THE RATIONALE FOR, AND FEASIBLE APPROACHES TO, THE DEVELOPMENT OF GROWERS GROUPS

Prepared by the
Action Research Team

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Cover Picture*: Mr Sichan facilitates the preparation of a six month Action Plan for Ban En Teak Growers Group, Luang Prabang, May 2013*

Executive Summary

The Australian Council for International Agricultural Research (ACIAR) is supporting a four year project in Lao PDR entitled "Enhancing Value Chains for Plantation Grown Wood in Lao PDR" (VALTIP2). The Grower Group subcomponent of this project (Objective 1.3A) aims to *"identify and test what forms of grower organisation and group certification are feasible and sustainable, and will improve returns to smallholders, and how these can be fostered"* (ACIAR, 2012). This document reports the findings of participatory action research with five existing grower groups (three teak and two rubber) studied in 2013, and provides recommendations for their future development.

The literature review noted that the formation of grower groups for income generating purposes in many countries was challenging, since trees are often planted for the purpose of household savings or as a speculative land investment. Rapid agrarian change and social differentiation may also be undermining the ability of traditionally close-knit communities to form sustainable grower groups.

This action research process identified numerous constraints to the development of feasible and sustainable grower groups in Lao PDR, particularly in the teak sector. These include the complex and conflicting laws and regulations, unfavourable tax policies for small logs and the lack of a domestic teak processing industry. The viability of the teak farmers groups also depends on being able to supply the market regularly, and buyers being able to meet customer orders for wood: however, under the current structure, which relies on the sale of FSC wood, there have been no sales for over a year, and member interest is declining. By contrast, the rubber groups studied appear to have a better chance of sustainability, since they provide a monthly income to members after the seven year establishment period.

The Action Research Team makes the following recommendations for the development of grower groups in Lao PDR.

1. Expand the teak groups to cover four districts, that are capable of supplying the FSC market with a minimum of 3000m^3/year.

The small amount of FSC timber available in Luang Prabang is not sufficient to attract buyers and means that farmers sell outside the current groups. The FSC market needs to be tested by simplifying the bureaucratic processes and rapidly scaling up the number of villages to provide about 3,000m^3/year of available FSC timber(about 1,000 m3 every 3-4 months)-

2. Encourage grower groups to form farmer group enterprises (FGE) or cooperatives in accordance with government policy, and provide co-funding for investments

Farmer group enterprises (or cooperatives) can boost returns to their members by undertaking a range of value adding services such as harvesting and processing. Wherever there is interest,

the existing grower groups should be encouraged to transform themselves into farmer group enterprises (FGE) or cooperatives. Donor agencies should consider co-funding or providing low interest loans for initial capital investments to encourage group cooperation and reduce the risks for those willing to start small enterprises.

3. Encourage government to implement its existing policies on groups and enterprises

An awareness program is needed (possibly in conjunction with DGRV) to build understanding of the related laws and decrees concerning enterprises/cooperatives at all levels of government, and ensure that clear policy guidelines are developed to encourage and sustain grower groups.

4. Grower groups and/or Enterprises should cover both FSC and non-FSC teak

The current FSC teak grower groups (or enterprises) need to be reformed so as to represent all village teak producers, who work together to obtain the best deal for farmers, regardless of who the final buyer is (whether FSC or others). By estimating the volume of their standing timber, they could tender it regularly as a group to the highest bidder.

5. Facilitate the establishment of a grower revolving fund for teak which is able to buy up wood from the people when they need to sell

Without a revolving fund, grower groups (or enterprises) are undermined by producers who need to sell urgently, which deprives the market of timber which could be used as a lever to negotiate better prices. One option may be to have a fund connected to a FGE, who would then be responsible for managing the fund.

6. Ensure that the grower group committee takes responsibility for their own affairs

LPTP has often taken over some administrative activities that should have been undertaken by farmers, which has led to a lack of transparency, and has undermined confidence in the group management. . LPTP should only facilitate group processes, and should not be responsible for writing documents on behalf of group leaders.

