

Poverty - Environment Initiative (PEI) Lao PDR



Assessment of Economic, Social and Environmental Costs and Benefits of Wood Processing Investments: Case Study in Saravan Province



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Data used in this research is obtained from official statistics, published literature and field surveys carried out between May and December 2010, with reasonable efforts to ensure that these are factually correct.

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Contents

1. Introduction.....	6
1.1. Rationale and background of the project	6
1.2. Research objectives.....	6
1.3. Research methodologies and activities.....	7
2. Overview of the wood processing industry in Saravan Province	8
3. Economic, social and environmental impacts of the wood processing industry at the local level.....	10
3.1. The case study area.....	11
3.2. The wood processing industry in the case study area	17
3.3. Economic, social and environmental impacts of the wood processing industry in the case study area	19
3.3.1. Economic impacts	19
3.3.2. Social impacts	20
3.3.3. Environmental impacts	23
4. Conclusion and recommendations.....	24
Document references.....	27
Appendices.....	28

Table Contents

<i>Table 1: Land area of sampling villages (ha).....</i>	13
<i>Table 2: Age structure of population in the case study area</i>	13
<i>Table 3: Education structure of population in case study area, percentage</i>	14
<i>Table 4: Occupation structure of population in the case study area.....</i>	14
<i>Table 5: Total production value in case study area</i>	15
<i>Table 6: Economic structure in case study area, by sector, percentage of total production value</i>	16
<i>Table 7: Poverty rates in the case study area.....</i>	17

Figure Contents

<i>Figure 1: Income structure in case study area, 2005.....</i>	21
<i>Figure 2: Income structure in case study area, 2010.....</i>	21

Map Contents

<i>Map 1: Case study area.....</i>	122
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Picture Contents

<i>Picture 1: Semi-processed floorboards for export</i>	10
<i>Picture 2: Inside Vanda Wood Processing Factory.....</i>	18
<i>Picture 3: Operating machinery in Viengthong Inthasid Wood Processing Factory.....</i>	22

Acronyms and Abbreviations

ECC:	Environmental Compliance Certificate
ESIA:	Environmental and Social Impact Assessment
FDI:	Foreign Direct Investment
GDP:	Gross Domestic Product
GoL	Government of Lao PDR
Ha	Hectares
IUCN:	International Union for Conservation of Nature
Km	Kilometer
LAK:	Lao Kip
Lao PDR:	Lao People's Democratic Republic
MAF:	The Ministry of Agriculture and Forestry
MOIC:	The Ministry of Industry and Commerce
MOU:	Memorandum of Understanding
MPI:	The Ministry of Planning and Investment
NERI:	The National Economic Research Institute
NGO:	Non Government Organization
NTFP:	Non Timber Forest Product
PA:	Participatory Assessment
PAFO:	Provincial Agriculture and Forestry Office
PDIC:	Provincial Department for Industry and Commerce
PDPI:	Provincial Department for Planning and Investment
PFA:	Production Forest Area
PLMO:	Provincial Land Management Office
PWREO:	Provincial Water Resource and Environment Office
UNDP:	United Nations Development Program
USD:	United States Dollar
WREA:	Water Resources and Environmental Administration

1. Introduction

1.1. Rationale and background of the project

Saravan Province's natural resources, including forests and fertile land, have attracted increasing investments over the last decade. Between 2006 and 2009, the accumulated value of investment in the province was about 1,174 billion, with 43.4% of this amount coming from foreign direct investment (FDI).¹ The province's natural resource sectors have attracted the most investment, with most FDI occurring in the agriculture and forestry sector (about 52%, followed by the industrial sector at 44%).

Previous studies and available information on investment in Saravan Province are limited, and do not provide sufficient information regarding the economic, social and environmental impacts of investments, especially at the local level. Therefore, IUCN Lao PDR, NERI and the Saravan provincial authorities, with support from the Poverty Environment Initiative (PEI) in Lao PDR, conducted case studies focusing on evaluating the economic, social and environmental impacts of investment at the community level in villages surrounding two key investment areas. These case studies provide local-level information to support the overall assessment of the costs and benefits of investment in Saravan Province, carried out by IUCN Lao PDR and NERI in 2010. The two case studies selected are:

- Caosu Dak Lak Rubber Plantations in Laongam District;
- Three wood processing facilities located in Saravan and Laongam districts.

The findings of the second case study are presented in this report, which examines the economic, social and environmental costs and benefits associated with three wood processing companies: (1) Viengthong Inthasid Wood Processing Factory located in Kanthalad Village, Saravan District; (2) Vanda Wood Processing Factory located in Kasakyai Village, Saravan District; and (3) Temesangthong Wood Processing Factory located in Temesangthong Village, Laongam District.

1.2. Research objectives

The case study aims to examine the following impacts of the investment:

Economic impacts: this section aims to clarify how the wood processing companies create employment and income generation activities for local people, as well as how they contribute to community development and to government revenues;

¹ Saravan IPD. 2010. *Investment Datasheet*.

Social impacts: this section examines how the wood industry affects the livelihoods of local people, as well as what are the social benefits, risks and threats related to the industry for local people;

Environmental impacts: this section explores the investment's impacts on local forests, non-timber forest products (NTFPs), water resources and biodiversity, paying attention to the inter-linkages between social and environmental impacts in the Lao context.

1.3. Research methodologies and activities

To achieve the research objectives outlined above, as well as to promote local involvement and inter-agency cooperation in the project, a research team was formed in Saravan Province, comprising researchers from NERI and representatives from the key provincial departments and agencies involved in investment promotion and management, including PDPI, PAFO, WREO, PLMO, PDIC, the Governor's Office, and so on. While the research conducted in the province was lead by NERI, the team worked together to gather all the necessary data from various sectors in the province, as well as to carry out the case studies. The research methods for the case studies included both desk-based research and participatory assessment approach, as outlined below:

- *Literature review:* The research team collected documents including previous research publications related to investment, social and environmental issues, as well as monthly, quarterly and yearly development reports and data from several government departments, for Saravan Province and the case study districts, as well as laws, regulation and agreements related to the wood processing industry in Saravan Province.
- *Focus group discussions (participatory assessment):* The research team organized focus group discussions with provincial government departments related directly to investment management such as the Department for Planning and Investment (PDPI) and the Agriculture and Forestry Office (PAFO). In addition, focus group discussions were held with: (1) the management teams of the wood processing companies; and (2) villagers in three villages in the case study area (Temesangthong, Kanthalad and Kasakyai villages).
- *Individual interviews:* In order to get more detailed information, the research team also conducted individual interviews with key informants. 20 people employed in the wood processing factories were interviewed.
- *Village profile surveys:* The research team surveyed three sampling villages, each located close to one of the three wood processing companies. They were Temesanthong,

Kanthalad and Kasakyai villages. (The survey used the questionnaire form attached at Appendix 1).

