



Integrated Nature Conservation and Sustainable Resource Management in the Hin Nam No Region

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Short report on certification of village plantations of “mai dou lai” *Dalbergia cultrata* in the Hin Nam No region



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List of Abbreviations

CITES	Commission on International Trade in Endangered Species
GIZ	Gesellschaft für Internationale Zusammenarbeit (German Development Organization)
HH	Household
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)
Kg	Kilogram
IP-Consult	Name of a German Consulting Firm, part of NIRAS group
IUCN	International Union for the Conservation of Nature
M3	Cubic Meter
NPA	National Protected Area

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1 Background

The Hin Nam No National Protected Area (NPA) in Bualapha district, Khammouane Province, covers 82,000 ha of karst landscape that forms the border between Laos and Vietnam as part of the Annamite mountain chain. The area is an important refuge for rare wildlife such as the Black langur, Red-shanked Langur and Great Hornbill. A project supported by the German Government implemented by GIZ and IP-Consult supports co-management by the 20 surrounding villages together with local authorities of the NPA.

Logging of rare and valuable timber trees is one of the major threats to the conservation of biodiversity in the park. Some villagers have already started to plant valuable timber trees around their houses, which seems to indicate a good potential for village-based plantations. Plantations of rare timber trees could in theory provide solutions for:

- **Restoration of forests**, compensating losses of forest cover by plantation forestry
- **Conservation of genetic resources** of rare timber species in their natural environment
- **Income generation** for villager as an incentive for nature conservation.

The last point is especially relevant as Bualapha is a poor district with very limited options for developing rural livelihoods based on agriculture.

One of the challenges is that the most valuable species harvested in the Hin Nam No area are listed as endangered species on CITES or in the IUCN redlist. That makes it illegal to trade timber from these species internationally.

But what if timber plantations could be certified at the time of planting, so that owners can prove that the timber they cultivated was not taken from natural forests? If trade in such species from plantations could be made legal, could this species be included in payment schemes aimed at promoting reforestation such as already applied by the German Development Bank (KfW) in neighboring Vietnam? Could such payment schemes also be applied in Laos?

To explore this idea, a quick survey was held among villagers planting the rare timber species *Dalbergia cultrate*, “mai dou lai”. A draft certificate was designed which could be used to register plantations of this species legally. This certificate is now being submitted to the District Authorities for approval. This short report summarizes the findings from January-April 2015.

2 “mai dou lai”, a very valuable timber species

One of the most valuable timber species found in the area is *Dalbergia cultrata*, “mai dou lai”. The heartwood produces a beautiful type of ‘striped’ rosewood. The area around Hin Nam No is one of the last remaining natural tree seed source areas for this species inside Lao PDR.

This species is listed as an endangered tree species under CITES and on the IUCN redlist. That means that it is not possible to legally trade this species on the international market. The timber is so sought after, that it is sold locally by kilogram (kg), not by cubic meter (m³).

The local village price varies between 4- 12 million kip per kg (\$500-1500 per kg) depending on the diameter. If the markup is comparable to that of the normal rosewood (*Pterocarpus macrocarpus*, “mai dou”, the price in trading countries like Vietnam could be five times the local price, and in destination countries like China 10-50 times¹.

¹ Sing, Sarindah, 2013. The socio-economic context of illegal logging and trade of rosewood along the Cambodian-Lao border. Forest Trends, Washington.

The species was so in demand, that by now the natural stands of this species in and around Hin Nam No are thought to be almost completely destroyed. Knowing the value of this tree, local villagers have started growing trees around their houses.

Villagers estimate these trees will start to produce the red heartwood as of the age of 15 years and that trees could be harvested as young as 20-30 years. A tree of 20 years old is expected to produce 2-4 kg of heartwood. Timber from planted trees sells at a slightly lower price of \$500 per kg, compared to timber from wild trees, as it is considered to be of a softer quality.

There seems to be good potential for reforestation with plantations of this species, if the trade in timber from such plantations could be legalized. With a planting density of 6x6 m. a plantation could have 278 trees per hectare (ha). With 3 kg of heartwood per tree, a plantation could have 3,333 kg after 20 years, with a value of \$416,000 or \$20,833 per year. It is hard to find a better economic alternative type of land use.

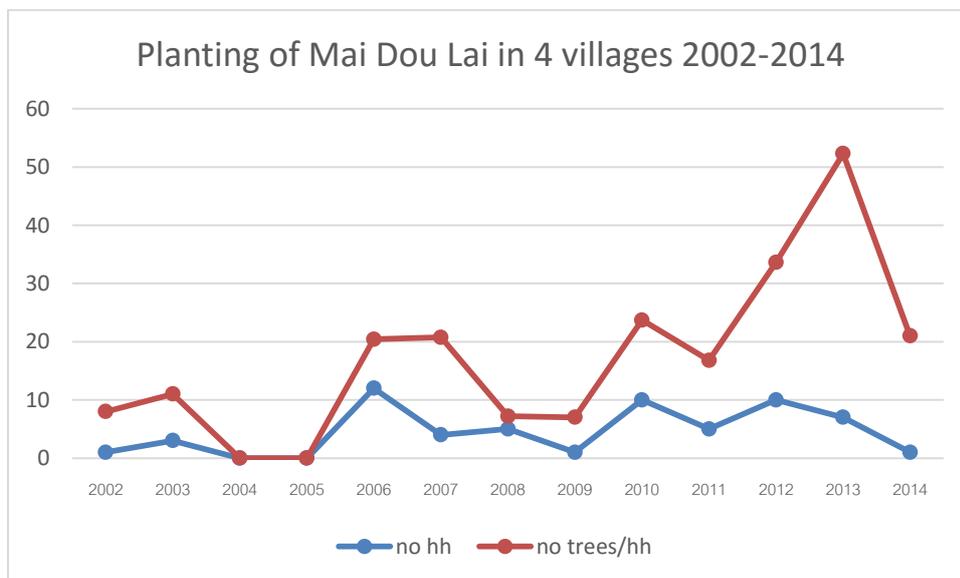
3 Village plantations of “mai dou lai” around Hin Nam No NPA

A quick survey was held in four villages where “mai dou lai” can be observed to be planted by villagers. Among these four villages (Nong Ma, Nam Chala, Ban Dou and Sa-ang), a total of 59 households were found to have planted 1,072 trees, on average 18 trees per household.