7. Establish a Provincial Teak Platform for the management of teak in Luang Prabang

The complex and contradictory procedures for selling one's own planted timber are a disincentive to both farmers and industry. A multi-stakeholder Provincial Teak Platform should be established, which comprises relevant government officials, industry and farmer representatives, and which aims to develop the teak sector. One of its main tasks would be to reduce the taxes and administration faced by smallholders, and in particular to encourage thinning and small diameter processing in the province through the use of tax incentives for small logs.

8. Develop a log measuring tool using a mobile telephone app

The development of a standing tree valuation system would reduce marketing risk for both timber growers and middle-men. The rapid expansion of smartphones provides an opportunity to not only improve transparency for farmers, but the data could also be uploaded to a database for inventory purposes and linking buyers and sellers.

9. PAFO should designate forestry staff to be group liaison officers

There needs to be a mechanism to provide organizational support to the grower groups and FGE's for several years after they have been developed. Therefore PAFO needs to designate extension staff as appropriate to become 'coaches' of these groups that providing technical and administrative support on a regular basis.

10. Undertake research into the impact of rapid agrarian change on the development of sustainable grower groups

It is possible that rapid agrarian change and social differentiation may be impacting upon the development of sustainable grower groups in Lao PDR, such as those supported by LPTP. This should be considered during the next part of the action research process.

Acronyms

AAC	Annual Allowable Cut
ACIAR	Australian Council for International Agricultural Research
AGPC	*Association des Groupements de Producteurs de Café du Plateau des Bolovens*
ADB	Asian Development Bank
APB	Agricultural Promotion Bank
ANU	Australian National University
DAEC	Department of Agricultural Extension and Cooperatives
DAFO	District Agriculture and Forestry Office
DGRV	German Federation of Cooperatives
FAO	Food and Agriculture Organisation
FGE	Farmer Group Enterprise
FSC	Forest Stewardship Council
IMFN	International Model Forest Network
KHJL	*Koperasi Hutan Jaya Lestari* (an Indonesian Teak Growers Cooperative)
IMFN	International Model Forest Network
LPTP	Luang Prabang Teak Project
MAF	Ministry of Agriculture and Forestry
PAFO	Provincial Agriculture and Forestry Office
VALTIP2	Enhancing Value Chains for Plantation Grown Wood in Lao PDR, Phase 2

1. Introduction

> *"Since individuals have different skills, working in groups instead of as individuals makes it possible to combine the different abilities and makes work lighter and easier. Groups also have greater bargaining power than individuals and easier access to services such as advice and assistance from government and international agencies."*
>
> FAO, 1995

The Australian Council for International Agricultural Research (ACIAR) is supporting a four year project in Lao PDR entitled "Enhancing Value Chains for Plantation Grown Wood in Lao PDR" (VALTIP2). The Grower Group subcomponent of this project (Objective 1.3A) aims to *"identify and test what forms of grower organisation and group certification are feasible and sustainable, and will improve returns to smallholders, and how these can be fostered"* (ACIAR, 2012). This document reports the findings of participatory action research with five existing grower groups studied in 2013, and provides recommendations for their future development.

This report touches on some of the issues to be covered by some of the other subcomponents of VALTIP 2, with 1.2 (Legality and Transaction Costs) and 1.3B (Certification) being the most relevant. Separate reports will be produced for each subcomponent in early 2014 (for example, see Smith, 2014).

This report is structured as follows: Section 2 is a Literature Review, which examines the experiences of grower groups in other parts of the world, and particularly in South-east Asia. Section 3 outlines the methodology used by the action research team. Section 4 presents the findings of the action research, as well as presenting results from other relevant meetings and workshops that were held in 2013. Based on these findings, Section 5 identifies the incentives for and constraints to the formation and successful conduct of growers groups, and reviews the existing value chains. Section 6 draws conclusions, while Section 7 provides recommendations for supporting the development of grower groups in Lao PDR for the remainder of VALTIP2.

2. Literature Review

The development of farmer groups, cooperatives and associations has been promoted by governments and development programs worldwide as a means to improve the livelihoods of smallholders. Box 1 gives the rationale for farmers to work together in small groups.

