify company-led plantations.

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## INTRODUCTION

The Government of Laos (GoL) views commercial plantation forestry as a key sector for promoting economic development in rural areas, particularly in the nation's upland and priority-poor districts. Commercial timber plantations have been implemented in the country through different investment 'models', that can be broadly classified into company-led concessions, agroforestry systems, contract farming arrangements, smallholder-led plantations, and village lease schemes (Phimmavong et al., 2009, Kenney-Lazar, 2016). In a shift away from the common 'top down' approach to land development, some plantation companies in Laos have adopted a more locally-responsive approach (see New Generation Plantations, 2017). In March 2016, the GoL announced that handful of leading investors, including Burapha Agro-Forestry and Stora Enso Laos, were exempt from a 2012 moratorium on new eucalyptus concessions, permitting them to continue with their plantation development programme (Vientiane Times, 2016). However, there has been limited independent research on the livelihood outcomes of these firms' participatory plantation agroforestry model, or that from other plantation models (Manivong and Cramb, 2008, Midgley et al., 2017). To contribute to commercial plantation policy development in Lao PDR, this briefing note discusses the livelihood outcomes from five distinct plantation models, in six case study villages in central and southern Laos.

## RESEARCH DESIGN

The six field sites were randomly selected, based upon the presence of a minimum area (50 hectares) of commercial tree plantations in their communities:<sup>1</sup>

- A state-allocated, concession-based, eucalyptus plantation site, managed by a corporate timberland investor (Birla Lao Pulp and Plantations, BLPP), in Atsapangthong district, Savannakhet province (fieldwork led by Barney)
- A village-allocated concession site, involving a eucalyptus alley crop agroforestry plantation managed by a corporate timberland investor (Stora Enso Laos, SEL), in Xepon district Savannakhet province (van der Meer Simo)
- A village allocated concession site, involving a eucalyptus alley crop agroforestry plantation managed by a corporate timberland investor (Stora Enso Laos, SEL), in Ta Oy district, Salavane province (Barney)
- A district-allocated land concession site, involving a eucalyptus alley crop agroforestry plantation managed by a corporate timberland investor (Burapha Agroforestry), in Hinheup district, Vientiane province (van der Meer Simo)<sup>2</sup>
- A eucalyptus contract farming site, involving smallholder management of outgrower plantations, in collaboration with a corporate timberland investor (Oji-Lao Plantation Forestry, LPFL), in Pakkading district, Bolikhamxai province (van der Meer Simo)
- An independent smallholder site, where farmers have developed an agroforestry system combining yang bong (*Persea kurzii*) trees and annual crops, in Nong district, Savannakhet province (van der Meer Simo)

Data was derived from household (HH) surveys and extended participant-observation. The surveys were conducted with nearly 150 randomly selected HH in the above six case field sites (approx. 25 HH/community). Similar but not identical research methodologies and research time periods were

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<sup>1</sup> To maintain confidentiality, all case study villages are named after the district in which they are located – e.g. Ban Nong for the village located in Nong district.

<sup>2</sup> As a consequence of the land concession, farmers whose upland swidden agriculture plots fell within the concession decided to convert these plots into the eucalyptus agroforestry system too.

followed by the fieldwork teams led by Barney and Van der Meer Simo, and due to these variations, their key findings are highlighted sequentially. Data were collected between June 2016 and February 2017.

## KEY FINDINGS

### (i) Comparing an 'Agroforestry' and a 'Concession' Model Plantation Project

In Barney's comparative fieldwork, conducted between July 2016 and February 2017, an ethnic minority village participating in a eucalyptus alley cropping agroforestry model (involving SEL, in Ta Oy district, Salavane) was contrasted with an ethnic Lao village's experiences with a traditional concession-style, eucalyptus plantation model (involving BLPP, in Atsapangthong district, Savannakhet).

