



## ASSESSMENT OF SCOPE OF ILLEGAL LOGGING IN LAOS AND ASSOCIATED TRANS-BOUNDARY TIMBER TRADE



**(AS BASELINE FOR INTERNATIONAL LEAKAGE ESTIMATION)**

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## Acronyms

CarBi	WWF project “Avoidance of deforestation and forest degradation in the border area of Southern Laos and central Vietnam for the long-term preservation of carbon sinks and biodiversity”
DAFO	District Agriculture and Forestry Office
DOF	Department of Forestry
DOFI	Department of Forest Inspection
DONRE	District Office of Natural Resources and Environment
DPWT	Department of Public Works and Transport
EIA	Environmental Investigation Agency
FPD	Forest Protection Department in Vietnam
FIPD	Forest Inventory and Planning Division
FDI	foreign direct investments
MAF	Ministry of Agriculture and Forestry
MOF	Ministry of Finance
MOIC	Ministry of Industry and Commerce
NPA	National Protected Areas
PAFO	Provincial Agriculture and Forestry Office
PFA	Production Forest Area
PFS	Provincial Forestry Sector
POFI	Provincial Office of Forest Inspection
POIC	Provincial Office of Industry and Commerce
PONRE	Provincial Office of Natural Resources and Environment
RWE	Round Wood Equivalent

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## Main findings

- The Government of Laos lacks reliable information on issued logging licenses (quotas), the officially registered volume of timber harvested, and export of wooden products. For example, Lao wood exports to China and Vietnam from 2012-2014 as reported by importing countries exceeded total annual logging quotas many-fold and officially registered volume of timber by an order of magnitude. The total value of Lao wood products as reported by importing countries exceeds the value of exported wood products by analysis of data from Lao state customs statistics many-fold, and a disparity between these two data sets increases further. In 2013 the official export value was only 8% of the total value of Lao timber imported as reported by destination countries.
- According to the data from importing countries the export value of Lao wood products has been growing exponentially from the end of 2000s. From 2009 to 2014 it increased more than 8 times (by 70% between 2013 and 2014) and reached US\$1.7 billion. In 2014, China and Vietnam were responsible for 96% of Lao wood export in value terms (63 and 33%, respectively). Moreover export to China increased by 140% on 2013 levels. This growth in value of Lao timber exports to China and Vietnam is caused by a simultaneous increase in exported timber volume and increase in the value of exported product units due to the greater proportion of valuable tree species in Lao exports.
- The ban on export of logs and sawn timber imposed by the Government of Laos from 1999-2002 with the aim to encourage development of deep processing of timber in the country is either not enforced or circumvented due to numerous permissions issued in “exceptional cases”. The share of unprocessed and sawn wood in total exports from Laos in monetary terms almost always exceeded 90% in a period between 2000 and 2014, hitting 95% in 2011-2013 and nearly 98% in 2014. From the mid-2000s the share of logs in exports has been increasing steadily and reached 56% in 2014 while in 2002 accounted for only 14% (furthermore export value of logs doubled in 2014 compared to 2013).
- The comparison of official data on volumes of issued quotas and the officially registered volume of timber harvested in Laos’ four southern provinces of Sekong, Saravan, Champassak and Attapeu (“CarBi monitoring area”) in the 2011-2012 logging season, with data on export of wood products from this area, has found that >50% of timber products exported were from undocumented sources. In monetary equivalent the value of excessive timber could exceed the Lao budget income from timber sales planned for the 2013-2014 fiscal year threefold.
- Not less than 50% (most likely more than 60%) of wood products exported in the 2010-2011 logging season from Sekong were from undocumented sources.
- The sheer volume of undocumented timber involved suggests that its extraction and transportation was conducted by large companies who had been permitted to legally assemble and operate a very high number of heavy equipment inside the extraction areas and to and from the country's borders. Such large fleets of heavy equipment are usually only assembled to convert forest lands for plantations, roads, transmission lines, reservoirs, mining, or geologic prospecting.
- Following the above assumption we found the timing of these huge volumes of undocumented timber to be following a dramatic increase in Chinese and Vietnamese

investments in mining, agriculture, forestry and hydropower in Laos. The majority of the associated projects' concessions were located in forested areas and accordingly contemplates the possibility of logging quotas acquisition.

- We investigated the above correlation by comparing logging quotas issued for land clearance of one mining and one road construction project in the provinces of Saravan and Sekong with actual timber extraction. Analysis of relevant official documents, field surveys of logging sites and log depots, and interpretation of high resolution satellite images have been applied. We found 100% of timber extracted under the road construction project and 99% of the timber from the mining project to be illegal. Legal violations included:
  - a. Extraction outside of concession boundaries. In the case of mining 76% of detected new logging sites were located beyond the concession borders while in the case of road construction all logging was found beyond the zone allocated for construction (in one case 40 km away from the closest point of the road).
  - b. Logging comes in the form of extraction of only the best quality trees of target species with the highest volume. Species composition and grades of actually harvested timber drastically differed from what was permitted under quotas. Accordingly composition and volume of harvested timber had nothing to do with the results of pre-felling survey.
  - c. Pre-felling survey of timber designated for logging is either not carried out or done only technically (formally) for the sake of appearance. In the case of mining it was completed only for 40% of the concession already after the commencement of the logging and was not used practically. There is every indication that the pre-felling survey for the road construction concession was not undertaken on the ground and documents include fictitious data.
  - d. There was extraction of species not permitted to be cut (including prohibited for logging) and export of species in which harvest was not documented (including rosewood species).
  - e. Extraction of higher volumes than permitted. In the case of road construction, the volume of exported timber (as it was reported to Vietnamese customs) exceeded over the entire officially documented harvest more than threefold.
  - f. There was underreporting of the quality of harvested timber by selling Lao authorities and undervaluation of timber by Lao timber exporter, supposedly in order to understate royalties and taxes to Lao state. In the road construction case, the average volume of logs as reported by the importer at Vietnamese customs was 1.7-2.6 times higher than in log lists and sale-purchase contracts for the same species in Laos. Prices of exported timber as reported by the importer to Vietnamese customs was 2.9-4.2 higher than contract prices indicated in documents by the Lao exporter for same species on the Lao side.
- The findings of these case studies and observations of other logging quotas allow us to suggest that in reality the use of permits for harvesting "conversion" timber during realization of development projects de-facto became a way to legitimate large-scale high grading in all types of forests (including conservation and protection forests).
- The discrepancy between officially registered supply of raw materials to wood processing factories and their processing capacity is striking and obvious. Official logging quotas in the

provinces of Saravan and Sekong can only fill 25% of installed wood processing capacity at best. The remaining capacity is likely filled with illegal timber.

- The activity of state forest inspection (and most likely other Lao state law enforcement agencies responsible for fighting illegal logging) does not have any significant impact on the dynamics and scope of illegal logging as they do not inspect logging operations under logging quotas for conversion timber (neither logging sites nor logging volumes) and further turnover of this timber (transportation, processing, export). In the four southern Laos provinces they confiscated only about 3-5% of the estimated illegal timber volume in 2011-2012. But even this confiscated timber originated from small operations and the large-scale commercial operations by big companies remained untouched.
- The high dependence of China and critical dependence of Vietnam on timber supply from Laos makes it unlikely that the governments of these countries are ready to take steps to control import legality. It is evident that such actions would reduce dramatically the volume and quality of timber from Laos together with the profit of timber traders and wood processing companies which enjoy excess profits from purchasing raw material for underestimated prices. An indication is the elegant wording suggested by the Vietnamese government for its draft legality definition for its negotiations of a FLEGT Voluntary Partnership Agreement with the EU. It does not require importers to provide assurance that imported timber was *legally harvested* in the country of harvest, but rather that it was *legally imported* to Vietnam according to Vietnamese laws.
- The situation with timber harvesting in Laos is evolving under a worst-case scenario exactly opposite to what was envisaged by Forest Strategy to the Year 2020 of the Lao PDR (endorsed by Decree No. 229/PM on 9 of August 2005): transition to sourcing timber from plantations and production forests on the basis of scientifically estimated annual allowable cut, processing of almost all harvested timber at Lao factories to final and semi-final products. Contrary to the government's good intentions developments under the actual scenario will undoubtedly lead to the sheer depletion of commercial timber stocks in its natural forests - on the same path that Thailand, Vietnam and Cambodia have already taken.
- Were the Lao government serious to change the status quo and avoid a worst-case scenario it would have to take immediate actions to assure that logging quotas for conversion timber meet fundamental legal requirements. The efforts must be focused on most critical points where urgent interventions are required and progress can be measured:
  - a) Allow logging only within authorized borders.
  - b) Provide unambiguous maps with crystal clear borders of all concessions where timber harvesting is permitted.
  - c) Demarcate all boundaries before the beginning of logging.
  - d) Conduct rigorous pre-felling surveys.
  - e) Create and make available for all interested parties a database with key information about all permitted logging before the beginning of logging.
  - f) Make field control over logging operations under quotas for conversion timber a priority for forest inspection staff.
  - g) Use high and very high resolution satellite images as additional independent sources of information.

- h) Establish an independent monitoring body comprising representatives of the relevant government agencies, CSOs and INGOs with unrestricted access to all logging areas.
- i) Operate all forest inspection check points 24/7 and inspect timber transports en route. Not only search and detain carriers of small shipments of valuable timber but systematically register all timber shipments with information on type of product, volume and species composition regardless of the availability of “legally issued permits”.
- j) Register timber turnover at all key points of the chain to match raw wood input with product output. Investigate mismatches thoroughly.
- k) Maintain account of timber supply to log landings throughout the whole logging season and regularly check accuracy of log lists maintenance.
- l) Regularly inspect wood processing factories to verify stocks of wood products presented in the factory against raw wood supply from documented sources. Test conversion factor of raw material to processed wood.
- m) Completely forbid bartering logging permits for investment in public projects.

## Introduction

This assessment of the scope of illegal logging in Laos and associated trans-boundary timber trade was conducted from November 2012 to May 2015 in the framework of the WWF project “Avoidance of deforestation and forest degradation in the border area of Southern Laos and central Vietnam for the long-term preservation of carbon sinks and biodiversity” (“CarBi Project”), specifically the component “Mitigation of international leakage through timber tracking and control”. The CarBi project is funded by the Federal Republic of Germany’s International Climate Initiative (ICI) of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) through KfW, and an additional funding provided by WWF Germany.

According to MoU between Ministry of Agriculture and Forestry (MAF) and WWF Laos (19 July 2011) this study was aimed to assess the scale of international leakage to a significant degree of confidence and identify potential leakage areas. The study aimed to:

- Identify drivers for illegal logging and leakage in the project area (Sekong and Saravan provinces)
- Establish baseline data on illegal logging activities in the project area
- Define potential leakage areas
- Develop quantitative scenarios for international leakage in the selected areas.

In this study the term leakage is defined as displacement of illegal wood extraction to the project area in Laos because of the rapid and substantial development of the export-oriented wood processing industry and environmental policies (conservation of biodiversity and forest carbon stock) in neighboring countries (Vietnam, China and Thailand).

The research is based on analysis of collected documents, publications, interviews, field observations and monitoring of logging activities using satellite imagery<sup>a</sup>.

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<sup>a</sup> Interpretation of satellite images was conducted by non-profit and non-governmental partnership Transparent World in framework of the contract on “Development of remote sensing monitoring system for logging activities in CarBi monitoring area” (2014-2015).



## Problem background and objectives

Forest cover in Laos has been in constant decline. According to the Department of Forestry (DOF) of the MAF, actual forest cover (forest with canopy density >20%) in Laos decreased from 49% of the country's area in 1982 to 45% in 1992 and to 41.5% in 2002. The annual rate of deforestation in Laos has amounted to 0.4% (46,000 ha) between 1982 and 1992 and 1.2% (134,000 ha) between 1992 and 2002. The government of Laos has committed to increase forest cover to 65 percent of the total land area by 2015 and to 70 percent by 2020. However, results of the latest national forest cover assessment demonstrate that forest cover has declined further to 40.3% as another 325 thousands hectares have been lost between 2002 and 2010 (Table 1). Amid relatively slow decline of forest cover at national level some provinces continued to lose their forests at an alarming rate. According to the assessment CarBi target provinces Saravan and Sekong have lost 27 and 28% of the forests from 2002 to 2010.

**Table 1. Change in Lao forest cover according to forest cover assessment**

	1982	1992	2002	2010
Actual forest cover at national level, ha and % of national territory	11,637,000 49.1	11,168,000 47.2	9,825,000 41.5	9,500,000 40.3
Saravan, %	55.6	54.4	54.8	39.2
Sekong, %	55.5	54.3	53.0	38.8
Champassak, %	62.7	61.5	54.0	40.6
Attapeu, %	68.1	66.9	49.2	63.9

Source: MAF/DoF (by FSPI, 2014), Lestrelin G. et al. (2013)<sup>1</sup>.

Results of research by the University of Maryland group on global forest coverage based on time-series analysis of Landsat 7 ETM+ images shows even faster rate of deforestation in Laos – 6.1% (1,170 thousands ha) of forests with >25% crown cover have been lost from 2000 to 2012<sup>2</sup>.

According to the official point of view<sup>3</sup>, main factors leading to the forest cover reduction are the following:

- Shifting cultivation practices and forest fires, particularly in the north;
- Unsustainable harvesting of production forests which occurs mainly in central and southern regions, and unsustainable management of forests allocated for use by villages;
- Necessary conversion of forestland for agriculture and infrastructure development.

Forest degradation, the intermediate stage that leads to forest coverage reduction, has accelerated significantly. According to R-PP (2010) mean growing stock in the forests of Laos has declined at a rate of 2-3% per year over the past two decades<sup>4</sup>. The Forest Inventory and Planning Division (FIPD) sample data demonstrates a rapid decline of well-stocked forests (having canopy closure of more than 70%) from 3.2 million ha in 2002 to 840,000 ha in 2012 (by Lestrelin et al, 2013).

Converting forests to plantations becomes “legal” as soon as it is transferred to the degraded category (or unstocked forests). Practically, this process leads to a similar scenario to that already observed in other countries of Southeast Asia. For example, in Cambodia and

Indonesia large scale conversion of degraded forests that have lost their commercial value for loggers is carried out.

What is the role of illegal logging in the process of forest degradation? Is it possible to at least roughly estimate the extent of it and determine the main drivers and key players behind?

Surprisingly, in spite of the great attention to the problem of illegal logging in Laos there were almost no attempts to conduct such an estimation. According to the Environmental Investigation Agency (EIA)&Telapak report (2008), 600 thousand m<sup>3</sup> of timber was illegally harvested in 2006 with a commercial value of \$US 250 million<sup>5</sup> (Table 2). In addition to these data the EIA/Telapak believe that annual export of 500 thousand m<sup>3</sup> unprocessed timber to Vietnam is illegal as well since it violates the law that came into force in 1999-2002 banning export of unprocessed timber. Evidently this estimate is not quite correct since it does not take in to account various exceptions for round wood export made by the government for timber harvested under quotas for infrastructure development or hydropower dam construction.

According to the report “Illegal Logging and Global Wood Markets» (Seneca, WRI, 2004) that compiles estimates of illegal logging activities in different countries, the share of illegal timber in Laos is estimated at 45%<sup>6</sup>. This figure does not impress much in comparison with estimations for other countries presented in the same report: 70% of illegal timber in Papua New Guinea, 80% in Bolivia, 80-90% in Peru, 90% in Cambodia and even 50% in Estonia (it is questionable why the illegal logging rate in Laos is less than in Estonia).

According to the World Drug Report 2012, United Nations Office on Drugs and Crime, the share of illegal timber in Lao timber international trade is estimated at 65% (compared to 10% in Thailand, 85% in Cambodia and 90% in Papua New Guinea). According to latest Chatham House reports (2014)<sup>7</sup> which estimated the total Vietnamese import of high-risk wood products in 2013 at 2.3 million m<sup>3</sup> in Round Wood Equivalent (RWE)<sup>a</sup>, import of illegal timber from Laos amounted to around 500 thousand m<sup>3</sup>.

It is difficult to critically consider these estimations since the publications do not contain detailed descriptions of the methodologies used and data that they were based on.

We can get some idea about the scale of illegal timber trade in Laos from the volume of timber confiscated by local authorities. In the most successful year, 2011, DOFI identified and confiscated ca. 180 thousand m<sup>3</sup> of timber<sup>8</sup>, equivalent to 79% of the registered annual timber harvested in the logging season 2010-2011<sup>b</sup>.

Working in the framework of the CarBi Project we made an attempt to estimate the scale of illegal timber harvesting and international illegal timber trade on three levels: at the country level, for a group of 4 southern provinces (including project provinces Sekong and Saravan and neighboring Champassak and Attapeu provinces with similar environmental and social-economic conditions) and for an individual province (Sekong). This objective was set due to the necessity of calculating so called leakage – displacement of timber extraction to the project area due to the rapid growth of processing industries and forest conservation in Laos and importing countries.

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<sup>a</sup> Round Wood Equivalent (RWE) volume is measure of the quantity of logs used in making a given volume of product.

<sup>b</sup> Credibility of Lao state statistics on results of countering illegal logging is discussed in chapter “Efficiency of law enforcement”.

**Table 2. Estimates of illegal timber in the formal trade of wood-based products**

Study	Year	Proportion/Amount
“Illegal” Logging and Global Wood Markets (Seneca, WRI)	2004	<b>Laos - 45%</b> (less than in Estonia – 50% (!) PNG – 70% Bolivia – 80% Peru – 80-90% Cambodia – 90%
Borderlines: Vietnam’s Booming Furniture Industry and Timber Smuggling (EIA)	2008	600 thousands m <sup>3</sup> (worth \$US 250 million) in 2006 500 thousands m <sup>3</sup> logs/ year to VN are illegal
Timber markets and trade between Laos and Vietnam: a commodity chain analysis of Vietnamese-driven timber flows (Forest Trends) <sup>9</sup>	2010	N/A
Crossroads: The Illicit Timber Trade Between Laos and Vietnam (EIA) <sup>10</sup>	2011	N/A
EU FLEGT Facility, Baseline Study 2, LAO PDR: Overview of Forest Governance, Markets and Trade (Forest Trends) <sup>11</sup>	2011	N/A
Checkpoint: How Powerful Interest Groups Continue to Undermine Forest Governance in Laos (EIA) <sup>12</sup>	2012	N/A
EU FLEGT, Study for understanding timber flows <sup>13</sup>	2012	N/A
World Drug Report 2012, United Nations Office on Drugs and Crime <sup>14</sup>	2012	Thailand – 10% <b>Laos - 75%</b> Cambodia – 85% PNG – 90%
Chatham House: Trade in Illegal Timber: The Response in Vietnam	2014	ca. 500 thousands m <sup>3</sup> in RWE (worth \$US 300 million) of wood-based products imported from Laos

First of all, it is important to specify the term “illegal timber harvesting”.

Technically, in our opinion the major part of Lao timber can be referred as illegal due to the huge gap between legal requirements of timber harvesting and real practices in the forest. There could be several common violations of these requirements:

- No demarcation of borders of logging sites and lack of logging plans;
- Failure to meet requirements for Environmental Impact Assessment for development projects undertaken before commencement of project activities;
- No specified borders between degraded and productive forests that leads to ignoring prohibition on conversion of healthy forests into plantations;
- Continuing practices of repeatedly banned debt-repayment and bartering of timber in exchange for development support;
- Timber harvesting in national protected areas (NPAs).

For the purpose of simplifying (and specification of objectives) **we determined illegal timber (or timber from unauthorized sources) as timber harvested in excess of issued quotas (or exceeding the timber volume registered in log landing II) and outside of official logging areas.**

## Assessment of illegal timber harvesting at national level

The most straightforward (and widely used) method to assess the volume of illegal timber harvesting is based on comparing the volume of timber output (timber sold to other countries and placed on the local market) and total volume of issued permits for timber harvesting (*quotas*). For this comparison the volume of wood products is converted to RWE using an applied coefficient (officially accepted coefficient or expert coefficient). However, there are several significant difficulties with the implementation of this “simple” method in Laos.

First, there is no reliable information on issued logging licenses (*quotas*) and the officially registered volume of timber harvested in Laos. Data shown in different reports with reference to the DOF of the MAF rarely coincide; in fact the data for the same years may differ many-fold. Apparently, no complete data on issued quotas and recorded volume of timber harvest in districts and provinces is provided to DOF<sup>15</sup>.

Thus, according to the data received from PAFOs Attapeu, Saravan and Sekong, the total volume of quotas in season 2011-2012 was 273.9 thousand m<sup>3</sup>. This comprises 91.7% of the total national quota. The total volume of timber harvest registered by officials in 4 southern provinces (Attapeu, Champassak, Saravan and Sekong) during the same season was 222.3 thousand m<sup>3</sup>, what exceeded the total timber harvest registered at the national level (71.8 thousand m<sup>3</sup>) by three times (which is clearly nonsense).

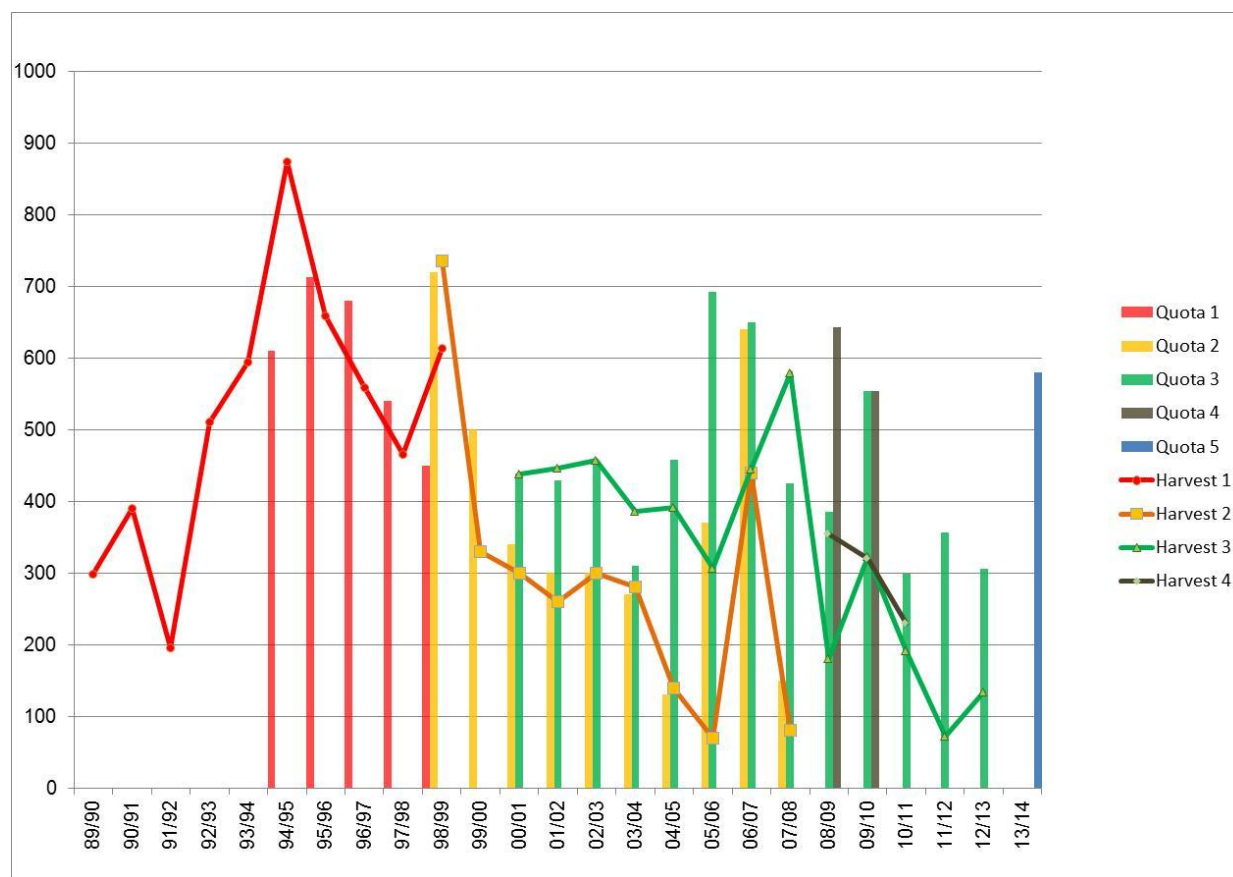
According to Minister of Agriculture and Forestry, Mr. Vilayvanh Phomkhe<sup>16</sup>, total annual logging quota for logging season 2013-2014 was only 580.072 thousand m<sup>3</sup>. This figure does not correspond well with the data on issued quotas and officially recorded volumes of harvested timber in some provinces. According to Mr. Duangdy Outthachak, a member of the National Assembly, who spoke at the seventh ordinary session of the National Assembly in July 2014, “last year the government gave permission for a company to fell trees in Borikhamxay province, amounting to some 600,000 cubic meters of timber” (i.e. the quota in one province exceeded the nationwide quota)<sup>17</sup>.

According to the report from Provincial Office of Agriculture and Forestry (POFI) Attapeu, published at the beginning of September 2014, the total of 173,925 m<sup>3</sup> of logs were excavated in the 2013-14 fiscal year including 21 thousand m<sup>3</sup> from road projects and electricity transmission lines, 66 thousand m<sup>3</sup> from Xe Kaman hydropower project, 7 thousand m<sup>3</sup> from illegal activities and the rest from other development projects<sup>18</sup>. Therefore the volume of officially harvested timber in only one province comprised 30% of the total national quota.

Due to these contradictions official data on timber harvest quotas on national level can be used only for understanding of the scale of the officially permitted timber harvest volume in the country (or the authorities’ understanding of such) and to some extent for understanding of the dynamics of the licensing process.

According to official data the actual (officially recorded) volume of timber annually harvested in Laos has been growing since the beginning of the 1980s until 1994-95 when it reached its peak with 874 thousand m<sup>3</sup> but then tended to steadily decline up to the present day. This decline was interrupting by two upsurges in 1999 and in 2007-2008 (734 thousand m<sup>3</sup> and up to 580 thousand m<sup>3</sup>, respectively) (fig. 1). The latter is related to additional wood supply from the Nam Theun 2 dam hydropower project area. In the first half of 2000s recorded annual harvest fluctuated between 300-450 thousand m<sup>3</sup>, and beginning in 2009 showed a tendency towards decline.





**Figure 1. Dynamic of officially permitted (quotas) and recorded volume of timber harvest in Laos (data of fiscal years beginning from October).**

Source: the Department of Forestry, Ministry of Agriculture and Forestry

Quota 1 and Harvest 1 – from Lao PDR Production Forestry Policy (2001);

Quota 2 and Harvest 2 – from Lao PDR Forestry Outlook Study (2009);

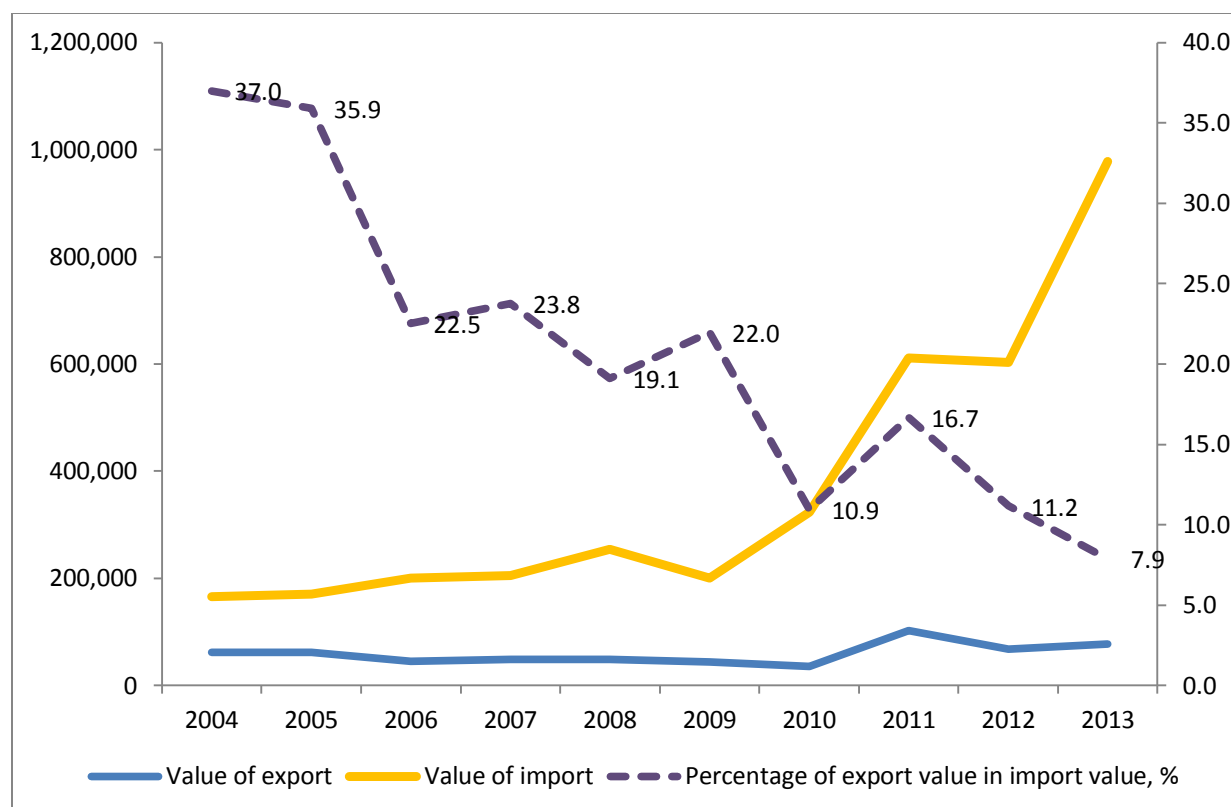
Quota 3 and Harvest 3 – from Forestry Sector Performance Indicators (2014);

Quota 4 and Harvest 4 – from Study for Understanding Timber Flows & Control in Lao PDR (2012);

Quota 5 - from Vientiane Times, 5 May 2014.

The lack of official data about volume/tonnage of timber export is another hindrance for calculating the balance between the official harvest and timber export.

Data on value of exporting timber from Lao Customs Department of the Ministry of Finance (MOF) that could be used to calculate export volume (upon the condition that we know the average price for one cubic meter of a given product) look very unreliable. In 2013 official export value was only 8% of the total value of Lao timber import as reported by destination countries (fig. 2). From 2004 to 2013 the value of Lao timber import increased by 6 (!) times, while export value increased only by 26%. It is indicative that beginning from the middle 2000s the gap between export value and import value has been steadily increasing.



**Figure 2. Comparison of Lao wooden products export and import value (HS44).**

Source: Value of export for fiscal years (begins in October) - Customs department, MOF (from Forestry Sector Performance Indicators, 2014); value of import for calendar year - United Nations Commodity Trade Statistics Database.