Box 1: Rationale for farmers to work in small groups (from Bonitatibus and Cook (1995)

Economies of scale: Providing development services to individual small scale farmers is too expensive for most governments. Small self-help groups overcome this problem because they represent many farmers, not just one. When they deal with a group, development services are more efficient and have greater impact. For example: an extension agent can train many farmers at a single meeting; a bank can provide one big loan for the season instead of many small ones; the group can take over responsibility for distributing fertilizer and seed.

More production and income: Given better access to credit, inputs and information, the poor can achieve higher levels of production and income. Increased income creates savings, which can then be used to expand production even further and to meet other needs.

Acquisition of new skills: In a small group, the poor learn very quickly how to work together, analyse problems together and plan together. These are important skills that can be used in the development, at a later time, of inter-group federations and national-level organizations.

Sustainability: Small groups help the poor become more self-reliant and can be linked up into a network of self-sustaining rural organizations. This carries important benefits – the increased efficiency of development services stimulates economic growth in rural areas and overall national development; politically, participation allows the poor to contribute constructively to development.

Bonitatibus and Cook (1995) recommend that small groups should typically number less than 20 persons, since with small numbers members can readily get to know and trust each other. By contrast, cooperatives are usually larger and more structured, and may be affiliated into associations. They may take on a role in the value chain between companies and farmers. Desmond and Race (2002), provide a case study in which a cooperative in South Africa provides income to growers by taking on some plantation establishment and extension services for a private company (Box 2).

Box 2: South Africa Wattle Growers' Union takes a role in the value chain (from Desmond and Race, 2002)

The South African Wattle Growers Union, a marketing cooperative, sells wattle bark on behalf of growers to domestic South African markets. The Phezu Komkhono Wattle Bark Loan Scheme was initiated in 1995 in the Kwa Zulu Natal region, after a tribal chief approached the union for financial assistance for individual community members to grow wattle. Under the scheme, growers supply about 5 percent of the industry's demand.

The cooperative provides fencing materials, seeds or seedlings, fertilizer and arranges insurance for growers. They also provide an extension service and assist with plantation establishment. The cooperative also offers loans for plantation establishment at 8 percent interest, which is paid from the returns from sales. The growers are responsible plantation establishment, maintenance, fire protection and harvesting – usually after nine years of growth. They receive market price for the wattle bark from the Union. They retain the timber for their own use, primarily for construction and firewood, or to sell on the open pulpwood market.

Since the scheme commenced, 430 growers are participating by planting *Acacia mearnsii* woodlots of about 1 ha. The scheme aims to plant about 2,000 ha in total. In addition to the wattle bark, growers have produced about 8,000 tonnes of poles and 7,000 tonnes of pulpwood from the plantations.

The most extensive network of tree grower organisations occurs in the Nordic countries, with cooperatives in Norway and Sweden having 44,000 and 88,000 members respectively (Metsa, 2014). The Finnish forest growers' cooperative Metsa was established in 1934 with the aim of sharing sales, but has now grown into an international processing group employing over 25,000 people (Metsa, 2014).

In Asia, while there are many examples of successful farmer organisations based on agricultural commodities such as rice, dairy and vegetables, examples of successful tree grower organisations are less common. One successful Indonesian teak cooperative is *Koperasi Hutan Jaya Lestari*, or KHJL. Barr, (2006), reports that this cooperative, which initially comprised about 300 members, was given support in community organizing and community decision-making techniques by a local NGO (JAUH), and received technical support and Forest Stewardship Council (FSC) certification from The Forest Trust (TFT). In 2013, KHJL was "*more or less functioning on their own*" (Robin Barr, email communication, 19th July, 2013). Reasons for their sustainability are given in Box 3.