*Table 1: Comparative Village Livelihood Summary*

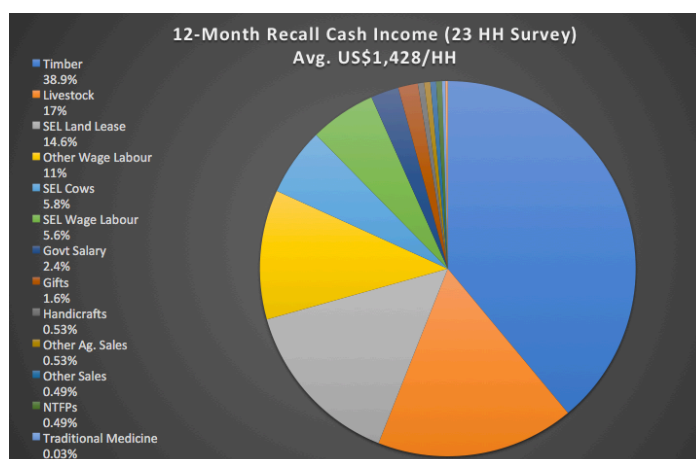
Village/Indicator	Ta Oy District Village (n= 23) (SEL Eucalyptus Agroforestry Model)	Atsapangthong District Village (n= 24) (BLPP Eucalyptus Concession Model)
Village Area	1,712 ha.	2,317 ha.
Plantation Area	66 ha. (4% of village area)	583 ha. (25% of village area)
Village Population	279 persons (47 HH)	1,939 persons (277 HH)
Rice Production	Upland swidden, rainfed paddy, irrigated paddy	Rainfed paddy
HH Rice Security	7.7 months	11.1 months
Avg. HH Annual Income	\$1,428	\$3,061
Avg. HH Annual Expenditures	\$1,262	\$1,929
Avg. HH Debt	\$205 (Nanyoby Bank)	\$77
Outmigration	2 male students	37 persons (18 males, 13 females)
Avg. HH Remittances	Nil.	\$795

*\*Note: reported HH income, expenditure, savings, and debts did not always balance. Financial figures in USD equivalent.*

Reported community income data revealed notable patterns between the two communities. In Ta Oy village, Salavane province, the main income sources were reported as: (i) illegal natural forest timber sales, (ii) livestock sales, (iii) SEL land lease income. Overall income from the SEL project (including village land lease fees, plantation labour and a company livestock programme) represented 26% of total household income for 2016 (see Chart 1). **These quite significant community benefits were derived from a plantation concession area that represented less than 4% of the village's territory.** <sup>3</sup>

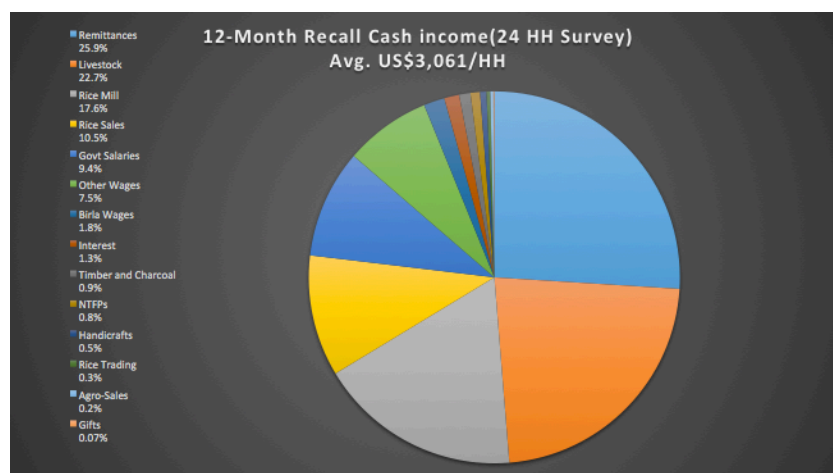
<sup>3</sup> Research results were dependant upon the time in the plantation cycle during which the data was collected, which could not be controlled for in this study.

Chart 1: 12-Month Income in Ta Oy Village (Stora Enso Laos project), 2016



In the ethnic Lao Atsapangthong village, Savannakhet province, average incomes were double in comparison with their compatriots in upland Ta Oy district (as seen in Table 1). Here, the main income sources amongst surveyed households were: (i) financial remittances (particularly from village youth working in Thailand or Vientiane), (ii) livestock sales, and (iii/iv) income from the rice economy. Plantation labour with BLPP (“Birla Wages”) represented just 2% of average household income, although this did play a more significant role for some poorer surveyed households (see Chart 2). **These rather modest benefits were derived from a plantation concession area representing 25% of the village’s territorial area.**

Chart 2: 12-Month Income in Atsapangthong Village (Birla Laos Pulp & Plantations project), 2016



Overall village perceptions of the two plantation initiatives are summarised in Table 2.