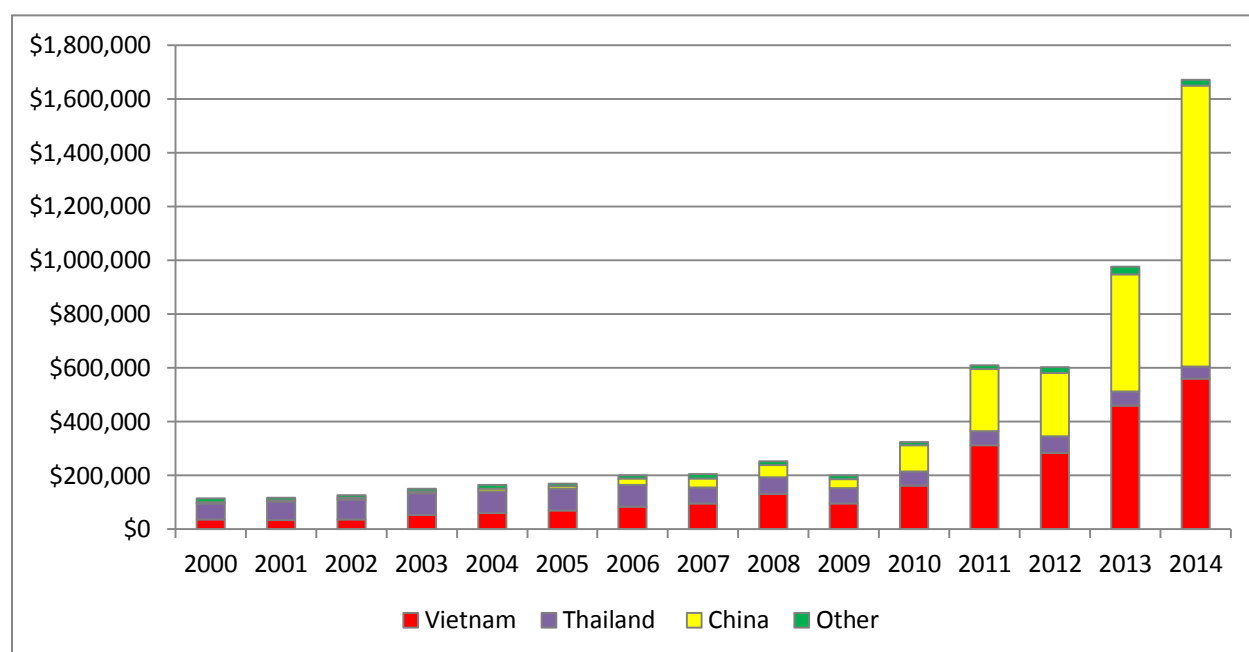
The most reliable data on Lao wood import is given in publicly available United Nations Commodity Trade Statistics Database. Unfortunately this information is not uniform. For example, Vietnam, the biggest Lao timber importer, in most cases provides data only on value but not on the volume of imported wooden products. And another traditional consumer of Lao timber – Thailand - provides import data in weight units what makes interpretation difficult. China did not report volume in 2014. Nevertheless, analysis of import data allows us to make some conclusions about the dynamics of timber harvest in Laos.

The value of wood products imported from Laos increased by 14.4 (!) times from the beginning of 2000 to 2014, amounting to US\$ 1,671.3 million (fig. 3). From 2009 to 2014 it has increased more than 8 times. Outflow of timber from Laos almost doubled (89%) in 2011 compared with 2010 and then again skyrocketed in 2013 increasing by 62% compared to 2012 and in 2014 by 70% compared to 2013.

The most impressive surge occurred with import of Lao timber to China which increased 24 (!) times from 2008 to 2014 (US\$ 44.7 million and US\$ 1,045 million respectively). In 2014 it has increased by 140% compared to 2013 and China has finally outrun Vietnam and become biggest importer of Lao wood.

Import to Vietnam in the same period increased by 4.2 times from \$US 131.7 million to \$US 559.5 million.

In 2014 China and Vietnam were responsible for 96% of Lao wood export in value terms (63 and 33% respectively). Almost all of this import value is likely generated by natural timber as Lao plantations produce very limited volumes of high-value hardwood.



**Figure 3. Dynamic of value of exported wooden products from Laos by importing countries.**

Source: Compiled from United Nations Commodity Trade Statistics Database<sup>a</sup>; data on import by Vietnam in 2014 from To Xuan Phuc (2015)<sup>19</sup>.

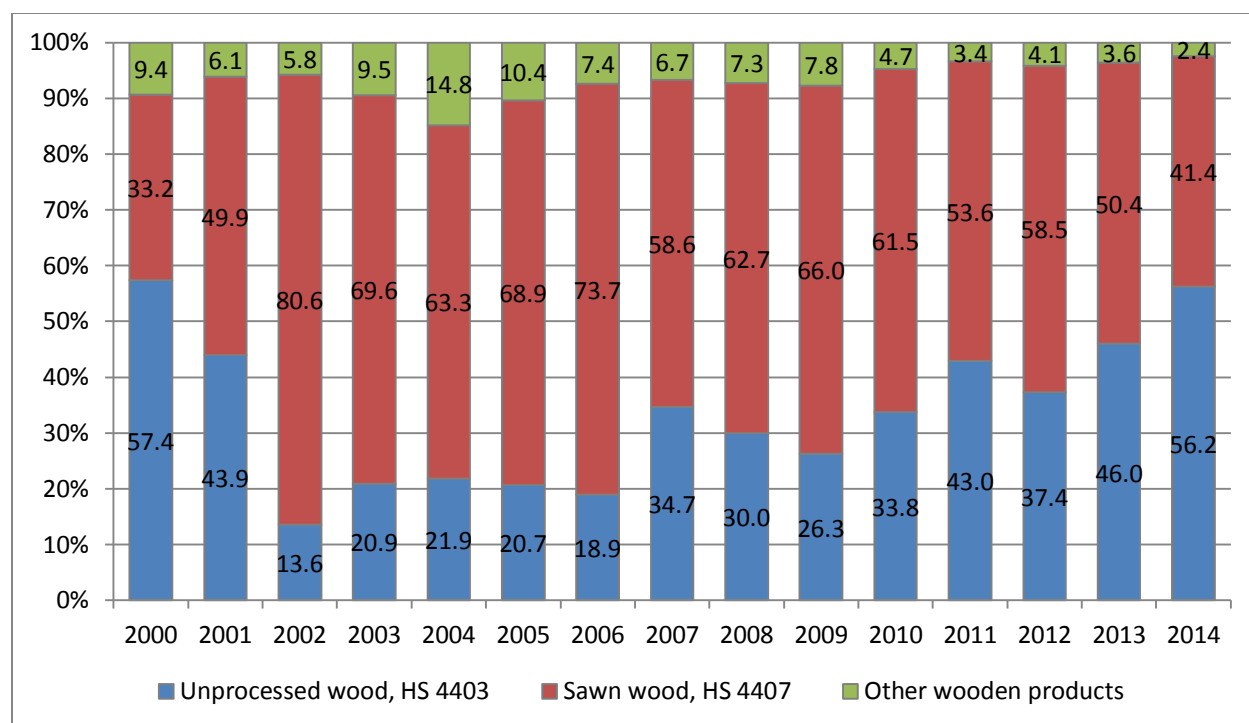
Such an impressive increase in import value can be explained by the following:

- Significant increase in a volume of imported timber associated with the similar increase of timber harvest;
- Increase of the proportion of expensive valuable tree species in Lao timber export;
- Increase of the proportion of processed timber with high value.

The share of unprocessed and sawn wood in total import from Laos in monetary terms almost always exceeded 90% in a period between 2000 and 2014 hitting 95% in 2011-2013 and nearly 98% in 2014 (for the exception of 2004 and 2005 with the temporary sharp increase in plywood imports). Moreover proportion of sawn wood reached 81% in 2002, but after 2006 comprised in average 60% and dropped to 41% in 2014 (fig. 4). From mid-2000s share of logs in export has been increasing steadily and reached 56% in 2014 while in 2002 accounted for only 14% (furthermore export value of logs doubled in 2014 compared to 2013).

**Thus the change in import value does not result from the increase of the proportion of processed timber in Lao import.**

<sup>a</sup> As of 11 June 2015 UN Comtrade Database did not include data on import of Lao wood reported by Vietnam



**Figure 4. Change of composition of products in wood import from Laos.**

Source: Compiled from United Nations Commodity Trade Statistics Database; data on import by Vietnam in 2014 from To Xuan Phuc (2015).

Analysis of data from UN Comtrade database for China (given in the Forestry Sector Performance Indicators, 2014<sup>20</sup>) shows that **the increase in value of Lao timber export to China was caused by a simultaneous increase in exported timber volume and increase in value of exported product unit due to the greater proportion of valuable tree species in Lao export (primarily as unprocessed products)**. Likewise the import volume of unprocessed wood from Laos had increased from 2008 to 2013 by 4.7 times (from 44 to 205 thousand m<sup>3</sup>) while the price of one cubic meter for the same period had increased by 3.7 times (from \$US 409 to \$US 1,505).

In 2013 86% of volume and 95% of total unprocessed timber value were composed of valuable tree species as defined in the National Hongmu Standard of China. In relation to Lao import such high value products could possibly be: Burma Padauk (*Pterocarpus macrocarpus*, Mai dou), Burmese rosewood (*Dalbergia bariensis*, synonym – *D. Oliveri*; Mai Khampi, or Mai padoo) and Siamese rosewood (*Dalbergia cochinchinensis*, Mai khan young).

Import of sawn wood had increased by 4.6 times (from 21 to 96 thousand m<sup>3</sup>). And the price of one cubic meter of sawn wood increased by 2 times (from \$US 599 to \$US 1,230).

Likewise China's case the increase in value of Lao timber export to Vietnam resulted from simultaneous increase in exported timber volume and increase in value of exported product unit (table 3). From 2012 to 2014 volume of logs and sawn wood export to Vietnam has increased by 55% and 74% while prices have increased by 27% and 13% respectively. Meanwhile remained 2.5-3.5 and 1.5-1.7 times lower compared to prices of logs and sawn wood exported to China.

Probably lower prices were related to lesser proportion of valuable tree species in export to Vietnam compared to China or undeclaration of these species by Vietnamese importers.

Thus according to Vietnamese customs in 2012 wood products with volume of 194,224 m<sup>3</sup> were exported from Laos via Phou Kua-Bo Y border gate which accounted for 40% of total registered Lao wood export to Vietnam that year. At least three quarters of this volume were represented by common species. Nonetheless 51% of total value fallen at valuable species: Gõ hương (*Pterocarpus macrocarpus*) – 23% of total value, Trắc (*Dalbergia cochinchinensis*) – 21%, Cẩm lai (*D. oliveri*) – 7%<sup>21</sup>.

**Table 3. Dynamic of Lao wood export to Vietnam and China in 2012-2014**

	2012	2013	2014
Export to Vietnam			
Logs, m <sup>3</sup>	199,000	226,000	309,000
Logs, US\$	76,013,889	135,406,649	149,500,000
logs price, US\$/m <sup>3</sup>	382	599	484
Volume dynamic	-	+14%	+37%
Price dynamic	-	+57%	-19%
Sawn wood, m <sup>3</sup>	284,000	385,000	495,000
Sawn wood, US\$	208,175,749	323,064,976	410,000,000
Sawn wood price, US\$/m <sup>3</sup>	733	839	828
Volume dynamic	-	+36%	+29%
Price dynamic	-	+14%	-1%
Export to China			
Logs, m <sup>3</sup>	109,631	205,521	n/a
Logs, US\$	146,033,767	309,266,562	783,274,789
Logs price, US\$/ m <sup>3</sup>	1,332	1,505	-
Volume dynamic	+2%	+87%	-
Price dynamic	-15%	+13%	-
Sawn wood, m <sup>3</sup>	70,664	96,396	n/a
Sawn wood, US\$	86,695,561	118,531,833	245,323,427
Sawn wood price, US\$/m <sup>3</sup>	1,227	1,230	-
Volume dynamic	+24%	+36%	-
Price dynamic	+24%	0%	-

Source: Import by China in 2012 and 2013 - UN Comtrade database; import by Vietnam – UN Comtrade database and Vietnam Customs<sup>22</sup>.

Total Lao timber export volume (logs and sawn wood) to China and Vietnam in 2012 comprised 663 thousand m<sup>3</sup>, which is 86% higher than the total national quota (357 thousand m<sup>3</sup>) and 9 times higher than the officially registered harvest - 72 thousand m<sup>3</sup> (table 4).

If we consider the volume of timber required to produce sawn wood (if we use coefficient 50% for conversion of sawn wood to round wood), **export volumes in 2012 would exceed the national quota by 2.9 times and the official timber harvest – by almost 8 times.**

In 2013 total volume of Lao logs and sawn wood export to China and Vietnam amounted to 913 thousand m<sup>3</sup>. This is equal to 1.4 million m<sup>3</sup> in RWE, **which is 4.6 times higher than national quota and 10.4 times higher than the officially registered harvest.**



It is evident that by adding to this product flows exported to Thailand we get a more dramatic gap between volumes of national quotas / documented harvest and export volumes. In addition we can not assert that even that portion of exports which technically matches the officially permitted (or documented) timber production was actually legally harvested.

**Table 4. Excess of timber export over official timber harvest volumes.**

	<b>2012</b>	<b>2013</b>	<b>2014</b>
Permitted volume (quotas), thousand m <sup>3</sup>	357	306	580
Documented harvest, thousand m <sup>3</sup>	72	134	n/a
Import by China, thousand m <sup>3</sup> (unprocessed/sawn wood)	110/71	205/96	n/a
Import by Vietnam, thousand m <sup>3</sup> (unprocessed/sawn wood)	199/284	226/385	309/495
Total import in RWE, thousand m <sup>3</sup>	1,019	1,393	1,299
Estimated excess, % (over quota/harvested volume)	185/1,315	355/940	124

Source: Import by China in 2012 and 2013 - UN Comtrade database; import by Vietnam – Vietnam Customs<sup>23</sup>.

As it was already mentioned above 86% of unprocessed timber that had been imported by China in 2013 was valuable wood represented most likely by species prohibited for logging in Laos by the Forest Law. As it has been rightly observed by the authors of the Forestry Sector Performance Indicators (2014), it is difficult to believe that 176 thousand m<sup>3</sup> of these species were harvested in the development project areas which were permitted by the government for clear cutting.

Large-scale illegal logging and associated timber export is recognized by the Lao government which is seriously concerned with the enormous national budget losses from unauthorized timber sales. In September 2013, Minister of Finance Mr. Phouphet Khamphounvong at an open meeting between the government and provincial governors spoke to Lao media: “We have collected almost US\$20 million in taxes and tariffs on the export of wood products but Laos has actually sold wood products to neighboring countries worth hundreds of millions of dollars each year”.

According to his statement a number of laws, regulations and decrees adopted by the government in order to manage wood exports, “had been insufficiently enforced and loopholes had emerged for illegal loggers to exploit”. And some authorities may have been cooperating with traders to illegally export wood products, including from protected tree species<sup>24</sup>.

In the framework of adopted countermeasures the Ministry of Finance in 2013 made the decision to remove officials at a certain border checkpoint who had conspired with traders to smuggle timber out of the country<sup>25</sup>.

Apparently these government countermeasures produced very limited results. According to the statement of the Minister of Agriculture and Forestry, Mr. Vilayvannh Phomkhe at the meeting between government cabinet, the Vientiane Mayor and provincial governors in Vientiane at the beginning of May<sup>26</sup>, as of the middle of April, a total of 69,888 m<sup>3</sup> of timber had officially been felled, representing 12 percent of the annual approval to cut 580,072 m<sup>3</sup>.

At the same time only during the first half of 2014 according to the Vietnamese Customs data 526,000 m<sup>3</sup> of timber was imported from Laos (including about 200 thousands m<sup>3</sup> of logs<sup>27</sup>).

Thus timber export to Vietnam alone in RWE (taking into account raw materials needed for sawn wood production) during the first half of 2014 exceeded the volume of all officially permitted timber harvest in that logging season 1.5 times.

All together in 2014 Vietnam imported 309 thousand m<sup>3</sup> of unprocessed timber and 495 thousand m<sup>3</sup> of sawn wood from Laos<sup>28</sup> which comprised 1.3 million m<sup>3</sup> in RWE. Thus timber exports to Vietnam alone exceeded the national quota 2.2 times (table 3).

Estimated volume of Lao timber export to China in 2014 (assuming that average price for wood products stayed the same as in 2013) could be about 520 thousands m<sup>3</sup> of logs and 200 thousands m<sup>3</sup> of sawn wood. **Thereby total volume of Lao wood export by China and Vietnam in 2014 has mounted to 2.2 million m<sup>3</sup> in RWE which 3.8 times exceeds the national quota.**

Collected data from the border gates suggests that either responsible agencies do not disclose full records of export shipments with timber or a certain amount of timber products is not registered on the border gates (i.e. smuggled).

According to Lao Customs officer on the Dak Ta Ok - Nam Giang border gate (Dakcheung District, Sekong province), interviewed on 05 December 2012, the last case of timber export via this gate was 6-10 m<sup>3</sup> of sawn wood on May 2012<sup>29</sup>. We should note that located nearby POFI Sekong check point works only in January-May and closes in June for the period of the rains<sup>30</sup>. A few months before this interview we collected at this border gate a copy of a permit issued by Provincial Office of Industry and Commerce (POIC) Sekong on 18 June 2012 to Dakcheung Timber Processing Industry which allowed the export of 819.592 m<sup>3</sup> of round wood via Dak Ta Ok border gate over a period of 30 days (fig. 5). The presence of this document demonstrates clearly that the statement that wood export through this gate ceased in May was false.

It is also worth mentioning that the attached sales and purchase agreement with the Vietnamese importer (Cong TY Loc Than Co.) had no stamps, address or any other contact details of the importer. Thus we can assume that the agreement was signed with a "ghost company". Overall the interview at the Dak Ta Ok border gate showed the limited desire of customs officers to share information on volume and composition of timber exports. For example, customs officer with two years of working experience "couldn't" even approximately estimate the number of timber trucks crossing the border in the current and previous years.

Recent revelations in Vietnamese mass-media confirms our speculation about possible traffic of large amounts of undocumented timber via official Laos-Vietnam border crossings. As of the beginning of April 2015 r. traffic police in Chuong Duong District (Nghe An province) have confiscated on National Highway No. 7 eight Laos-registered trucks allegedly laden with smuggled timber (no documents were provided by truck drivers). According to the police dozens of Laotian trucks with timber are hiding from police on small roads off National Highway 7 and timber is brought to Vietnam via the Nam Can Border Gate situated between Xiang Khouand and Nghe An provinces<sup>31</sup>.

LAOPEOPLE'S DEMOCRATIC REPUBLIC

PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

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SEKONG PROVINCE  
PRODUCERS AND SUPPLIER OF WOOD  
NGON DONE DAKHUANG DISTRICT  
MOBILE:02099329666

NO: 02  
DATE: 18/6/2012

## INVOICE

SOLD TO: LOC THANH CO., LTD ADDRESS: (VIET NAM)					LICENCE NO:..... DATE:.....
SHIPPED FROM: PRODUCERS AND SUPPLIER OF WOOD To : DARK TA OC SHIPPED VIA : VIETNAM					CONTRACT NO:..... DATE:.....
NO	DESCRIPTION OF GOODS	LOGS	QUANTITY (m <sup>3</sup> )	UNIT PRICE (\$)	AMOUNT (\$)
01	MAY SAKHAI (LOGS WOOD)	615	645,894		
	Creed A	57	91,832	\$87	7,989,38
	Creed B	148	188,948	\$73	13,793,20
	Creed C	222	218,167	\$67	14,617,19
	Creed D	185	156,886	\$62	9,726,93
02	MAY MAKTEK (LOGS WOOD)	274	173,698		
	Creed A	32	26,218	\$49	1,284,68
	Creed B	65	43,580	\$46	2,804,68
	Creed C	104	69,240	\$43	2,598,32
	Creed D	73	43,660	\$42	1,833,72
TOTAL		889	819,592		\$ 53.840,10

DIRECTOR



ຈົນ ກົມ ສ່ວນ  
ຫຼັກ ກຳ ກຳ ຫຼັກ

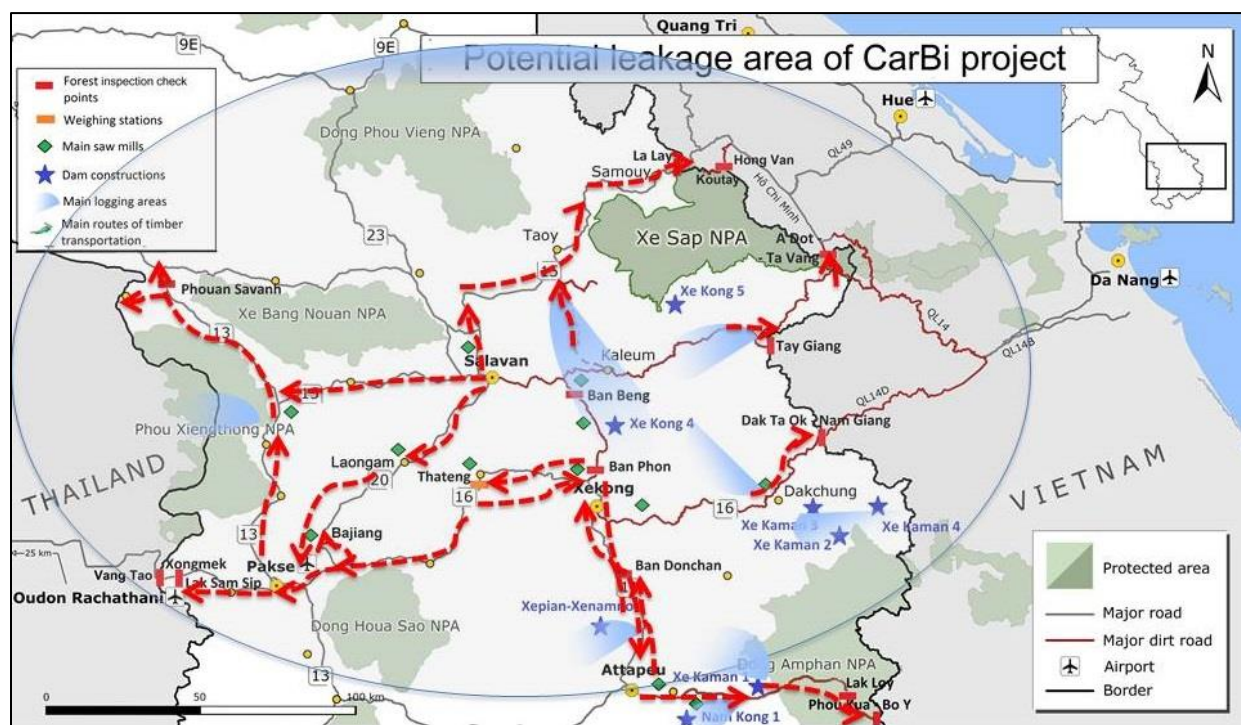
Note: low grade timber is responsible for 58% of total volume and and selling price for timber is surprisingly low - just slightly higher than price this timber was bought from POIC Sekong: US\$ 11-19 added for Mai Sakhai and US\$ 1-3 added for Mai maktaek. These extremely low profit margin likely indicates price understatement and backstage dealings between seller and buyer.

## Assessment of the volume of illegally harvested timber in Sekong province

This assessment was made for the nominal logging season from November 2010 until December 2011. This choice of logging season was determined by completeness of data that we possessed. Officially, quotas are defined with the beginning of logging season that starts in November and ends in May next year when raining season begins. At the same time there is a legal opportunity for development projects to get an extension for logging season in case of reasonable necessity.

The study for Understanding Timber Flows and Control in Lao PDR (2012) provides data on harvested timber volumes in the province for this period. If we sum up the volume of harvested timber in Production Forest Areas (9,876 m<sup>3</sup>, clearance of dam reservoirs (11,339 and 6,231 m<sup>3</sup> from Sekong 4 and Houay Lampan, respectively) and through logging related to coal prospecting and mining concessions of the Phonesack company (1,044 m<sup>3</sup>), the total volume of timber harvest in the province would be 28.5 thousand m<sup>3</sup><sup>32</sup>.

The estimated timber volume transported from the province is based on Vietnamese customs data on timber imported from Sekong via two check points (Dak Ta Ok - Nam Giang and Ta Vang - A Dot), and the logbook with records of trucks with timber products coming from Sekong province via weighing station Thataeng bordering with Champassak province during the studied period (fig. 6).



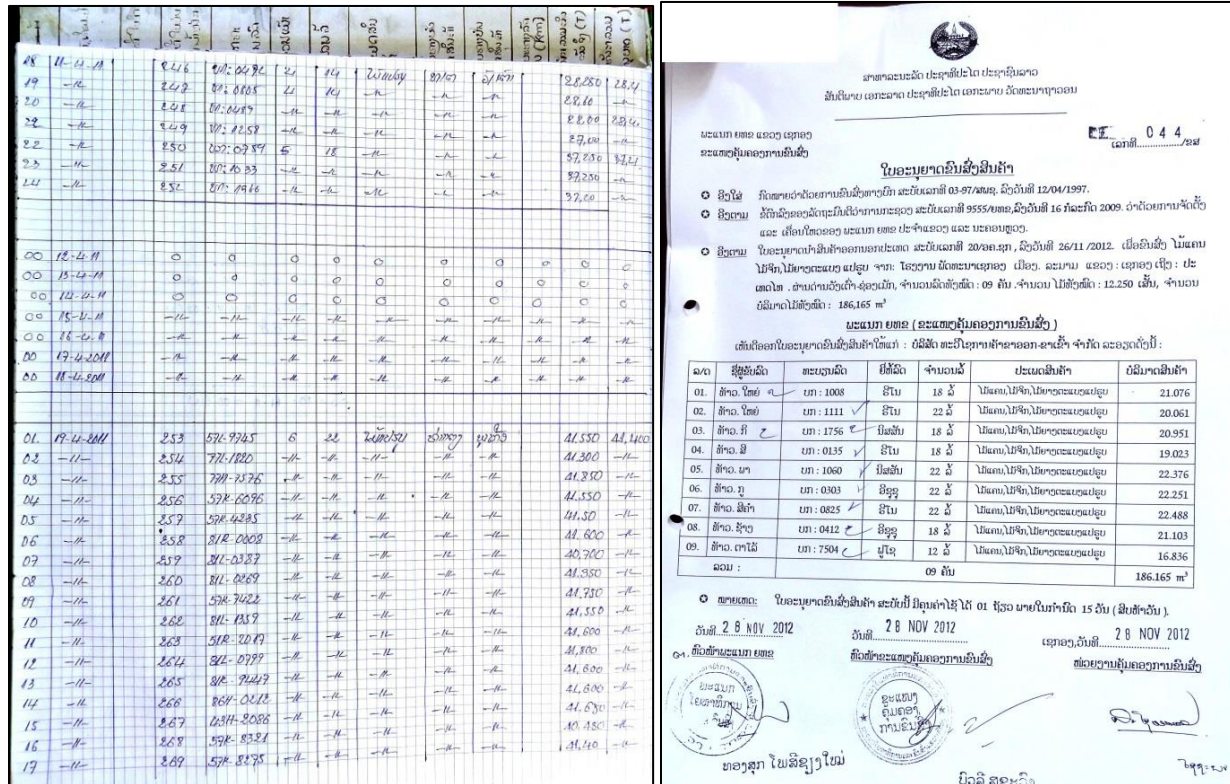
**Figure 6. Logging areas and main routes of timber transportation in the four southern provinces of Laos.**

According to data from Vietnamese customs 24,132.37 m<sup>3</sup> of timber products were transported from Sekong in 2011 via border check point Dak Ta Ok - Nam Giang. These products were



mainly comprised processed timber (66-75%). Furthermore 1,027.520 m<sup>3</sup> of unprocessed timber was transported via Ta Vang – A Dot check point.

A logbook in Thataeng weighing station has data about every truck with wood products that passes this point: type of shipment (round wood, finished), type of truck and shipment gross weight, point of loading and destination (fig. 7).







**Figure 8. Trucks with round wood in border check point Phou Kua-Bo Y (06 December 2013). Average diameter and length written on log butts allows for calculation of the volume of timber transported by truck: 20.8 m<sup>3</sup> (left) и 24.2 m<sup>3</sup> (right).**

From December 27 2010 until November 30 2011 weighing station Thataeng recorded 929 vehicles with timber from Sekong<sup>33</sup>, 38% of which were travelling to Thailand via check point Vang Tao-Xongmek, 20% - to Champassak, 19% - to Vietnam via check point Phou Kua - Bo Y, 19% - to Vientiane and 5% - to Borikamxay.

84% of all shipments were defined as “finished wood products” and only 16% as unprocessed timber (all transported to Champasak). Considering these data we can evaluate the total volume of all timber products transported across Thataeng, from 34.3 to 42.1 thousand m<sup>3</sup> in RWE depending on coefficient of conversion of “finished wood product” to raw material: 50%, as for sawn wood or 40% for a higher degree of processing.

There are three possible variants of assessment of the timber volume transported from Sekong (in RWE):

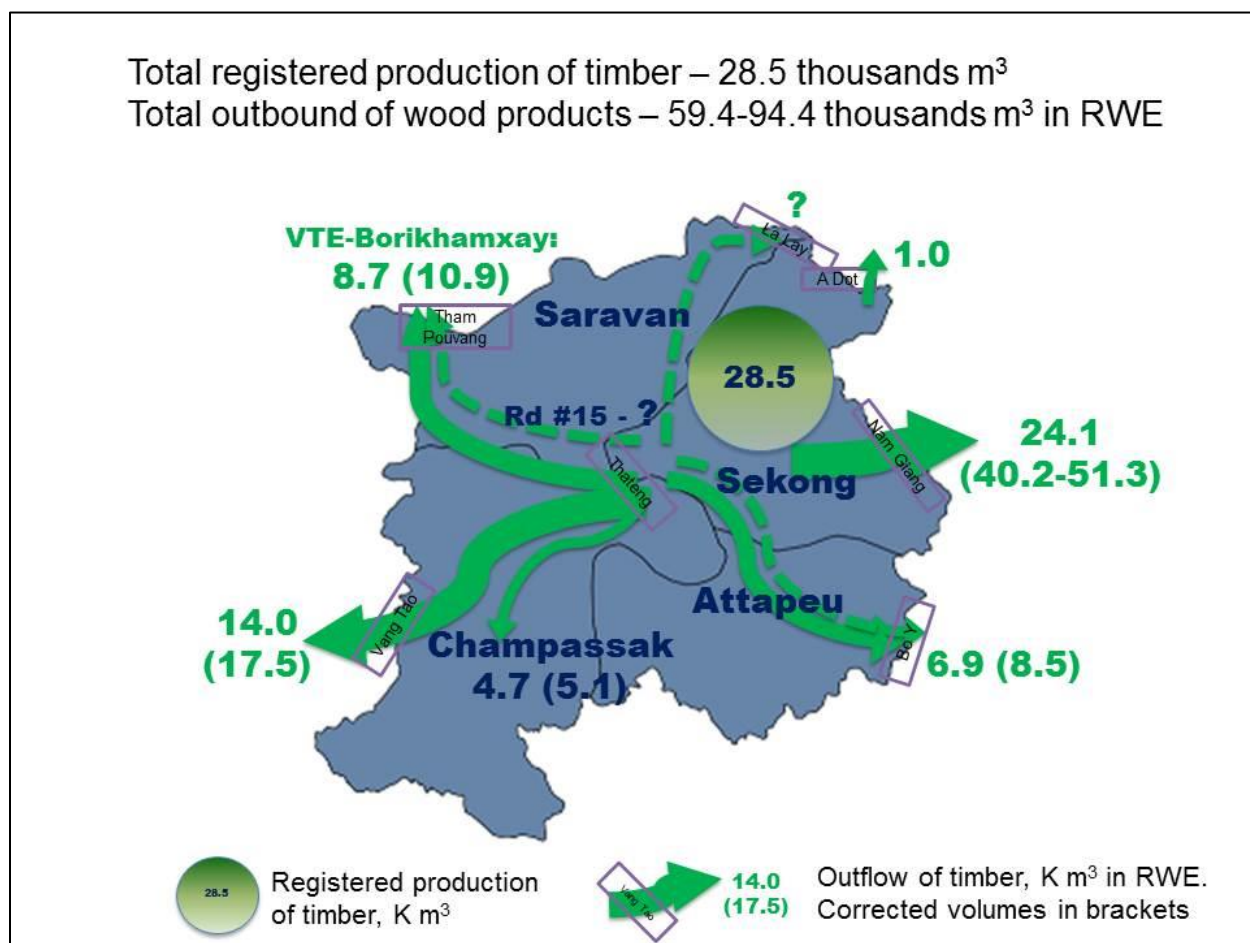
- Conservative - 59.4 thousand m<sup>3</sup> on assumption that all “finished products” transported via Thataeng were sawn wood (conversion coefficient 50%) and all import volume transported via Dak Ta Ok - Nam Giang was represented by unprocessed timber.
- Maximal - 94.4 thousand m<sup>3</sup> (75% of timber transported via Dak Ta Ok - Nam Giang represented by sawn wood with 40% conversion factor /coefficient).
- Interim assessment – 75.5 thousand m<sup>3</sup> using 50% conversion coefficient for “finished products” and sawn wood, as well as reduction of sawn wood share in timber import via Nam Giang to 66%.