- *Enterprise survey:* The research team also interviewed a total of 10 business enterprises related to the selected wood processing companies. These included restaurants, bars and farmer households producing and providing food to the wood processing factories.

In order to provide a comprehensive picture of the economic, social and environmental impacts of the wood processing companies, this report will first review the status of the wood processing industry in Saravan Province. It will then provide background information on the selected companies and case study villages, and assess the associated economic, social and environmental impacts based on the findings of the research.

2. Overview of the wood processing industry in Saravan Province

Policy and regulations related to the wood processing industry: In line with central government policies and due to environmental concerns, Saravan Province manages and controls the wood processing industry largely by determining a wood supply quota for each factory and by promoting the production and export of finished wood products. At the national level, the Ministry of Information and Commerce (MOIC) data on log supplies indicates that the Lao PDR annual quota has been around 300,000m³ over the past three years, with about two-thirds coming from land clearance for infrastructure projects, and the remainder from natural forest production and a small contribution from plantations.² The Government of Lao PDR (GoL) has prohibited the export of raw wood since 2006 (with the exception of certain exports of logs from sites cleared for infrastructure projects). The wood quota allocation is based on the size of the factory: a large factory will receive about 300 cubic meters of wood per year and medium and small scale factories receive about 100 cubic meters per year.³ Saravan Province also requires processing factories to process wood, at least to the stage of semi-processed, before exporting. This imposes additional financial and time costs for companies, but also aims to increase the value-added of Lao wood products.

In addition, the GoL has required the closure of smaller, less efficient wood processing companies, categorizing the companies into Groups A, B, or C. Group A companies were considered to be sufficiently well run and equipped to be granted a license to continue operating (128 companies country-wide in 2007). Group B were not complying with the criteria, but being capable of meeting the criteria then qualified for a license after certain improvements had been made (806 companies country wide). Group C were considered as

² Ministry of Agriculture and Forestry (MAF) and Sustainable Forestry for Rural Development (SUFORD) Project. 2009. "Opportunities to Restructure Wood Industries in Lao PDR".

³ Information provided by sampling wood processing factories.

being too poor to improve and were therefore required to close (1,181 companies country-wide).⁴ The log export ban, quota policy and factory closures are the main GoL measures to regulate logging in Lao PDR.

Investment in the wood processing industry in Saravan Province: To date, Saravan Province has around 50 wood processing factories: 17 large-scale; 16 medium-scale; and 17 small scale factories (according to MOIC data, the province had only 6 Group A licensed companies in 2007⁵). The total value of investment value in the sector is estimated to be over USD 130 million, representing about 20% of total investment during the same period, i.e. from 2000-2010. About 60% of the investment was FDI and the remaining 40% is private domestic investment. The biggest share of FDI in the provinces wood sector comes from Thailand, accounting for about 55% of total FDI in the sector, followed by investment from Vietnam and China, contributing to about 45% of FDI in the sector, combined.⁶

Economic role of the wood processing industry: Due to the province's rich forest resources and large amounts of investment flowing into the sector, the wood processing industry has become one of the most important in Saravan Province. In 2009, the industry employed a total of 1,676 people, of which 383 were foreigners and 1,293 were Lao nationals, corresponding to about 0.71% of the total labor force in Saravan Province (and to about 3.5% of employees in the non-agriculture sector in the province). The total production value of the industry is estimated to be about USD 6 million a year, contributing to 2.7% of the total production value of Saravan Province in 2009. The wood processing industry is also the most important export industry in the province. In 2009, the total value of wood and wood products exported from Saravan was about USD 3.6 million, corresponding to 56.3% of the province's total export value that year.⁷ (The total value of recorded wood exports from the country as a whole in 2007-2008 was approximately USD 1.3 billion).⁸

Major wood products of Saravan Province: The largest share (about 80%) of wood products from Saravan Province are semi-processed products, including sawn timber and furniture parts. Final products account for only about 20%⁹, and the most important include wood flooring, architraves, doors and windows, and wooden furniture. The final products are destined for the domestic market while a large share of semi-processed wood products is for export.

Export share and market: Most of the wood and wood products from Saravan Province are exported (80%), with only about 20% sold domestically. The biggest export market for wood and

⁴ MOIC data from 2007 cited in MAF & SUFORD, 2009.

⁵ MAF & SUFORD, 2009.

⁶ Saravan IPD. 2010. *Investment Datasheet*.

⁷ Saravan Provincial Department for Industry and Commerce (PDIC), 2010. *Implementation of Fifth Five Year Plan for the Development of the Processing Industry and Trade (2006-2010)*.

⁸ MAF & SUFORD, 2009.

⁹ Saravan PDIC, 2010.

wood products from Saravan Province is Thailand; about 80% of the province's total wood exports are destined for Thailand. About 10% of wood and wood products are exported to Vietnam and the remaining 10% are exported to China.¹⁰ The picture below shows semi-processed products, like sawnwood and floorboards, produced for export in Saravan Province.

Picture 1: Semi-processed floorboards for export



Source: Photographed by research team during case study

Trends in the Saravan wood processing industry: The wood processing industry in Saravan Province shows a declining trend. The decreasing forest resource and wood quota polices means that there are shortages of raw materials, and over the past few years many processing facilities have been shut in the province. This reflects the situation in the wood processing industry country-wide, which, despite GoL efforts to streamline and regulate the industry, it still suffers from relative inefficiency, low recovery rates and low profitability.¹¹

3. Economic, social and environmental impacts of the wood processing industry at the local level

The main objective of this section is to assess the economic, social and environmental impacts of the wood processing industry at the local community level in three villages surrounding three selected wood processing companies. This will include an examination of the character of the wood processing industry in the case study area, a profile of the case study villages and

¹⁰ Saravan PDIC, 2010.