Table 2: Comparative Village Summary of Livelihood Outcomes

Village/Indicator	Ta Oy District Village (SEL)	Atsapangthong District Village (BLPP)
<b>HH Participation in Plantation Zoning</b>	19/20 report HH consultations (3 no response)	9/24 report HH consultations
<b>Previous Land Tenure</b>	Communal swidden fallow forest-land	Informal household reserved land ( <i>din jap jong</i> )
<b>Previous Land Cover</b>	Young to intermediate swidden fallow	Natural dry dipterocarp forest, with large trees
<b>Impacts of Land Acquisition</b>	Loss of swidden land, with compensation	8/24 report losing <i>din jap jong</i> , 7 without compensation
<b>Access to Forest and Non-</b>	16/23 report loss of access to	17/24 report loss of access to

Timber Products (NTFPs)	NTFPs	timber and NTFPs
Impacts on Food Security	16/23 positive impacts, 7/23 mixed	20/24 report negative impacts
Contribution to Livelihoods	19/23 report positive impacts	3/24 report positive impacts, 7/24 report being worse off
Overall Well-Being from 5 Years Previous	23/23 HH report improved livelihoods (100%)	13/24 report improved livelihoods (54%, largely due to remittances)
Overall Views on the Project & Potential Expansion <sup>4</sup>	4/23 very positive; 7/23 somewhat positive; 1 mixed; 10 negative	9/24 approve, 15/24 disapprove

The survey results also indicated a significant variation in community perceptions of the two models. In the Ta Oy (SEL) case (an ethnic minority community), villagers were much more likely to report being consulted on the project, involved through participatory land use planning (PLUP), compensation for land, and positive impacts on both food security and livelihoods. Notably, all surveyed Ta Oy village households reported livelihood improvements in the last 5 years. However, this did not always translate into full support for agroforestry plantation expansion. Preferences for livelihood autonomy, and a risk-averse ethic, may shape preferences between immediate needs and potential future rewards. This may also be related to a more practical assessment of the growing value of land in Lao PDR and future opportunity cost. In the Atsapangthong (BLPP) case (an ethnic Lao community), there was little evidence of PLUP, natural forest was cleared for plantations, and many villagers lost access to informal *jap jong* forest-land due to an inability to pay land taxes. The village received no external support or legal advice in managing this issue. A significant number of HH reported being made worse off by the project, and a majority disapproved of the company's approach.

## (ii) Comparing A Wider Range of Plantation Models

Here we provide a comparative examination of the livelihood outcomes of additional tree plantations models, based upon the surveys conducted by Van der Meer Simo. The models analysed below include agroforestry concessions, contracted outgrowers, village leases, and smallholder-led arrangements.

### *Perceptions of well-being*

Commercial tree plantations had different effects on household livelihoods. As with a number of other studies investigating land concessions in Laos (e.g. Baird and Barney, 2017, Hett et al., 2015, Kenney-Lazar, 2012), respondents in three out of four villages in van der Meer Simo's study noted grievances with land concessions<sup>5</sup>. Informants recalled that a lack of consultation had preceded the land concessions and reported that they were displaced from household farm plots or lost access to common resources, with negative impacts on their livelihoods.

However, 70% of the sampled population in van der Meer Simo's study still attributed at least some livelihood benefits to the development of commercial tree plantations. In Ban Hinheub, the Burapha Agroforestry project contracted local households to clear areas of fallow and bamboo within the concession, with each household then responsible for plantation management (including planting, thinning and maintaining trees) in these areas, with the additional option of intercropping. In this community, all sampled contracted households attributed livelihood improvements to the tree

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<sup>4</sup> In Ta Oy village, respondents were asked about their perceptions on the SEL project and about their interest in allocating more land to the agroforestry scheme (since this is a potential future option). In Atsapangthong village, respondents were only asked about their perceptions of the overall project, since there is no scope or proposal for further project expansion in this village.