Box 3: Reasons for the sustainability of the KHJL teak cooperative

1. Demand for teak exceeds supply: Indonesia is a major teak furniture producer, with a thriving industry that had developed on the back of state-owned plantations (Peter Kanowski, email communication, 19th October, 2013). While demand in Java alone is estimated at 8.2 million tonnes/annum, supply only reaches 2.7 million tonnes/annum (Midgley, 2013a)
2. There are clear member benefits and a price premium: KHJL are strategically located close to teak processing facilities, which means that they can attract high prices for their products[1] compared to other world markets (RizaPrihadi, email communication, 26th September, 2013). The cooperative was able to double the prices for teak which had previously been received from middlemen, which boosted its credibility (Barr, 2006). The net price is even higher once profits are distributed to the members (Robin Barr, email communication, 19th July, 2013)
3. Long term monitoring by JAUH and TFT: The support of JAUH and TFT in the early years of KHJL was considered critical for success, and in particular by ensuring that the management committee was financially transparent with its members (Barr, 2006)
4. Transparency in wood sales: Payment to farmers was according to volume – "*farmers were concerned that unless everyone understood how grading worked, the pricing would not be transparent"*. The buyers do the grading before the logs are shipped, and the cooperative sets prices for buyers according to the grade (Robin Barr, email communication, 19th July, 2013)
5. Members receive 50% for their wood up front: The cooperative received an industry advance that enables it to take on the role of wood trader and pay 50% of the value of the wood up front to the members, and the remaining 50% (Barr, 2006; Robin Barr, email communication, 19th July, 2013)

Rohadhi, Roshetko and Perdana (2012) document the experience of another ACIAR supported project in Gunungkedal, Central Java[2], in which the smallholder teak growers had constraints that included a lack of capital to invest in teak planting, an inability to wait for the completion of a teak rotation before obtaining returns and limited access to market information/linkages

[1] For example, farmers in the cooperative receive $212/m3 for Grade A teak at 16cm at farm-gate, which is about double the price that most teak farmers receive (Midgley, 2013a). By comparison, farmers in Luang Prabang received about $94 for 16cm Grade A teak at farm-gate (Burapha, 2012).

[2] FST/2005/177 "*Improving economic outcomes for smallholders growing teak in agroforestry systems in Indonesia*."

which led to low prices[3]. To avoid the problem of farmers selling their timber to satisfy immediate household needs and damaging the quality of their stands, the project facilitated the creation of a 300 member credit cooperative.[4] However, the planned collective marketing of teak had not yet been undertaken by the end of the Project (Rohadhi et al, 2012). In a subsequent paper, Perdana, Roshetko and Kurniawan (2012) made three recommendations to better market smallholder teak collectively in Gunungkedal (Box 4).

Box 4: Recommendations to improve the collective marketing of teak in Gunungkedal, Central Java (from Perdana et al. 2012)

1. Improve market information for smallholders by introducing producers to the log grading and pricing system that is used by the timber industry, including the development of a standing tree valuation system to reduce marketing risk for both timber growers and middle-men.
2. Simplify timber trade regulations to minimize transaction costs, making the smallholding teak market more efficient.
3. Develop links between teak producers and teak industries, such as training smallholders to apply the wood tracking system that is required for certified products, or having farmers groups supplying semi-processed furniture components to companies.

The major pulp and paper companies in Thailand (such as Siam Forestry, Phoenix Pulp and paper) do not have land concessions, and they rely on smallholders to provide the eucalyptus wood they need to run their factories under a contract farming arrangement. Boulay, Tacconi and Kanowski, (2012) report that farmers plant trees as a means to utilize unproductive land, diversify their incomes with long term crops and spread their labour availability. There are 60,000 contract growers in the north, north-east and central areas of Thailand, who manage about 336,000 ha of eucalypts. In a related paper, Boulay and Tacconi (2012) observe that these companies sign individual contracts with growers to supply inputs such as seedlings and fertiliser, and those growers often rely on middlemen to deliver their timber to the pulp mill door. However, despite their large numbers, they have not organised themselves into a formal farmers organisation. Boulay and Tacconi conclude that while tree farming would be facilitated by having organised smallholders (through the provision of information and technical advice), organised grower groups would be unlikely to have enhanced bargaining power unless they

[3] Additional constraints identified in this paper were low quality due to poor silvicultural practice, high transaction costs for timber merchants and unfavourable policies.

[4] The project contributed seed capital of 30,000,000 rupiah (about AUD 2,759 at 2013 rates), and members made a co-contribution of 150,000 rupiah (about$13.80)

were strongly supported by higher-level organisations such as cooperatives, federations and trade unions.