¹¹ MAF & SUFORD, 2009.

exploration of the impacts of the industry in the local area. The three wood processing companies selected are:

- Viengthong Inthasid Wood Processing Factory located in Kanthalad Village, Saravan District;
- Vanda Wood Processing Factory located in Kasakyai Village, Saravan District; and
- Temesangthong Wood Processing Factory located in Temesangthong Village, Laongam District.

These factories were chosen due to their relatively large size and level of renown. Two of the factories (Temesangthong Wood Processing Factory and Vanda Wood Processing Factory) are among the largest and most famous producers of wooden furniture for the domestic market, as well as exporters of sawn wood, boards and other semi-processed products to Thailand, Vietnam and China. The remaining company (Viengthong Inthasid) is a well-known factory in Saravan Province. The research team believes that the economic, social and environmental impacts of these three companies will provide insight into the impacts of wood the processing industry in Saravan province more broadly.

3.1. The case study area

Geography and natural resources: The case study area for the purposes of this research covers three villages in two districts of Saravan Province:

- Temesangthong Village (ELUE 561m, N15°28'05.6", E 106°11'25.1") in Laongam District;
- Kanthalad Village (ELUE 177m, N15°43'28.8", E106°23'35.5") in Saravan District; and
- Kasakyai Village (ELUE159m, N15°45'13.4", E106°22'03.0") in Saravan District.

Kanthalad and Kasakyai villages are located about 4 km and 10 km from the Saravan provincial town center respectively. Map 1 below shows the villages, factories and forests of the case study area.

The three villages cover a total area of 2,495 hectares (ha). The villages are located in flatland areas of Saravan Province, with fertile agricultural land and forest resources. At present, the three villages have a total combined agricultural land area of 752.3 ha and a forest area of about 1,000 ha, corresponding to about 40% of the village's total land area. These figures indicate that forest cover has degraded and decreased rapidly in recent years, since forests cover represented 47% of the villages' total land area in 2005. The focus groups attribute this to an increase in investment projects, and in legal and illegal logging.

In the three case study villages, the forest cover has decreased from 47% (about 1,175 ha) in 2005 to about 40% (about 1,000 ha) in 2010.¹²

Table 1: Land area of sampling villages (ha)

Villages	Total area (ha)	Residential area (ha)	Production area (ha)	Forest area (ha)
Temesangthong	869.6	140.7	183.4	545.5
Kanthalad	480.4	87.4	211.2	181.8
Kasakyai	1,145.0	514.6	357.7	272.7
Total	2,495.0	742.7	752.3	1,000.0

Source: Village profile surveys

Population and labor force: The three villages in the case study area have a total population of 2,974 people. About 58.3% of the population is working age (15-60 years old) and 32.77% of the population is aged less than 14 years old.¹³ Table 2 below provides more detail on the age structure of the population.

Table 2: Age structure of population in the case study area

Age group	Case study area	Temesangthong Village	Kanthalad Village	Kasakyai Village
<14	32.77	25.76	40.02	32.56
15-60	58.28	64.10	51.77	59.0
60<	8.95	10.14	8.21	8.54
Total	100.0	100.0	100.0	100.0

Source: Village profile surveys

The age structure of the population is a supporting factor for investment, but a large share of the population has a relatively low educational background. The majority are independent farmers engaged in subsistence agriculture and have no experience with employment in industry. This lack of education and work experiences acts as a constraint for attracting investment in the area, especially for the implementation of contract farming, understanding and adherence to contracts, the use of modern techniques and technologies and the capacity to adapt to changing livelihood patterns. About 29.8% of the population has an education level below primary school and only about 8% have completed upper secondary school or higher education, as presented in Table 3.

¹² Based on information gathered from all three villages in the village profile surveys.

¹³ Village profile surveys.

Table 3: Education structure of population in case study area, percentage

Education Level	Case Study area	Temesangthong Village	Kanthalad Village	Kasakyai Village
Illiterate	0.67	1.01	0	1.01
Lower than primary school	3.17	5.07	0	4.45
Primary school	71.48	89.55	60.38	64.55
Lower secondary school	8.45	1.53	10.94	12.89
Upper secondary school	7.26	1.83	9.43	10.45
Higher than secondary school	8.97	1.01	19.25	6.65
Total	100.0	100.0	100.0	100.0

Source: Village profile surveys

In comparison with averages for Saravan Province as a whole, the population in the case study area appears to have better access to educational services, including higher education. About 39.2% of schools and about 43.6% of teachers in the province are found in this area, i.e. in Saravan and Laongam districts.

Occupation structure in the case study area: The majority (about 80%) of the population is engaged in small-scale household subsistence agricultural production (i.e. not an industrialized and modernized mode of production). Table 4 below provides more information on occupations in the case study area.

Table 4: Occupation structure of population in the case study area

Occupation	Case study area	Temesangthong Village (%)	Kanthalad Village (%)	Kasakyai Village (%)
Agriculture	80.00	85	70	85
Trade	4.33	3	5	5
Service	3	2	5	2
Construction	7	5	10	6
General labor ¹⁴	5.67	5	10	2
total	100	100	100	100

Source: Village profile surveys

However, according to the findings from the participatory assessment, although 80% of people are still engaged in it, the dominance of traditional agriculture as the main occupation is

¹⁴ General labor means laboring in various sectors but with no fixed occupation in a sector. The workers in this category change their occupation in accordance with the demand of the labor market, working in agriculture, construction, driving, etc.

changing. Traditional livelihoods in the area are becoming more industrialized as investment projects expand. Currently, about 5.67% of the labor force in the case study area have become workers in industry projects, which although is still a small percentage, represents a new phenomena in the area.