These figures can be considered conservative estimates since they do not take into account other routes of wood products transportation from Sekong to Vietnam or Thailand:

- To Vietnam via check point Phou Kua – Bo Y in Attapeu province (the weighing station in Thataeng registers vehicles with wood products shipped to Vietnam only if they were loaded in the town of Thataeng);
- To Vietnam via check point La Lay in Saravan province. According to Saravan POFI during season 2012-2013 5.6 thousand m<sup>3</sup> of logs transported through the check point were registered which were harvested under the quota for the Sekong 4 dam construction. In December 2014 Homsanaxay sawmill in Saravan district received 3

thousand m<sup>3</sup> which were also harvested under the quota for the dam construction. Products of this sawmill are exported via check point La Lay to Vietnam or via Vang Tao-Xongmek to Thailand (in the latter case the wood also does not pass through the weighing station Thataeng).

Accordingly, we can assume confidently that the share of timber from unauthorized sources in the total volume of wood products transported from the province is not less than 50%, and most likely more than 60% (fig. 9).



**Figure 9. Assessment of volume of unauthorized timber harvesting in Sekong.**

It is unlikely that there was timber from other provinces among the timber products shipped from Sekong. Particularly, Saravan POFI officers from the check point Tham Pouvang (Lakhonophen district), located on the road #13S near border with Savannakhet province, deny any transportation of timber on the southern route (including Sekong) along the main highway<sup>34</sup>. Saravan has less timber resources (as evidenced by the closure of sawmills due to the shortage of raw materials). Thus it is more likely that timber from Sekong is transported to Saravan for processing only. No timber from Champassak destined to Sekong was registered in shipment records at the weighing station Thataeng. And timber from Attapeu was transported via Sekong only as transit to Thailand and Vientiane.

There is no evidence to assume that timber transported via check point Dak Ta Ok -Nam Giang was harvested outside Dakcheung district (Sekong province). First of all, this district does not have any good roads that could connect it to other territories in Sekong and neighboring areas of Attapeu province. Furthermore, the use of Dak Ta Ok –Nam Giang checkpoint for transportation of timber harvested outside of Dakcheung is illogical due to the existence of the well-paved road #18 to Vietnam in Attapeu province.

In addition checkpoint Ta Vang - A Dot was used only for transportation of timber harvested within Xe Sap NPA, as compensation for work on improving the quality of an unpaved road from the check point to village Ban Kalo, as well as construction of a bridge and houses in the village.

Moreover, the suggestion that the unaccounted timber in Sekong is timber purchased from other provinces is examined below taking into account the assessment of illegally harvested timber in all four southern provinces. As it was mentioned above there is lack of information about timber inflow to the southern provinces from other provinces (furthermore about the timber import from other countries). Consequently, if in the case of all four southern provinces the actual timber product output is significantly higher than the volume of harvested timber (or recorded timber on log landings) then it can be explained only by large-scale supply of timber from unauthorized sources on the given territory.

## Assessment of volume of illegal timber harvesting in the group of four southern provinces

Our third assessment was carried out for the group of all four southern provinces including Sekong, Saravan and bordering Champassak and Attapeu provinces. As was mentioned above this territory can be considered as “closed system”. i.e. a system that produces timber products but does not receive timber from the outside. Therefore by carrying out joint assessment for all four provinces we eliminate possible inaccuracy concerning timber exchange between provinces (fig. 6).

The most complete data on timber transported from the study area was collected for logging season 2011-2012 including data on export via checkpoints La Lay and Vang Tao - Xongmek (for period October 2011- May 2012), data from Vietnamese customs on timber shipments from Laos via checkpoints Phou Kua – Bo Y, Dak Ta Ok - Nam Giang in 2012 r., and data from Saravan POFI station in Tham Pouvang (Lakhonphen district) on timber transportation by road #13S to the north to other Laos provinces in 2012 (table 5).

**Table 5. Timber product shipments from southern provinces in season 2011-2012.**

Check point	Round wood, m <sup>3</sup>	Sawn, m <sup>3</sup>	Finished, m <sup>3</sup>	Unspecified, m <sup>3</sup>	Total outbound in 2011-2012 in RWE, m <sup>3</sup>	
					Option 1	Option 2
Phouan Savanh	40,774	3,030	-	-	46,834	46,834
La Lay	10,311.973	2,424.56	-	-	15,161.09	30,322.19
Dak Ta Ok	1,621	24,851	-	-	51,323	51,323
Vang Tao	-	17,668	5,303	-	48,593.5	97,187
Bo Y	n/a	n/a	n/a	194,224	194,223	242,780
A Dot	89.23	-	-	-	89.23	89.23
Total	52,796.203	47,973.56	5,303	194,294	356,224.8	468,535.4

Note: For Option 1 export via La Lay and Vang Tao is not adjusted; it is supposed that all timber brought from Laos via BoY was unprocessed.

For Option 2 export via La Lay and Vang Tao is adjusted (doubled); it is supposed that 25% of the timber that was shipped out via BoY was sawn wood.

Clearly, the data set is not uniform and is far from perfection.

First, for the two checkpoints we use data on export, and for two other checkpoints - data on import from Vietnamese customs<sup>35</sup>.

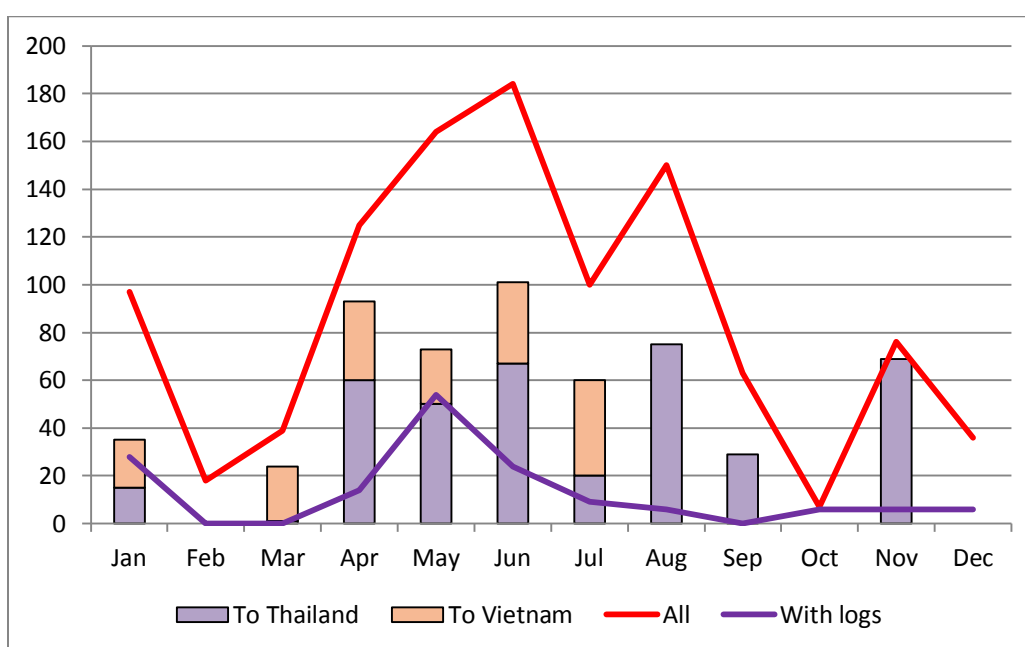
Second, the period for which we have data for export, October-May, begins earlier than the formal logging season (November-December). Thus export volume may include timber harvested during previous logging season 2010-2011 (and at expense of previous quotas). Since logging opportunities in October and November are limited by the law and by natural factors (the end of the rainy season) we believe that the volume of timber export during this period of time decreases so it will not lead to the overestimation of the export. For the estimation of possible errors we analyzed monthly dynamics of timber export in the 2011 calendar year using data from the weighing station Thataeng (fig. 10).

These data show that the total number of trucks with timber that passed the station in October-November was 8% of the total annual number. The share of vehicles with export products was

12% (considering that there were no trucks registered with export shipments in October). We believe that the common reduction of timber shipments in October-November demonstrates that there is a similar reduction in timber export as well.

Besides this, it is necessary to consider that we do not have export data for two Laos checkpoints for the second half of the season 2011-2012 – in June-October 2012. For similar period in 2011 r. the share of timber trucks that passed through Thataeng was 48% of the annual total, and the share of trucks with export shipments was 47% of the annual total (and 49% of annual number of trucks to Thailand). If we take only period June-September 2011 the share of timber trucks will be 47%, the share of trucks with export shipments - 47% (49% of trucks to Thailand).

Most likely, during season 2011-2012 we can expect similar dynamics. In this case the data on export volume from the two Laos checkpoints must be doubled to represent the whole export for one season.



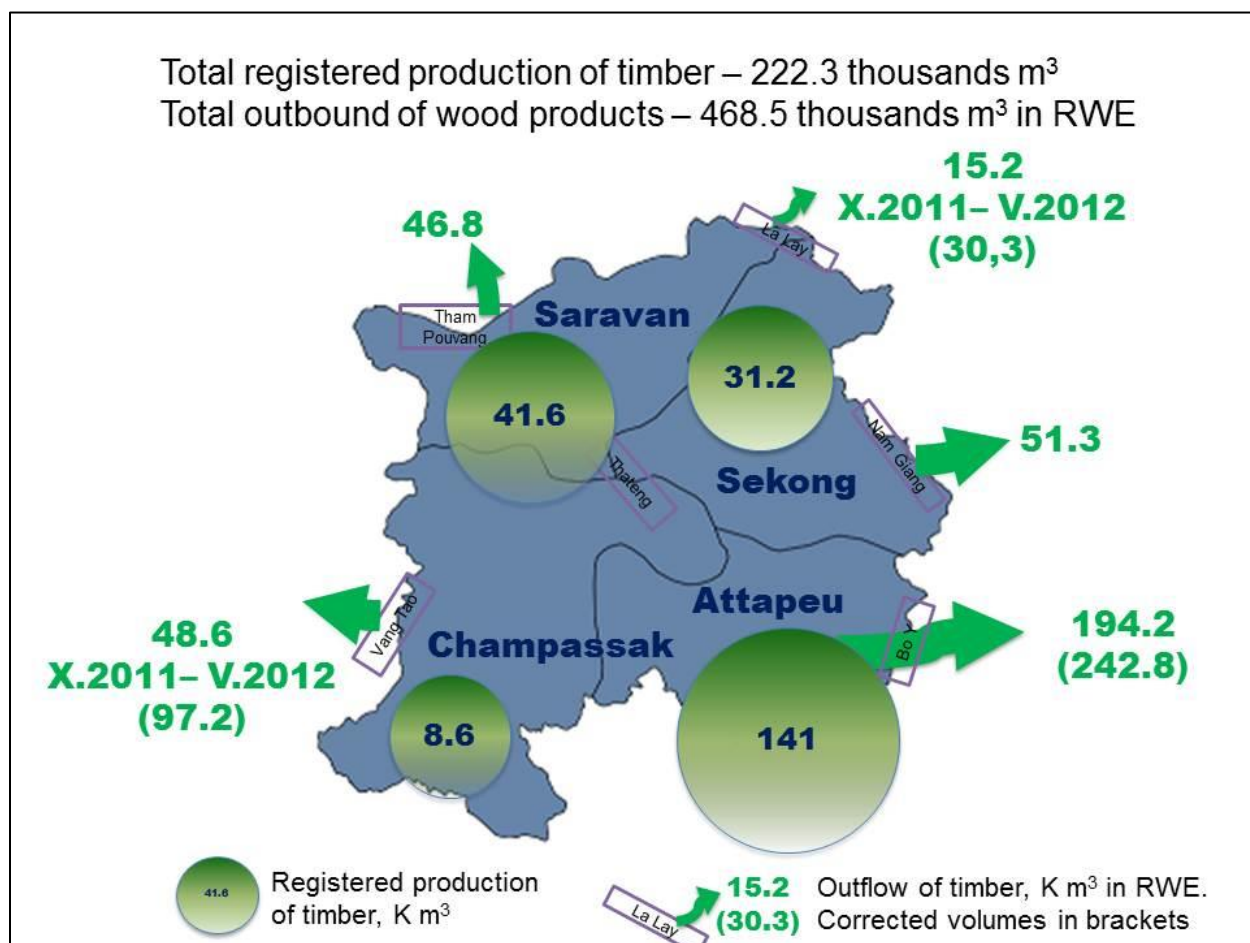
**Figure 10. Monthly dynamic of the number of trucks with wood products at the weighing station Thataeng in 2011.**

According to the data received from PAFOs Attapeu, Champassak, Saravan and Sekong, the total volume of timber harvest registered in these provinces was 222.3 thousand  $m^3$  from the quota of 250.9 thousand  $m^3$  (excluding Champassak province where we lack the data) (table 6). Based on unadjusted data the total volume of wood products shipped from the study area was 300.3 thousand  $m^3$ , including 52.8 thousand  $m^3$  of unprocessed timber, 48 thousand  $m^3$  of sawn wood, 5.3 thousand  $m^3$  of finished products and 194.2 thousand  $m^3$  of unspecified timber products. This volume is equivalent to 356.2 thousand  $m^3$  of round wood if we assume that all unspecified timber products were unprocessed (table 5). If we adjust export volume via La Lay and Vang Tao (double them based on extrapolation of timber flows dynamic in 2011) and assume that 25% of the export volume via Bo Y was sawn wood<sup>36</sup>, then the total export volume



will increase to 468.5 thousand m<sup>3</sup>. Thus the share of timber from unauthorized sources will be 53% (fig. 11).

In money equivalent the value of “extra” timber import of 246.2 m<sup>3</sup> (if we take the average contract value of imported to Vietnam one cubic meter of timber - \$US 251.4<sup>a</sup>) could exceed \$US 60 million (without the value of smuggled valuable tree species with a very high market price such as *Dalbergia* spp., *Pterocarpus* spp. etc.). This figure exceeds the Lao budget income from timber sales planned for 2013-2014 fiscal year by 3 times<sup>37</sup>.



**Figure 11. Assessment of volume of unauthorized timber harvesting in group of four southern provinces of Laos.**

<sup>a</sup> Based on data of Vietnamese customs on import of woodproducts from Laos via Dak Ta Ok-Nam Giang and Phou Kua-BoY border gates in 2012.

**Table 6. Quotas issued and registered production in southern provinces of Lao PDR in 2011-2012 (m<sup>3</sup>)**

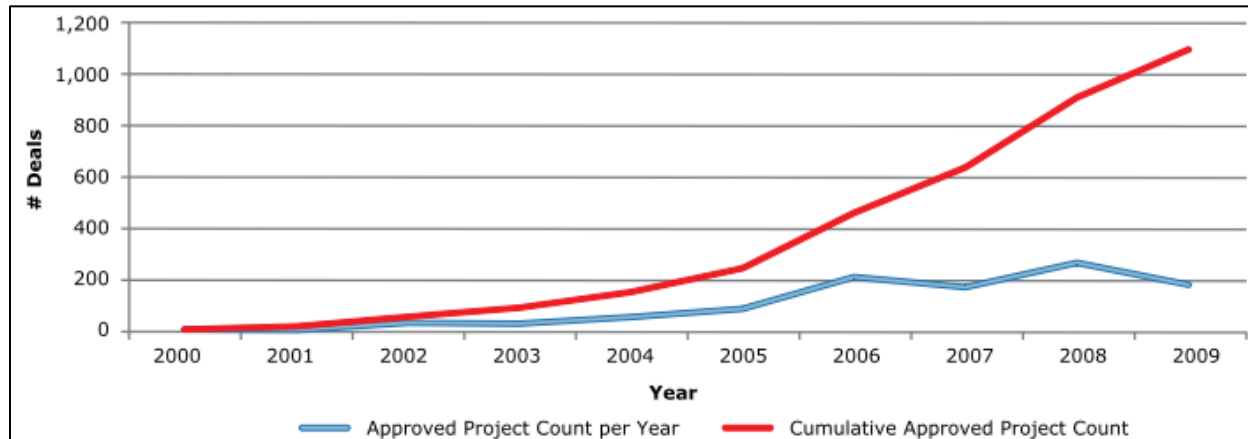
	Saravan		Sekong		Champassak		Attapeu	
	Quota	Record	Quota	Record	Quota	Record	Quota	Record
Mining/prospecting	Phonesack		Phonesack				Vang Tad	
	n/a	35,484	n/a	10,955			3,122	3,413.029
Dam construction			Xekong 4				Xekaman	
			n/a	8,540			145,000	55,896.683
			Houay Lamphan Gnay				Nam Kong	
			6,000	4,489			45,000	36,538.941
Infrastructure development	14,215	5,557	6,155	1,971	n/a	816	Road Sanamxay-Xepian and km 102-Phou Nyang	
							8,701.591	8,076.147
							Transmission line Nam Kong, Sanamxay-Xepian	
							1,965	1,458.212
							Road 18A Xe Khampho-Xe Pian	
Construction					n/a	115	555	0
							Provincial guest house	
							2,864	2,861.099
							For districts and villages	
Other land clearances								1,097.648
Debt compensation and relief			Ketsana flood relief		For road #14C construction		HAGL debt compensation	
			5,981	5,221	n/a	6,491	3,498	3,498.414
Other projects							Vang Tad development project	
							356	271.371
Timber from 2010-2011 season						1,031		
Plantations	850	529	700	0			200	94.174
Wood stumps					Siamese rosewood			584.662
					n/a	115		
Production Forest Areas	0	0	0	0	0	0	6,000	0
Total	15,065	41,570	18,836	31,176	n/a	8,568	217,261	140,981.68

## The sources of undocumented timber

Obviously, logging and processing of such significant volume of undocumented timber can not be undertaken by small logging brigades or individuals. Such a large-scale activity is possible only with the participation of companies who have technical capacity and legal basis to cover illegal timber harvesting and processing. Such legal basis arise out of allocation of quotas for timber harvesting which accompany clearance for plantations, construction work, mining or geologic prospecting.

The tendency of increasing reliance on wood from conversion for development project has been observed between 1990-1994 and 1995-1999 when almost two-thirds (63.1%) came from conversion (Lao PDR Production Forestry Policy, 2001). According to official data, the share of development projects peaked at 82.7% in logging season 2010-2010 while 7.8% of the volume was harvested in production forest areas (PFA) and 9.5% - in planted forests<sup>38</sup>. Beginning from the 2011-2012 season until now the Lao government has not issued quotas on logging in PFAs before a forest survey and forest management plans are made. According to the information from the MAF a survey on the remaining 780,000 hectares of production forest has yet to be completed by 2015<sup>39</sup>. Thus, today all official timber harvest in natural forests occurred in the framework of forest conversion.

The granting of concessions and leases in the Lao PDR has increased at an alarming rate since the beginning of the 2000s. From 36 projects valued at \$0.02 billion in 2000 the number of projects granted increased by a factor of 50 in less than ten years (fig. 12)<sup>40</sup>.

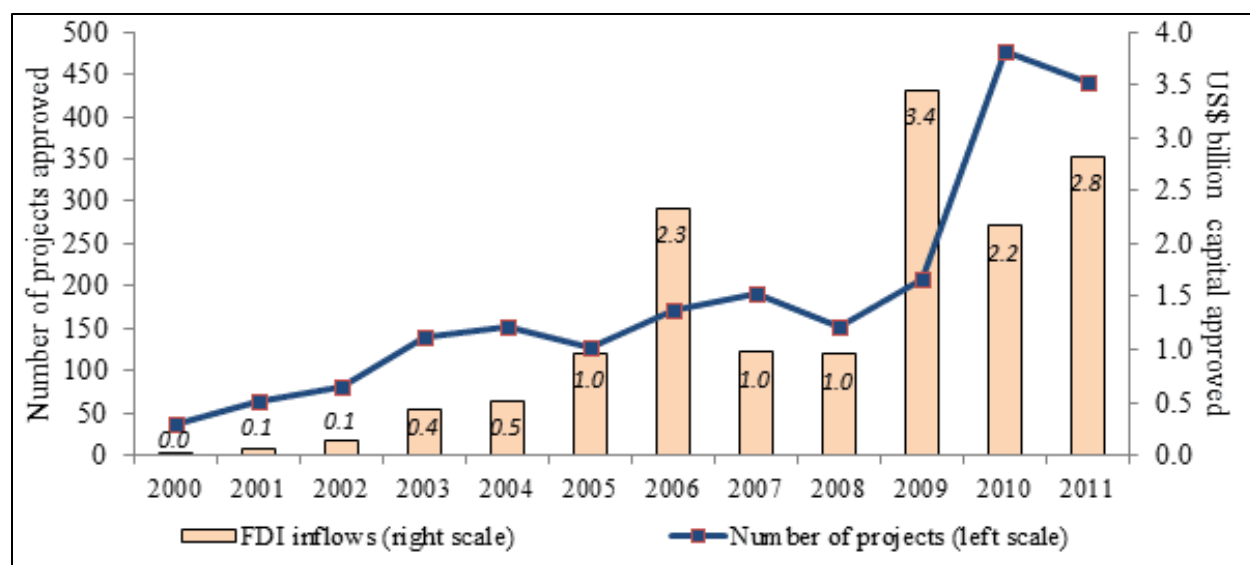


**Figure 12. Increase in investment project in Lao PDR since 2000.**

Source: Lestrelin G. et al. (2013).

According Lestrelin et al. (2013) there has been a very steep increase in land deals since 2005, while according to Sithanoxay Suvannaphakdy (2013) the inflow of Foreign Direct Investment (FDI) more than doubled between 2005 and 2006 (fig. 13).





**Figure 13. FDI Inflows approved in Lao PDR, 2000-2011.**

Source: Sithanontxay Suvannaphakdy (2013).

Despite the slight decrease in approved projects between 2007 and 2008, supposed to be related to the national concession moratorium announced by the prime minister in May 2007 (Lestrelin et al., 2013), already in 2009 alone, 208 projects were approved and implemented, valued at approximately USD 4.3 billion of FDI (PEI, 2010)<sup>41</sup>.

Most of investment is concentrated in the mining (29% of total FDI stock), energy (23%) and agriculture (15%) sectors<sup>42</sup>. Vietnam, the People's Republic of China (PRC), and Thailand account for more than 70% of FDI inflows.

Analysis of distribution of land deals across *land cover classes* has revealed that most of the lands which have been granted lie within “unstocked forests and ray<sup>a</sup>” (260,372 ha or 45% of the total area under investments) and forests (213,650 ha, 37%). 80-90% of areas granted for investments in the mining and forestry sectors are classified as unstocked forests and ray and forests<sup>43</sup>.

29% of the total area under investment (170,048 ha) and 330 projects (26% of all projects) occur on land *categorized as forests* by the Government of Laos (conservation, protection and production forests). The majority of land under investment categorized as forests falls into the management category of protection forests (130, 847 ha, 23%, 214 projects). Areas categorized as conservation forests have 61 projects covering 24,828 ha (4% of all area under investment). Of the projects occurring on land categorized as forests, mining, forestry and agriculture cover 51%, 35% and 9% of the total area.

Stenhouse and Bojo (2011) have suggested that up to 5 percent of the Lao NPAs are under some kind of mining concession and that up to 8 percent of the Lao NPA system are under some kind of hydropower or mining concession (with up to 5.4 percent of the NPA land area exploited or inundated)<sup>44</sup>.

<sup>a</sup> “Ray” are forest areas that have been subjected to swidden cultivation.

The dramatic jump in export value (and thus its volume as well) correlates well with the data on Foreign Direct Investment (FDI) inflows to Laos<sup>45</sup>. The doubling of Lao timber export (in value terms) in 2011 followed the peak of approved investment projects (476 projects) in 2010, which were related to the implementation of large hydropower projects<sup>46</sup>.

Most probably this dramatic rise in timber export reflects increase of timber harvest conducted through land clearance permits for realization of approved investment projects. It should be noted that the most investments (more than 70% of FDI inflows<sup>47</sup>) come from Vietnam, China, and Thailand, i.e. countries that have already been mentioned above as responsible for almost all Lao timber import (96-97% of total import value in 2011-2013).

However data from DOF demonstrate a reduction of official timber harvests in Laos in 2011 by 28-40% in comparison with the previous year. Thus if the assumption about cause and effect relationship between approval of investment projects and following increase in timber import is correct then we have to admit that “conversion” timber for some reason was not registered by authorized agencies (at least on the national level).

Much evidence has been collected recently to prove that some development projects in forested areas are used as front for logging operations (Baird, 2010)<sup>48</sup>. The same practice of getting access to forests under the mask of developing hydropower plants is reported to be applied in Vietnam<sup>49</sup>. For instance, allocation of rubber plantations contributed to recently reported encroachment of 39,000 ha in Phou Phanang and Phou Khao Khoay NPAs in Vientiane and Borikhamxay provinces<sup>50</sup>.

A recently released report on the results of a state land leases and concession inventory in Laos (2012) presents several case studies when agriculture concessions were allocated in healthy forests<sup>51</sup>. A number of cases were recorded when construction of roads and dams was accompanied by illegal logging outside of area granted.

Legal justification of quotas for logging of thousands of cubic meters of high grade timber during clearance of quarries for extraction of construction material, construction of unpaved roads or “salvage” logging in flooded areas of dams in some cases raise doubts and questions. Often even preliminary analysis using topographic maps and remote sensing data proves that it is impossible to harvest such volume of high grade timber due to the limited granted area or its poor timber resources (for example, river valley forests within planned reservoirs are usually covered with young fallow forest formed due to the swidden cultivation that is still widely practiced in Laos).

Data collected by previous researchers and also as findings of our survey show that the existing practice of issuing quotas for harvesting conversion timber significantly contradicts Laos legislation and creates favorable environment for large-scale illegal logging. Such practice has several main features:

- Maps for logging concessions are either inaccurate or do not exist.
- Demarcation of borders is not carried out.
- A pre-felling survey of timber designated for logging or is not conducted (or sometimes is falsified) or is done only technically (formally) for the sake of appearance and is not used in practice.
- Logging takes place in areas with high quality timber regardless of concession borders.

- Relevant agencies (DAFO, PAFO, POFI, PONRE) neither control compliance of location of logging sites with the borders of concessions nor composition of the harvested timber with permits.

Unavailability of maps and even simple schemes with the concession borders has been a systematic violation, as was shown by the concession inventory conducted in Vientiane Province in 2008-2009 (Findings of the State Land Concession and Lease Inventory Project, 2009)<sup>52</sup>. According to this inventory only 5% of the total number of active land lease and concession projects were able to provide proper maps with boundaries of lease/concession areas (12 of 237) including 3.5% of agriculture projects (4 of 114) and 10.9% of mining projects (6 of 55). In 21.9% of cases representatives rough hand-drawn maps were available including 27.2% of agriculture projects (31) and 21.8% of mining projects (12). But it has been noted that these maps often “did not reflect reality”.

It is hard to imagine that in most of these cases relevant agencies simply did not keep or lost these documents especially given that the majority of concessions and leases were granted during a 3 years period (2006-2008) before the survey was done. It is more likely that it is common practice to not map boundaries. Study team also revealed cases when plantations were allocated in primary or healthy secondary forests and even in conservation and protection areas.

Low quality concessions maps were demonstrated by several examples of case studies in the research “Concessions and Leases in the Lao PDR (2012)”. In one case in 2006 a company was granted authorization for a rubber plantation of 214 ha. At the same time borders on the map attached to the contract covered an area of 3,411 ha. By the time the inventory was made the developer had already cleared 345 ha of forest. In another case the map for the clearance area of 1,172 ha was mistakenly attached to contract, which many times exceeded the size of the area granted for coffee plantation clearance of 150 ha. In this case company also used this “mistake” and cleared an area much larger than was approved.

Two other examples were taken during testing of improved timber tracking system for “conversion timber” implemented as part of the WWF CarBi project from January 2014 to April 2015.

## Case study #1: The clearance of forest for a limestone quarry (Saravan province)

One of the pilot quotas was given for the clearance of forest for limestone quarry in Saravan district in the province of the same name. According to a notification of the Minister of Agriculture and Forestry from 11<sup>th</sup> of November 2013 (No.0082/MoAF)<sup>53</sup>, and decision of the Saravan governor from 2<sup>nd</sup> of December 2013 (No.600/SPG)<sup>54</sup> the logging plan in financial year 2013-2014 included “5,000 m<sup>3</sup> of timber in the limestone concession area within 1,500 hectares in Saravan Province”. The map provided by PAFO specified concession borders for the limestone quarry only for 505 (504?) ha (fig. 14).

According to PAFO explanation the specified volume was only approximate and was supposed to be confirmed basing on field survey before logging began. It is worth mentioning that Laos forest legislation requires precise specification of expected volume and species composition in the annual plan for infrastructure projects based on result of pre-felling survey which includes measurements and marking of all trees with a diameter of more than 15 (or 10) cm<sup>55</sup>.

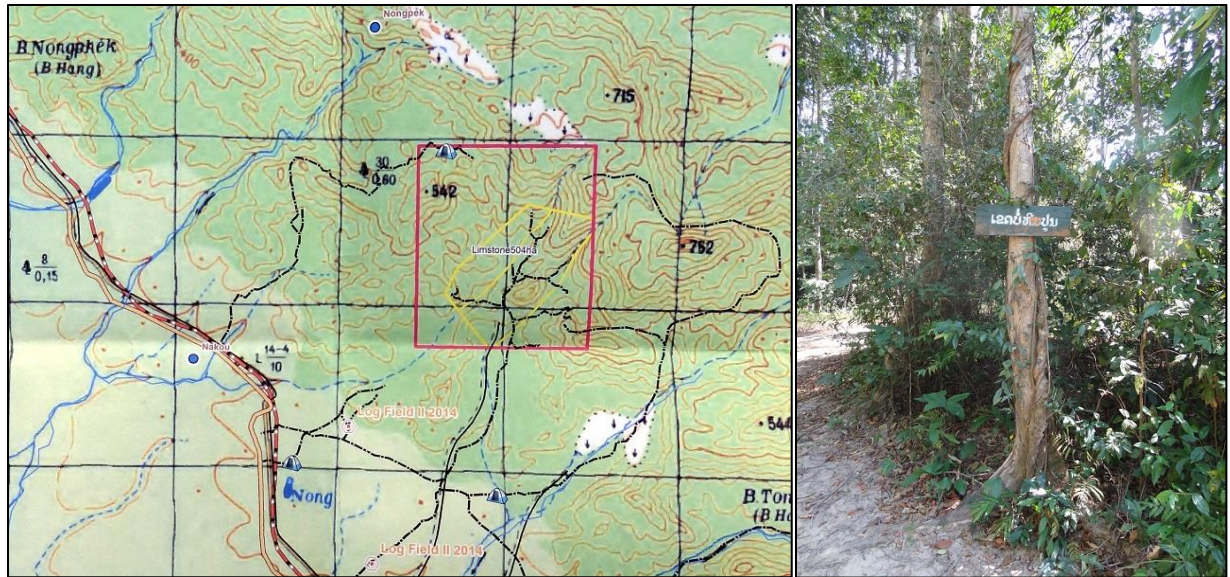
At the same time a pre-felling inventory conducted in the period from 8 to 28 of January 2014 had covered only 233 ha of the 505 ha of concession (46%). 1,622 trees of 53 different species with circumference from 1,000 mm (i.e. with diameters more than 30 cm) were measured, axe-marked, enumerated and some of them located with GPS<sup>56</sup>. Total volume amounted to 2,908 m<sup>3</sup>.

While visiting the surveyed area in January 2015 we discovered that far from all trees with a diameter of more than 30 cm were registered (i.e. had no marking). Furthermore the principle of trees selection remained unclear since some of the unmarked trees had quite a high commercial value in comparison with the marked trees (fig. 15).

Logging under this quota started no later than on 21<sup>st</sup> of January 2014 i.e. a week before the pre-felling inventory was completed (fig. 16). Concession borders were supposed to be demarcated later. However according to the District Agriculture and Forestry Office (DAFO) staff the unavailability of demarcated borders would not create problems since loggers were familiarized with their location.