Thailand has grower cooperatives in both rubber and bamboo, which have been supported in their development from the Ministry of Agriculture and Cooperatives. Tekasakul and Tekasakul (2006) report that there are over 700 community level rubber cooperatives, mostly in the south. The Ngao Model Forest Association, in central Thailand, includes a bamboo forest group that uses planted bamboo to produce furniture (IMFN, 2013).

In Lao PDR, one of the first efforts to promote smallholder forestry came from the 1993 Industrial Tree Plantation Project supported by the Asian Development Bank (ADB) which channelled loans through the Agriculture Promotion Bank (APB) to smallholder farmers and other entrepreneurs in southern Lao. By 2003, when the project concluded, some 12,940 ha had been planted, a figure which included 2,496 smallholder farmers (Barney, 2008). Although group formation was not a specific objective, farmers were organised by the APB and district forestry offices to receive their inputs of seedlings and fertiliser. However, the ADB's own internal evaluation concluded that the project was rated as unsuccessful.

> *"Thousands of inexperienced farmers and individuals were misled by prospects of unattainable gains, leaving the majority of farmers with onerous debts, with no prospect of repaying their loans, and with failing plantations." (Internal 2005 ADB report, quoted in Barney, 2008).*

Teak and rubber are the major tree crops in Lao PDR that are presently owned by smallholders. Teak was first planted in Luang Prabang in the 1950's, and that the area of planting increased rapidly in the 1990's as a result of government policies that provided security of land tenure and encouraged the planting of teak as an alternative to shifting cultivation (Newby, Cramb, Sakonphet and McNamara 2012, Midgley et al., 2007). By 2013, there were approximately 26,500 ha. planted in Luang Prabang province (Lattanavongkhot, 2013), with individual land holdings varying from over 700 ha. down to a few trees.

Bonitatibus and Cook (1995) recommend that groups be formed around income generating activities. However, many growers in Luang Prabang regard their teak trees as either a longterm or speculative investment (such as a conduit to claim land title or add value to a future land sale), rather than something to being managed for regular income (Midgley et al., 2007). In any case, complex government procedures required to sell teak act as a disincentive to regular sales by producers. It would thus appear that Lao teak farmers are similar to their Indonesian counterparts: in Gunangkidal farmers reported that the main reason for planting teak is for household saving and as a safety net, and teak contributes very little to overall household income (Rohadi et al., 2012).

The Luang Prabang Teak Program (LPTP) has been supporting the teak sector in Luang Prabang since 2008, and four grower groups have been established which have been Forest Stewardship Council (FSC) certified[5]. In a consultancy in 2012, Ling proposed a model for scaling up LPTP's program into other areas, in which the role of grower groups was limited to production, while operation units comprising clusters of grower groups would then take over responsibility for marketing, extension and the management of a revolving fund. Once several operations units were established, these could be affiliated as an association, under PM115/2009[6].

Compared to teak, rubber is perhaps more conducive to forming sustainable grower groups since upon reaching maturity at about the age of seven, it produces latex every second day during the seven-month tapping season in northern Lao PDR. Ban Hatnyao, Luang Namtha, was the first village in Lao PDR to start planting rubber, and in 1993 they formed their own group to access planting stock and technical advice from China (Alton, 2005). Kenney-Lazar (2009) reports that Hatnyao succeeded because the whole village was divided into smaller units of about 13 households each: each unit then exchanged labour to establish the rubber trees and was closely monitored by an inspection committee of village elders. Rubber planting expanded rapidly in northern Lao PDR after 2003, when smallholder farmers used 2+3 agreements with Chinese investors[7]. Many farmers, particularly ethnic Hmong, also decided to plant their own rubber, independently of these companies, and some have been registered by the district. In Ban Namlek (also in Luang Namtha) 15 farmers were organised into a group by the Agricultural Promotion Bank in order to access credit to plant rubber, however this quite successful model was not replicated elsewhere (Jones and Phommathat, 2012).