Infrastructure development and integration: The case study area has relatively good infrastructure linking it to the Saravan town center and beyond. Kasakyai and Kanthalad villages are located along the new national road Route 15A connecting Saravan Province with Vietnam. It is about 147 km from Saravan to Vietnam along this road. Presently, the road is under construction and is expected to be completed by 2011, and it will provide the villages with an improved connection to both the Saravan provincial town center and Vietnam. Temesangthong Village is located along the Route 20 (which joins Route 16 at Bachiengchaleungsuk District, Champassak Province); Temesangthong is only about 39 km from the Saravan provincial town center. The telecommunications and information infrastructure in the case study area is also considerably well-developed. Mobile phone networks and television signals cover all three villages. According to findings from the participatory assessment, every household has at least one mobile phone and one television.

Economic indicators in the case study area: in addition to the relatively good road, telecommunications and information infrastructure mentioned above, the case study villages have a relatively higher economic development status, compared to Saravan Province as a whole. In 2009, the total production value of the case study villages was estimated to be about LAK 18,523,000 or about USD 2.3 million. Per capita GDP is estimated to be about LAK 6.21 million per person per year or about USD 731; this is about USD 21 higher than the per capita GDP for Saravan Province on average (USD 710 per person in 2009-2010¹⁵). Table 5 provides more detail on GDP in the case study area.

Table 5: Total production value in case study area

Villages	Total production value (LAK-billion)	Production value per capital (LAK-million)/person	Production value per capital (USD)/person
Temesangthong	6.125	6.21	776
Kanthalad	5.011	6.12	765
Kasakyai	7.387	6.31	
Case study area	18.523	6.21	776

Source: Village profile surveys

¹⁵ Ministry of Planning and Investment (MPI). 2010. *Five Year Plan, 2011-2015* [Draft].

Kasakyai village has an especially high economic status. Its total production value is estimated to be about LAK 7.387 billion (or about USD 0.92 million) in 2009. The average per capita income is estimated to be LAK 6.31 million per person per year or about USD 789 per person per year.

Agriculture, especially crop production, is the main source of income in the case study area. Subsistence agriculture (crop and livestock production) contributes to around 35% of total production value of the case study area. Wages from employment follows. Income from trade and other service activities contributes to about 18 % of the total production value in the case study area (please see Table 6 below).

Table 6: Economic structure in case study area, by sector, percentage of total production value

Income source	Case study area	Temesangthong Village	Kanthalad Village	Kasakyai Village
Crop farming	35.00	80	5	20
Livestock production	12.33	2	15	20
Trade	11.67	3	27	5
Service	6.33	4	0	15
Construction	11.67	5	20	10
Wage	20.00	5	30	25
NTFP	3.00	1	3	5
Total	100.0	100.0	100.0	100.0

Source: Village profile surveys

However, according to village profile surveys, the income structure in the case study area has been changing gradually. The share of income from employment (wages) and from the trade and service sectors has an increasing trend while the share from NTFP collection and livestock production has been declining; this is likely due to deforestation from expanding investments, slash and burn cultivation, as well as increased legal and illegal logging, etc. Figures 1 and 2 in Section 3.3 below show the changing income structure in the sampling villages.

Poverty: based on findings from a participatory poverty assessment conducted during the case study, the area has relatively low incidence of poverty in comparison with the average in Saravan Province. The case study area has only 35 poor households, presenting about 6.7% of the total number of households in the three villages. The overall poverty rate for Saravan Province was 8.1% of households in 2009.¹⁶ Table 6 below provides more detail on the poverty situation in the case study area.

¹⁶ Saravan PDPI. 2010. *Report on Five Year Plan, 2006-2010, and Five Year Plan, 20100-2015* [Draft].

Table 7: Poverty rates in the case study area

Village	Number of HH	Poor HH	Poverty Incidence (%)
Temesangthong Village	202	20	9.90
Kanthalad Village	137	10	7.30
Kasakyai Village	186	5	2.68
Case study area	525	35	6.70

Source: Village profile surveys

Temesangthong Village has the highest number of poor households, 20 in total, which represents 9.9% of its households. Kasakyai is the village with the lowest poverty incidence, amounting to only 2.68% of its households.

3.2. The wood processing industry in the case study area

Three wood processing companies have established wood processing facilities near the three villages that form our case study area. These are described below. It is important to note however that certain information was not provided by the companies, such as the total amount and value of their wood products on an annual basis. This indicates either that there are flaws in the monitoring of this data or that there are inconsistencies that the companies do not wish to disclose.

(1) Temesangthong Wood Processing Factory: This business was established in Temesangthong Village, Laongam District (ELUE174m, N15*48'49.9", E106*23'05.6") in 2005. The factory is in Group A and has a total investment of LAK 42,000 million or about USD 5.3 million. It is a joint venture between Lao and Thai investors and produces wood flooring and sawn wood for export to Thailand, Vietnam and China, as well as for domestic consumption. In fiscal year 2009-2010, the factory processed more than 516 cubic meters¹⁷ of wood products and exported products worth millions of USD.¹⁸ The factory employs between 70 and 150 people, depending on the work available. It receives wood supplies from everywhere in Saravan Province, but especially wood sourced in Laongam, Vapi, Taoy, Samoy and Toumlan districts.¹⁹ The Temesangthong Wood Processing Factory receives a wood quota from the Saravan provincial authority of about

¹⁷ According to Saravan Provincial Department for Industry and Commerce.

¹⁸ Exact export value is not available (company was unable to provide it when asked).

¹⁹ This wood comes from both Production Forest Areas (PFAs) and from clearance for infrastructure projects. Generally, the government/provincial authority controls the wood quota for wood processing factories and encourages them to cut wood in the project area first. If it is not enough, they are also allowed to log in production forest area. However, according to regulation, legal logging must be under control of the concerned agencies such as MAF and PAFO.

300 cubic meters per year (as is usually allocated to large-scale facilities). This is not sufficient for production for the whole of the year according to manager of the factory. Therefore, it also receives wood partly from Champassak Province.²⁰

(2) Vanda Wood Processing Factory: This appears to be the biggest wood processing factory in Saravan Province. The factory was established in 2005 in Kasakyai Village, Saravan District (ELUE174m, N15°48'49.9", E106°23'05.6") with a total investment capital of LAK 62,000 million or about USD 7.8 million. The factory is in Group A and owned by a Lao investor, Mr. Vanda. In fiscal year 2009-2010, the factory processed more than 158 cubic meters of wood²¹ and exported wood flooring and other sawn wood worth millions of USD²² into Thailand, Vietnam and China. The factory employs around 100 people. It receives wood from all over Saravan Province, particularly from Taoy, Samoy and Toumlan districts. The Vanda Wood Processing Factory also receives a wood quota from the provincial authority of about 300 cubic meters per year.