During field inspection in March-April 2014 we found that most of the logging sites were located outside the concession borders specified by the maps (fig. 17). Representative of DAFO speculated that actual area of the government-approved concession could be 1,500 ha but had no idea where the borders of the larger concession were. Later it was confirmed that the area of concession of the limestone quarry issued by Department of Energy and Mining was only 505 ha. PAFO did not have any other maps for the larger clearance area but still allowed logging on the area at 1,500 ha. Moreover it is difficult to understand why PAFO and DAFO planned demarcation of borders for “smaller” concession at 505 (504?) ha.

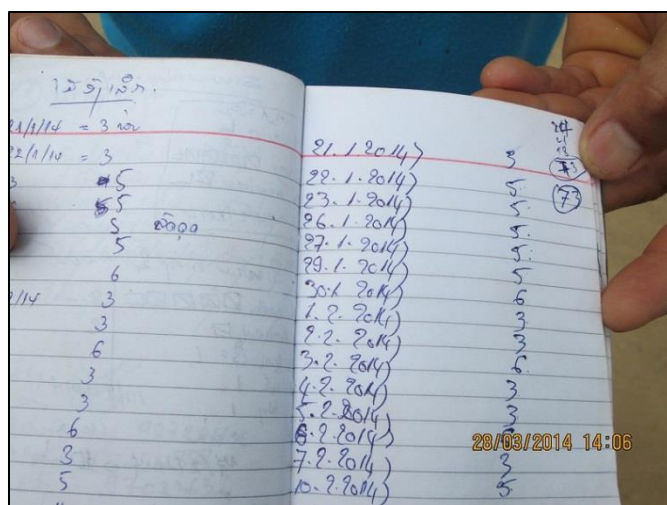




**Figure 14. Given PAFO map with the concession borders for limestone quarry of 504 ha (red border), area of 233 ha where pre-felling inventory was carried out (yellow border). A sign showing concession border on the forest road (right).**



**Figure 15. Example of a marked tree with low commercial value that was not logged.**



**Figure 16. DAFO officer notes about supply of harvested timber in log landing II: the first record dates to 21 January 2014.**

Results of mapping of logging sites in this area based on comparison of very high resolution satellite images made prior logging (WorldView-2, 30 December 2013) and upon logging completion due to the beginning of the rainy season (Kompasat-3, 05 June 2014) showed that 76% of detected new logging sites (35.4 of 46.8 ha) were located beyond the concession borders (fig. 18). Field truthing confirmed that all logged sites detected through analysis of the satellite images were real.

Accordingly, just few of hundred logs examined in log landing II had marks from pre-felling inventory (fig. 19). According to official assessment only 22.2 m<sup>3</sup> (19 logs) from the total volume of 3,290 m<sup>3</sup> harvested during the season under the quota had been counted during the pre-felling inventory (i.e. less than one percent) . Furthermore in the area of the pre-felling inventory we found logging of unmarked trees that grew next to them marked trees that were not harvested.

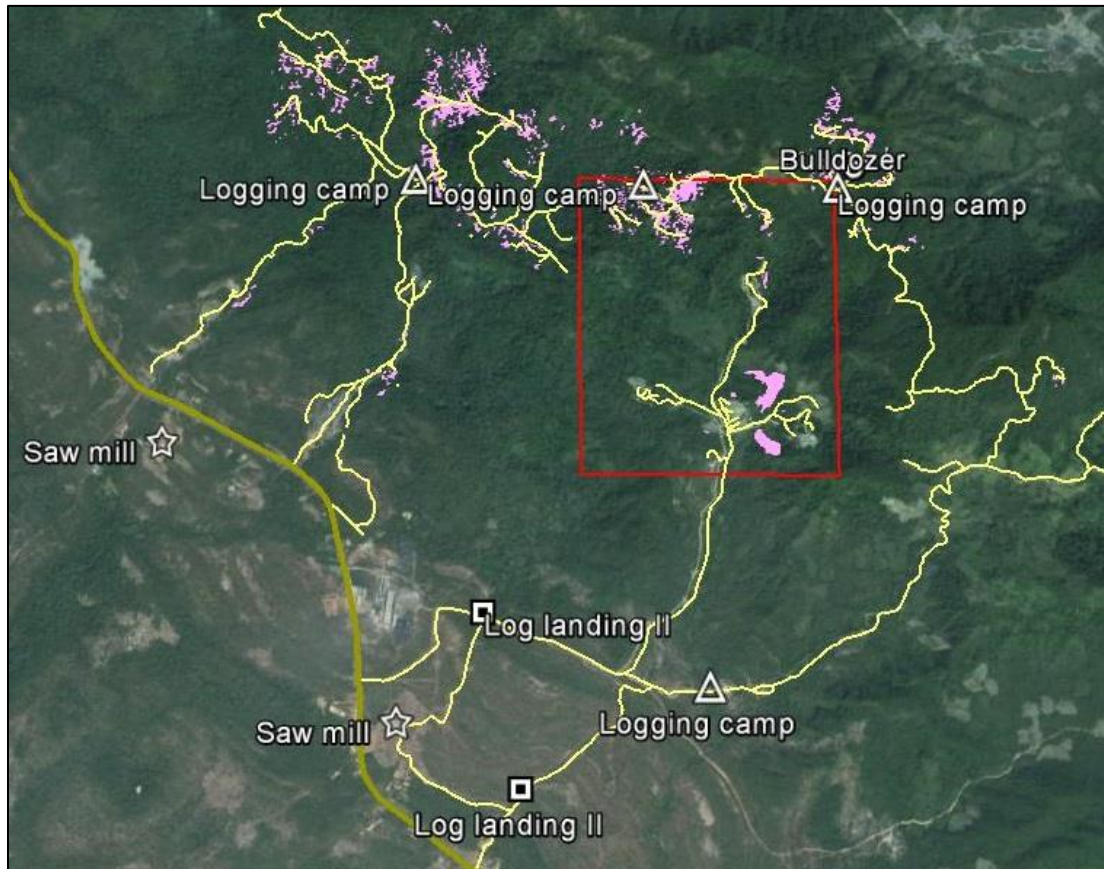
During the pre-felling inventory 53 different species were counted. At the same time harvested timber came from only 19 species. 80% of harvested timber as represented by 3 species: Mai bark (*Anisoptera robusta* or *costata*) – 41%, Mai yang (*Dipterocarpus* spp.) – 29%, Mai chick (*Shorea hypochra* or *obtusa*?) – 10%. However according to pre-felling inventory the share of these species estimated at 13% (9%, 4% and less than 1% correspondingly) (fig. 19).

In addition there are reasons to doubt the practical necessity of conversion of such significant areas of forest (505 ha and moreover of 1,500 ha) for limestone quarrying. Satellite images analysis showed that from the beginning of Zhongya Yuxi Cement Lao Company work in 2012<sup>57</sup> until now the area for limestone quarrying comprised only 14 ha (i.e. the increase of the area for the past period comprised not more than 7 ha per year).





**Figure 17. Bulldozer with the logo of the forestry section for management of logging and forestry at the coal exploration concession area Saravan-Taoy, Saravan Province, found working outside the concession border (ca. 200 m), 28 March 2014.**



**Figure 18. Location of new logging and land clearances (purple outlined polygons) conducted in 2014 in area with limestone quarry concession (concession borders are highlighted in red).**



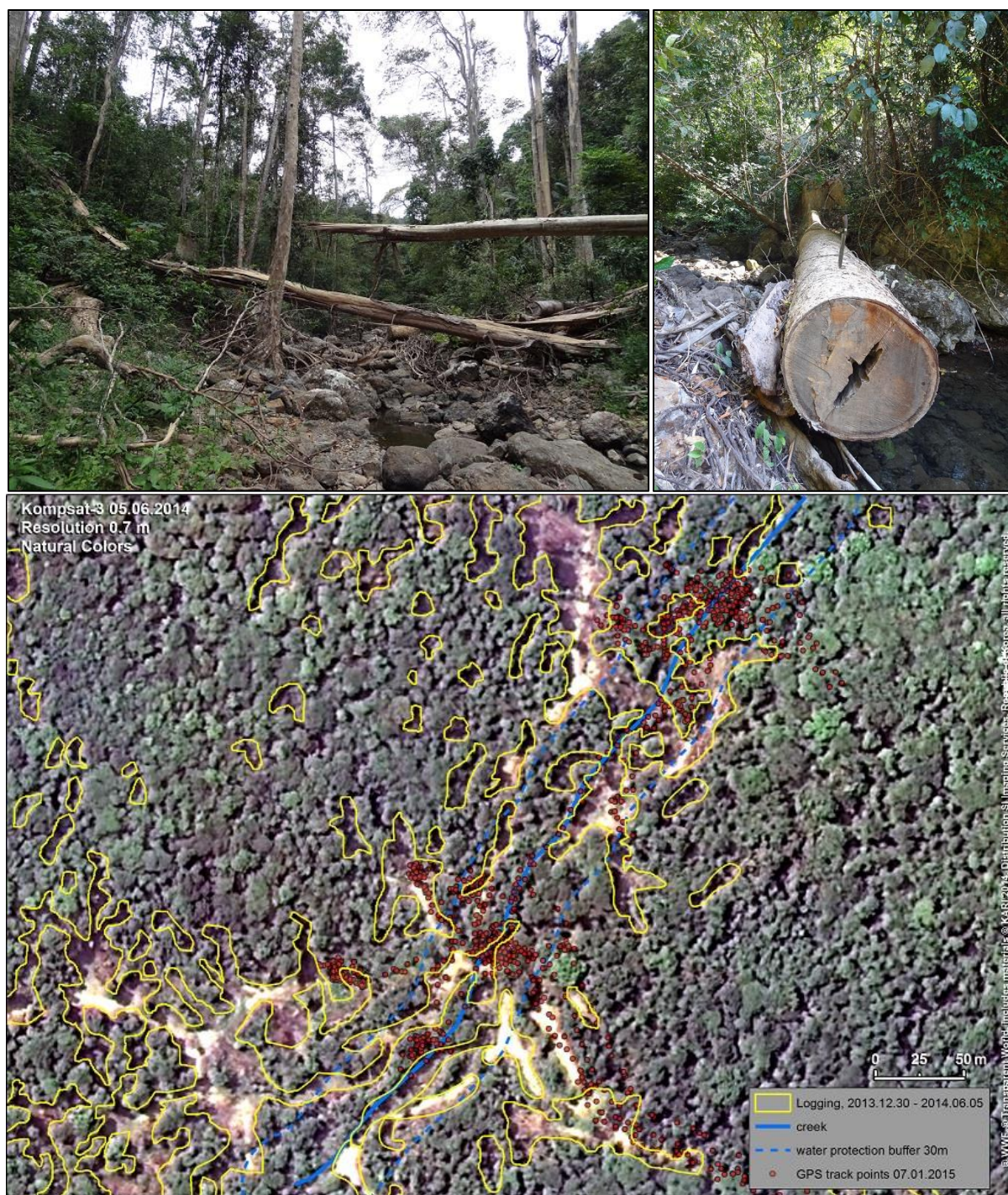


**Figure 19. Logs on Log landing II (in clockwise order from top left): a log marked during the pre-felling inventory; Mai bark (*Anisoptera robusta* or *costata*); Mai yang (*Dipterocarpus* spp.); Mai chick (*Shorea hypochra* or *obtusa*?).**

According to field checks logging was aimed at harvesting targeted commercial timber without any visible connection with the potential areas of limestone quarrying, including logging in environmentally sensitive areas: slopes more than 35 degrees, 30-50 m buffer zones along river and stream banks (excluded from timber harvesting in PFAs according to regulations<sup>58</sup>) (fig. 20). The entire logging area is located inside one of the Production Forest Areas (Poutalava) (fig. 21), where the government suspended approval of logging quotas before the work on management plans was completed. Large-scale selective logging on the pretext of land clearance (but in reality harvesting of more valuable tree species) led to the depreciation of PFA as a future source of timber.

PAFO and POFI did not detect any violations of law during timber harvesting. According to decision of commission consisted of representatives of PAFO, DAFO, POIC, Department of Public Asset Management and Provincial Finance Department all harvested timber was registered in log landing II and transferred to the buyer – Homsanaxay sawmill (fig. 22). In December 2014 PAFO has permitted Homsanaxay sawmill to export wooden products made of this timber to Thailand and China.





**Figure 20. Logging in the riparian zone of Houay Poun river.**





Figure 21. Board with map of Phou Talava PFA erected by the side of the Rd. #15B.

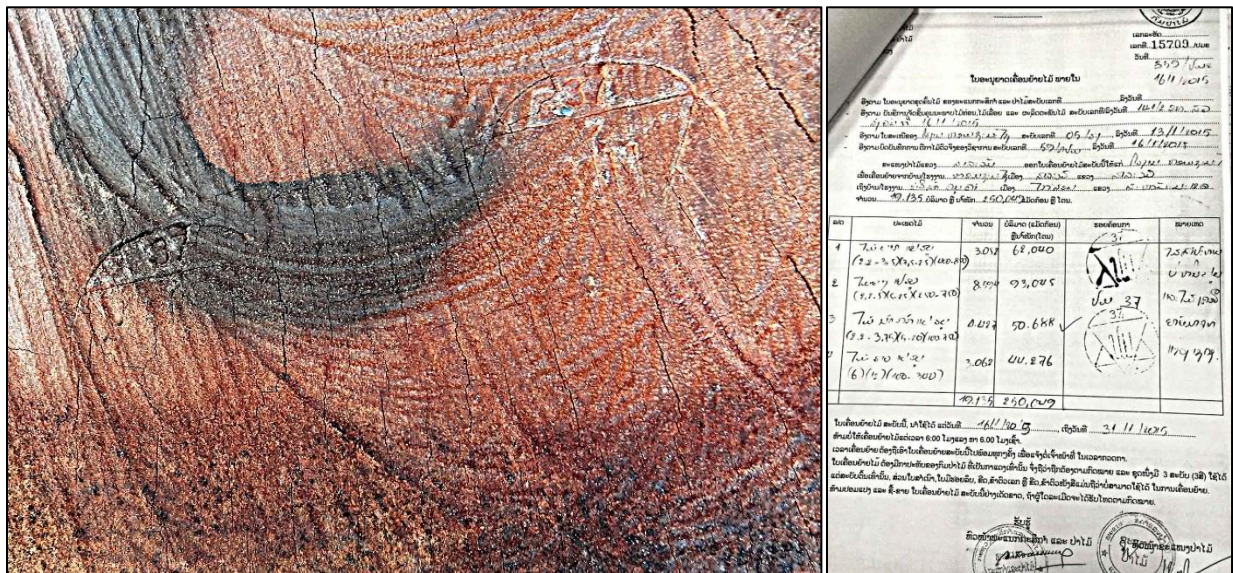


Figure 22. Logs in log landing II marked with “released hammer stamps” (ປຸມ) of PAFO Saravan for domestic transportation. Example of permit to transport wood (right).

## Case study #2: the clearance for Rd. Ban Panon-Thongsa (Sekong province)

The second “pilot” timber harvesting quota was given for construction of road from Kaleum district of Sekong province to Ta Oy district of Saravan province (Rd. Ban Panon-Thongsa) with the project length of 101 km. Logging was supposed to be carried out within 25 m zones from road center on both sides (it is clearly indicated also in governor’s decision on pre-felling survey and in logging license). The designed route of the road could be located based on the following mapping documents:

1. Scheme made in topographical base scale ca. 1:220,000 which was attached to the set of authorizing documents. According to this scheme the road was built in almost completely off-road area, from scratch mostly inside the protection forests (Xekong-Xekaman) and Xe Sap NPA (fig. 23).
2. Sketch of road with 11 geo-referenced points without topographic base (fig. 24). Shape of the road in bare outlines corresponds to the first scheme for the exception of western end of the road (fig. 25).
3. The route of the road based on the Google Earth’s satellite image which was provided by Department of Public Works and Transport (DPWT), Sekong (fig. 26). Location of the road is evidently different from the previous variant as we can see in combined picture (fig. 27). The eastern end of the road is located near village Kra San, however it is signed on the map as “Panon”. In reality the village with this name is located 19 km to the southwest.

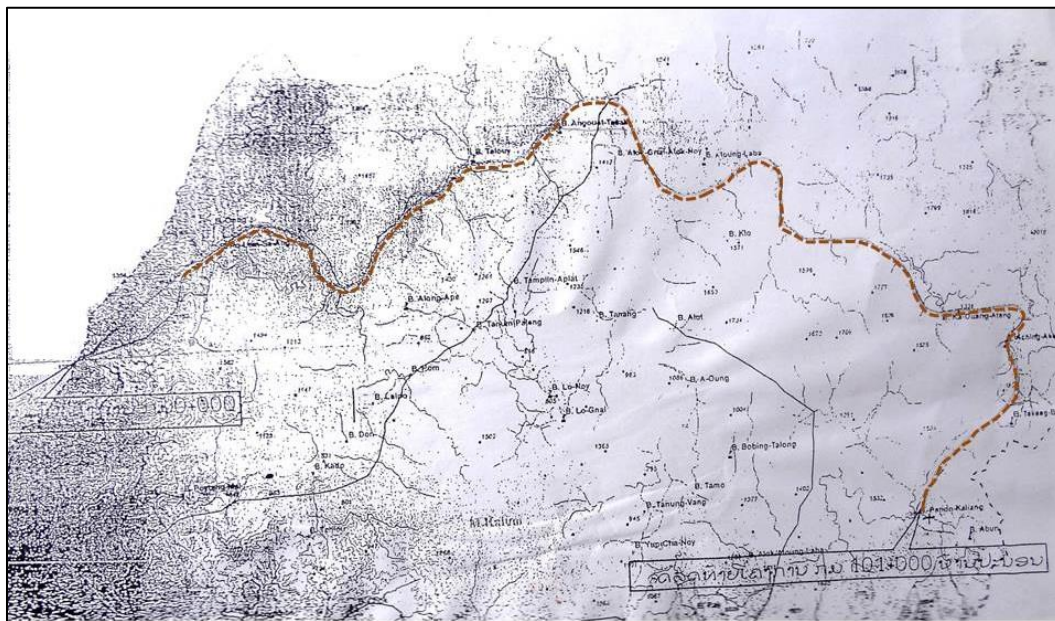


Figure 23. Scheme of route of Rd. Ban Panon-Thongsa made with topographic base.



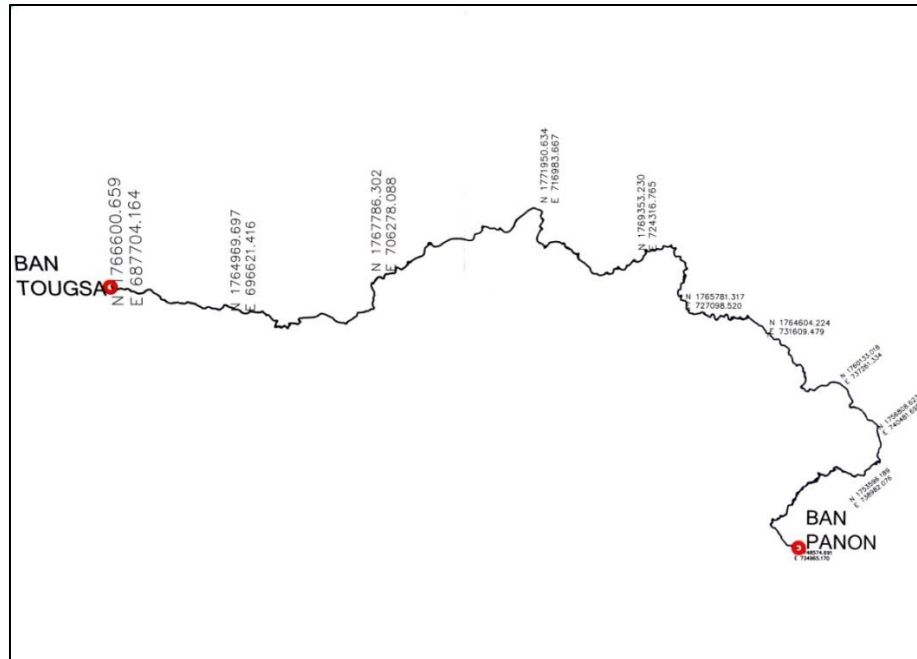
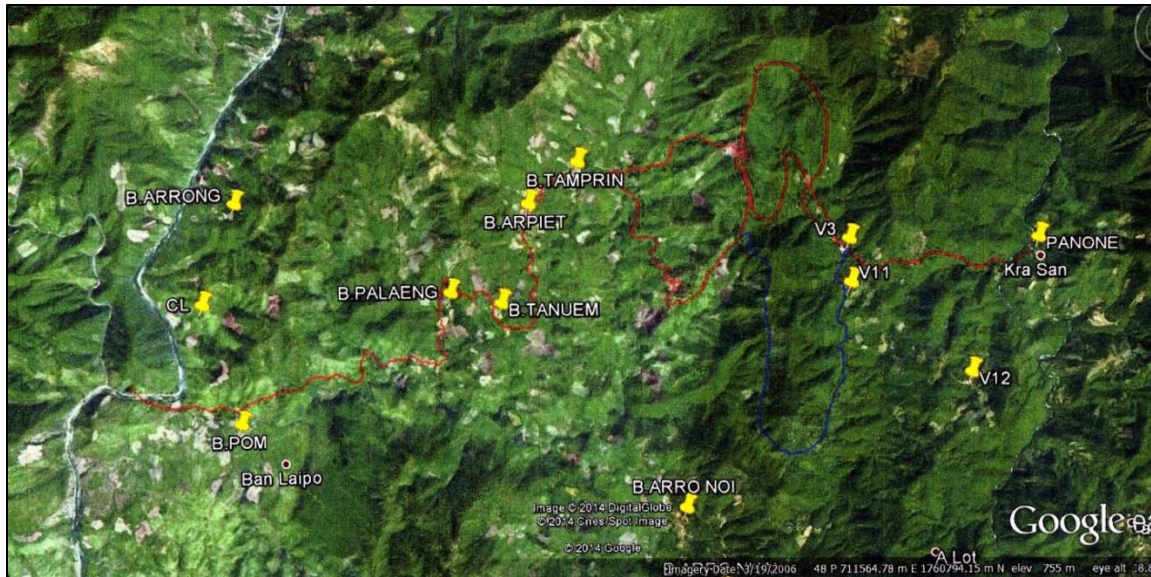


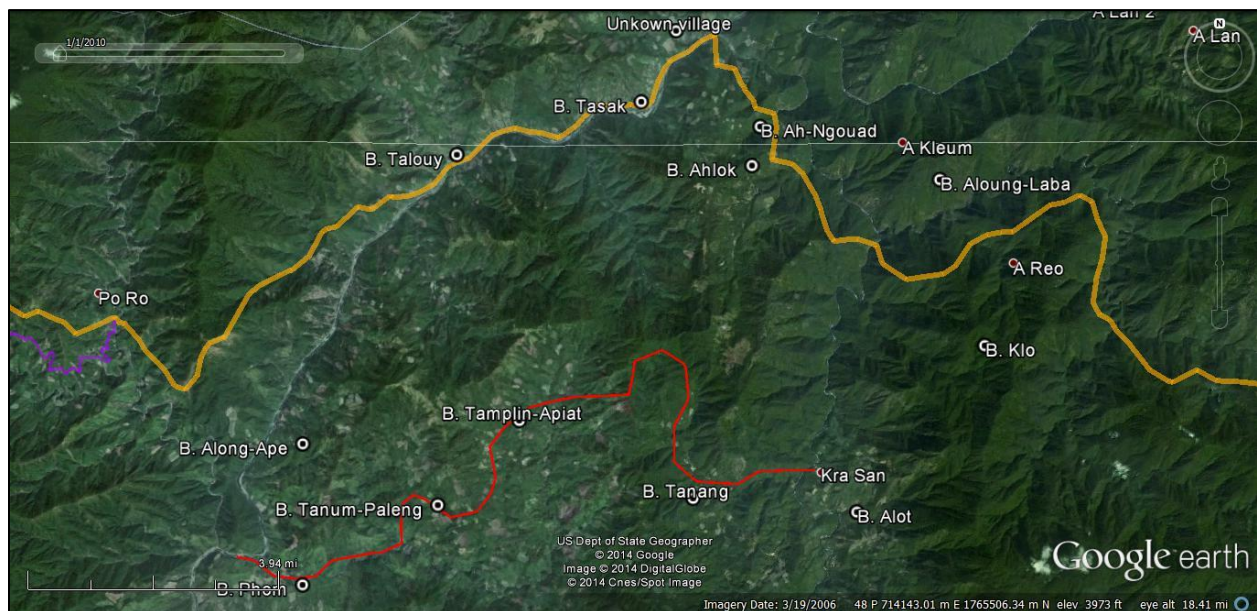
Figure 24. Sketch of Rd. Ban Panon-Thongsa with geo-referenced points without topographic base.



Figure 25. Location of geo-referenced points ("PT road marks") comparing to road route from the first scheme (blue line). Red line shows already built road.



**Figure 26.** The route of the road on the base of Google Earth's satellite image provided by DPWT Sekong.



**Figure 27.** Combination of two schemes with the Rd. Ban Panon-Thongsa. Yellow is the first variant of the road, red – the third (provided by DPWT Sekong), purple – already constructed road (our field record).

According to the data that we collected timber harvesting in the framework of this quota began no later than in December 2012. Field observations in March 2014 showed that the new road was already constructed 20-25 km from the western end (fig. 28). Evidently construction of the road in practice deviates widely from the all variants.

There is obviously no connection between road construction and scheme of DPWT Sekong. The differences between current route and route shown on the first two schemes are quite significant. It can be proven that these schemes can be used only as reference/sketch for



constructors from the fact that the already built road does not cross geo-referenced points indicated on the second scheme. Even in the best case the road approaches the original point no closer than 150 m (“PT road mark 2”).



**Figure 28. Comparison of the constructed road (highlighted in red) with the variant on the first scheme (light purple) and geo-referenced points taken from the second scheme.**

Representative of DPWT Sekong admitted that road construction is carried out with the deviation from the project road and construction of new road is carried out impromptu<sup>59</sup>. According to the opinion of informed persons such practice in Laos is not the exception but the rule. The lack of good road engineering results in great number of dead-ended branches that reflect the process of on-site route selection in the process of construction.

Evidently for such practice of road engineering and construction pre-felling inventory in the field loses its meaning while desk prediction of harvest volume and its species composition can be done with very low accuracy.

In accordance with the order for pre-felling inventory timber measurement must have been done along the road designed by DPWT within 25 m zone from the road center on both sides<sup>60</sup>. The survey was carried out by 6 staff appointed to conduct it (incl. PAFO, DAFO, DPWT, District Public Work Department, representative of the construction company). The duration of survey was limited to 15 days from 19<sup>th</sup> of December 2011 to 02<sup>nd</sup> of January 2012. According to official report actual survey has taken just 13 days from 18<sup>th</sup> to 30<sup>th</sup> of December 2011<sup>61</sup>. Total number of recorded trees was 10,638 of 9 species with total volume 19,120.856 (table 7).

**Table 7. Summary of results of pre-felling inventory for road construction**

No	Tree specie (Lao name)	Tree specie (Latin name)	Number of trees	Volume m <sup>3</sup>
1	Mai Paek ມ້າຍປາກ	Pinus spp.	3,934	7,125.576
2	Mai Sakhay ສາຄາຍ	Betula alnoides	3,427	5,196.000
3	Mai King (Hing)	Keteleeria evelyniana	418	804.604
4	Mai Taek ມ້າຍຕາກ	Prunus arborea (Pygeum arboreum)	1,284	2,205.199
5	Mai Long Leng ໂລງເລງ	Fokienia hodginsii	50	88.956
6	Mai Bark ມ້າຍບາກ	Anisoptera costata	303	1,179.315
7	Mai Yang ມ້າຍຢາງ	Dipterocarpus spp.	387	1,532.208
8	Mai Deng ມ້າຍແດງ	Xylia xylocarpa	438	524.681
9	Mai Dou ມ້າຍດູ	Pterocarpus macrocarpus	397	464.317
	Total		10,638	19,120.856

There are serious doubts that these figures were received during real field trip research.

First, from the practical point of view it was impossible to complete pre-felling inventory on the road 101 km length on the area of 505 ha with only 6 people within 13 days. The daily work of every member would have to be 136.4 trees. At the same time the daily work of a single surveyor in the case of pre-felling inventory for limestone quarry concession in Saravan was only 4.3 trees (table 8).

There are only 9 timber species (that have commercial value) listed in results of this survey, what is evidently less than the number of species that are very likely to grow in the area of road construction and had to be accounted. Besides, DAFO and PAFO could not provide us with the original information (list of measured trees) that they used as the basis for final calculations. Officers of these agencies could not locate the route of the road on the ground as well.

For comparison during the pre-felling inventory for the limestone quarry 53 species were counted. The results of the survey were based on the list of measured trees. For some trees GPS coordinates were identified. Marked trees could be found on the site. Moreover the limestone quarry concession has a smaller area and situated in the area with the network of



unpaved roads, less than 3 km from the paved road #15, which minimized logistics problems. In contrast to this during the survey of road Ban Panon-Thongsa the pre-felling inventory survey team had to work in the off-road and steep terrain.

**Table 8. Comparison of results of pre-felling inventories for road Ban Panon-Thongsa and limestone quarry concessions.**

	Road B. Panon-Thongsa	Limestone quarry
Concession area, ha	505 (100 km x 0,05 km)	500 or 504
Number of surveyors	6	18
Number of days / man (surveyor) days	13 / 78	21 / 378
Surveyed area, ha	505	233
Number of trees / species recorded	10,638 / 9	1,622 / 53
Average volume of tree, m <sup>3</sup>	1.797	1.793
Volume, m <sup>3</sup>	19,120.856	2,908.1984
Trees per ha/ m <sup>3</sup> per ha	21 / 37.86	7 / 12.5
Trees per man day	136.4	4.3

By the middle of 2014 road construction was carrying out only from the western direction marked in the project as area near Thongsa village. We did not find signs of logging along the roadsides: neither for clearance nor for harvesting. This is likely connected with the quality of forest as it is mostly depleted by shifting cultivation practices and is represented by young fallow and bamboo forests. Accordingly this area does not have attractive timber of commercial value (fig. 29).



**Figure 29. Road under construction (within Xe Sap NPA) with young fallow and bamboo forests without commercial timber by the sides.**

All detected logging sites were situated in the area near Ban Panon village where the eastern end of the road is designed in accordance with the project. However no road construction work was carried out at the time of the inspection. The area near Ban Panon is attractive for commercial logging due to the comparatively good quality of low-disturbed forest left here (probably the result of low population density and inaccessibility of the area). Moreover opening of the new border check point Kaleum - Tay Giang on April 25<sup>th</sup> 2013 just 7 km from Ban Panon



(15 km by unpaved road) makes border crossing legal, including transportation of timber from Laos (fig. 30).



**Figure 30. Border gate Kaleum-Tay Giang**

On the Vietnamese side this check point is located in Tay Giang district of Quang Nam province and connected by a 66 km road (mainly unpaved) with the Ho Chi Minh Highway. According to people interviewed on the Vietnamese side the decision about opening this check point was made by government upon request to transport timber harvested in Laos under the quota for the construction of the Ban Panon-Thongsa Road.

According to interviews on the Lao side logging started in December 2012. The representative of the Vietnamese import-company Minh Ha Hanoi also confirmed that logging began as early as 2012<sup>62</sup>. Our field observations in their turn confirm that logging began not later than the middle of January 2013.

Since PAFO Sekong provided us with log lists only for year 2014 we can assess the volume of officially documented timber for the season 2012-2013 only from secondary sources:

- agreement of purchase-sale between POIC Sekong and buyer Ketthisay company (1,411.530 m<sup>3</sup>);
- export permit granted to Ketthisay by POIC Sekong (1,725.729 m<sup>3</sup>);
- difference between the total quota size and permitted volume for given quota in logging season 2013-2014 according to logging license issued by PAFO on 06.12.2013: 19,120.856 m<sup>3</sup> (total quota) - 17,394 m<sup>3</sup> (license for 2013-2014) = 1,726.856 m<sup>3</sup>.