In 2011, the Lao government announced a temporary ban on new concessions in forestry, which has led at least two companies, Stora Enso and Burapha, to actively seek land rental agreements with smallholders to plant eucalyptus. Burapha, for example, is seeking to eventually plant 30,000 hectares over the next few years in order to satisfy its furniture operations and a planned bio-refinery (Vientiane Times, 9/12/2013). In the case of rented land, contracts are provided to households to plant and manage an area of trees, between which farmers are able to plant cassava on a contract farming basis with the company. In the long term however, Burapha is keen to organise the farmers into a group which will potentially satisfy its

[5] Ban En, Ban Lak10, Ban Xianglom and Ban Kok Ngiu

[6] This proposal will be revisited with new insights gained from the action research in Section 5.6.

[7] in which farmers provided their land and labour (the 2), while the companies provided inputs, a market and technical advice (the 3).

commitment to international social and environmental standards (Richard Laity, personal communication, 17th December, 2013).

Prior to 2009, there was no legal framework in Lao PDR to register as a farmer's organisation, and some were registered as enterprises under the 2005 Enterprise Law (Folkard, Viravong, Connell and Photakhoun, 2011). Since then the Lao government, with international assistance, has actively promoted farmer organisations, with the promulgation of decrees on Non profit Associations (PM115/2009) and Cooperatives (PM135/2010) and the creation of the Department of Agriculture, Extension and Cooperatives (DAEC). The current strategy of the Ministry of Agriculture and Forestry is presented in Box 5.

Box 5: Lao government principles for establishing farmer organisations (Source: Sisanonh, 2013)

a) Farmer organisations will develop in a diverse and evolutionary manner

b) Farmer organisations will be self-determined, voluntary and independent

c) Affirmative action will be taken to promote and support farmer organisations for women

d) Farmer organisations will provide smallholder farmers with a mechanism for participating in commodity value chains, particularly through contract farming Public Private Partnerships

While over 100 non-profit associations have been registered to date under PM115, these have either business or development objectives, rather than being an affiliation of farmer groups (Learning House, 2012). The best known producer association in Lao PDR is the *Association des Groupements de Producteurs de Café du Plateau des Bolovens* (AGPC), which is registered directly under the Ministry of Agriculture and Forestry (MAF). Under decree PM135, only two coffee cooperatives are officially registered thus far[8], with progress slow since DAEC has not yet finalised the regulations for implementation of cooperatives (Holgar Grages, email communication, 11th November, 2013). Informally registered groups at district level are more common, particularly in the agriculture sector, where they play a role in the common marketing of crops or managing irrigation schemes (Folkard et al., 2011). The four FSC teak grower groups mentioned earlier are also registered with their local District Agriculture and Forestry Office (DAFO). Box 6 outlines some constraints to forming grower groups in Lao PDR from the existing literature.

[8] Hatnyao Cooperative has been registered under a provincial policy

Box 6: Constraints to forming grower groups in Lao PDR.

- There is a small, scattered population, which makes it difficult to concentrate plantations for economies of scale. This includes high transaction costs for traders due to the time needed to purchase small quantities of small diameter logs from individual farmers (Midgley et al. 2007)
- Lao PDR is perceived to be an unsafe place to invest by many companies. Impediments to company investment in Lao PDR include (i) risks imposed by the uncertain legal environment; (ii) difficulties with contract enforcement; (iii) high transaction costs for business registrations, export licenses, and other administrative processes; (iv) weak, sometimes contradictory, and often opaque regulatory and legal frameworks, which impose extra burdens; and (v) market-restraining practices, nontariff barriers, and border irregularities (ADB, 2005)
- A lack of secure land tenure for small farmers discourages long term crops such as trees When land allocation provided secure land tenure to smallholders in Luang Prabang in the 1990's, there was a rapid rise in tree planting (ADB, 2005; Midgley, 2007)
- Since the late 1990's, Lao PDR has promoted the concession model to encourage investment in forestry plantations, with companies such as Birla Lao, Oji, and Sun Paper receiving concessions to plant eucalyptus trees, with the intention of establishing processing factories in Lao PDR[9]. The reliance on a concession model for most of their timber needs means that these companies don't have to make a special effort to organise outgrowers, unlike in Thailand and India, where concessions are banned (Mel Jones, email communication, 22nd October, 2012). A representative of Oji paper suggested that while they are willing to buy wood from smallholders, they will not organise outgrowers because they are scared that "*farmers will not be active in managing their plantations, and they will lose their investment*."(name withheld, personal interview with Stuart Ling, December 2012)