Picture 2: Inside of Vanda Wood Processing Factory



Source: Photographed by research team during case study

In addition, the Vanda Company invests in the rubber plantation sector; the company has been granted a concession of more than 300 ha for 30 years in Saravan District, Saravan Province.

(3) Viengthong Inthasid Wood Processing Factory: This is a medium-scale furniture factory, established in 2005 in Kanthalad Village, Saravan District (ELUE107m, N15°43'48.2", E106°22'49.4") with a total investment capital of LAK 540 million or about USD 67,500. The factory is in Group A and is owned by a Lao investor, Mr. Viengthong Inthasid. The factory

²⁰ According to Temesangthong Wood Processing Factory during case study; the manager also noted that this amount is included in the Champassak wood quota.

²¹ According to Saravan PDIC.

²² Exact export volume is not available from the company.

produces mainly finished wood products to meet domestic demand, including wooden flooring, architrave doors and windows, other doors and window, and wooden furniture such as wardrobes, beds and couches. Normally, the factory employs about 40 people, but in urgent cases, the factory hires extra daily workers from the surrounding area; this sometimes reaches an additional 20 people. The company receives a wood quota of about 100 cubic meters per year, and the wood comes from all over the province, especially from Vapi, Laongam, Taoy, Samoy and Toumlan districts.

3. 3. Economic, social and environmental impacts of the wood processing industry in the case study area

3.3.1. Economic impacts

According to the findings of this case study, the important economic impacts of the wood processing industry in the area are the creation of jobs and other income generating opportunities for local people, through both direct and indirect means. The investments' most direct impact is the employment of people in the industry. According to the surveys, 23 people, corresponding to about 1.3% of the total labor force in the case study area, are employed permanently in the wood processing industry. Most are employed as unskilled workers, including wood cutters, drivers, etc. These people earn a relatively low income: a permanent employee in the wood factories studied receives a monthly salary of about LAK 700,000 (or about USD 87.5). This is higher than the minimum wage fixed in Lao PDR (i.e. 569,000 LAK or USD 71.1).²³ However, people in the case study area mentioned that this salary is quite low in comparison with the heavy load of work that it involves, as well as the relatively high living costs in these locations. Thus the wages do not attract many people to join permanent employment in the wood processing industry.

Consequently, most of the workers employed in the wood processing factories are daily laborers, accounting for approximately 70% of the total number of employees in the three businesses. According to the surveys, about one third of the labor force in the case study area are usually employed in the wood processing industry only seasonally, after harvesting, in order to earn some extra income. Most work as wood carriers and receive a daily wage of about LAK 25,000 (or USD 3.1). Therefore, the wood processing factories are also important sources of additional income for villagers in the case study area.

The investments in the wood processing industry have also created jobs and generated additional income through indirect means, by stimulating investment in related sectors

²³ According to the Ministry of Labour and Social Welfare, *Arrangement No 1450/MLSW*, dated April 30, 2009.

including restaurants, bars, and trade shops and for farming families, who produce and provide food to the wood processing factories. According to the surveys, there are around 20 such businesses that have been established around the three factories (12 businesses around the Viengthong Inthaid factory, 6 around the Temesangthong Factory and 2 around the Vada factory). All of them are small-scale, household-owned and operated businesses and were established after the wood processing factories were set up. The workers at the wood processing factories are their main customers. The total investment value of these supporting business activities is estimated to be around LAK 255 million (or around USD 30,000). These businesses employ more than 30 people. The active contribution of the wood processing industry in the case study area, through both employment and indirect support for local businesses²⁴, has helped the case study area to achieve a relatively high per capita income and relatively low poverty rate in comparison with Saravan Province as a whole.

3.3.2. Social impacts

The wood processing industry in the case study area has contributed to some social changes. These include changes wrought by decrease in natural resources and increase in environmental degradation. Although these are environmental in nature, they can lead to social impacts in the Lao context, where rural communities are often highly dependent on natural resources for their livelihoods. Investment projects and increasingly commercial modes of production that have led to both a decline in natural resources in the case study area and to expanded economic opportunities.

Before the expansion of wood processing and other industries in the case study area, the local communities relied on their abundant natural resources for their livelihoods. Subsistence agriculture, non-timber forest product (NTFP) collection and hunting were the main livelihood activities in the three villages. However, at present, the degradation of natural resources in the area, attributed to increasing trade and investment, has made traditional livelihoods increasingly difficult; at the same time, expanding trade, investment and industrial projects have provided new opportunities such as employment in factories and associated businesses. This change in livelihoods represents a shift from independent, natural resource-based and subsistence livelihoods to more industrialized and modernized ones, in which people are under the control of their employers. The changing income structure presented in the figures below further demonstrates the changing livelihoods in the case study area.

²⁴ It should be noted that Viengthong factory has spurred the establishment of 12 businesses, which is more than the Temesangthong factory and Vada factories combined, with 6 and 2 businesses respectively.