According to 3 log lists compiled by PAFO Sekong in May 2014 2,426.585 m<sup>3</sup> of timber had been harvested by the end of logging season 2013-2014<sup>63</sup>.

Two of these log lists were made for log landing II in the area of Ban Panon (1,719.761 m<sup>3</sup>), while the third one – for log landing II in the area of Dakcheung (706.824 m<sup>3</sup>). Therefore by the

middle of 2014 according to official data more than 4,183 m<sup>3</sup> of timber was harvested under the quota, including not more than 3,446 m<sup>3</sup> in the area of Ban Panon. As it was mentioned above due to the poor road network timber harvested in Ban Panon area could be transported only to Vietnam via Kaleum-Tay Giang border gate.

By mid-2014 according to Vietnamese customs documents from the time when the check point was opened the volume of imported timber is estimated at 6,750 m<sup>3</sup> (i.e. about 35% from the total quota volume) with contract value US\$ 1,717,823 (table 9).

**This volume exceeds the total timber volume officially registered on the Lao side by 96%.**

It should be emphasized that the only legal basis for timber harvesting on the Lao side in the area of the check point is the quota on construction of Ban Panon-Thongsa Road. Interviewed people on the Vietnamese side also referred to this as single quota as the only source of imported timber.

Due to the poorly developed roads network in the eastern part of Sekong province, timber that was registered on log landing II in Dakcheung area (706.824 m<sup>3</sup>) could not originate from either Ban Panon or any other place close to the planned road Ban Panon-Thongsa. Most probably permission documents for this quota were used for legalization of wood from unauthorized logging. Similar cases had already been mentioned earlier by us in May-June 2013, when employees of the company sub-contracted for logging in the course of the Ban Panon-Thongsa road construction were found with heavy equipment while they searched for wood in south-east corner of Xe Sap NPA – more than 20 km from the nearest location of constructed road. This area has unquestionable advantage for logging since it allows transportation of timber to Vietnam by a good quality road via nearby border gate Ta Vang - A Dot. In that case representatives of PONRE Sekong notified surveyors of the illegality of their intention.

**Thus considering the timber on log landing II in Dakcheung area the total volume of timber from unknown sources comprised 4,011 m<sup>3</sup>, i.e. more than the volume of timber from nominally known sources.**

Export resumed in January of 2015 and according to Vietnamese customs additional 4,209 m<sup>3</sup> of timber have been shipped from Laos by the beginning of April 2015 while the Lao official asserts that there was no harvest in logging season 2014-2015 in the framework of the quota for road construction and only timber left over from the previous season is being exported. All this volume was imported by one Vietnamese company, Minh Ha Joint Stock Company Co. Ltd., on the basis of sales and purchase agreement with only one Lao exporter - Sekong Province Wood Processing Factory (subsidiary of Minh Ha Joint Stock Company Co. Ltd. on Lao side).

Since the beginning of 2015 another Vietnamese company Loc Thanh has also shipped around 300 m<sup>3</sup> of timber via Kaleum - Tay Giang. This timber was stored on the Vietnamese site in a transit log depot near the border and is waiting for completion of customs clearance.

**Thus in 2013-2015 total import via Kaleum - Tay Giang amounted to 11,300 m<sup>3</sup>, which is more than three times higher than harvest according to PAFO Sekong data (table 9).**

According to the information provided on the Lao side only two permission documents were issued for timber export via this border gate with a total volume of 2,645 m<sup>3</sup>. However, according to POFI Sekong these permission documents were not used as well. Therefore it remains unclear what legal grounds were used to export this timber.

Of six cases of timber transportation in 2013-2015 documented by the Vietnamese customs only two cases (in December 2013 and January-April 2015) were recognized by the Lao controlling agencies.

Besides the discrepancy mentioned above between the officially documented volume and the timber export volume significant discrepancies were found in data about species and quality composition of timber. For example, logging of 5 tree species was documented with 88% of the volume made of two species: Mai Sakhai (60%) and Mai Paek (28%). According to the data from pre-felling survey these species comprised 64% of planned harvest (27% and 37% accordingly). While already by mid-2014, according to official sources, 20-22% of the total volume had been harvested the volume of Mai Sakhai reached 44% of quota (fig. 31). Mai Champa pa comprised 10% of harvested volume though this species was not included in permit documents<sup>64</sup>.

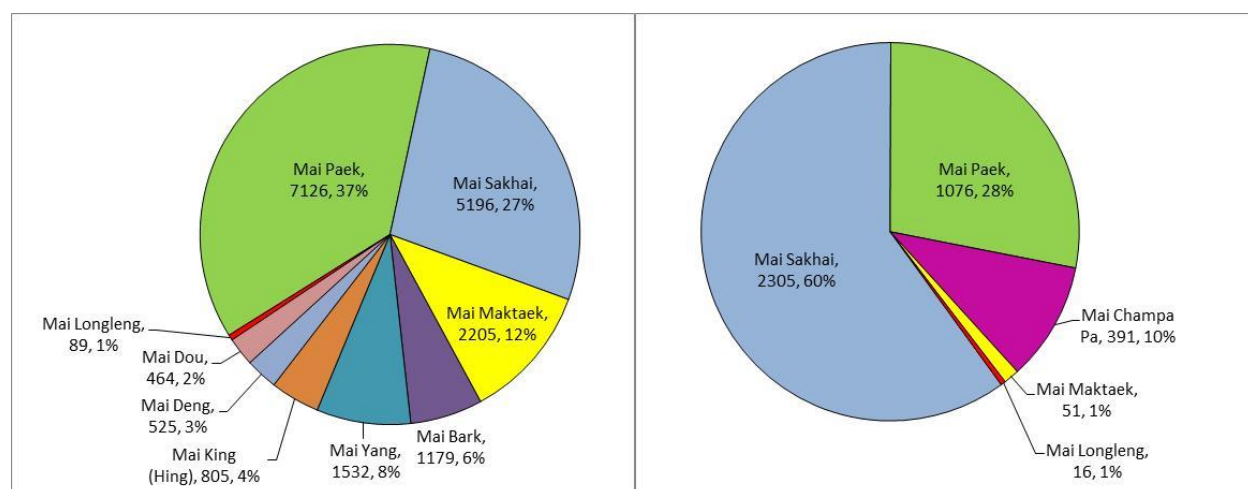
Vietnamese Customs documented 6 tree species in import via Kaleum – Tay Giang border gate (fig. 32). Mai Sakhai and Mai Champa pa are presented in quite similar proportions as in total harvest – 63 and 11% accordingly (in harvest recorded in Ban Panon area – 73 and 12%, respectively). However the volume of import of both species exceeds official harvest on Lao side by 1.9 times. The volume of already imported Mai Sakhai amounted at 83% of the total permitted volume as indicated in pre-felling inventory. Mai Longleng amounted to 13% of import (855 m<sup>3</sup>). It exceeded its officially documented harvest by 53 (!) times, which is 10 times more than the volume in the pre-felling inventory<sup>a</sup>. Import volume of Mai Paek (743 m<sup>3</sup>) exceeded official harvest in Ban Panon area (438 m<sup>3</sup>) by 1.7 times.

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<sup>a</sup> Note that all official harvest of Mai Long leng was recorded in log landing II in Dakcheung and accordingly, there were no documented sources for Mai Long leng shipped via Kaleum – Tay Giang border gate.

**Table 9. Comparison of data on export and import via Kaleum-Tay Giang border gate**

Official logging and export data	Import data
	18 June 2013: 2,397.403 m <sup>3</sup> worth US\$ 519,401.29 declared
28 November 2013: POIC Sekong issued export permit for 1,725.729 m <sup>3</sup> which was not used according to POFI Sekong	
Total harvested volume in 2013 – 1,726 m <sup>3</sup>	
	11 February 2014: 2,680.274 m <sup>3</sup> worth US\$ 628,625.1 declared
	28 February 2014: 1,305.026 m <sup>3</sup> timber declared
26 March 2014: “export of timber in this check point took place only once during two weeks in December 2013...” from interview with Lao police officer, the head of border check point Kaleum.	
	24 April 2014: 99.804 m <sup>3</sup> declared (incl. 32 pieces of Burma padauk ( <i>Pterocarpus macrocarpus</i> ) and 1,216 pieces of Burmese rosewood ( <i>Dalbergia oliveri</i> )
28 May, 2014: no export yet at any time in this season... For the harvested timber in 2014 (624 logs, volume 1,700 m <sup>3</sup> ) no log lists were completed; according to DAFO officer it is planned to export since November 2014	
	02 June 2014: 267.45 m <sup>3</sup> declared
08 July, 2014: PAFO Sekong has issued Permit for Transportation of Timber and Wood Products for Export of 919.355 m <sup>3</sup> which was not used according to POFI Sekong	
14 August, 2014: no export according to POFI Sekong. For the harvested timber in 2014 (624 logs, volume 1,700 m <sup>3</sup> ) no log lists were completed; according to DAFO officer it is planned to export since November 2014	
Total harvested volume in 2014 according to logging license: 1,719.761 m <sup>3</sup>	
29 January 2015: export started from 19 January 2015 according to Deputy Head of Kaleum - Tay Giang check point	Import resumed in January 2015
Inspection at the end of April 2015: no new logging this season (from January 2015) and only timber left from previous logging season is exported.	By the beginning of April: 5 shipments with total volume 4,280.99 m <sup>3</sup> (Mai Sakhai, Mai Champa pa, Mai Paek, Mai Longleng) worth 24,883 million VND (ca. US\$267 thousands) declared. Additional 300 m <sup>3</sup> were shipped across the border but not cleared yet.
Total official logging / export (?): 3,445.761 m <sup>3</sup>	Total import: 11,030.947 m <sup>3</sup> + ca. 300 m <sup>3</sup> worth US\$1,984 thousands + US\$ XXXX



**Figure 31. Species composition of harvest according to permit (left pie chart) and recorded harvest (right pie chart).**

Data on harvest are based on:

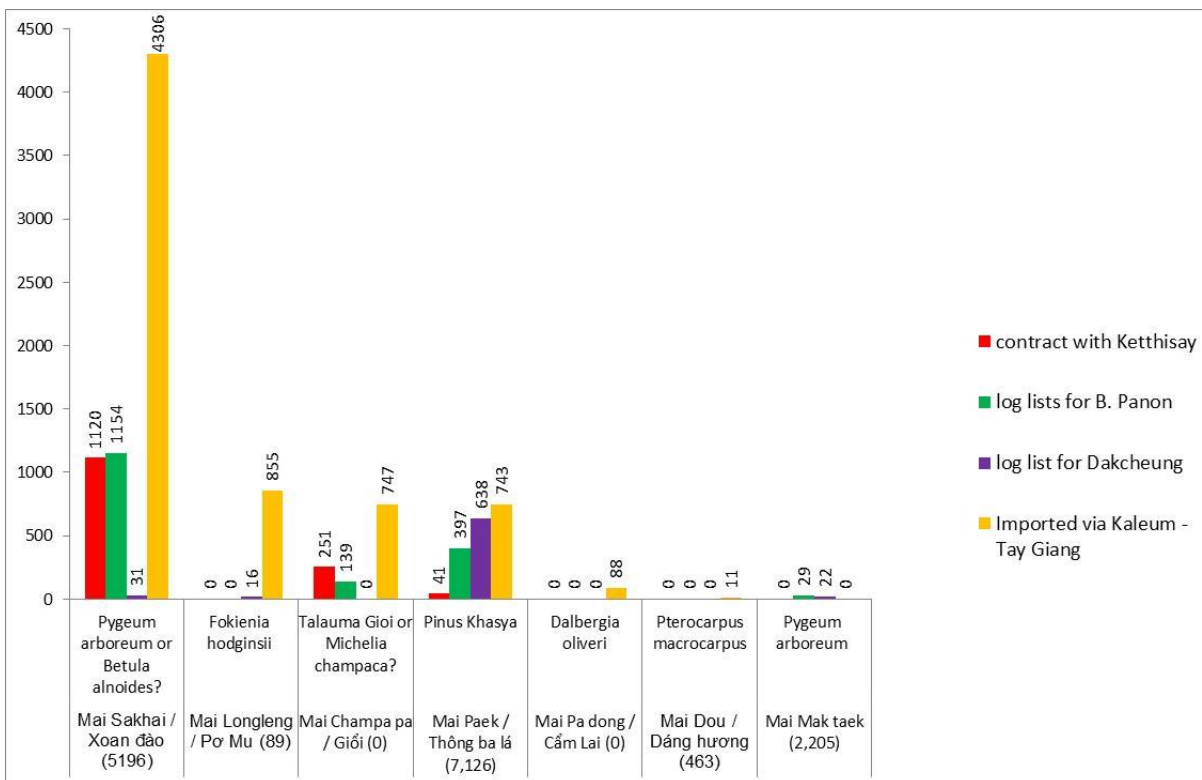
- Contract on sale and purchase of logs from log landing II between Division of Industry and Commerce and Mr. Vilayphone (Ketthisay company), #695/XPIC. 20/06/2013;
- POIC price quotation #46 20/06/2013 for timber harvested under construction of road 101 km;
- Log lists in log landing II #2 (Dakcheung) on 09/05/2014, #3 (Ban Panon) on 09/05/2014, #5 (Ban Panon) on 13/05/2014.

Import also includes two tree species for which harvest was not officially documented on Lao side: 11.399 m<sup>3</sup> (32 pieces) of Mai Dou (Burma Padauk, *Pterocarpus macrocarpus*) and 88.405 m<sup>3</sup> (1,216 pieces) of Mai Pa dong (Burmese rosewood, *Dalbergia oliveri* synonym *D. bariensis*). Harvesting of Mai Pa dong as well as the early mentioned Mai Champa pa was not permitted by the authorization document. All three of these species (Mai Dou, Mai Champa pa, Mai Pa dong) are restricted for logging according to the Forest Law without special government permission. The most indicative is that according to the data from Vietnamese Customs Mai Dou and Mai Pa dong have been transported in form of small-sized square logs and planks. The average weight of one piece of Mai Pa dong amounted for 94 kg. This conforms to the convenient size to be transported by motorbikes which are widely used in Laos and Vietnam to carry illegally harvested valuable wood from the forest.

It is necessary to note the contradictory interpretation of Lao names of tree species into scientific Latin names in documents (packing list, invoice) provided by importer to Vietnamese customs office. Thus in packing list and invoice Mai Sakhai is interpreted as *Pygeum arboreum* (Rosaceae family, syn. *Prunus arborea*). At the same time in Laos Mai Sakhai univocally matches the scientific name *Betula alnoides* in Betulaceae family (see for instance Lao Tree Seed Project, NAFRI) while *Pygeum arboretum* is given as Mai Taek (Inthakoun, Delang, 2008)<sup>65</sup>. It is worth mentioning that Mai Taek is also specified by the pre-felling inventory for the given quota as separate species.

According to “Ministerial agreement on measurement of logs...”<sup>66</sup> and “Lao flora...” (Inthakoun, Delang, 2008) it is clear that Mai Champa pa name is used for *Michelia champaca* which is classified as protected tree species by Lao forest legislation<sup>67</sup>. But in the packing list and invoice

Mai Champa pa is interpreted as Talauma Gioi which in Laos is called Mai harm. Both Michelia Champaca and Talauma Gioi belong to same Magnoliaceae family but to different genus: Michelia and Talauma respectively. These two species have different mechanical and physical properties and are distinguished by manufacturers of wooden goods (Identification...; Simpson, 1996)<sup>68</sup>.



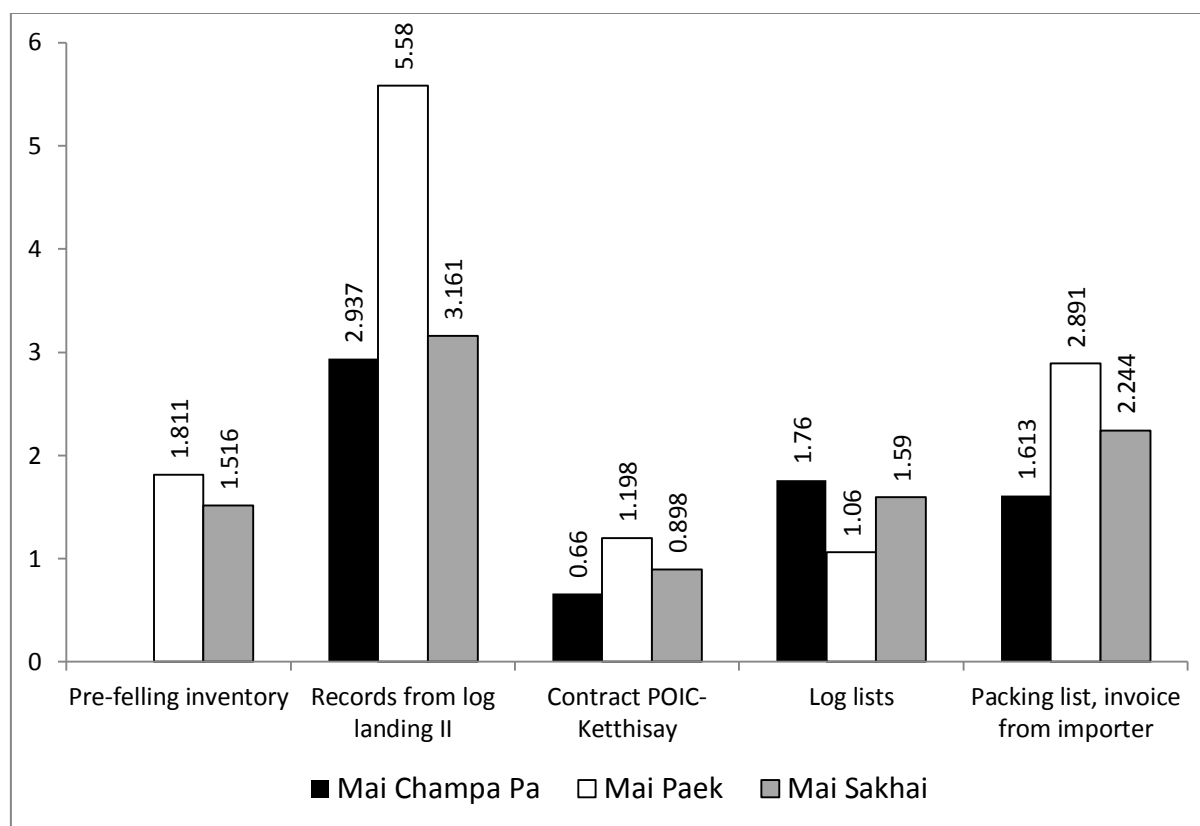
**Figure 32. Species composition of import via check point Kaleum-Tay Giang, m<sup>3</sup> (for comparison in the brackets we indicated data of pre-felling survey).**

Sources of data:

- Contract on sale and purchase of logs from log landing II between Division of Industry and Commerce and Mr. Vilayphone (Ketthisay company), #695/XPIC. 20/06/2013;
- POIC price quotation #46 20/06/2013 for timber harvested under construction of road 101 km; log lists in log landing II #2 (Dakcheung) on 09/05/2014, #3 (Ban Panon) on 09/05/2014, #5 (Ban Panon) on 13/05/2014;
- Packing list and invoices on timber sold by Sekong Province Wood Processing Factory to Min Ha JCS. Ltd. in 2013-2014.

It is worth mentioning the significant variation of the average log size on different stages of chain of custody from pre-felling inventory and accounting on log landing II to the import documents (fig. 33, table 10).

First of all it is notable that the average stem volume (merchantable part of the tree) in the pre-felling survey is 2-3 times lower than the volume of logs (i.e sections derived from tree stems) on the log landing II and in the documents provided by the importer. This can be explained by the following: a) results of pre-felling inventory are not based on real field survey, b) logging itself was represented by “creaming” or “high grading” for particularly valuable assortments.



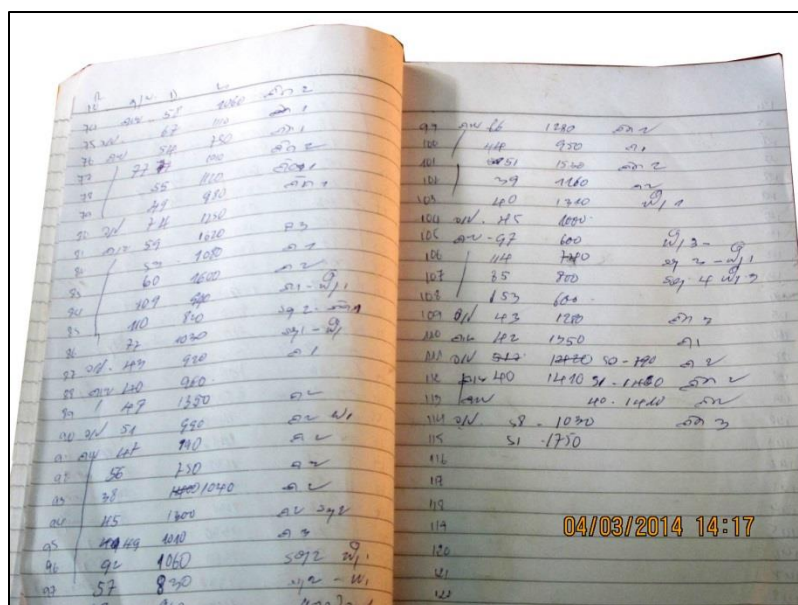
**Figure 33. Average log volume (m³) in different points of chain of custody.**

Source of data:

- Notes of DAFO officer with records of logs in log landing II (Ban Panon) on 04/03/2014;
- Contract on sale and purchase of logs from log landing II between Division of Industry and Commerce and Mr. Vilayphone (Ketthisay company), #695/XPIC. 20/06/2013;
- POIC price quotation #46 20/06/2013 for timber harvested under construction of road 101 km; log lists in log landing II #2 (Dakcheung) on 09/05/2014, #3 (Ban Panon) on 09/05/2014, #5 (Ban Panon) on 13/05/2014; packing list and invoices on timber sold by Sekong Province Wood Processing Factory to Min Ha JCS. Ltd. in 2013-2014.

The biggest average log volume is represented on log landing II according to preliminary notes of DAFO foresters (115 measured logs) (fig. 34). The average volume of Mai Sakhai and Mai Champa pa logs is 41 and 82% greater than the volume of logs of the same species which we calculated based on the import documents. Probably such differences are explained by the specificity of timber export from this region. According to interviewed officers of the Forest Protection Department (FPD) of Tay Giang and our personal observations harvested logs including large size logs are transported by hauling trucks across the border and are stored in a transition yard near the border. Here the longest logs are sawn into two parts for transportation by trucks with cross-country capacity to the next log landing on Ho Chi Ming Highway, where they are reloaded again on long-distance trucks (fig. 35 and 36). FPD Tay Giang staff was engaged in axe-marking of additional sawn logs which resulted from sawing long logs into shorter sections.





**Figure 34. Notes of DAFO forester with records of logs measurement in log landing II in Ban Panon area.**

Almost 60% of logs according to the DAFO notes on log landing II were from 10 to 17.5 m in length but at the same time in packing lists on Vietnamese side the length of the log does not exceed 10 m. Therefore the decrease of average log volume in import documents in comparison to the original information in log landing II can be explained by sawing.

Such practices are illegal since such case packing lists were made on the Vietnamese side and the import declaration included the number of logs after sawing in Vietnam rather than their original number shipped across the border. This means that the exporter on the Lao side either provided other documents (packing lists, invoice) with the original number of logs, did not provide any documents at all or provided documents post-factum after completing the documents on the Vietnamese side.

In regard with the last speculation it is worth noting that according to the representative of importing company Minh Ha Hanoi JSC. Ltd. responsible for this contract one of the problems of importing timber from Laos is lengthy delays in receiving documents on harvested timber on log landing II, since Lao officials responsible for this procedure are very reluctant to visit the sites.

**Table 10. Average volume of logs and prices of timber from logging quota**

Species		Volume, m <sup>3</sup>	Number of trees/ logs	Average tree/ log volume, m <sup>3</sup>	Unit price (US\$/m <sup>3</sup> )
All 9 species	the results of pre-felling inventory	19,120.856	10,638	1.797	-
Mai Longleng	the results of pre-felling inventory	88.956	50	1.779	-
	log list #2 in log landing II (Dakcheung) on 09/05/2014	15.74	18	0.874	-
	on Vietnam side: packing lists and invoices issued on by Sekong Wood Processing Factory; annexes of importing good declarations, 2013-2014	854.739	393	2.175	366
Mai Champa pa	contract #605 on sale-purchase of logs from log landing II with Ketthisay. 20/06/2013; POIC price quotation #46 20/06/2013	251.292	381	0.66	134
	contract on sale-purchase of logs from log landing II with Chaleun Sekong Construction Co. 20/05/2014	139.26	79	1.76	141
	invoice #2 issued on by "Chaliarn Xekong Budding Co. Ltd." (collected in Lao border gate).	139.26			190
	on Vietnam side: packing lists and invoices issued on by Sekong Wood Processing Factory; annexes of importing good declarations, 2013-2014	746.621	463	1.613	200
	DAFO records in log landing II (Ban Panon) on 04/03/2014	55.799	19	2.937	-
Mai Sakhai	the results of pre-felling inventory	5,196.000	3,427	1.516	-
	contract #605 on sale-purchase of logs from log landing II with Ketthisay. 20/06/2013; POIC price quotation #46 20/06/2013	1,119.520	1,246	0.898	55
	log lists in log landing II #2 (Dakcheung) on 09/05/2014, #3 (Ban Panon) on 09/05/2014, #5 (Ban Panon) on 13/05/2014	1,185.388	744	1.593	-
	contract on sale-purchase of logs from log landing II with Chaleun Sekong Construction Co. 20/05/2014	760.333	379	2.006	47
	invoice #2 issued on by "Chaliarn Xekong Budding Co. Ltd." (collected in Kaleum border gate).	760.333			71
	on Vietnam side: packing lists and invoices issued on by Sekong Wood Processing Factory; Annexes of importing good declarations, 2013-2014	4,305.721	1,919	2.244	207
	DAFO records in log landing II (Ban	287.665	91	3.161	-

	Panon) on 04/03/2014				
Mai Paek	the results of pre-felling inventory	7,125.576	3,934	1.811	-
	contract #605 on sale and purchase of logs from log landing II with Ketthisay. 20/06/2013; POIC price quotation #46 20/06/2013	40.718	34	1.198	56
	log lists in log landing II #2 (Dakcheung) on 09/05/2014, #3 (Ban Panon) on 09/05/2014, #5 (Ban Panon) on 13/05/2014	1,035	973	1.064	
	contract on sale-purchase of logs from log landing II with Chaleun Sekong Construction Co. on 20/05/2014	19.792	8	2.474	41
	invoice #2 issued on by "Chaliarn Xekong Budding Co. Ltd." (collected in Lao border gate).	19.792			68
	on Vietnam side: packing lists and invoices issued on by Sekong Wood Processing Factory; Annexes of importing good declarations, 2013-2014	743.072	267	2.891	287
	DAFO records in log landing II (Ban Panon) on 04/03/2014	11.160	2	5.580	-
Mai Champa pa, Mai Sakhai, Mai Paek	contract #605 on sale and purchase of logs from log landing II with Ketthisay. 20/06/2013; POIC price quotation #46 20/06/2013	1,411.530	1,661	0.85	69
	contract on sale and purchase of logs from log landing II with Chaleun Sekong Construction Co. 20/05/2014	919.385	466	1.973	61
	Export Permit #15, 28/11/2013 granted to Ketthisay	1,725.729	1,929	0.895	83
	invoice #2 issued on by "Chaliarn Xekong Budding Co. Ltd." (collected in Lao border gate).	919.792			85-88
	on Vietnam side: packing lists and invoices issued on by Sekong Wood Processing Factory; Annexes of importing good declarations, 2013-2014	5,795.414	2,639	2.196	221



**Figure 35. Vietnamese workers on one of the log landings II in Ban Panon area (top left). The log on log landings II in Ban Panon area. According to the chalk marking the length of the log amounted to 1,370 cm (top right). Vietnamese hauling trucks are also used for transportation of logs across the border to transit log landings on the Vietnamese side (bottom left). Transit log landing with large logs on the Vietnamese side near Kaleum - Tay Giang border gate (bottom right; photo by Thang Nguen Ngoc).**





**Figure 36. Reloading of logs in transit log depot on Ho Chi Minh Highway (photos by Thang Nguen Ngoc).**

**Unloading of trucks with cross-country capacity that delivered logs from transit log landing near Kaleum-Tay Giang border gate (top left). Reloading of short logs on long-distance trucks (top right).**

**Log with the fresh cut loaded on long-distance trucks. Marking “217A” indicates that it is one of two log sections (“A” and “B”), which was made by sawing one long log (bottom left). Loaded long-distance trucks (bottom right).**

In contrast with the initial information from DAFO field records the average volume of logs in later log lists and POIC contracts was lower than in the documents of the importer. For example, the average volume of logs according to log lists was 1.288 m<sup>3</sup>, and in POIC contracts with Ketthisay it was even 0.85 m<sup>3</sup>, while according to packing lists provided by the importer (except planks of *Dalbergia oliveri* and *Pterocarpus pedatus*) - 2.193 m<sup>3</sup>, i.e 1.7-2.6 times greater.

After crossing the border the volume of Mai Sakhai log “increased” by 41 and 94%, and Mai Paek – by 172 and 101% in comparison with log lists and agreements of sale-purchase between POIC and Ketthisay/Chaleun, respectively. Considering the above mentioned information about logs sawing on the transit log landing after border crossing the average log volume had to be greater than in Lao documents.

It is interesting that according to PAFO Saravan the average log volume harvested in the framework of the quota for clearance of the limestone quarry comprised 2.872 m<sup>3</sup>, i.e. 2.2 times greater than the average log volume harvested in the framework of quota on road construction (considering log lists data). In the volume of timber harvested in the framework of limestone quarry quota, low quality timber grade C comprised only 11%, and unclassified timber was not presented. However, in the framework of road construction quota, low quality timber (grade C) comprised 24-30% of the total volume of timber harvest (according to log lists and POIC contract with Ketthisay). With unclassified timber the proportion of low quality timber increases to 61-79%.

Such a difference is very illogic considering that the concession for limestone quarry is located close to the road in already logged forest while in the area around Ban Panon inaccessible in the past for loggers resources of high grade timber must have been present.