As noted thus far in this literature review, there are numerous rational reasons for smallholders to form farmer groups. There are also, as Box 6 has shown, numerous constraints, which it is implied, if only they could be overcome then farmers could form groups. What is less well studied in Lao PDR is how social dynamics within communities, which may be irrational to the

[9]However, uncertain investment costs and lack of land and resource security are the main limitations for processing investment ion Lao PDR. Sun Paper has cancelled its concessions and pulpmill plans (RISI, 2013), while Oji intends to focus on improving quality with longer rotations to produce veneer (Oji representative, personal communication, December, 2012). Birla has definite plans for a dissolving pulp mill but is likely to withdraw because of land uncertainty (Stephen Midgley. personal communication, April, 2014)

outside observer, may determine the success or otherwise of farmer groups. Using meta-analysis, Wilkinson and Pickett (2009) found that measures of social capital (trust, goodwill, fellowship, mutual sympathy and social connectedness among groups) was much greater in more equal communities, with relative poverty being more important than absolute poverty. The FAO (1995) notes that groups work best when farmers come from similar economic conditions: "*members with similar backgrounds are more likely to trust each other and accept joint liability for their activities*." Are grower groups in Lao PDR being undermined by rapid economic development and rising inequality amongst traditionally close-knit communities?

There are several papers describing the increased social mobility in Lao PDR, in which young people leave farming to become engaged in the manufacturing and service industries (Rigg, 2007; Barney, 2012). Onphanhdala and Suruga (2013), report a significant increase in inequality within villages in northern Lao PDR as a result of Chinese investment. Their findings confirm the findings of Newby, et al. (2012),[10] who report that teak planting has accelerated the processes of agrarian differentiation. A small group of better-off farmers and urban-based outsiders [absentee landlords] have captured the majority of the benefits "*since they have access to the best land and can afford to allow poorer farmers to plant rice on their land in return for establishing teak plantations. In turn, this forces poorer farmers, while those with greatest dependence on shifting cultivation are actually made worse off through declining access to land.*" Newby et al. conclude that technical processes, such as group formation, need to be seen in the context of wider processes of agrarian change and differentiation to appreciate the resultant impacts on livelihood. There thus appears to be a gap in the literature on the extent to which sustainable grower groups are being undermined by rapid agrarian change in Lao PDR.

[10] This paper was supported by FST/2004/057 Enhancing on-farm incomes through improved silvicultural management of teak and paper mulberry plantations in Luang Prabang Province of Lao PDR

3. Research Methodology

3.1 Nature of Action Research

The research question, as defined in the project document, was

> *Identify and test what forms of grower organisation and group certification are feasible and sustainable, and will improve returns to smallholders, and how these can be fostered.*

Action research has been described as a rich and diverse family of approaches, which seek to bring together action and reflection, theory and practice in participation with others (Gill, Johnson and Clark, 2010). All action research starts with identifying the problems with clients, (in this case grower groups), and then proceeds to design interventions with the grower groups aimed at resolving these problems. The effects of these interventions are evaluated to determine the extent to which the problem has been resolved, and also to learn from the results obtained before moving to the next action research cycle. There are an indeterminate number of cycles of diagnosis, planning, intervention and evaluation, as shown in Diagram 1.