<sup>5</sup> In two of these cases, these grievances were associated with concessions other than those we were studying.

plantation project, even though there were reported irregularities with the land allocation process (Lao Post, 2015). Respondents in Ban Pakkading reported that, in compensation for the concession of 170 hectares of land, Oji LPFL paid US \$8,640 into a Village Development Fund (VDF), which was used to pay for electricity connections. Similarly, in Ban Nong, SEL provided a VDF of US \$30,800, that paid for the construction of water infrastructure that supplies approximately 90% of households in the village, representing a significant livelihood benefit.

In Ban Pakkading, many informants were concerned with the poor performance of the contract outgrower arrangements with Oji-LPFL, because the company did not buy planted trees. In addition, Oji-LPFL advised farmers to sell their trees to a nearby plywood mill through an intermediary middleman. Only 37% of villagers who planted trees were able to sell them through the middleman. Although trees had been harvested over six months prior to our fieldwork, this middleman had not honoured the whole contract and owed over \$9,500 to these smallholders.

### *Economic returns to smallholders from plantations*

The proportion of annual incomes from plantations (in the 12 months prior to data collection) were 64% in Ban Hinheub<sup>6</sup> in Vientiane Province, 38% in Ban Xepon in Savannakhet Province and 9% of the total HH income in Ban Nong (Savannakhet) and Ban Pakkading (Bolixamxai); In absolute terms, commercial tree plantations were the largest source of annual income in Ban Hinheub and Ban Xepon, where households earned \$3,820 and \$2,362 on average. This is additional income to households not available to them previously.

In contrast, eucalypt contract farmers in Ban Pakkading made a more modest amount of \$623 seven years after trees were planted, and Ban Nong households working in the eucalyptus agroforestry concession obtained \$203 in the 12-months prior to data collection. These plantation-derived incomes depend on a wide range of factors, including the extent of land allocated to plantation forestry, the labour opportunities provided, and the capacity of households to negotiate prices for their plantation products. Further, because commercial tree plantations are a relatively long-term crop, these results depend on the moment within the plantation cycle at which data were collected<sup>7</sup>.

Table 3 below summarises the net present value (NPV) of different plantation models in Van der Meer Simo's field sites, using lower and upper bound discount rate of 5% and 12.5%, respectively. Three of these are eucalypts, and one (Ban Xepon) yang bong (*Persea kurzii*). We compare these values – where possible – to those that the project proponents projected before the establishment of the plantations, as well as to local alternative land uses, including swidden agriculture and village leases for banana plantations. Of the industry-led commercial tree plantation models, the SEL plantation in Ban Nong generated the highest NPV for the five households that cultivated rice in the first year of the plantation. If this income from rice cultivation was excluded (because few households practised it), the highest NPV for households was generated by the Burapha plantation in Ban Hinheub, largely because of the greater returns from labour compared to other models. Under current market prices, NPV to smallholders in Savannakhet were greatest from independent yang bong-growing. However, the capacity of the market to absorb large quantities of this product is uncertain.

In Ban Nong, if the subsistence income from growing rice in swidden is converted to a cash value, the NPV from plantations was similar to that from swidden agriculture. This might help explain why smallholders in Ban Nong were less interested in the potential expansion of plantations. In Ban Xepon, the NPV from smallholder families leasing land to Vietnamese companies for banana plantations was higher than those from tree plantations in the other villages. Smallholder plantation owners in Ban Xepon also valued that they had secure rights to farm land that they could transfer to

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<sup>6</sup> Total income calculated as sum of cash and non-cash equivalent values (see Angelsen et al. 2014).

<sup>7</sup> In general, concession type plantations provide more labour opportunities during the first years of the plantation cycle whereas contract farming and independently-established plantations tend to return benefits at the end of a plantation cycle.



future generations or eventually convert to more profitable cash-crops. Respondents in Ban Xepon noted that they may consider converting their own *yang bong* agroforestry plots to banana leases, if the lease prices that Vietnamese companies offer continued to increase.