**It is possible to assume that the size (and quality, accordingly) of timber could be deliberately underestimated in order to subsequent understate payments/charges in the process of selling and paying taxes to the state on the Lao side.**

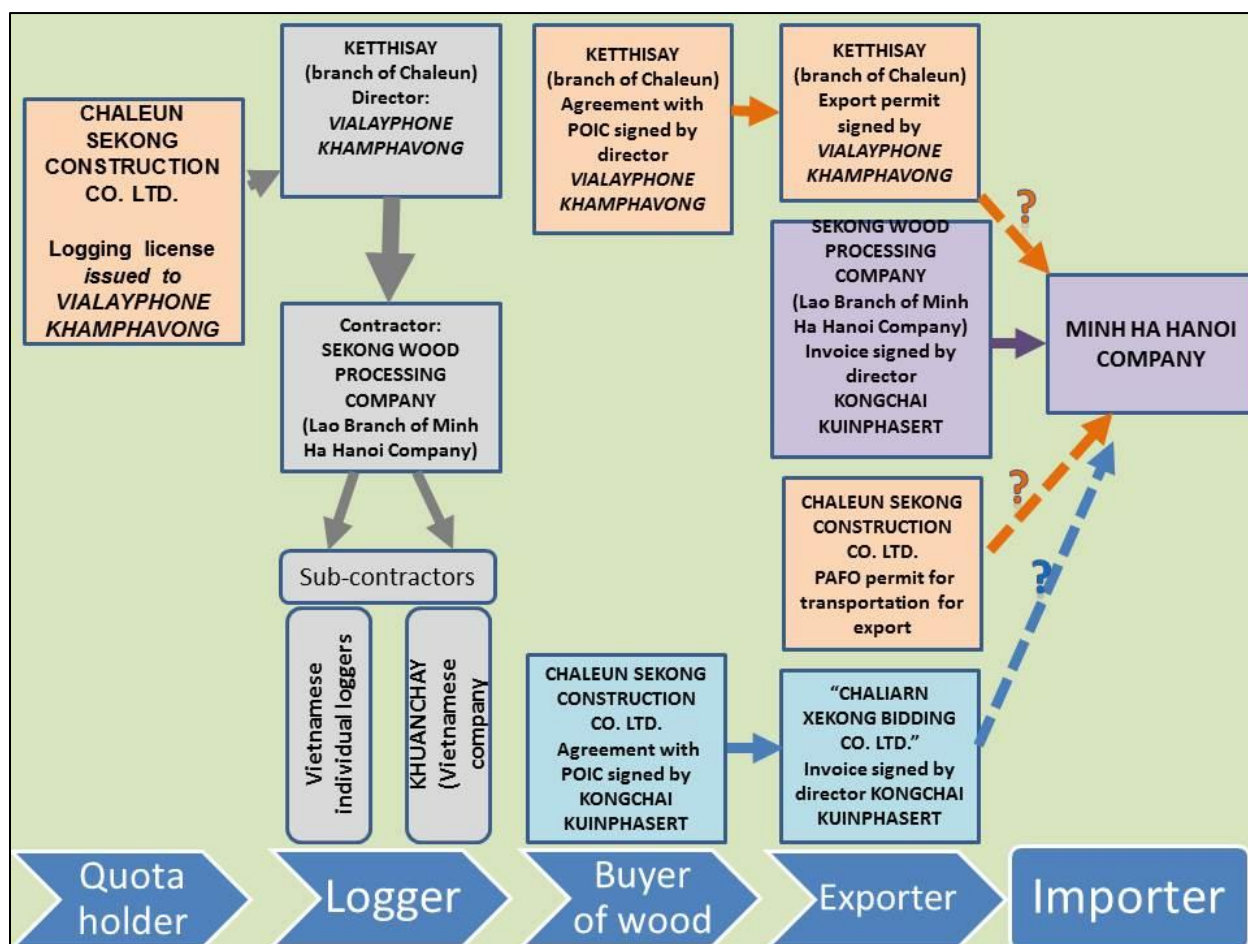
This assumption is confirmed by the multiple growth of the average price for Mai Sakhai and Mai Paek from contract of Lao buyer with POIC to contract of exporter and importer, provided to Vietnamese Customs (table. 10). Thus, the price of Mai Sakhai had increased by 3.8-4.4 times (from US\$ 47-55 to 207) and the price of Mai Paek – by 5.1-7 times (from US\$ 41-56 to 287).

It is a key that the sharp growth of timber prices takes place only after the border crossing. According to the export permit of Lao exporter Ketthisay the average price of mixed species of Mai Champapa, Mai Sakhay and Mai Paek (US\$ 83) was only 20% higher than the average price in the sale-purchase agreement of this company with POIC Sekong (US\$ 69). The average price of Mai Sakhai (US\$ 71) and Mai Paek (US\$ 68) in the invoice presented at the Lao border gates by Chaleun company was 30-51% and 21-65% higher than the prices in POIC contract, respectively.

Analysis of timber supply chains from logging site to importer revealed facts that support speculation on deliberate underevaluation of timber (fig. 37).

- Sekong Wood Processing Company, which works as a logging contractor, is a Lao subsidiary of a timber importer – Minh Ha Hanoi Co<sup>69</sup>. Thus, Minh Ha Hanoi Co. from the beginning was likely interested in purchasing of timber and invested money in logging while technically the logging quota and harvesting rights were granted to Chaleun Sekong Construction Co, Ltd. (represented by its subdivision Ketthisay) contracted for road construction.
- According to PAFO Sekong data and Lao border officers from Kaleum-Tay Giang border gate, timber was bought from POIC and exported by Chaleun Sekong Construction Co, Ltd. or its subsidiary Ketthisay. At the same time Vietnamese importer Minh Ha Hanoi Co. in all import documents refers to its subsidiary company - Sekong Wood Processing Company as a supplier. A possible explanation of this can be dual contracting, when one contract with the underestimated prices is presented on the Lao side and the other one with real prices (signed between importer Minh Ha Hanoi Co. and its Lao subsidiary) is brought to Vietnamese Customs.
- All invoices and packing lists of Sekong Wood Processing Company are signed by its director, Kongchai Kuinphasert (including the invoice on selling Mai Dou and Mai Pa

dong). At the same time, in the copies of documents collected at the Lao border gate Kaleum - Tay Giang (timber purchase agreement from POIC Sekong and invoice issued to the buyer Minh Ha Hanoi Co.) Kongchai Kuinphasert is already a representative (director?) of Chaleun Sekong Construction Co, Ltd. This fact can be an indication that Chaleun Sekong Construction Co. and Minh Ha Hanoi Co. have very close business relationships. Besides that it is possible that documents signed by Kongchai Kuinphasert on behalf of Chaleun Sekong Construction Co, Ltd. were fabricated. The absence of any stamps from Chaleun Sekong Construction Co, Ltd. in the documents (invoice does not have a date as well) and suspicious incorrect spelling of the company name in the invoice as “Chaliarn Xekong Budding Co., Ltd” favors the later (fig. 38). We should note that correct spelling of the company, Chaleun Sekong Construction Co, Ltd., can be found on the front of its main office building in Pakse and on the company’s logo attached to the transportation vehicles and construction machinery held by the company (fig. 39).



**Figure 37. Documented timber supply chains from logging site to importer.**

Source of data: documents from PAFO and POFI Sekong (filled with light brown), documents from Lao officers on the border gate Kaleum-Tay Giang (filled with blue), documents from FPD Tay Giang, Quang Nam province (filled with violet), field interviews (filled with grey).



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**LAO PEOPLE DEMOCRATIC REPUBLIC**  
**PEACE INDEPENDENCE DEMOCRACY PROSPERITY**

SEKONG PROVINCE  
 WOOD PROCESSING FACTORY  
 GRADE NO.3  
 MOBILE : 020 5438839

No. 15  
 DATE 1-2-2014

**INVOICE**

<b>SOLD TO:</b> MINH HA JOINT STOCK COMPANY CO. LTD ADDRES: 414 BLOCK 8, PHAP VAN — TU HIEP URBAN AREA, HOANG LIET WARD, HOANG MAI — DISTRICT — HA NOI-VIETNAM TEL: 0084.4.6812389 FAX: 0084.4.6812948		<b>LICENSE No.:</b> _____ <b>Date:</b> _____		
<b>SHIPPED FROM:</b> WOOD PROCESSING FACTORY GRADE NO.3, LAO P.D.R TO: DAKTAOC — DAKRING, SEKONG SHIPPED VIA: VIETNAM		<b>Contract No.:</b> 12/ HDM <b>Date:</b> 01/04/2014		
NO	DESCRIPTION	QUANTITY (M <sup>3</sup> )	UNIT PRICE (USD/M <sup>3</sup> )	AMOUNT (USD)
01	MAY DOU LAO PITEROCAMPUS	11.399	900	10,259.10
02	MAY PADOONG LAO DABEGELA OLIVERIA GAMBLES	88.405	1.300	114,926.50
	<b>TOTAL</b>	<b>99.804</b>		<b>125,185.60</b>

(Say total: US dollars One hundred twenty five thousand one hundred eighty five and cents sixty only.)

**DIRECTOR**

*Che*

LAO PEOPLE'S DEMOCRATIC REPUBLIC  
 PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

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0000003

SEKONG PROVINCE  
 CHALARN SEKONG BUDDING CO.LTD

MOBILE: 828 56673 444

NO: 02

DATE:

**INVOICE**

SOLD TO: CONG TY COPHAN MINH HA CO., LTD

ADDRESS: HANOI (VIETNAM)

SHIPPED FROM: CHALARN SEKONG BUDDING CO.LTD

TO : KALUM - TAY YANG

SHIPPED VIA : VIETNAM

LICENCE NO.....

DATE.....

CONTRACT NO.....

DATE.....

NO	DESCRIPTION OF GOODS	QUANTITY (M3)	UNIT PRICE (USD)	AMOUNT (USD)
01	MAY SAKAY			<u>53,620.196</u>
	Greed A	131,643	87	11,452.91
	Greed B	191,842	73	14,004.46
	Greed C	215,650	67	14,445.55
	Greed D	221,198	62	13,714.276
	MAY CHAMPAPA			<u>22,295.24</u>
	Greed A	31,997	282	9,023.154
	Greed B	35,151	177	6,211.727
	Greed C	43,506	159	6,917.454
	Greed D	28,606	150	4,290.9
	MAY PEK			<u>1,313.268</u>
	Greed A	6,118	87	532.266
	Greed B			
	Greed C	6,964	63	438.732
	Greed D	6,710	51	342.21
	TOTAL	919,792		77,138.644

**DIRECTOR**

*Car*

23/01/2015 08:25

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logs (excluding 100 m<sup>3</sup> of *Dalbergia oliveri* and *Pterocarpus pedatus*, transported in the form of square logs and planks), in all customs declarations the imported timber had the HS code 44079990, meaning "Wood sawn or chipped lengthwise...", instead of the evident 4403 "Wood in the rough, whether or not stripped of bark or sapwood, or roughly squared"<sup>70</sup>. In an Export Permit #15, 28/11/2013 granted by Sekong Industry and Commerce Division to Ketthisay the column for HS code of exported products is not filled in at all.



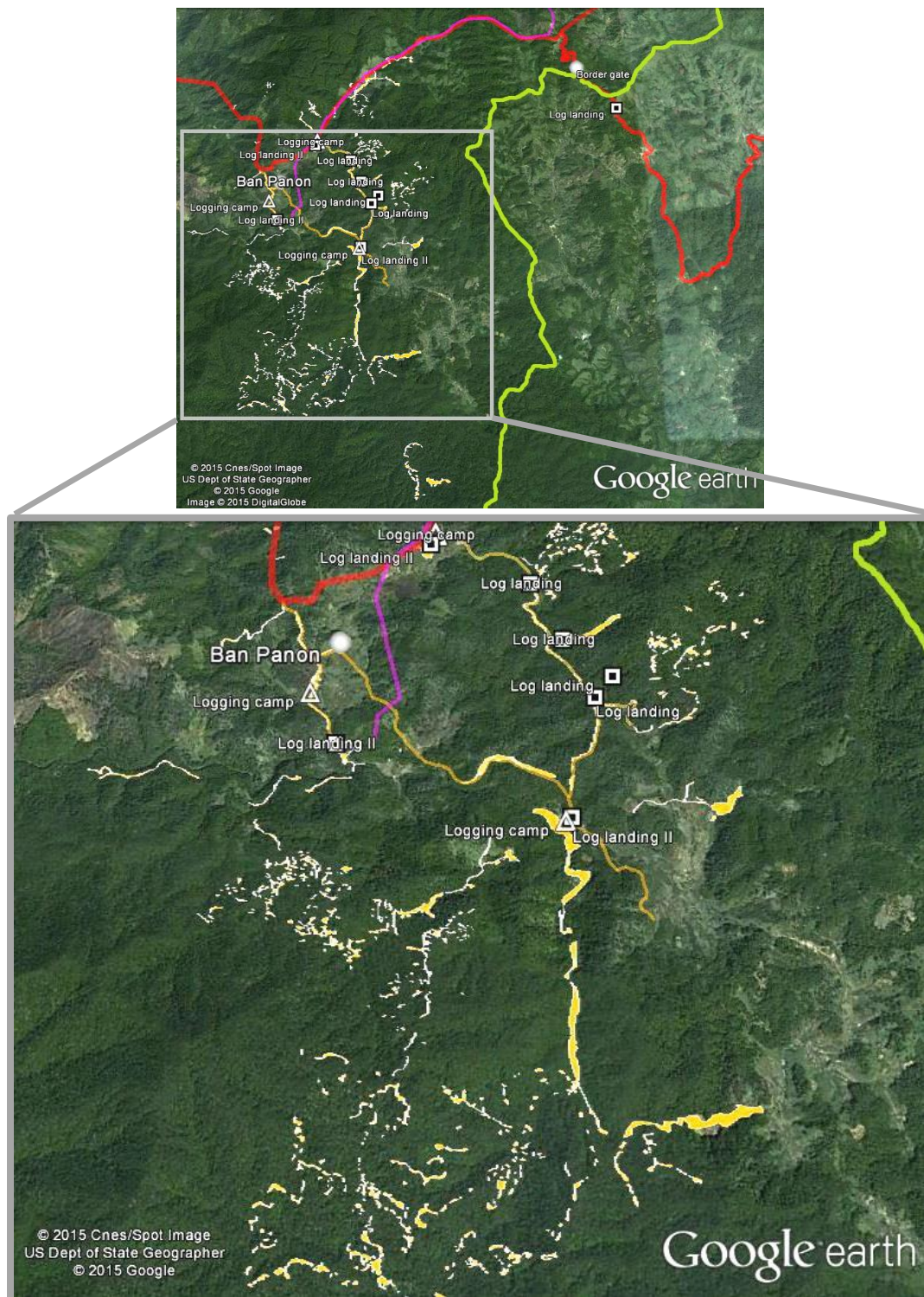
**Figure 39. Central office of Chaleun Sekong Construction Co, Ltd. in Pakse, logo of the company on the transportation vehicle and construction machinery.**

As it was mentioned earlier according the authorization documents timber harvesting was allowed only in the 25 m wide zone on both sides of the planned road route.

Field monitoring of logging sites (26 March 2014, 28 May 2014, 16 August 2014, 29 January 2015) and mapping of locations based on comparative analysis of very high resolution satellite images, taken prior to and in the course of logging (fig. 40, table 11), provide comprehensive proof that the logging had no connection to clearance of the road route and/or its buffer zone and were carried out only for the purpose of high-grade logging.

Neither DAFO officers nor POFI inspectors could show us the original road route on site. Logging sites were located chaotically on the area of about 3,500 ha, including steep slopes and riparian zones of watercourses. There was not a single logged tree (or stump) with felling marks on the site.





**Figure 40. Detected logging sites (yellow), that took place from the end of 2012 until the beginning of 2015 in the area of Ban Panon under the cover of clearance for road construction Thongsa-Ban Panon (planned route is highlighted in violet). Existing roads are marked by red; border with Vietnam is shown in light green.**



Analysis of satellite images allowed us to identify forest cover disturbances caused by logging on the area of 40 ha. In reality the logging area is several times larger. As all images that we used were taken in February-March only the logging activities made at the beginning – (the first half of logging season) were well detectable. Logging that took place in the second half of the logging season of the previous year were already not well identified by the time of the satellite image since the “gaps” in the forest cover are covered very quickly with understory vegetation within the 8-12 months period of the rainy season.

**Table 11. Logging areas based on analysis of very high resolution satellite imagery**

Period of logging (shooting dates) and type of satellite		Area of detected logging, ha
09/02/2012 WorldView-1	31/03/2013 WorldView-2	12.6
31/03/2013 WorldView-2	08/02/2014 Kompsat-3	9.53
08/02/2014 Kompsat-3	28/01/2015 Kompsat-3	17.73

Thereby, all timber harvested and sold in the framework of this quota obviously had illegal origins. It should be noted that this point of view is not shared by representatives of the governmental agencies responsible for forest management and control. For example, representatives of POFI Sekong who participated in the field monitoring justified the wrongdoing by the quota holder based on an “absence of required timber” inside the concession area.

Logs that we examined on the transition log landing near the Kaleum - Tay Giang border gate on the Vietnamese side on 27<sup>th</sup> of February 2014 had released hammer stamps that according to the law are “put on logs, stump and sawn wood for export in special circumstances approved by government”<sup>71</sup>. Thus, PAFO Sekong officially approved the legal origin of this timber (fig. 41).



**Figure 41. Logs with “released hammer stamps” (ປຸງ) on transition log landing near Kaleum-Tay Giang border gate on the Vietnamese side. According to number “51” on stamp this hammer belongs to PAFO Sekong (photo Thang Nguyen Ngoc).**

## Case studies conclusions

Data from the case studies show convincing examples of serious contradictions between the practice of harvesting “conversion” timber and relevant forest legislation:

- There are no maps with correct borders of concessions.
- Pre-felling inventory is carried out only for a part of territory and the survey of trees begins at a larger tree diameter than what is required by law, meaning many trees that should be measured are not. There are reasons to believe that in some case pre-felling inventory is not undertaken at all and documents include fictitious data.
- Border demarcation is not carried out. Demarcation of trees is either done for only some trees or is not conducted at all.
- Logging of “conversion” timber is carried out by the principle of creaming for the most valuable trees regardless of concession borders. Accordingly the composition and volume of harvested timber have no relation to the pre-felling inventory.
- Harvesting of rare species is carried out without appropriate permits from the government.
- Relevant forest agencies (PAFO, DAFO and POFI) do not control compliance of the location of logging sites and recording of logs on log landings I (or on the logging site).

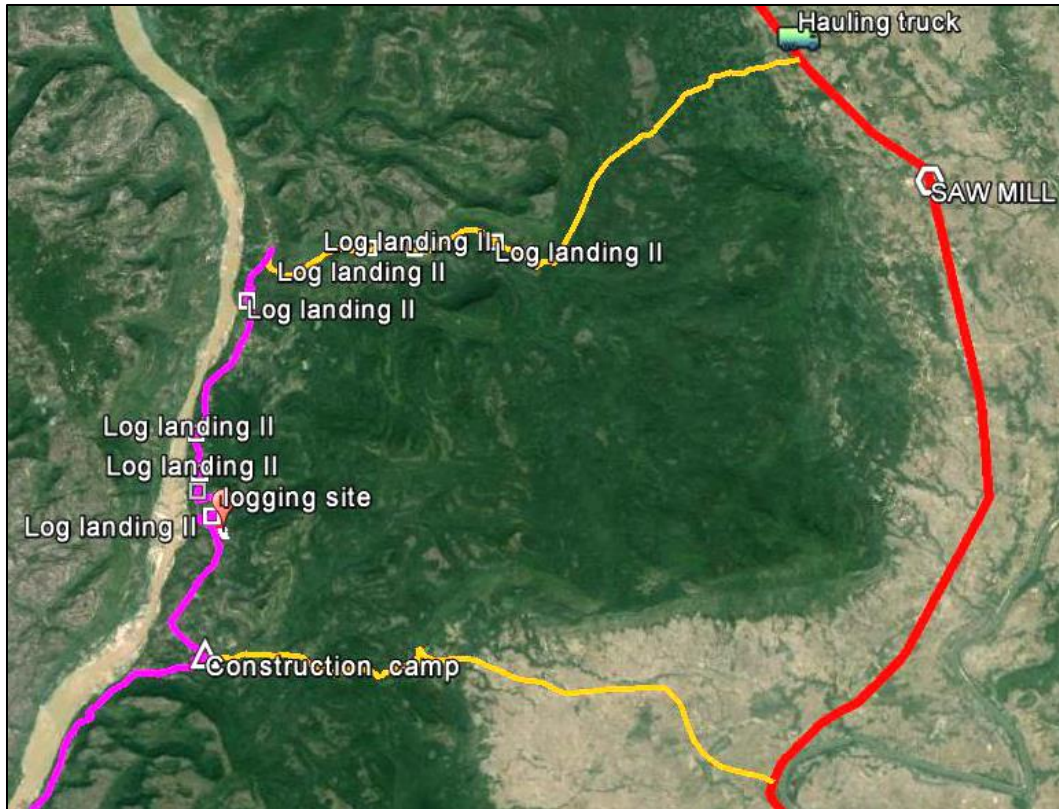
There are indications that the law was violated for harvested timber turnover in the case of the quota for construction of the Ban Panon-Thohgsa road, including underestimation of timber quality, underevaluation of commercial price, and timber export without permit documents.

These findings allowed us to come to the conclusion that timber harvesting in the framework of these quotas does not meet even basic legal requirements and accordingly almost the entire volume of harvested timber must be deemed illegal.

There are no grounds to consider the detected violations as exceptions. The lack of interest from responsible forest agencies to control compliance of logging borders and species composition of harvested timber indicates that they consider such practices “normal” and “legitimate”. Other field observations in the project and reference areas showed that these examples are absolutely typical.

While selecting quotas for testing our improved timber tracking system for “conversion timber” in the framework of the WWF CarBi project, we investigated the logging quota for land clearance in the course of construction of a road along the Mekong River in Saravan province within Phou Xiang Thong NPA (total amount 10,590 m<sup>3</sup>, contractor Saysomeboune Installation Electric Co., Ltd) (fig. 42). During the visit to the construction site in March and April 2013 we found 7 log landings II with large size logs (fig. 43). At the same time only a few individual stumps of large trees with comparable diameters were found in the 25 m buffer zones along both sides of the road. This allowed us to suggest that logging is carried out outside the road buffers.





**Figure 42. Area with timber harvesting under guise of the quota for road construction along Mekong river within Phou Xiang Thong NPA in Saravan province The section of constructed road is highlighted in violet; Road #13 is red; existing unpaved secondary roads are yellow.**



**Figure 43. Timber harvested in the area of road construction along Mekong River in Saravan province within Phou Xiang Thong NPA.**

A logging site with more than 20 felled trees was discovered at a distance of more than 100 m from the road. A log landing II along the side of the road was connected with the logging site by skidding route (fig. 44). Specific shapes of two tree butts on the log landing allowed us to find

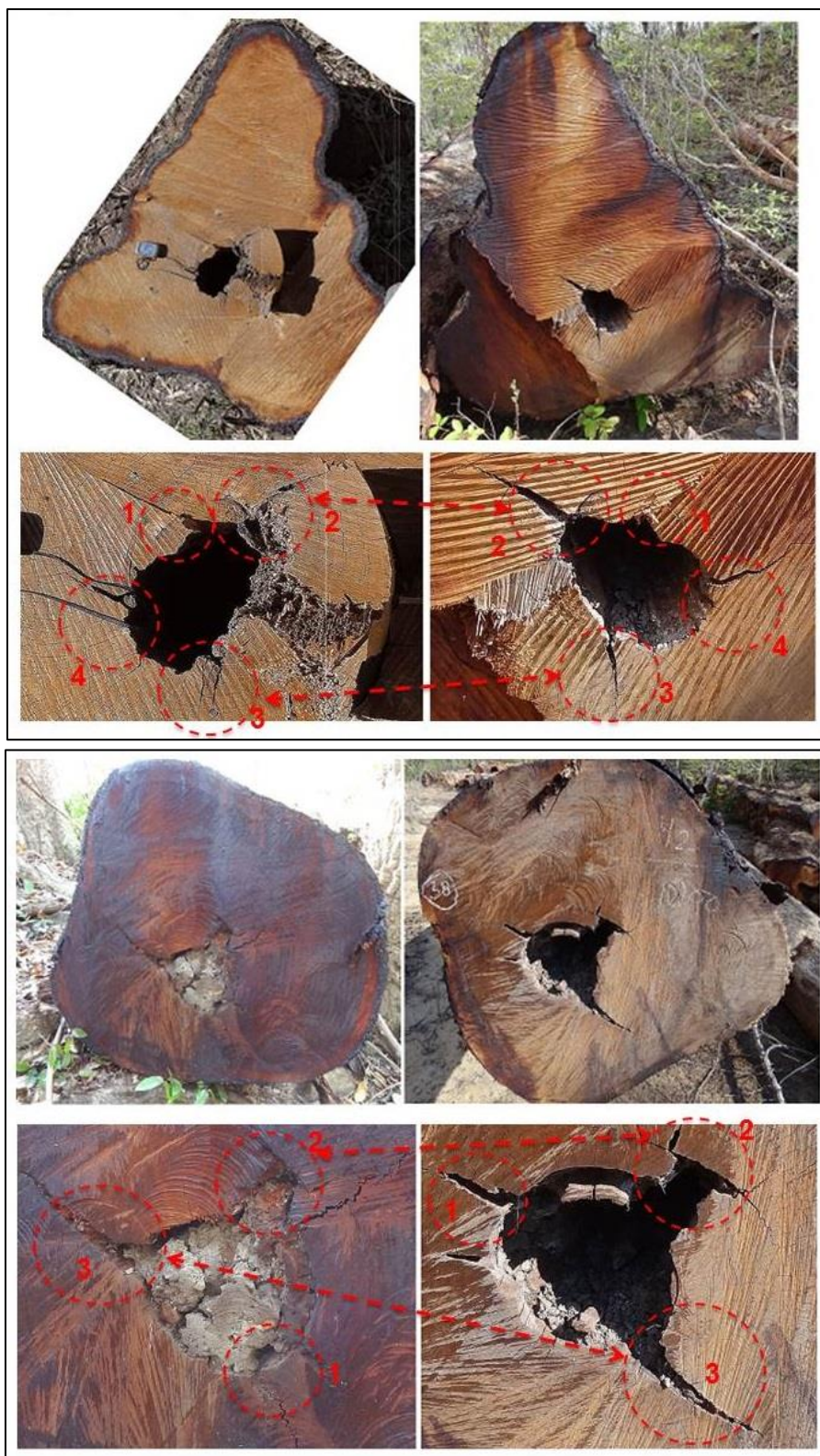
exact stumps from these trees on the logging site. This proved the connection between timber on the log landing and the logging site (fig. 45).

Neither of the felled trees (stumps and logs) had signs of pre-felling marking.



**Figure. 44. Discovered logging site located outside the road construction area. Borders of 25 m buffer zones along both sides of the constructing road are highlighted in violet. Green cyrcles show stumps of logged trees.**





**Figure 45. Matches between stumps on unauthorized logging sites (left) and butt logs in log landing II (right).**

We revealed several instances of using logging licences for clearances of hydropower dam reservoirs for legalisation of illicit timber<sup>72</sup>.

Remote sensing monitoring of logging in the area of Houay Lampan dam construction, which began in 2011 in Sekong province, identified large scale selective logging in the reservoir catchment beyond the planned flooded area (at a distance up to 2.7 km from the nearest flooded point). Connection between dam construction and logging is confirmed by the time of logging occurrence. Moreover, access to the logging sites is only possible by the main road that goes through the flooded area. Notably, the access road to one of the two biggest logging clusters begins right from the largest log landing II in the planned flooded area. According to PAFO Sekong, quota for Houay Lampan dam construction for logging season 2011-2012 comprised 6.0 thousands m<sup>3</sup>.

The main volume of authorized harvest in Attapeu province accounts for so called mega-projects: construction of hydropower dam Xekaman I (construction began in 2006) and cascade of dams Nam Kong 1, 2 и 3 (construction began in 2010-2011). According to data from PAFO Attapeu, the share of these projects comprised 87% of the total volume of authorized harvest and 66% of documented timber harvest for logging season 2011-2012 (190,000 m<sup>3</sup> и 92,436 m<sup>3</sup>, accordingly) (table 6). At the same time most of the selective logging, that according to the remote sensing analysis appeared from December 2011 to the end of October 2013 in the area of the Nam Kong hydropower dam construction, is located beyond the borders of flooded area (within the distance up to 5.6 km from the nearest point of flooding) while just few logging sites were found inside the borders of flooded area.

As for the area with construction of Xekaman 1 71% of all selective logging detected by means of remote sensing data for the period April 2007- February 2014 were located beyond the planned flooded area (including the adjacent Don Amphan NPA). For both mentioned cases logging followed the development of the roads network in the area of dam construction, which allows us to connect these two processes. It is worth noting that during the period 2006-2008 (i.e after the beginning of selective logging on the pretext of Xekaman 1 reservoir clearance) the annual volume of Vietnamese import of Lao timber across the nearby Phou Kua - Bo Y border gate increased by 8 times<sup>73</sup> – from 28,9 to 241,4 thousand m<sup>3</sup>. According to POFI Attapeu officers on the Lak Loy check point, located on the road #18 on the way to Phou Kua - Bo Y border gate, most of the “legal” timber transported via the check point for export to Vietnam according to documents was harvested in the framework of Nam Kong dams (including Siamese rosewood - *Mai khan young*, *Dalbergia cochinchinensis*)<sup>74</sup>.

The biggest sources of conversion timber in Sekong province was construction of the Xekong 4 hydropower dam that was officially approved in June 2008.. According to data from PAFO Sekong 40% and 27% of all official timber volume in the province during seasons 2010/2011 and 2011/2012 were harvested in the framework of flooded area clearance by the contracted Phonesack company. Due to the lack of progress in dam construction the Lao government decided to revoke the agreement with the developer, which was announced in a session of National Assembly on 12 of December 2013<sup>75</sup>. Moreover, since the government discovered that dam construction would lead to flooding of a coal mining area in Kaleum district, it was decided to reconsider the project. Minister of Energy and Mines, Dr. Soulivong Daravong, announced that “our assessment found that we should not allow the project to flood the coal area” and “proposed to build two dams to replace the originally proposed one, those being Xekong 4A and

Xekong 4B” with smaller reservoirs and, accordingly, smaller capacity. In spite of this decision logging under the pretext of clearance of the flooded area for Xekong 4 continued until 2014. According to the information from POFI Saravan, the Homsanaxay sawmill in Saravan district acquired 3,000 m<sup>3</sup> of timber harvested in the framework of Xekong 4 construction in December 2014.

In the case study involving logging in the framework of road Ban Panon - Thongsa - construction we gave examples of cases where permission for road clearance was used to legalize timber harvested 20-40 km away from the nearest road location. There are indicators showing that similar practice was used for logging in the framework of clearance for hydropower dams.

Thus, a Vietnamese truck (registered in Binh Dinh province according to license plate) with a “Xe Kaman 1 logging management committee” logo laden with large size logs was found by us in May 2013 in Ban Phon, Sekong province (fig. 46). According to the driver, the truck was going to Vietnam. It is evident that this timber could not be harvested in the flooded area of Xekaman 1 dam, since the distance from dam site to Phou Kua - Bo Y border gate comprised about 70 km, while from the place where we met truck – more than 200 km.



**Figure 46. Vietnamese truck with “Xe Kaman 1 logging management committee” which according to the driver was headed to Vietnam, met in Sekong province ca. 200 km away from border.**

The examples given above allow us to suggest that in reality the use of permits for harvesting “conversion” timber during the realization of development projects de-facto became a way to legitimize large-scale high grading in all types of forests (including conservation and protection forests). The semi-legal character of the developed practice is proven even by the fact that during pre-felling survey as a rule only trees with commercial value are measured (but not all trees with the diameter of > 10 or 15 cm as it is required by the law).

Such practices are known to the responsible officials in Laos. In an interview with local mass media on June 2014 the Deputy Minister of Industry and Commerce, Mr. Bounmy Manivong, recognized the existence of loopholes which allow companies to legalize timber from unauthorized sources under the cover of conversion timber harvested during land clearance (mining, road and electricity grid construction projects, flooded water catchment areas with



planned hydropower dam project constructions)<sup>76</sup>. The Deputy Director General of the MAF's Forest Inspection Department, Mr Paphakon Vongxay, gave an example of cases where some companies which were involved in road construction began cutting trees in an area larger than that which was necessary for the road.

## Footprint of wood processing factories in illegal logging

Timber from unauthorized sources in the framework of quotas for development projects can be exported without processing under cover of permits issued by the government in “exceptional cases”<sup>77</sup>. Thus, the National Assembly member Mr. Duangdy at the seventh ordinary session in July 2014 expressed concerns that despite the ban announced on the export of raw logs from Laos, many people report seeing trucks headed towards the border every day<sup>78</sup>.

Other important players in the laundering of large amounts of illicit timber in Laos are the numerous sawmills with processing capacity that several times exceeds the total amount of issued quotas, and most likely the production capacity of local forests.

According to the SUFORD project (2009), in 2007 an official assessment referred 936 timber processing companies to groups A and B, which gave them prospects to continue their work (group “A” “sufficiently well run and equipped to be granted a license to continue and operating”, group “B” - “not complying with the criteria, but being capable of meeting the criteria then qualified for a license after certain improvements had been made). In total 1,181 companies were categorized into group “C” (“too poor to improve”) and therefore were required to close<sup>79</sup>.

When the government suspended the policy of restructuring/downsizing the capacity of the wood processing industry in 2011 there were some 1,175 sawmills, wooden furniture factories and wood processing plants all across the country, according to data provided by the Ministry of Industry and Commerce (MOIC)<sup>80</sup>.

Data on the number of operational timber processing companies in Saravan province from various sources vary significantly.