Table 1: Summary of numbers of households planting “mai dou lai” trees in four villages around Hin Nam No NPA

Village	No HH	No trees	trees/hh	age (years)
Nam Chala	20	461	23	5
Ban Dou	25	417	17	5
Nongma	13	105	8	10
Sa-ang	1	89	89	2
ALL	59	1072	18	6

The average age of those trees was six years, ranging from 10 years (planted in 2005) in Nong Ma to 2 years in Sa-ang (planted 2013). The oldest trees were 13 years old (planted in Nam Chala, 2012). The number of households planting new trees ranged from 0-10 per year, the number of trees planted ranged from 0-50 per year (see diagram below).



Almost all households had planted these trees around their house, where the trees can be guarded against theft and looked after (watering). Villagers would be interested in planting more trees if they would be supported by a project.

4 A simple certification system

Through discussions with villagers and district authorities, a simple registration form was designed which registers the name of the owner, the number and age of trees planted and has a description of the location of the plantation. Household with less than 20 trees planted in one village are issued a group certificate. Households with more than 20 trees planted receive an individual certificate. The following number of certificates are being prepared:

Table 2: Numbers of certificates being prepared

Village	No households in group certificate	No individual certificates	Total No Households	No Certificates
Nong Ma	12	1	13	2
Nam Chala	11	9	20	10
Ban Dou	21	4	25	5
Sa-ang	0	1	1	1
Total	42	17	59	18

5 Discussion questions for the design of a tree plantation scheme

While this initial enquiry shows a potential for planting “mai dou lai” around Hin Nam No, several elements need to be discussed and studied more closely to develop a viable tree plantation scheme around Hin Nam No NPA:

- **What are the silvicultural requirements for *Dalbergia cultrata* plantations?**

Some estimates by villagers were mentioned above. Is there any documented experience in cultivating *Dalbergia cultrata*? What are realistic figures for growth rates, ecological requirements etc.?

- **How to cover the long wait?**

Plantations of “mai dou lai” obviously fall under the category of long term rotation plantations (over 15 years). In Vietnam, most investments are in short-term rotations with *Acacia* species, that can be harvested between 4-7 years. So the question is whether villagers can wait so long before they can sell the timber they grow, or whether some shorter-cycle crops or trees should be added to create income over the short term?

- **Where to plant?**

Now, almost all trees are planted around the house. Could high-value plantations be established within the boundaries of the NPA? What regulations would apply?

How to ensure ownership?

The present certificate is a first step to registering and recognizing ownership for the trees. Is that enough? Do we need additional certificates e.g. for land use rights or land ownership? Can plantations be community-owned or should they always be owned by individual households?

- **How to develop a legal market?**

At present the trade in “mai dou lai” is essentially forbidden on the international market as *Dalbergia cultrata* is listed as an endangered species. Is it possible to get recognition for timber of these trees cultivated in plantations to be legally traded if they are appropriately certified? How could this local certification initiative be linked to internationally recognized certification mechanisms?

- **How to avoid theft?**

With such a high price, the problem of theft needs to be discussed. How can village planters make sure their valuable trees do not get stolen during the long period of growing?

- **What incentive scheme would be appropriate?**

In Vietnam, KfW has a long history of supporting smallholder tree plantations. The bank provides grants for the buying of seedlings and fertilisers. Planters receive an investment of 84-126 euro per ha in a bank account 3 months after planting if the survival rate is at least 80% (see text box).

Box 1: The KfW model from Vietnam

KfW reforestation projects support household tree plantations through grants in kind and cash. They provide free tree seedlings and fertiliser to households. They also set up savings accounts at BSP for participating households to compensate for their labour inputs. For the PFRSFM, the BSP received a total grant of US\$ 4.1 million. The savings accounts amount to VND 2.0–3.4 million per ha depending on the planted species. Households receive the savings accounts 3 months after planting if the survival rate is at least 80%. They can withdraw up to 20% of the deposited funds right away, and then an additional 15% every year up to year 6. The accounts receive the regular interest rate applied by BSP to household deposits (7.6%/year in August 2009). The maximum area eligible for funding is 2 ha per household, the minimum being 0.5 ha. Source: Sikor, T. 2011 *Financing household tree plantations in Vietnam: current programmes and future options. Working Paper 69. CIFOR, Bogor, Indonesia.*

This would be equivalent to 0.74-1.1 million kip per ha in Laos. This figure could be used as a starting point for discussions with stakeholders, bearing in mind that this figure is based on short-cycle plantations of acacia. The figure for long-term rotations is likely to be much higher.

6 Follow-up steps

To develop a viable plan for small-holder tree plantations around Hin Nam No, it is proposed to hire a local or regional consultant to facilitate the discussion around the questions raised above, to summarize lessons learned from surrounding locations and to develop a concept for Hin Nam No.