Figure 1: Income structure in case study area, 2005

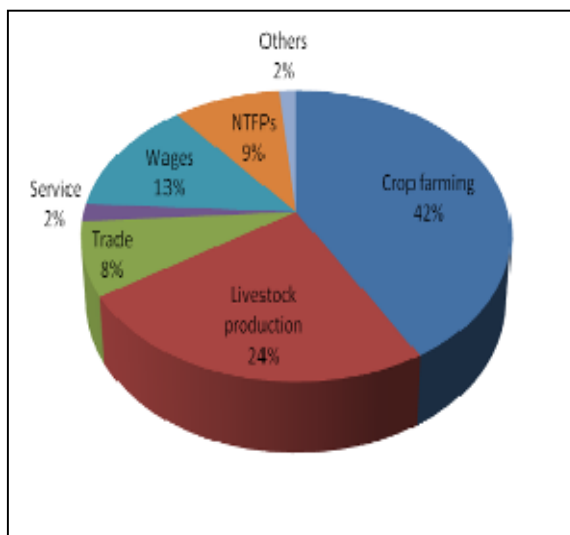
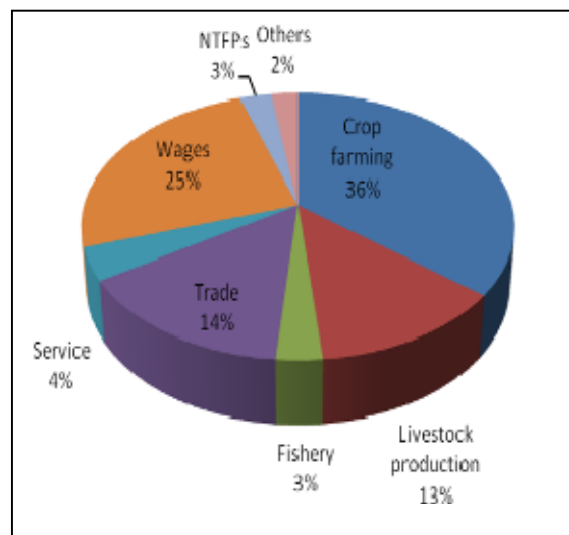


Figure 2: Income structure in case study area, 2010



Source: focus group discussions

As the figures show, income from traditional livelihood activities as such crop farming, livestock production and NTFP collection has decreased from 42%, 24% and 9% in 2005 to 36%, 13% and 3% in 2010, while income from wages, trade and services has substantially increased from 13%, 8% and 2% in 2005 to 25%, 14% and 4% in 2010.²⁵

Despite this movement away from traditional livelihood activities, focus group discussions revealed that most households try to continue subsistence farming as much as they are able, because they fear that wage labor in factories or in other investment projects is unreliable and may not bring in enough money to feed the whole household. Many villagers expressed frustration with the fact that employment in factories and other investment projects has simply resulted in an increase in work, without an increase in quality of life. They also expressed uncertainty and fear about how they will support their families in the future as their community and local economy continues to change.

In addition, as the industry and its employment opportunities are relatively new and poorly regulated, other social impacts have been noted:

²⁵ The researchers had difficulty identifying the cause of the increase in income from fishing between 2005 and 2010. The research team noted during their field work in 2010 that many households had established fish ponds and that some of them were likely used for commercial production. The team suspects that these fish ponds have been promoted due to the decrease in NTFP collection and hunting.

Health impacts, such as work-related injuries: The occurrence of work-related health problems and injuries in the case study area is frequent according to workers interviewed during the surveys. Most cases occur when moving loads of wood and working with the machines, particularly for workers cutting, sawing and transforming the wood into finished products. However, the interviewees for this case study stated that the three companies compensate for injuries by providing some assistance, including covering the treatment cost. In addition, the interviewees informed the research team that the factories have provided them with some information related to workplace safety, especially for those people working with or nearby a machine. The interviewees mentioned that most of accidents have occurred because the workers themselves did not follow the rules and guidelines exactly. However, according to information provided by interviewees and the research team's observation during case study, all three sampling factories did not provide adequate protective equipment to its workers, especially to daily workers. Sometimes, the workers do not wear proper safety clothes, gloves and masks when sawing or grinding wood (see Picture 5 above). Consequently, work-related accidents, such as injuries received during sawing and loading wood, occur frequently in the

Picture 3: Operating machinery in Viengthong Inthasid Wood Processing Factory



Source: Photographed by research team during case study

factories. In addition, the interviewees mentioned that workers in the factories also frequently contract respiratory illnesses which they attribute to breathing in wood particles.

Child labor and impacts on education: Child labour is observable in the case study area. According to the participatory assessment carried out in the three villages, many families encourage their children to drop out of school for employment in the wood processing industry,

due to poverty and/or labour shortages. Some of them are under 14 years of age. That has a negative impact on the education, especially for children at secondary school. During the case study, the research team found several children working as daily laborers at the factories, undertaking task such as collecting and heaping waste wood. According to discussions with secondary school teachers in Kasakyai Village²⁶ and data collected during the surveys, the drop-out rate and repeating grades rate of secondary school children in the village is quite high; it is estimated to be about 7.7% and 7.1%, respectively in the year 2009-2010.²⁷ It should be noted however that child labour is not uncommon in parts of Lao PDR, as children help to earn a livelihood for their families and access to education is not always convenient.

3.3.3. Environmental impacts

The major environmental impact of the wood processing industry in the case study area is its effect on forests, watersheds and biodiversity. According to focus group discussions, substantial areas of the forests of Saravan Province, especially in Saravan, Laongam, Vapi, Taoy and Samoy districts have been cut to supply raw materials for the wood processing industry. Based on the provincial quota policy and the number of wood processing factories in Saravan Province, the total provincial quota of raw materials for the wood processing industry is estimated by the research team to be over 8,400 cubic meters; this estimation excludes any illegal logging and clearing for construction projects (as occurs in Saravan Province and country-wide before the construction of dams, roads, etc).

According to the Saravan Provincial Agriculture and Forestry Office (PAFO), the forest cover in the province has decreased from 707,400 ha (or about 66% of land area) in 2005 to 625,177 ha or about 58% of total provincial area in 2010. On average, Saravan Province's forests have decreased by about 16,445 ha (or 1.5%) each year over the past five years, attributed to increases in both legal and illegal logging, investment and construction projects, as well as slash and burn cultivation.²⁸ In the three case study villages, the forest cover has decreased from 47% (about 1,175 ha) in 2005 to about 40% (about 1,000 ha) in 2010.²⁹

The degradation of forests in the province can be expected to have negative impacts on watersheds, the biodiversity of plant and animal species, and local climate. The focus groups mentioned that their traditional livelihood activities, such as NTFP collection, hunting and fishing, were becoming more difficult and were even impossible in some areas at present. At the same time, the focus groups stated that the quantity of water in local rivers, ponds, swamps, etc, had decreased: in these waterways, people had previously caught fish and collected water but now livelihood activities are reduced and several are now completely dry in the dry season.