**Table 3:** NPV from different types of land-use in four field sites

Village and Plantation Model	NPV/ha 7-year cycle (5% discount rate) 1 USD = 8,112 LAK	NPV/ha 7-year cycle (12.5% discount rate) 1 USD = 8,112 LAK
<b><i>Ban Hinheub (BUFARCO) – Land sharing with farmer labour</i></b>		
Projections <sup>8</sup>	\$1,566	\$1,401
Documented smallholder returns	\$1,233	\$1,090
<b><i>Ban Nong (SEL) – Land sharing with company-managed labour</i></b>		
Projections <sup>9</sup>	\$2,064	\$1,810
Documented smallholder returns (rice intercropped in year 1 of the plantation cycle)	\$1,651	\$1,425
Documented smallholder returns (no rice intercropped in year 1 of the plantation cycle)	\$1,143	\$951
Swidden agriculture <sup>10</sup>	\$1,290	\$1,001
<b><i>Ban Pakkading (OJI LPFL) – eucalyptus contract farming</i></b>		
Projections <sup>11</sup>	\$1,332	\$821
Documented smallholder returns <sup>12</sup>	\$398	\$248
<b><i>Ban Xepon – Smallholder-led agroforestry plantation</i></b>		
Documented smallholder returns	\$3,552	\$2,541
Land leased to Vietnamese companies for banana plantations <sup>13</sup>	\$1,881	\$1,460

## CONCLUSIONS

The research found that household livelihood strategies are highly diverse, and the non-cash economy from using natural forests remains important. Income streams from plantations, agroforestry and land leasing were significant in many of the study villages. Under the right conditions, commercial plantations can stimulate local economic activities at village level and provide a pathway to higher value/more intensive agricultural production. However, plantations projects that offer low compensation or lease rates for land, and limited labour opportunities to communities, are unlikely to contribute to improved livelihoods. Where markets exist, Lao farmers can also establish successful independent agroforestry systems. The findings are consistent with the expectation that

<sup>8</sup> Plantation offers labour opportunities equal to US\$ 1011/ha (162 labour days per hectare over 7 years cycle and daily wages at US\$ 6.2). Burapha Agroforestry grants a VDF at US\$ 350/ha, which in this case respondents reported to not have received. We did not have data from Burapha Agroforestry on potential inter-alley rice harvest. Based on van der Meer Simo's estimations, the average value of the harvested rice in year 1 of the 7-year cycle was US\$ 340/ha.

<sup>9</sup> Plantation offers labour opportunities equal to US\$ 690/ha (112 days needed per hectare over 7 years cycle and daily at US\$ 6.2). The company grants a VDF at US\$ 350/ha. Based on SEL's estimations in a 'model' village, smallholders can harvest rice valued at US\$ 967/ha in year 1 of the 7-year plantation cycle. Based on van der Meer Simo's estimations, smallholders harvested rice valued at US\$ 124/ha in year 2 of the 7-year plantation cycle.

<sup>10</sup> Based on van der Meer Simo's estimates, the returns from swidden land in this village corresponded to US\$ 223/ha/year.

<sup>11</sup> Oji LPFL estimated potential harvest at 189 tonnes of wood per hectare. Oji LPFL had agreed to purchase wood at US\$ 14.8 per ton 7 years after planting. Oji LPFL provided a loan for inputs to smallholders valued at US\$ 226/ha, which smallholders agreed to repay when selling wood.

<sup>12</sup> As noted in the text, these growers did not receive full payment from a middleman for their trees.

<sup>13</sup> Reported lease rates in the pre-2016 period ranged from \$ 115/ha/year to \$ 569/ha/year, averaging \$ 325/ha/year.

smallholders can respond to market opportunities and establish fruitful commercial tree plantations, if given the right incentives and opportunities.

In this context, commercial plantations projects should take account of these livelihood practices, the 'environmental incomes' they generate, and the dependencies of poor households on natural resources, including degraded forest. Land use planning and land allocation for plantations should value these multi-functional, locally-managed forest-lands, and respect the wishes and needs of communities about their use, including for communal uses and household swidden agriculture. High-practice standards for Participatory Land Use Planning and Free Prior and Informed Consent should be incorporated into all land use planning policies and land development mechanisms; and a comprehensive, viable system for the recognition of customary tenure and communal land titling should be developed.

Tree plantation policies in Laos should place more emphasis on supporting productive company-community collaborations, and more independent commercial smallholder tree growing, to complement and amplify company-led plantations.. Communities should be enabled to engage with private firms on more equal terms, with adequate external advice and technical support from independent institutions and civil society actors. Increased attention to company-community collaborations, including more farmer-designed and locally-adapted agro-forestry systems, could enhance equitable benefit sharing, and establish more enduring partnerships.

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