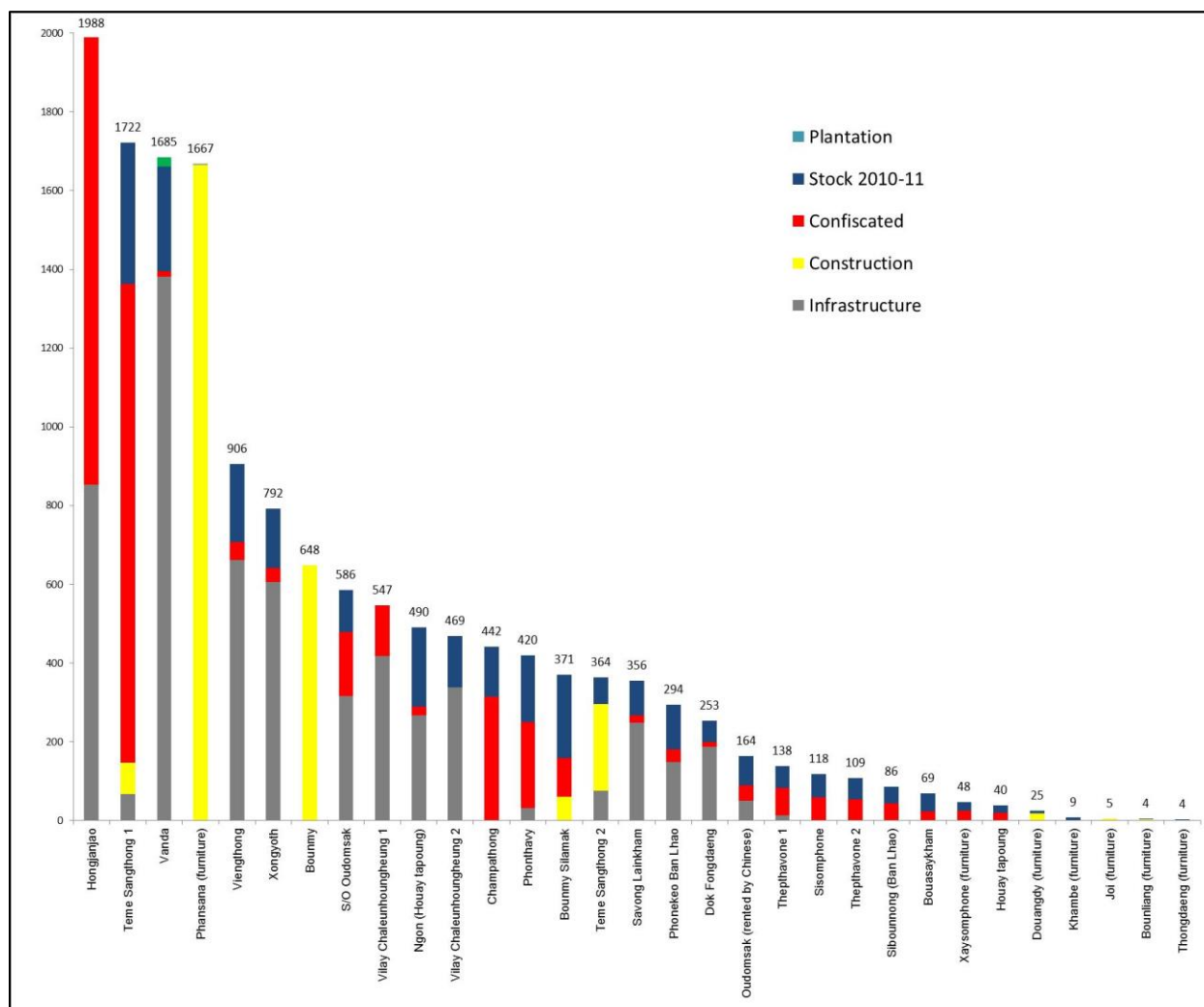
- According to the data of the Poverty-Environment Project (2011) there are 50 operational wood processing factories: 17 large-scale, 16 medium-scale, and 17 small scale factories<sup>81</sup>.
- In 2010-2011 POFI Saravan inspected 31 wood processing factories that received raw timber materials.
- According to Study for Understanding Timber Flows and Control in Lao PDR (2012) there were 23 wood processing factories in Saravan.
- According to POIC Saravan in 2012 r. there were 28 POIC-registered sawmill, of which only 7 were in operation (mostly due to unavailability of raw materials)<sup>82</sup>.
- At the same time according to the data collected by DOFI at least 39 of the all licenced timber processing factories in Saravan had a right to export timber products during the 2012-2013season<sup>83</sup>.

Final products (wood flooring, architraves, doors and windows, and wooden furniture) account for only about 20% of wooden products and are destined for the domestic market. The other wood products are semi-finished (sawn timber and furniture parts) and are exported to other countries: around 80% of the province’s total wood exports to Thailand and remaining part to Vietnam and China (ca. 10% each)<sup>84</sup>.

A system for comparing the volume of raw materials authorized for use by the processing companies and their actual output of finished products, apparently does not exist either in PAFO or in POIC.

According to the inspection data of POFI in 2010-2011 timber processing companies had 14,816 m<sup>3</sup> of raw material supply, where 3,789 m<sup>3</sup> (25.6%) was purchase from confiscated

timber and 2,637 m<sup>3</sup> (17.8%) – the remains from the previous season (fig. 47). The volume of raw material supplied to factories varied from 4 to 1,988 m<sup>3</sup>. Only 4 enterprises had an annual volume of raw material higher than 1,000 m<sup>3</sup>. Nine factories (mainly furniture producers) had less than 100 m<sup>3</sup> of raw materials, and 13 companies - from 100 to 500 m<sup>3</sup>.



**Figure 47. Volume and sources of raw material received by wood processing companies in Saravan province in 2011-2012, m<sup>3</sup>.**

Source: POFI Saravan.

The volume of confiscated timber purchased by processing factories by 2.7 times exceeded the official volume of timber that was confiscated during this season by POFI and PONRE Saravan (1,401 m<sup>3</sup>). This discrepancy can be explained by possible purchase of confiscated timber in the nearest three provinces where during this season 3,010.107 m<sup>3</sup> were confiscated (including 139.244 m<sup>3</sup> in Sekong, 2,222 m<sup>3</sup> in Champasak, and 648.863 m<sup>3</sup> in Attapeu). This explanation does not sound convincingly since it remains unclear why 86% of timber confiscated in 4 southern provinces is used by the processing companies of only one province (Saravan).

It is evident that such a volume and structure of sources of raw materials can not sustain economic production for even a middle size timber processing enterprise.

According to Study for Understanding Timber Flows and Control in Lao PDR (2012) the average monthly output capacity of 23 wood processing factories in Saravan amounts to 150 m<sup>3</sup>. Authors of this research suggest that if we assume a 10-month production period and a 40% recovery from logs to finished products such production output would require 86,000 m<sup>3</sup> of raw material supply per year. Such volume exceeds the officially registered timber harvest in Saravan in 2011-2012 by 2 times (table 6).

Moreover we must consider that 85% of timber in the province was harvested in the framework of coal prospecting and mining concessions of Phonesack. The greater part of this timber is exported to Vietnam without processing and timber of lower quality is exported after primary sawing at Phonesack's processing factory in Thakhek, Khammouane province (fig. 48, 49).

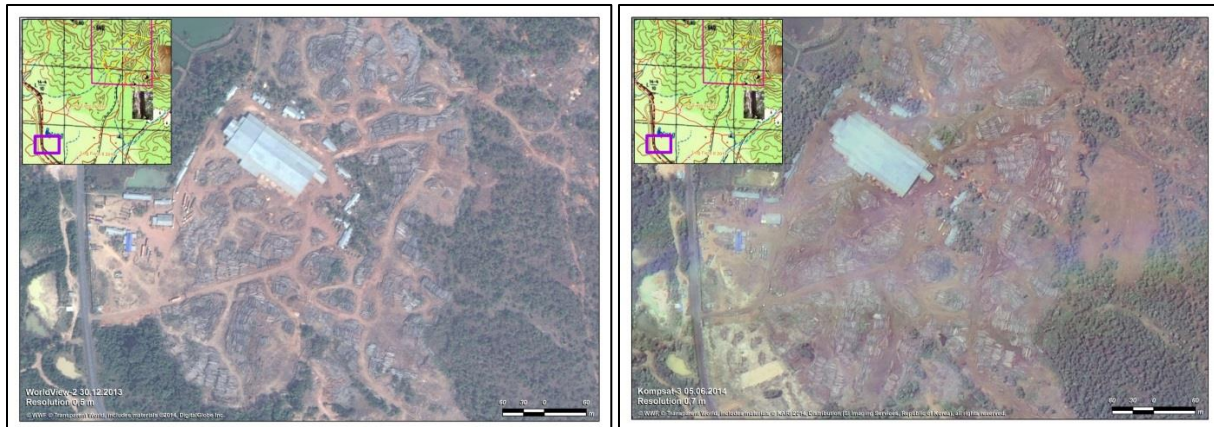
Shortfalls in the official raw materials supply do not align with information about significant investments into timber processing in Saravan. According to POIC Saravan the total value of investment value in the sector in 2000-2010 is estimated to be over USD 130 million. About 60% of the investment 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<sup>85</sup>.

For example, investments into Lao-Thai joint venture Themesanthong Wood Processing Factory (Laongam district) opened in 2005 comprised US\$ 5.3 million. According to the company's managers this factory, which produces sawn wood and flooring for export in Thailand, Vietnam and China, in 2009-2010 exported product worth millions of USD. It is hard to believe that output of such value could be produced only from 516 m<sup>3</sup> of raw materials that was supplied to the factory according to POIC Saravan during the relevant season (including timber purchased in Champasak province)<sup>86</sup>.

According to the manager of the factory they had a shortage of raw materials for maintaining production for the full year.

The situation with supply of raw materials to this enterprise did not become more stable during season 2011-2012. Volume of raw materials inspected by POFI in two timber processing factory in Themesanthong comprised 2,086 m<sup>3</sup>, while 79% of this volume was confiscated timber and raw materials remained from 2010-2011 stock (1,215.661 и 427.708 m<sup>3</sup> correspondingly). This means that raw materials supply from official harvesting comprised only 442.6 m<sup>3</sup>.





**Figure 48. Phonesack sawmill near Ban Taleo in Saravan district on the very high resolution images taken on 30 December 2013 (left) and 05 June 2014 (right). On log landing we can see at least several thousands cubic meters of unprocessed timber.**



**Figure 49. Numerous long-distance trucks laden with sawn wood and logs (all timber belongs allegedly to Phonesack) on way from Saravan to Vietnam near La Lay border gate in November 2014. According to our anecdotal observations similar levels of timber export were maintained along this route throughout the entirety of 2014.**



Vanda Wood Processing Company in Saravan district most likely is one of the largest timber processing company in the province (fig. 50). The factory was established in 2005 by Lao investor Mr. Vanda with a total investment capital of LAK 62,000 million or about USD 7.8 million. This company was producing mainly furniture until 2008. Nowadays it produces flooring and panels. Processing capacity of this company is 10,000 m<sup>3</sup> per year. Processing equipment is made in Taiwan. Products are exported to southern Vietnam, Japan and the USA<sup>87</sup>.



**Figure 50. Examples of raw materials and finished products in Vanda Wood Processing Company. Top left: logs of Mai Sidong (*Vatica cineria* (?). Top right: stacks of squared logs of Mai Dou (*Pterocarpus macrocarpus*).**

According to POIC in fiscal year 2009-2010, the factory processed more than 158 m<sup>3</sup> of wood and exported flooring and sawn wood worth millions of USD to Thailand, Vietnam and China<sup>88</sup>.

According to data provided by the company's manager, the volume of supplied raw materials in 2009, 2010 and 2011 comprised 2,500, 850 and 1,000 (?) m<sup>3</sup> accordingly. Conversion timber from clearance of mining area is one of the sources of raw material supply. For the season 2012-2013 the company applied for 3,000 m<sup>3</sup> of raw materials. It was admitted that the amount of supplied timber is insufficient for the full-time utilization of processing capacity. Similarly to the previous case it is hard to explain millions of dollars of investment in timber processing

considering the current harsh conditions of a deficit of raw materials and how the company manages to generate products with such a high value.

The scale of sawn material transportation observed by us in Saravan raises questions about additional (to the officially registered) sources of raw materials supply to saw mills. For example, in June 2013 within only one hour we observed 7 trailer-trucks with Thai plates supposedly going from one of the clusters of saw mills in Lao Ngam (Saravan) to Champasak (and most likely going further to Thailand) (fig. 51). The volume of transported sawn goods (not less than 140 m<sup>3</sup>) was equivalent to 280 m<sup>3</sup> в RWE – i.e. 15% of average annual supply of raw materials to biggest wood processing factory in Saravan.



**Figure 51. Thai trailer-trucks laden with sawn wood on qay from Saravan province, 09 July 2013.**

According to the information from POIC Sekong at the end of 2012 there were 30 registered sawmills but only 12 were in operation. There were also 20 active furniture factories (fig. 52).

According to the Study for Understanding Timber Flows and Control in Lao PDR (2012) 13 officially registered wood processing companies with estimated capacity of 48,000 m<sup>3</sup> of raw materials per year operated in Sekong province. Such volume comprise 154% of all officially registered timber harvesting in Sekong in 2011-2012 season (table 6).

We should note that 63% of timber in the province was harvested by the Phonesack company in the framework of reservoir clearance for the hydropower dam Xekong 4 and the company's concessions on coal prospecting and mining. This timber was destined for export to Vietnam and to Phonesack processing factory in Thakhek, Khammouane province. Taking this into account **legal sources of timber could provide only 24% of the demand of local wood processing factories.**

According to POIC during season 2010-2011 this companies produced 23,851 m<sup>3</sup> of goods. Moreover, data on import of sawn wood from Sekong to Vietnam through Dak Ta Ok – Nam Giang border gate and export of final products via weight station in Thataeng in 2011 indicate that timber processing companies have higher output volumes than is shown in POIC data - 32-34 thousand m<sup>3</sup>.

At the same time, officially supplied raw materials during this season comprised only 15,874 m<sup>3</sup>. This is 3-4 times less than it is required for production of the above mentioned output. Such volume of raw materials more than 2 times exceeds officially registered timber harvest in



Saravan in 2011-2012 (28.5 thousand m<sup>3</sup>), where 43% were harvested by Phonesack company (12.4 thousand m<sup>3</sup>). Thus, in the 2011-2012 season as well **legal sources of timber in the province could supply only a quarter of raw timber used by local processing factories in 2010-2011.**



**Figure 52. Eastern outpost of timber processing industry in Sekong – furniture workshop (five craftsmen), located only 2 km away from the Dak Ta Ok border gate (Dakcheung district). According to Vietnamese lady owner, furniture is manufactured by request for sale in Sekong. However, she also has an opportunity to arrange export of furniture to Vietnam. According to DAFO Dakcheung, this furniture workshop, the only one in the district, uses timber harvested by farmers in the fields and does not have an export permit.**

We also visited a large sawmill in administrative center of Dakcheung (fig. 53). According to the data provided by the deputy director, this sawmill was founded in 2006. We should note that in the same year about 13 km to the east from the sawmill (18 km by the road) Dak Ta Ok – Nam Giang border gate was opened. This created legal grounds and economic incentives for timber export to Vietnam from this area in Sekong. Opening of the border gate and establishment of the saw mill coincided or could be related to the commencement of construction of the hydropower dam Xekaman 3 near Dakcheung in April 2006.



Sawmill personnel comprised 47 people, 46 of which are citizens of Vietnam and 1 – of Laos. Sawn wood is exported to the company's enterprise in Kon Tum province (Vietnam) that produces indoor and outdoor furniture for the Vietnamese market and export to Europe and Australia.

The volume of timber supply in 2010, 2011 and 2012 comprised 2,200, 2,500 and more than 2,000 m<sup>3</sup> accordingly. One half of this volume is harvested by the company and the second half is purchased. One of the main sources of raw materials is conversion timber from road construction in the district.

The sawmill has 6 horizontal band saws with a capacity of 50 m<sup>3</sup> per day, i.e. ca. 15,000 m<sup>3</sup> per year with a 10-month operational period. It also has 6 drying kilns with a volume of 25 m<sup>3</sup> each. With 10 days cycle of wood drying and a 10 month operational period it allows the company to produce up to 4,500 m<sup>3</sup> of dry sawn wood.

Moreover, during our visit there were 14 hauling trucks on the territory of the sawmill, which implies that minimal transportation capacity of the company is 30,000 m<sup>3</sup> per year<sup>a</sup>. I.e. technical capacity of the factory in this case also manifoldly exceeds the volume of official raw material supply.



**Figure 53. Hauling trucks and logs in wood processing factory in Dakcheung. According to the company representative this timber was harvested on the district quota for construction and production of furniture for public buildings. Chalk marks on butts of the logs (Mai deng nam, *Xyllia dolabriformis*) indicate numbers from the log list, number given on the sawmill and the length of the log.**

In the chapter “Assessment of volume of illegal timber harvesting in the group of four southern provinces” we provided data showing that 24,851 m<sup>3</sup> of sawn wood was exported via Dak Ta Ok – Nam Giang border gate in 2012. Poor development of the roads network restricts the exploitation of this border gate for exporting timber products to those harvested in eastern part of Sekong province. We know only three sawmills in this area (including the biggest enterprise in Dakcheung town that we mentioned above) where exported sawn wood could be produced. It is evident that to produce such volume of timber products (not less than 50 thousand m<sup>3</sup>), would

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<sup>a</sup> Assuming each truck makes one trip per day with 10 m<sup>3</sup> of timber only during the dry season from November till May inclusively. In reality operational capacity of hauling truck comes to 100 m<sup>3</sup> a day.

require raw materials that greatly exceeded the volume of supplied raw materials from official sources.

Some individuals involved in timber processing in Sekong and Saravan mentioned that the industry experienced a serious deficit in raw materials that led to downtime and even closure of sawmills. Survival of sawmills depends on whether the owner/manager is influential enough to get quotas and has knowledge on areas where economically attractive timber reserves remain. At the same time our observations do not let us agree with the statement about raw material crisis experienced by wood processing sector. Visiting Sekong and Saravan provinces in 2012-2014 we encountered at least 12 large and middle-sized operating companies with a sufficient stock of raw materials (fig. 54).



**Figure 54. Sawmill in Lamnam district, Sekong province, 3 km to the west from Namtiap village by Sekong-Dakcheung road #16B (05/12/2012). Significant amount of fresh sawn wood indicates that the mill had an ample supply of raw materials, even though the official logging season was only beginning<sup>a</sup>.**

Moreover, this contradicts the visible significant export of unprocessed timber to Vietnam. Apparently, priority is given to supplying raw timber to Vietnamese companies if there is a possibility of acquiring special permits for logs export.

Thus, the case is most likely about timber deficit from official sources which is (fully or partially) compensated by illegally harvested timber. According to one of the interviewed workers from a wood processing factory in Saravan province, only 20% of supplied timber comes from authorized sources.

According to law, POIC in coordination with PAFO must control legality of supplied timber to wood processing enterprises. An important condition for issuing an export permit will be a confirmation from the government controlling body about compliance of the company's output with the volume of supplied raw materials<sup>89</sup>. It is apparent that the key element for calculating this balance will be output conversion factor, which depends on the type of products, quality of raw materials and efficiency of equipment on the enterprise.

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<sup>a</sup> On the same day on the territory of furniture workshop (3 Vietnamese workers from Hue) located on the same road in the Ban Talouloung village (1.5 km to the west from Ban Kasang-Kang) we found stack of rosewood (at least 3 m<sup>3</sup>). According to POFI Sekong this workshop was relocated from other place and did not have any quotas.

In Saravan output factor is officially confirmed as 75% of raw materials and in Attapeu even higher – 80%, while according to experts working in Laos average output of sawn wood on Lao sawmills can not exceed 40-50% of logs. Due to the application of such unreasonably high output factor (probably to display loyalty to the governmental policy of improving efficiency in the wood processing industry of the country) companies get an opportunity to “legalize” the use of 50-100% more raw materials than is indicated in the supply documents.

In reality there is no effective governmental control in the wood processing sector, which is recognized by the National Assembly and the government. They consider current work of sawmills as a cause of serious financial losses for the country and forest degradation. Officials admitted that some sawmills were established with no intention of producing wood products, instead they were set up to buy logs for which the origin and source were unclear<sup>90</sup>.

In January 2014 Deputy Prime Minister, Mr Somsavat Lengsavad, announced during one of his visits to Champasak province that the government commenced national inspection of legality sources of raw materials supplies to wood processing factories<sup>91</sup>. According to his statement this inspection pursues several objectives:

- To record how much wood the factories were storing;
- To find and confiscate “any extra wood that was not supposed to be there”;
- To modernize wood processing factories, ensuring that they meet all standards required before processing wood for export.

The main objective was “to clear the existing timber stockpiles” in order to create favorable conditions for further control of supply from scratch.

The Deputy Prime Minister stated that MOIC and MAF had already “piloted the project in Savannakhet province before extending it to other provinces” and conducted inspections on 15 of more than 100 wood processing factories operating in Savannakhet province. As a result of these inspections they found about 80,000 m<sup>3</sup> of wood.

The Vientiane Times article did not specify the status of found timber and did not say if any confiscations took place (according to some reports there were no documents that proved the legal sourcing of the timber). In other mass media publications lower results of governmental efforts of fighting illegal logging and trade in 2014 were shown.

According to the information from the MAF released at the beginning of March 2014 it was said that from February 19-26, authorities confiscated 60 m<sup>3</sup> of illegally felled timber in Savannakhet and Saravan provinces and put the wrongdoers on trial<sup>92</sup>. In the later publication it was mentioned that in Saravan province in the one month period from December to January 2014 214 m<sup>3</sup> of timber were seized<sup>93</sup>.

In an interview with local mass media in July 2014 the Deputy Minister of Industry and Commerce, Mr. Bounmy Manivong, clarified that the government investigation of illegal logging carries on in two “pilot” provinces, Savannakhet and Saravan<sup>94</sup>.

He confirmed that the main objective in the initial stage was inspecting saw mills and wood processing plants in order to export all the logs. After clearing the logs, authorities will set up documents with business operators to organize a follow-up inspection. During follow-up on inspections owner of wood processing enterprises will be required to document and identify the origins of any timber found.

Mr. Bounmy said if the pilot scheme proves to be effective, a similar scheme will be carried out in other provinces. These words can be considered as confession that until now the responsible agencies did not fulfill their assigned duties on monitoring of raw materials supply to sawmill.

The government investigation probably failed to accomplish its given objectives since at the end of 2014 Savannakhet officials appointed 100 people to investigate legal and illegal logging activities including registering all timber found in more than 300 wood processing and furniture factories throughout the province, to identify the quantity, species, types, volume and timber origin<sup>95</sup>. It states that this information and data will be used for pursuing work on illegal logging elimination.

In July 2014 at the seventh ordinary session of the National Assembly, members of the National Assembly called for the government to strictly regulate sawmills and expressed concerns over the continuous increase in the number of sawmills<sup>96</sup>. President of the National Assembly Ms. Pany Yathotou said the MOIC and the MAF should inspect the sawmills as soon as possible since they were located close to the NPA and these actions were against the law<sup>97</sup>.

In his answer Prime Minister Thongsing Thammavong shared the concerns of the National assembly members and assured that he has not approved the establishment of any sawmills since he became PM. He assumed that the increase of the number of sawmills using illegally harvested timber takes place with the approval of relevant sectors or local authorities and that investigation is needed to identify who is responsible<sup>98</sup>.

The Minister of Industry and Commerce, Ms. Khemmany Pholsena, who also answered questions from the National Assembly members, promised that the ministry will take action and work out the issues and report the progress made back to the parliament at the end of this year. "It could take some time to complete the work. Action is underway", she told the media. She warned that those sawmills and plants found guilty of contravening the relevant laws and regulations will be ordered to shut down<sup>99</sup>.



## Efficiency of law enforcement

Getting an idea of the scale of the problem makes it possible to evaluate the efficiency of current measures undertaken to fight illegal logging. Unfortunately, information on the number of illegal logging sites detected by responsible controlling agencies is not available. As far as we know, only cases with confiscated timber are being registered (mainly detained while being transported).

Available national statistics on the volume of confiscated illegal timber are either difficult to interpret or unreliable. For instance, according to DOFI's data represented in Draft report on Criminal Justice Responses to Environmental Crime in Lao PDR (2014), the volume of confiscated timber was ca. 40 thousand m<sup>3</sup> in 2008 – 2009, then reduced to 20 thousand m<sup>3</sup> in 2010 and increased by 9 times to around 180 thousand m<sup>3</sup> in 2011<sup>100</sup>.

At the same time according to research of Kaysone (2015), based on DOFI's data as well, the volume of confiscated timber had increased from 26 thousand m<sup>3</sup> in 2009 to 44 thousand m<sup>3</sup> in 2010 and then reduced to 9 thousand m<sup>3</sup> in 2011 (which is 20 times less than data from the previous source)<sup>101</sup>. As for the latter figure we should note that according to the data from POFI in Saravan and Sekong provinces, 3,767 m<sup>3</sup> of timber was confiscated in these provinces in 2011 (table 12). It is evident that the share of only two provinces could not make up 41% of the total volume of confiscated timber in Laos.

Apparently, as in case of national statistics on permitted and registered timber harvest, data on timber confiscation in the provinces are not collected and consolidated regularly, which causes the above mentioned contradictions.

On 19 February 2014 Vientiane Times (citing the Security Newspaper of the Ministry of Public Security) published the results of enforcement activity of the Economic Police Department of the Ministry of Public Security that were presented at the annual meeting in February. According to this report the police officers in charge of economic affairs in 2013 registered 257 cases involving the illegal trading of timber and “also seized 20 vehicles, **671,000 cubic meters of processed wood, 4.5 million cubic meters of logs**, 15 chain-saws and three motorbikes” (emphasis added).

These figures were cited in Assessment on the Criminal Justice Response to Wildlife and Forest Crime in Lao PDR. The assessment was presented at the national consultation on criminal justice responses to wildlife and forest crime held in Vientiane, Lao PDR, on 23 September 2014, attended by key representatives from all law enforcement agencies responsible for fighting illegal logging and trade (including DOFI, Office of the Supreme People's Prosecution, Economic Police Department etc.)<sup>102</sup>. However, it is evident that cited information on giant volumes of confiscated timber in 2013 (more than 5 million m<sup>3</sup> (!) is incorrect and has no realistic basis. This fact, in our opinion, this indicates that national government does not have clear understanding about the scale of the problem and shows the lack of communication between different agencies responsible for illegal timber logging and associated timber trade.

A more clear idea of the results of government activities on countering illegal logging can be obtained from the information collected at the provincial level (table 12).

**Table 12. Illegal logging cases recorded in provinces of Southern Laos**

		<b>Saravan</b>	<b>Sekong</b>	<b>Attapeu</b>	<b>Champassak</b>
<b>2009-2010</b>	Volume, m <sup>3</sup>	1,074.426	599.122 (logs) 10.275 (sawn)		
	Logs/pieces	1,116			
	Cases	52			40
	Offenders	7			
	Transport units	6			
<b>2010-2011</b>	Volume, m <sup>3</sup>	2,174.110 (sawn?)	126.685 (sawn) 1,466.233 (logs)		
	Logs/pieces	27,881			
	Cases	46 (50?)			70
	Offenders	73			
	Transport units	20 vehicles 3 motorbikes 1 ploughing tractor			
<b>2011-2012</b>	Volume, m <sup>3</sup>	540.008 (sawn?)	30.144 (sawn) 109.1 (logs)	648.863 (sawn)	1,718.118 (sawn) 173.770 (logs) <sup>a</sup> 329.888 (logs and stumps) <sup>b</sup>
		12.8 (logs)			
		875.2 (sawn)			
		500 (sawn) - PONRE			
	Logs/pieces	20,764			
		3,900 - PONRE			
	Cases	40 (46?)		47	38
<b>2012-2013</b>	Offenders	60			
	Transport units	20 vehicles 4 motorbikes		41 vehicles 1 small skidder 5 ploughing tractor	23 vehicles
	Volume, m <sup>3</sup>	148.320	4.041 <sup>c</sup>		
		185.813 <sup>d</sup>			
		519.471 (logs, PONRE) <sup>e</sup>			
	Logs/pieces	7,083			
		12,248			
		99 (PONRE) <sup>f</sup>			
	Cases	22			
	Offenders	43			
	Transport units	17 vehicles 1 ploughing tractor			

Note: Results of POFI activity are given according to their own data (for Saravan province we provide versions given in different time). For Saravan province available data on confiscations by Provincial Office of Natural Resources and Environment (PONRE) are provided too.

<sup>a</sup> all *Dalbergia cochinchinensis*.

<sup>b</sup> all *Dalbergia cochinchinensis*.

<sup>c</sup> *Dalbergia oliveri*.

<sup>d</sup> mainly *Dalbergia cochinchinensis*, *D. oliveri*, *Pterocarpus pedatus*.

<sup>e</sup> *Dalbergia cochinchinensis*, *D. oliveri*, *Pterocarpus pedatus* - 134.471 m<sup>3</sup>; *Dipterocarpus* spp. - 372 m<sup>3</sup>; *Anisoptera costata* - 13 m<sup>3</sup>.

<sup>f</sup> *Dipterocarpus* spp. - 94 logs; *Anisoptera costata* - 5 logs.

According to the POFIs of Saravan, Sekong, Attapeu and Champassak, during the 2011-2012 season the total amount of confiscated timber in all four provinces comprised 4 thousand m<sup>3</sup> including 3 thousand m<sup>3</sup> of sawn wood and more than 300 m<sup>3</sup> of stumps. This volume would comprise up to 7 thousand m<sup>3</sup> in RWE. Thus the volume of confiscated by POFIs timber comprises only 3-5% of estimated timber volume which was harvested in excess of timber from documented sources in these provinces for the given season.

Besides POFI other governmental agencies including the police, POIC and Provincial Office of Natural Resources and Environment (PONRE) search for and detain illegally harvested timber (PONRE is in charge of control over forest use in conservation and protection forests). Based on our observations we are convinced that even including timber confiscated by these agencies the total capture rate will not exceed 10% of the estimated volume of excessive harvest.

This capture rate is much less than the assessments given by POFIs themselves. For instance, according to Sayaburi forest inspection they managed to detect most of the cases of illegally harvested timber. Luang Prabang forest inspection in its turn assumes that they detect about 50-60% of all cases. The capture rate in Saravan and Sekong is estimated by inspectors to be less than 30%<sup>103</sup>. Deputy Head of POFI Attapeu assumes that 60% of illegally harvested timber is being detected<sup>104</sup>. The closest to our estimation figure was given by the head of Saravan POFI. He estimated POFI's capture rate to be about 10%<sup>105</sup>.

However, operating results of these agencies have little to do (or more likely, *nothing* to do) with the above mentioned large scale illegal logging conducted under cover of permitted land clearances. Our results confirm the assertion expressed by one of the insiders working in the forestry sector in Saravan province that in reality forest inspection does not control logging and turnover of timber harvested in the framework of logging licenses (quotas) despite this activity being included in the list of its duties<sup>106</sup>.

The fundamental reason for this situation is that timber harvest under logging quotas and profiting from this timber sale are spheres of interest for representatives of provincial and national authorities whose formal powers and informal influence exceed the mandate of POFI and DOFI. It allows them to take logging licenses out of forest inspection control.

For the same reason forest inspection is incapable of controlling the supply of raw materials to the processing factories. According to the Head of DAFO Samakkeuxai (Attapeu), foresters can not inspect a factory even if they have evidence of stockpiling illegal timber there<sup>107</sup>. POIC, which has a broader and more specific mandate in this sphere, is not interested in surveying factories jointly with forest inspectors.

Prime Minister Thongsing Thammavong during his visit in Attapeu province in December 2013 in reference to the large scale illegal logging in the province pointed out that according to the governor "our security forces are sometimes reluctant to inspect traders and those cutting down the country's trees"<sup>108</sup>.