²⁶ The two other villages have no secondary school.

²⁷ Data provided by the principal of the secondary school in Kasakyai Village.

²⁸ Saravan PAFO, 2009 *Summary on Implementation of Agriculture and Forestry Production Plan, 2009*.

²⁹ Based on information gathered from all three villages in the village profile surveys.

Box 1. A big change in livelihoods but not in quality of life

The research team spoke with the head of a household in a village in Laongam District, who talked about the livelihood changes caused by damage to forests and other natural resources in his local area. Souk's* household has seven people, including himself, his wife, a son and two daughters. His youngest daughter is will complete secondary school in their village in the coming year.

Souk explained that his household owns three hectares of rice fields and is thus able to produce enough rice for their own consumption. However, to get extra income and food, the family used to collect NTFPs, including vegetables, bamboo shoots, and mushrooms. They also used to hunt wild animals in the forest located around their village and fish in the ponds and rivers nearby after rice harvesting. For a long time, these different activities formed a livelihood for the household. However, Souk says that getting a livelihood is becoming more difficult as natural resources around the village have become degraded. According to Souk, this has been caused by increasing investments, including investment in the wood processing factory. Now they have to travel further and spend a longer time to collect NTFPs, and they only hunt or go fishing from time to time. It's no longer effective to try and earn a livelihood in the traditional way.

So Souk and his son have changed their way of life by looking for daily work with several companies in Saravan Province: sometimes with a wood processing factory and sometimes with rubber plantation companies investing near their village.

The research team also asked Souk about the differences between their current lifestyle and that of the past. He answered that it is very different. Souk said *"Previously, we used to have more freedom; we can work whatever time we want. We might have no money, but we lived sufficiently. Currently, we have to work harder and get more money; our needs and consumption is getting higher and we spend all the money that we receive from work. Consequently, there is no significant change in our quality of life."*

When asked whether he and his son want to leave agriculture to be employed permanently in a factory in Saravan, Souk replied that it would be too risky for them to do that. They can't know for how long the companies want actually want to hire them.

* Not his real name

4. Conclusion and recommendations

The wood industry is important to the economy of Saravan Province. In 2009, the industry had total production value of about USD 6 million, corresponding to 2.7% of the total production value of the province. It employs more than 1,290 local people, representing about 3.5% of all non-agricultural labour. In 2009, the industry was also worth USD 3.6 million in export earnings, corresponding to about 56.3% of the total exports of Saravan province.³⁰ In addition, the wood processing industry has positive impact on economic growth through the indirect contribution

³⁰ Saravan PDIC, 2010.

of stimulating investment in related areas, such as restaurants and food production. Thus, the wood processing industry has positive economic impacts for people in Saravan Province.

However, along with these positive economic impacts, the wood processing industry is also associated with significant negative impacts on natural resources, especially on the province's forests. According to the findings above, logging and conversion of forests for the wood processing industry as well as other investment projects in Saravan Province have contributed to a loss of forest cover and a degradation of forest quality. Traditional practices such as the collection of NTFPs and hunting play an important role in supporting the livelihoods and food security of people in the case study area and the province more widely, but these natural resources are becoming increasingly scarce. Consequently, there have been significant changes experienced in the livelihoods of local people, as also shown in the story in Box 1 below.

It is also important to note that the environmental and social impacts attributed to increased logging and forest conversion have occurred at a time when the wood processing industry is supposedly being increasingly streamlined and regulated. This suggests that the efforts of the central and provincial authorities to regulate the industry and reduce logging are in fact been undermined, potentially from a number of directions, which may include: that facilities that should have been closed are in fact still operating; that illegal and/or unsustainable logging is expanding, such as through logging in forests that should not be logged or the conversion of forests into plantations; and that the industry is not improving in terms of better resource efficiency.

In order to ensure that more benefits flow from investments in the forestry sector and that the industry is able to sustain itself, the focus groups suggested the following:

- *Increase the wages and salaries paid to the factory workers* to better attract and retain local people to work permanently/full-time in the factory. The villagers and employees who participated in this study pointed out that the wages are low in comparison to the workload and risks of this type of employment. It is also considered too uncertain to leave agricultural production for fulltime employment in the factories. In the present situation, most people only wish to work in the factory in their free time (i.e. after harvesting). For those who do work fulltime in the factory, they must give up much of their agricultural work, which means they must spend more money on food. These workers also find that their factory income is not enough to cover the increase in expenses. While their current wages are above the Lao national minimum wage, they feel that they are not being paid a "living wage".
- *Contribute more to community development.* None of the three companies surveyed for this case study make any contribution to village development funds, infrastructure of

facilities, or support local events/activities, in the case study areas. The community would like to see the companies do more of these positive things in their community.

- *Plant trees to replace those lost to logging.* As well as helping to restore a natural resource important to local people, this also helps to maintain future timber supplies in the long-term for the industry and demonstrates a level of corporate social responsibility.

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APPENDIX 1

INFORMATION COLLECTION FORM AT VILLAGE LEVEL

Form ID: _ _ _

General Information

Province:

<input type="checkbox"/>	<input type="checkbox"/>
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District:

<input type="checkbox"/>	<input type="checkbox"/>
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Interview Information

No	Interviewee's name	Age	Ethnicity	Gender 1=Male 2=Female	Position	Duration of living in the village	If some position, describe year of begin
1							
2							
3							
4							
5							
6							
7							

Interviewer

Interviewer's Name: Signature: Interview Date: ___/___/2007 (dd/mm/yy)
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Quality Control Record

Supervisor's Name:.....	Signature:	Checking Date:.....
Questionnaire needed to call back:		
Supervisor's remarks:		

I. General information related to socio-economic development status of in-depth study area

1.1. Year of establishment?

	Before 1975
	After 1975, what year? _____

1.2. Population and labor force

No	Item	Current	Five years ago
2	Number of villages		
1	Number of HH		
2	Number of population		
3	Number of males		
4	Number of females		

1.3. Age group

Age/year	Male	Female	Total
< 10			
11-14			
15 – 60			
60 – 64			
65<			

1.4 Education structure of population aged 15 and over

No	Education level	Number of persons	Percentage
1	Illiteracy		
2	Lower than primary school		
3	Primary school		

4	Lower secondary school		
5	Upper secondary school		
6	Vocational training		
7	University		
8	Higher education		
9	Other.....		
Total			100

1.5 Main employment structure of population aged 15 and over

No	Areas	Employment		Production value	
		Number of persons	Percentage	Value/million LK	Percentage
1	Crop production				
2	Livestock production				
3	Fishery				
4	Trade				
5	Construction				
6	Transportation service				
7	Hotel/restaurant service				
8	General worker				
9	Unemployment		0	0	0
10	Other.....				
Total			100		100

1.6 Access to land

No	Items	Current (ha)	Last 5 year (ha)	No	Item	Current(ha)	5 year ago(ha)
1	Total land area			5	Irrigated area		
2	Residential area			6	Areas unused		
3	Agricultural production area			7	Other (wetlands)		
4	Forestry area			8	Other		

1.7 Heavy agriculture production/equipment

No	Items	Current/number	Five year ago/number	No	Items	Current	Five year
1	Tractor			5	ຈັກຟາດເຂົ້າ		
2	Hand tractor			6	ຈັກກຸ່ວເຂົ້າ		
3	Rice mill			7	ເຄື່ອງດຳນາ		
4	Agri. Animal			8	Others.....		

1.8 Transportation equipment

No	Item	Current	Five year ago	No	Item	Current	Five year ago
1	Track			5	Bicycle		
2	Mini transporter			6	Boat		
3	Car			7	Other		
4	Motorcycle			8	Other		

1.9. Infrastructure connecting

No	Item	Distance/ Km, please describe 0, if the item is located within the village	Type of road connecting: 0=the item is within the village 1=Paved road 2=Non paved road, but accessible although the year 3=Non paved and not accessible although the year 4=No road access	No	Item	Distanc e/Km, please describ e 0, if the item is located within the village	Type of road connecting: 0=the item is within the village 1=Paved road 2=Non paved road, but accessible although the year 3=Non paved and not accessible although the year 4=No road access
1	Formal border gate			12	Electricity		
2	Informal border gate			13	Provincial hospital		
3	Local market			14	District hospital		
4	Provincial market			15	Clinic		
5	District center			16	Pharmacy		
6	Provincial center			17	Other health center		
7	Post			18	Primary school		
8	Bank			19	Lower secondary school		
9	Micro finance institution			20	Vocational training center		
10	Other financial institute			21	Other type of school		
11	Telephone service			22			

1.10 Source of use water:

No	Item	Current		Five year ago	
		Number of HH	Percentage	Number of HH	Percentage
1	Piped water				
2	Ground water				

3	Well				
4	Stream/River				
5	Other (specify)				
6					

1.11. Income source of villagers

No	Economic activities	Currently (percentage)	5 years ago (percentage)
1	Agriculture		
2	Livestock production		
3	Fishery		
4	Trade		
5	Service		
6	General labor		
	Forest products		
7	Others.....		
8	Total	100	100

II. General information on land, forestry and water resource

No	Kind of land use	Currently	5 year ago
1	Agriculture production areas (ha)		
1.1.	<i>Rice production areas (ha)</i>		
1.2.	<i>Vegetable production areas (ha)</i>		
1.2.	<i>Fruit production areas (ha)</i>		
1.3.	<i>Other agriculture production areas (ha)</i>		
2	Plantation areas (ha)		
2.1.	<i>Rubber plantation (ha)</i>		
2.2.	<i>Sugar cane plantation (ha)</i>		
2.3.	<i>Jatropha / cassava plantation (ha)</i>		
2.4.	<i>Palm tree (ha)</i>		
2.5.	<i>Other plantation (ha).....</i>		
3	Forestry cover (ha)		

3.1.	Protection forest (ha)		
3.2.	Production forest (ha)		
3.3.	NTFP area		
3.4.	Deteriorated forest (ha)		
4	Wet land areas (ha)		
5	Residential area (ha)		

III. Considering economic, social and environmental impacts of wood processing industry

4.1. State following **possible positive** impacts of wood processing industry in your location:

	Statement on positive impacts of investment	Opinions 1=agree, 2=Do not agree, 3= Cannot say
	Wood processing industry contributes significantly to creating jobs and income generation activities for local people	
	Wood processing industry contributes significantly to improving live and economic well-being of local people	
	Wood processing industry contributes significantly to reducing poverty in local area	
	Wood processing industry transfers technology and builds up capacity/knowledge of local people	
	Wood processing industry increases value of natural resources in your location	
	Wood processing industry improves road or other transportation infrastructure	
	Wood processing industry contributes to community development by providing financial resources	
	Wood processing industry improves accessibility to information and communication in your location	
	Wood processing industry improves life quality of people in your location	
	Other specifies.....	

4.2. State following possible negative impacts of investment in your location:

	Statement on negative impacts of labor migration	Opinions 1=Agree; 2=Do not agree; 3= Cannot say
	Wood processing industry increases pollution	

	Wood processing industry effects negatively forestry, water, bio-diversities and other natural resources	
	Wood processing industry changes traditional livelihoods	
	Wood processing industry increases poverty in your location	
	Wood processing industry effects physical and mental health of people in your location	
	Wood processing industry effects education negatively	
	Wood processing increases living cost in your location	
	Wood processing industry limits access to land and/or common resources for people in your location	
	Investment effects negatively on living quality of people in your location	
	Other negative impacts.....	

4.3. Three main negative and positive impacts of wood processing industry

Three positive impacts, please, describe three number from positive impact list	Three main negative impacts, please, describe three numbers from negative impact list.

4.4. Please, choose one of the three statements

1= Wood processing industry has more positive impacts than negative one on our local community.

2= Wood processing industry has more negative impacts than positive one on our local community.

3= the positive and negative impacts of wood processing industry are balanced.

4.5 Choose one of the three options:

1= Wood processing industry should be promoted.

2= Investment should be controlled and limited.

3= Investment should be closed.

IV. Comments for increasing benefits and limited negative effects of wood processing industry

1.

.....
.....
.....
.....
.....

2.....

.....
.....
.....
.....

3.....

.....
.....
.....
.....

Thank you for cooperation