To this should be added that technically all logging in the framework of licenses (quotas) shall be done under the oversight of PAFO and in the constant presence of DAFO staff on log landings and logging sites. This allows authorities to consider such logging as *a priori* legal and not in need of additional control from POFI. Thus, considering that POFI is the division of PAFO, we observe the perfect example of conflict of interest when authority for using natural resources and duty for control over their use are concentrated in a single pair of hands.

As a result, forest inspectors focus their efforts on detention of small shipments of valuable wood harvested by the locals for sale to sawmills/middlemen, thus avoiding the areas of possible conflicts with powerful institutions (fig. 55).



**Figure 55. Rosewood of different species predominate in the typical catch of controlling agencies. Confiscated rosewood (in clockwise order from top left) stored: a) in backyard of POFI Sarvan (27 February 2013); b) in Lakhonepheng police station (06 March 2013); c) at access to Dansavanh Border Trade Zone Office and police check point in Ban La-An (18 October 2013); d) near POIC Saravan (06 March 2013).**

Moreover, there is an opportunity for inspectors to get a higher remuneration from the sale of confiscated valuable wood in comparison with the confiscation of common tree species.

For instance, according to the MOIC guidelines for 2011-2012, the minimal sale price of timber at log landing II for Siamese rosewood (*Dalbergia cochinchinensis*, Mai khan young) varies between US\$ 3,942 - US\$ 4,596 per m<sup>3</sup> (depending of the grade), for Burmese rosewood (*D. oliveri*, Mai Khampi or Mai padoo) between US\$1,021-2,188, Burmese padauk (*Pterocarpus macrocarpus*, Mai dou) between US\$680-793. At the same time the minimal sale price of the most commonly used tree species harvested by logging companies are incomparably small: Mersawa (*Anisoptera costata*, Mai bark) – US\$54-95, Balau (*Shorea obtusa*, Mai chick) – US\$45-66, Keruing (*Dipterocarpus* spp., Mai yang) – US\$39-52 (*Pinus Kesiya* or *Pinus merkusii*, Mai Paek) - US\$37-58.



We should note that the activity of forest inspectors in the sphere of valuable wood confiscation is also limited by formal (institutional) and informal frameworks. According to our observations POFI has to obtain approval for conducting field raids from DAFO responsible for the relevant district and get approval from POIC for inspection of processing factories beforehand. It is obvious, that such procedures reduce the chance (or even make it impossible) to conduct effective unannounced inspections when receiving the information about illegal timber supply to sawmills as the factories are informed in advance about inspections by insiders in the relevant state agencies. According to the Anti-corruption Department of The State Inspection Authority the inspection of timber business and logging in Savannakhet province in 2007 revealed “some government employees colluded with business operators to illegally log some 1,400 cubic metres of rose wood”<sup>109</sup>(fig. 56).



**Figure 56. Convoy of 6 Vietnamese motorbikers with rosewood on approach road to wood processing factory (ca. 2.3 km) near Ban Tamluang (Nong district, Savannakhet), 18 October 2014. According to workers the factory produces furniture for export to Vietnam (it is situated just 32.4 km by road from Dansavanh-Lao Bao border). Transpotation of illegal rosewood is a common occurrence in this area and proceeds without visible hindrance during the daytime.**

Control of timber traffic on road check points is one of the key tools used by POFI for illegal timber detention. In the framework of this research we visited 7 POFI check points in Saravan (2), Sekong (2), Attapeu (2) and Champassak (1). All together we know 14 permanently or seasonally operating POFI check points in these provinces including 5 check points at the approaches to the border gates, although the number of check points is apparently higher. Nevertheless on some routes of timber transportation check points have not been set up. For example, there is no POFI check point near the Kaleum - Tay Giang border gate that was opened in April 2013. Export of timber through this border gate was studied above in “Case study #2: the clearance for Rd. Ban Panon-Thongsa (Sekong province)”.

Most checkpoints work irregularly. Some check points are closed during the rainy season from June 1 to October 31 when logging in the forest must be suspended and all harvested timber must be stored in log landing II in accordance with Lao legislation. It should be noted that this restriction is not absolute and makes room for exceptions: when due to the limitation of time in infrastructure development projects government can issue a permit on continuation of logging and transportation of timber during raining season. As it was shown above (fig. 10),

transportation of logs and processed wood continues during the rainy season as well (with the significant drop only at the end of raining season in September-October).

For example, the Dak Ta Ok POFI check point in Dakcheung (Sekong), primarily intended to control timber export to Vietnam, was closed during raining season 2012. However, we received evidence that in summer 2012 timber harvested in the framework of the quota for clearance of a constructed road was exported via Dak Ta Ok border gate (see chapter «Assessment of illegal timber harvesting at national level»). We should note that according to Vietnamese Customs officers from the Nam Giang border gate located on the Vietnamese side, the actual (i.e. associated with the local climate) dry season in this region begins from mid-June-August<sup>110</sup>.

According to our observations during the dry season check points are not always functioning on a permanent basis as well.

- For instance, during our visits on POFI check point in Dak Ta Ok on 05 December 2012 inspectors were not deployed there yet.
- Inspectors were absent on 01 December 2012 on the check point in Phouan Savanh (Saravan). This check point is supposed to control timber flows from southern provinces by Road No. 13, the backbone of the national road system.
- POFI Sekong check point in Ban Phon did not operate in March 2014. This check point is located on Lammam-Kaleum road used for transportation of timber from Kaleum district. Official reason of the absence of inspectors was that according to official data there was no timber transportation in the area.

On the check points intended to control local timber transportation timber trucks are stopped and searched selectively. On Phouan Savanh check point (Saravan) inspectors check only the trucks suspected of transportation of illegal timber based on intelligence collected from informants from Saravan. According to inspectors the majority of trucks passing the check point were the trucks carrying timber of the Phonesack company, which conducts logging under contract for clearance of the Xekong 4 reservoir, and a concession on coal prospecting and mining. These trucks are only required to show documents without any check for discrepancies<sup>111</sup>.

Individual cases of detention involve transportation of valuable wood. In 2011 four trucks carrying 44 m<sup>3</sup> of rosewood were detained. A truck of the Lao-Savannakhet Cement Plant transporting rosewood bars was detained at the beginning of 2013 (fig. 57).

At the same time, forest inspectors reported that most often rosewood is transported by minivans with high speed characteristics that can let drivers run through check points without stopping and escape pursuit if necessary.



**Figure 57. Truck of Lao-Savannakhet Cement Plant with shipment of rosewood detained at the beginning of 2013 in Lakhonepheng police station.**

According to inspectors POFI check points located on the approach to border gates (La Lay, Lak Sam Sip, Dan Lak Loy), all trucks with timber as well as trucks with other shipments suspected in illegal timber transportation are checked. Along with checking the availability of all necessary documents for timber export (including sale and purchase contract with POIC, log list etc.), they also make control measurements. However, cases of unavailability of documents and misdeclaration (underestimation of volumes, incorrect declaration of species composition, etc) are either very rare (Lak Sam Sip), or are not recorded so far (Dan Lak Loy). Among misdeclaration cases on Lak Sam Sip check point very few cases of declaration of incorrect species name and transportation of sawn wood instead of declared finished products were mentioned. The Dan Lak Loy check point detected only one case when amongst “legal” timber from dam construction some illegal valuable wood was hidden<sup>112</sup>.

Theoretically, such a system of control should exclude large scale transportation of timber without permit documents via official border gates. Since the volume of timber import from Laos according to importing countries several times exceeds the documented timber harvest in Laos we can suggest that most Lao timber export is not registered at border gates.

For instance, according to the data from A Dot Vietnamese Customs Department (Thua Thien Hue province) during the period from 2004 to August 2012 about 28 thousand m<sup>3</sup> of timber was imported across border gate A Dot-Ta Vang (inside Xe Sap NPA in Kaleum district, Sekong province). However, according to the POFI Sekong, timber export via the same border gate for a similar period comprised only 3,169 m<sup>3</sup>, i.e. 9 times less.

Interviews with POFI officers on checkpoints showed that their estimation of the average number of timber trucks crossing checkpoints during the last logging season was greatly underestimated in comparison with the estimation made on the basis of data on documented export (table 13).

On Phouan Savanh check point inspectors also claimed that most of the timber going through is either sawn wood or finished wood products. This contradicts with official data which show that 81% of timber transported through Phouan Savanh check point in 2012 was logs from Phonesack’s concession going to the company’s Khammouane factory for processing.



Similarly, on Dan Lak Loy check point officers stated that exported timber was represented by sawn wood and that they “didn’t see logs”. However, according to our observations and according to some Vietnamese experts<sup>113</sup>, timber export through the nearest Phou Kua-Bo Y border gate is mainly made up of unprocessed timber (fig. 55).

**Table 13. Estimation of number of timber trucks crossing POFI checkpoints in Southern Lao provinces and number of detentions of vehicles transported illegal timber**

POFI check point	Volume of timber exported in 2012, m <sup>3</sup>	Number of timber trucks		Cases
		POFI estimate	Estimate based on reported volume	
La Lay (Saravan) Rd. No. 15B near border gate to Vietnam	10,312 – round 2,425 - sawn	6 / month	577-637 / year 48-53 / month 1.6-1.7 / day	n/a
Phouan Savanh (Saravan) Rd. No.13 on border with Savannakhet	40,774 - round 3,030 - sawn	0.5 / day	1,095-2,190 / year 176-183 / month 5.8-6 / day	2012 – 0 2011 – 4 trucks with 44 m <sup>3</sup>
Dan Lak Loy (Attapeu) Rd. No.11 near border gate Phou Kua-Bo Y to Vietnam	194,224	10-100 / month	4,856-9,711 / year 405-809 / month 13.3-26.6 / day	2012 – 1
Lak Sam Sip (Champassak) Rd. No. 16 near border gate Vang Tao-Xongmek to Thailand	17,668 – sawn 5,303 - finished	40 / month	574-1,149 / year 48-96 / month 1.6-3.1 / day	2012 - 0 2011 - some

Note: it is assumed that one timber truck carries:

- 20 m<sup>3</sup> of logs at average;
- 20 m<sup>3</sup> of sawn timber or finished products as minimum average load;
- 40 m<sup>3</sup> of sawn timber or finished products as maximum average load.

According to POFI officers in Lak Sam Sip check point average volume for one truck was 23 m<sup>3</sup>, according to POFI officers in La Lay check point average volume for one truck was 20 m<sup>3</sup>.



**Figure 58. Vietnamese trucks laden with logs at the approach to Phou Kua-Bo Y border gate, 06 December 2013 (left). Satellite image (15 January 2014) with transit depot filled with logs from Laos in Plei Can (Kon Tum province) ca. 16 km off Phou Kua-Bo Y border gate (right).**



According to current procedures, POFI checkpoints should provide weekly, monthly and quarterly reports to the main office and keep copies of the documents at least for one year. This means that important information is regularly compiled and always available even in case of staff rotation.

These significant discrepancies of officers assessments with documented export were observed at almost every POFI check point. This makes it appear that these discrepancies are systematic and deliberate, and not merely isolated incidents coincidentally observed by us. In this regard it is worth mentioning that the head of Thataeng weighing station, which is the part of Division of Transportation of DPWT Sekong, gave a nearly precise assessment on the number of trucks with timber crossing his check point in 2012. His assessment (> 300 trucks) was only 14% less than number (342 trucks), calculated on the basis of logbook and copies of transportation permits<sup>114</sup>.

Underestimation of volume of timber traffic by POFI officers can follow from the lack of motivation to control timber flows from “legal” quotas as well as unwillingness to share information which is considered “sensitive”. Continuing export of unprocessed timber speaks to the ineffectiveness of the more than decade-long government policy on development of deep processing of timber in Laos, and officials may consider this too sensitive to point out. Information about illegal logging under the cover of permits for land clearance that can exceed the volume of timber harvest from authorized sources can be regarded as a “sensitive” issue as well.

During discussion about possible illegal logging conducted under cover of permits for land clearance within flooding areas of reservoirs or road construction senior officers from PAFO, POFI and POIC Attapeu had stated that currently there were no such violations in the province<sup>115</sup>.

Not all responsible officials (especially at the provincial level) are ready to recognize the fact of a large scale presence of illegal wood in Lao timber export. For example, the Deputy Head of POFI Attapeu considers that illegally harvested timber is mainly going to the local market and only a very small share of it is exported abroad<sup>116</sup>.

The analysis of sanctions for violations detected by DOFI and POFIs violations shows that the majority of illegal timber related cases are considered as a crime of little consequence. According to the Criminal Justice Response (2014), only 15 (1.4%) of a total 1,072 cases investigated by DOFI and POFIs in 2011-2014 were referred to the Public Prosecutor, while none of these cases was prosecuted in court and convicted. The main penalty for such violation was administrative sanctions and re-education (58 and 11% correspondingly). The authors of this analysis astutely observe that “a referral rate of less than 1.4% for prosecution is very small for an organization that is seen as the primary government response to countering problems associated with illegal logging, land encroachment, smuggling of timber and wildlife and forest related corruption”<sup>117</sup>. According to the data provided by POFI of Attapeu, Saravan and Champassak, of 125 timber-related cases in season 2011-2012 only 19 (15%) were referred to justice department/court, while in Attapeu only 1 case out of 47<sup>a</sup>. For over 70% of cases processed in Attapeu the prescribed penalty was warning/re-education.

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<sup>a</sup> No data provided for Sekong.

According to information surfaced in Lao mass-media corrupt officials convicted for colluding with illegal loggers and timber traders usually receive very light sentences to say least.

As for example according to publication in the Socio-Economic Newspaper in May 2015 Inspection Task Force Committee провинции Huaphan подвел итоги своей работы с 2012 г. по investigation of public corruption cases<sup>118</sup>. According to Deputy Director of the provincial State Inspection Department, Mr. Vongchan Heuangkhampheng, “Huaphan has intensified the fight against corruption and their tougher action had paid off”. Some 90 corrupt officials who were involved in fraudulent activities between 2005 and 2010 have been penalised including officials from the PAFO and POIC which “conspired with timber business operators and local people to illegally fell [valuable wood] for illegal sale to foreign buyers in neighbouring countries”. However punishment does not seem to be proportional to seriousness of charges brought against corrupt officials: *“The offenders in the Agriculture and Forestry Department were reassigned to jobs that did not involve forestry management, while an official with the Industry and Commerce Department has had his higher education scholarship revoked”* (!?)

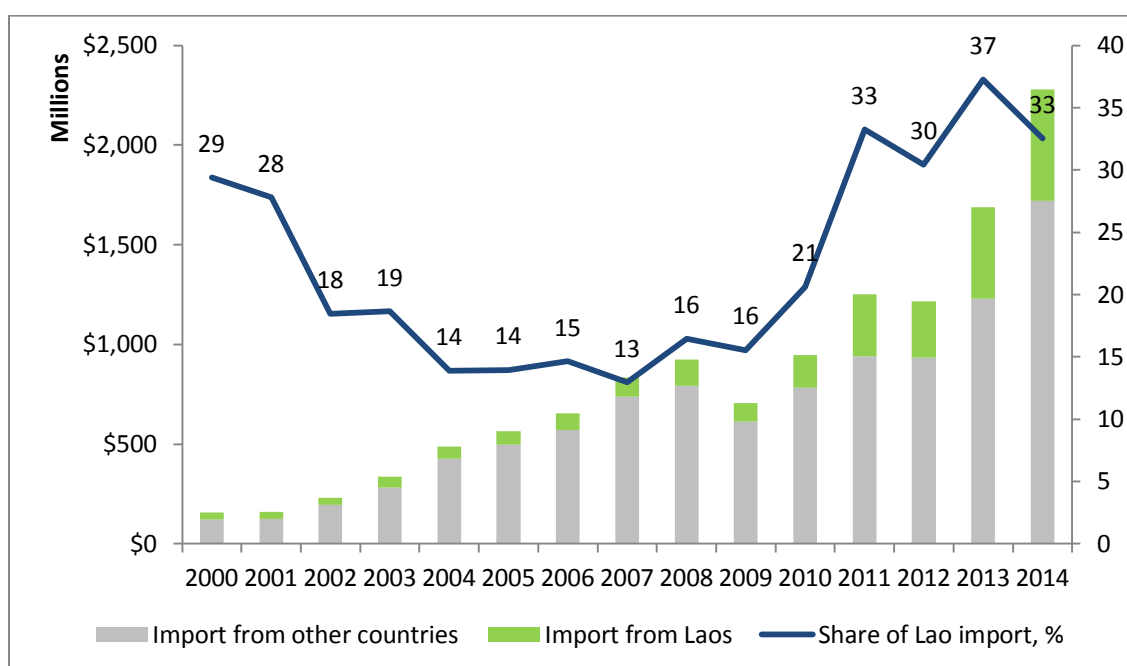
Thus we can conclude that the activity of state forest inspection (and most likely other Lao state law enforcement agencies responsible for fighting illegal logging) does not have any significant impact on the dynamic and scope of this crime.

And the main factor determining the scale of illegal logging in Laos remains the demand on the international market and the cost of logging (adjusted for corruption costs).

## Conclusions

Leaders of the Government of Laos reasonably believe that the high price of wood on international markets and the surging demand for timber in neighbouring countries are the main drivers of illegal logging in Laos<sup>119</sup>. The main contributors to the Lao timber demand growth are timber processing facilities in Vietnam, China and to a much lesser degree Thailand, which have been responsible for more than 90% of Lao timber by value since the beginning of 2000s (and reached 99% in 2014). The wood processing industry of these countries highly depends on imported timber. Currently 80% of the raw materials for the wood processing industry in Vietnam are imported.

One third of Lao timber (in terms of value) goes to Vietnam and by now Laos has become the biggest supplier of round and sawn wood to Vietnam - in 2014 its share reached 33% of total import value of these products (30% and 34%, correspondingly) (fig. 59). In terms of volume logs and sawn wood from Laos account for 22% and 25% of total Vietnam import of these products.



**Figure 59. Yearly dynamic of Vietnam import of logs and sawn wood (HS4403 and HS4407).**

Source: compilation using data from United Nations Commodity Database and Vietnam customs office<sup>120</sup>.

Lao timber feeds the Vietnamese wood processing industry (including mainly export oriented wooden furniture manufacture) which demonstrates a steady rise since the mid-2000s<sup>121</sup>. From 2005 to 2011 the amount of wood processed in Vietnam has increased by 56.6% from 2.996 million to 4.692 million cubic meters with the most significant growth from 2010 to 2011 (between these years import value of Lao timber by Vietnam almost doubled).

Currently, wood product exports ranked fifth among Vietnam's top 10 export industries, a good indicator of significance of this sector for Vietnam's economy<sup>122</sup>.

From 2005 to 2014 the total value of Vietnamese export of wooden products (where value of exported furniture accounted for 66-80%) almost quadrupled to US\$ 6.2 billion.

In 2013, Vietnam became the biggest wood-product exporter in ASEAN, the second in Asia and the sixth in the world<sup>123</sup>. Vietnam's wood products have been exported to more than 100 countries. The largest export markets and also markets that have the highest consumption from this industry are the US, Japan and China, accounting for two thirds of total exports in the first 10 months of 2014 (36.3, 15.7 and 14.4%, correspondingly).

This growth is expected to continue driving demand in the wood processing sector for raw materials. Given that most of the Vietnam plantation timber is small diameter, experts suppose that volume of plantation timber used for furniture making is quite modest ( around 20% of the total harvested volume from plantations)<sup>124</sup>.

Another key driver of Lao timber demand is China which has become biggest importer of Lao wood by 2014. As was already mentioned Chinese import of Lao timber has been skyrocketing from the end of 2000s and has increased 24 times from US\$ 45 million in 2008 to US\$ 1,045 million in 2014. ITTO reported the deficit of domestic timber supply in China had reached 150 million m3 in 2011 and believes that the gap will grow to over 180 million (in RWE) by 2015<sup>125</sup>.

Taking into account the strong dependence of wood processing industries in these countries on timber supply from Laos (even critical dependence in the case of Vietnam) it is unlikely that the governments of these countries are ready to take steps to control import legality. It is evident that such actions would reduce dramatically the volume and quality of timber from Laos together with the profit for timber traders and wood processing companies, which enjoy excess profits from purchasing raw material for underestimated prices.

The unwillingness of the Vietnamese side to accept such consequences is evident from the fact that the draft legality definition developed by the Vietnamese Forestry Administration in the framework of negotiations of FLEGT Voluntary Partnership Agreement with the EU does not require importers to provide assurance that imported timber was legally harvested in the country of harvest, but rather that it was legally imported to Vietnam according to Vietnamese laws<sup>126</sup>.

The only scenario for forestry development considered in Forest Strategy to the Year 2020 of the Lao PDR (endorsed by Decree No. 229/PM on 9 of August 2005) is based on the prerequisite of gradual but compulsory transition to sourcing timber from plantations and from PFAs on the basis of a scientifically estimated annual allowable cut, while timber supply from conversion of forests for infrastructure development will rapidly decline “as the requirement for construction of major roads and dams comes to an end”. Simultaneously the government confirmed its adherence to the strict implementation of the export ban on logs and sawn wood and the rationalization of existing sawmills and wood-based factories so that operations are more efficient and match sustainable wood harvesting regimes<sup>a</sup>.

In reality the situation is evolving in a completely opposite direction. Almost all export of wooden products (HS 44) from Laos is still comprised of logs and sawn wood and apparently “rationalization” of wood processing factories came to nothing. In 2014 the proportion of round

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<sup>a</sup> More specifically it is articulated in Agreement on Resolution of Forest Conference on Forest management, forest inspection and wood business held on 25-26, January 2012. No. 32/PM Vientiane Capital, Date: 6/3/2012. Article 6.2.: “Re-structure the quantity of factories to match up with the timber supply capability from production forests”.



wood and sawn wood in exports amounted to 97.6% in terms of value (US\$ 1,631 million) while the total value of wooden, bamboo and rattan furniture exported in that year reached only US\$ 3.8 million (its historical high)<sup>a</sup>.

The issuance of quotas for commercial harvesting in PFAs was suspended from 2011/2012 until the management plans would be prepared for all PFAs, and most of the timber is harvested in fact under the guise of permits for land clearance in all three categories of forests (including NPAs).

Properly speaking, “quotas for land clearances” represent the most primitive (and probably worse) form of logging concessions when “holders” of logging quotas are licensed to abuse almost all laws.

In practice, the maximum volume of harvested timber allowed by quota can be the only limitation condition for loggers (although this limit can be disregarded as well).

There are no specific time frames since timber harvesting of the underused quota can be moved to the next season and administrative district borders apparently become the only spatial reference for such “concessions” (even this limit is ruled out in some cases).

There is no control over enforcement of even basic forestry and environmental requirements: logging takes place in all forest categories without taking into account their status (including conservation and protection forests), in areas with complete restriction on logging (on slopes over 35 degrees and within riparian forests), including hauling along streams and across them. Technically these requirements are not applicable in the case of real forest conversion. In the context of current routine practice, when permits for conversion timber are considered as licence for high-grade logging, demanding fulfillment basic forestry and environmental requirements appears nonsensical and comical since this practice is fundamentally illegal.

Resuming commercial logging in PFAs on the basis of elaborated management plans (its completion is expected in 2015 according to MAF) can not change the situation for the better as the productive capacity of these forests can not meet growing market demand and also is not competitive with high grade and cheaper timber from selective logging conducted under cover of land clearance. We believe it is quite likely that residual timber stock in PFAs is already diminished significantly compared to the volumes shown in surveys as in reality timber extraction in the PFAs has continued unabated.

Under these tendencies the continuation of “business as usual” logging practice in Laos will undoubtedly lead to the severe depletion of commercial timber stocks in its natural forests - as has already taken place in other Southeast Asian countries such as Indonesia, Cambodia, Thailand, Vietnam etc.

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<sup>a</sup> wooden furniture (HS 9403.30 - 60), bamboo and rattan furniture (HS9403.81) as reported by UN Comtrade database.

## Recommendations

Avoidance of a similar scenario requires that the Lao government takes immediate actions to ensure that logging quotas for conversion timber meet fundamental legal requirements. The government must focus its efforts on the most critical points where urgent interventions are required and progress can be measured.

First of all the key requirement **“legal logging must take place only within the authorized borders”** – must be enforced.

### Maps and border demarcation

Unambiguous maps with the borders of all valid concessions where forest conversion and timber harvesting are permitted must be available. Along with maps forest inspectors should have digitized borders to make the use of GPS easier.

Demarcation of boundaries afield must be made in 100% of cases before the beginning of logging. In the case of forest clearance or salvage logging over vast flooded areas borders must be demarcated on the ground at least for forest blocks selected for logging in the current year. The future flood level should be marked on each approach road. In the field marking of the borders of the flooded area is technically simple and does not require high skilled personnel. PAFO and DAFO staff responsible for supervision of logging must be formally familiarized with borders of logging area on maps and on ground prior to commencement of logging and should be personally liable if any intrusions beyond the borders are revealed.

### Pre-felling survey

A pre-felling survey must be undertaken to give a general idea of possible volume and species composition of timber harvesting. Apparently the required total measurement of all trees of exploitable diameter is unfeasible under current conditions due to financial and technical restrictions, therefore the survey must be conducted in sampling plots represented the main forest formations. Forest inspectors must check the accuracy of the pre-felling surveys.

For road construction rigorous documentation is typically lacking by the start of construction and projection of the route after the beginning of construction (that is, in process) is common practice. In such conditions it is infeasible to estimate expected volumes and species composition prior the beginning of the work, and thus automatic issue of permits for logging in 25 meter-wide buffer zones must be forbidden. Logging can be permitted only when it has actually been determined which forest areas fall in the area of the projected road and responsible representatives of DAFO and PAFO must make continuous record of actual timber harvest. A similar approach must be applied for logging in course of geological prospecting.

### Availability of information and non-governmental oversight

Key information about all permitted logging (boundaries, time limits, volume) must be shared with head of villages situated in relevant areas and be available in the offices of DAFO and PAFO for all concerned parties before the beginning of logging.

Independent monitoring must be carried out by a group comprising representatives of the government agencies, CSOs, INGOs. This group must have access to the areas with planned and ongoing logging without having to seek prior approval from district and provincial authorities.

### **Inspection of compliance of logging with borders**

Field control over location of logging must be a priority task for forest inspectors. Fresh skidding trails and forest roads and the traces of roads and skidding trails which appeared in the period between inspections must be checked for illegal logging. When registering illegal logging, stumps of trees of valuable species, especially of large sizes and specific shape must be measured and photographed for search of possible matches with logs in log yards.

It is strongly recommended to apply high and very high resolution satellite images as additional independent source of information for monitoring of logging activities. One- and two-year old pictures are available in Google Earth for many areas and can be used as background information about status of forests (location of roads, logging sites, fields) before monitored logging activities started. Location of actual logging is conducted on the basis of fresh satellite images taken for the concession and neighboring area 1 or 1.5 months before the end of logging season (or expiration date of logging quota).

### **Checks on timber accounts in log landing II**

The account of timber stored in log landing II must be maintained by responsible DAFO officers deployed there throughout the whole logging season and not just at the very end as we have observed being practiced. The records must be available to inspectors for checking their accuracy.

Regular inspections (including without prior notice) of log landing II must be conducted, along with measurement and photographing of large-size trees and also with a total account of logs of valuable species for testing the accuracy of log list maintenance before the completion of the general log list.

### **Control of timber traffic**

Forest inspection check points must function 24 hours all year round on all border crossings and also on the routes of timber transportation from provinces. The main task of these posts must be shifted from searching and detention of carriers of small shipments of valuable timber to systematic registration of all shipments with timber products regardless of availability of “legally issued permits” including information on type of product, volume and species composition. Any timber shipped without permits and release stamps must be considered illegal and confiscated.

### **Inspections of wood processing factories**

Regular inspections (including without prior notice) of wood processing factories must be conducted with an aim to check legality of wood supply and test the conversion factor of raw wood to product. Stocks of timber presented in the factory must be verified against relevant documents: sale and purchase agreements, log lists, logbook with registration of log input, production records and removal of products.

### **Monitoring of timber turnover**

On the national level continuous monitoring of timber turnover must involve collection of information at the key points of chain: volume of timber harvest (log lists, records of inspection of log landing II for all valid logging quotas), sale and purchase agreements, issued transport and exports permits, logbooks from road check points with records of timber transportation, export declarations for wooden products. This information will allow for assessing the correlation of raw wood input from official sources and product output. Output turnover (and discrepancy of

species composition as well) must serve as grounds for investigation of causes of such non-compliance and search for the unauthorized sources of wood supply.

**Enforcement of the ban on timber bartering**

The practice of bartering logging permits for investment in public projects (construction of roads or public buildings) must be irrevocably and unconditionally forbidden as it creates ground for illegal logging.

Similar risk springs from public projects associated with harvest of conversion timber if the contractor is responsible for upfront investment from its own resources against debt obligations of the authorities which have contracted the project. In the latter case debt obligations are considered by the contractor and controlling agencies as an indulgence which allows the contractor to violate law and to harvest illegal timber as a debt service payment.



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- <sup>33</sup> According to logbook 151 trucks shipped finished wood products to Thailand and unprocessed wood to Champassak were loaded in Ban Beng. Technically this village is situated in Saravan province but in fact Ban Beng's saw mills source timber harvested in neighboring Kaleum and Lammam districts of Sekong province.
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Interviewed staff of PAFO Saravan, Sekong, Attapeu confirmed that pre-felling survey is required to measure 100% of trees intended for logging.

<sup>56</sup> As we know in actual practice of pre-felling survey in Laos measuring type is applied to measure circumference of trees while height of trees is estimated by eye. Apparently it creates opportunity for intentional overestimation of volumes for justification of bigger quotas.

<sup>57</sup> Saravan cement hardens grip on Lao market / November 2006, 2012.

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According to Order No. 17/2008 PM on Strengthening the Forest Management, Protection and Coordination of Forest Management and Forestry Business, 22 September 2008, Article 20.3: *It is forbidden to log some protected natural timber species... such as ... Mai Champa pa*.

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Identification, properties and uses of some southeast Asian woods. ITTO; Research Institute of Wood Industry, Chinese Academy of Forestry. [www.itto.int/files/user/pdf/publications/PD41%2088/pd-41-88%20e.pdf](http://www.itto.int/files/user/pdf/publications/PD41%2088/pd-41-88%20e.pdf);

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<sup>72</sup> Zenkevich J.E., Aksenov D.E., Loshkareva A.R., Glushkov I.V., Tikhomirova O.M., Sementsova M.V. (2015). Final Report on “Development of remote sensing monitoring system for logging activities in CarBi monitoring area”. Transparent World, WWF.

<sup>73</sup> Forest Trends (2010). Timber markets and trade between Laos and Vietnam: a commodity chain analysis of Vietnamese-driven timber flows; Workshop on timber trade between Laos and Vietnam hosted by Vietnam Timber and Forest Products Association (VIFORES), People’s Committee of Quang Tri province and Forest Trends in Lao Bao Border Area of Quang Tri province. 07 December 2012.

<sup>74</sup> Interview with Deputy Chief of Dan Dak Loy check point Mr. Teva Jhounlasa on 11 December 2012.

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<sup>89</sup> Notification No. 1940/2011 MOIC.DIMEX, on Procedure to Issue Export and Import License for Timber, 30 September 2011, Article 2 (2.4).

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<sup>103</sup> EU FLEGT Facility (2012). Study for Understanding Timber Flows and Control in Lao PDR.

<sup>104</sup> Interview with Mr. Somsack Inthavong on 10 December 2012.

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<sup>107</sup> Interview with Mrs. Onta Senchanthamayty on 10 December 2012.

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<sup>109</sup> Authority combats fraud and corruption / Vientiane Times, 30 April 2015.

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<sup>111</sup> Interview with POFI Saravan officer Mr. Vannachack and DAFO officer Mr. Phayloth on 3 December 2012.

<sup>112</sup> Interview with Deputy Chief of Dan Dak Loy check point Mr. Teva Jhounlasa on 11 December 2012; Interview with Head of Planning Division of PAFO Champassak Mr. Amphone, POFI Champassak officer Mr. Choum Vananiy, DAFO Phonthong officers Mr. Souksavan Soulinyakan and Mr. Vibounsak on 12 December 2012.

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