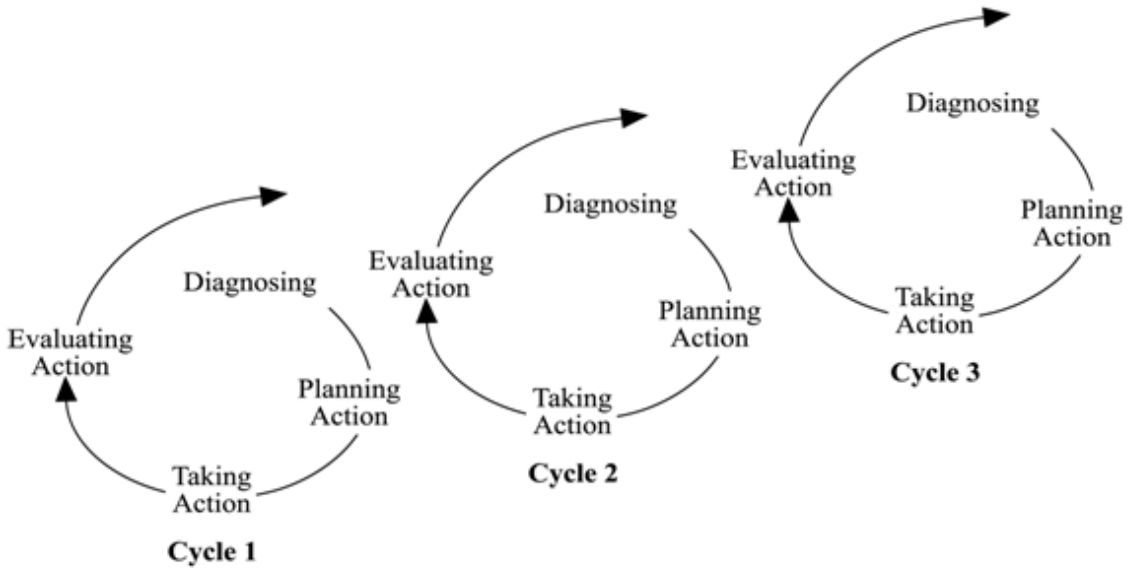

Diagram 1: The action research cycle (Source: Coghlan and Brannick, 2001)

Some characteristics of action research are (from Cooksey and McDonald, 2011; Gill et al. 2010):

- It focuses on collaborative problems solving
- It focuses on change and improvement via reasoned action
- It emphasises learning from feedback and critical reflection
- It seeks practical outcomes that can be applied, thereby linking theory and practice)
- It makes a contribution to public knowledge (otherwise it is only Action Learning)
- Action and research occur together, unlike most research in which a problem is studied and then action is taken

- It is collaborative, and combines academic knowledge with practical knowledge: in this instance, growers learn from academics, and academics learn from growers

3.2 Research Process

In early 2013, an action research team was formed that comprised the following people:

- Stuart Ling (ACIAR)
- Dr Lamphoune Xayavongsa (National University of Lao PDR, Vientiane)
- Sychan Chandiphit (Upland Agriculture Research Centre, Luang Prabang)
- Chalylor Laoyongxy (Souphanouvong University, Luang Prabang)

A profile of each team member is given in Appendix 1.

The team selected five existing grower groups were field studies for the year 2013, as shown in Table 1:

Province	**Village**	**Ethnic majority**	**Tree Type**	**Total number of members**	**Registered Status**
Luang Prabang	Ensavanh	Lao	teak	38	group
Luang Prabang	Xianglom	Lao	teak	27	group
Luang Prabang	Kok Ngiu	Khmu	teak	58	group
Luang Namtha	Hatnyao	Hmong	rubber	400	cooperative
Bokeo	Houay Dinchy	Hmong	rubber	80	group

Table 1: Characteristics of action research villages

Each of the selected villages was visited twice over 2013, in May and November, meaning that two cycles of action research were undertaken. Within each village, the team facilitated a participatory process over approximately four hours with both subgroups as follows:

- Brief all participants about the research objectives and receive their verbal agreement to participate in line with ANU ethical research policy.
- Undertake semi-structured interview with current grower group committee members and representatives of the village authority (4-5 people), and develop an action plan(the action research team began the second cycle of action research in November by evaluating the previous agreed action plan of May).
- Undertake semi-structured interview with 6-8 ordinary members of the grower group, who were randomly chosen (and included men and women). An action plan for this subgroup was also developed.

- Both subgroups come together and agreed on a joint action plan for the following six months (timed to coincide with the subsequent round of action research).

All action plans were drawn up on large sheets of white paper and left in the village. Field notes were taken in Lao and English and typed up for later analysis[11].

This report draws on the results of several other activities held in 2013 in which members of the action research team participated as follows:

- Meeting on teak management and certification in Luang Prabang on 3/10/13
- Visit by DGRV to Luang Prabang investigate the feasibility of transforming teak grower groups into cooperatives on 8-9/10/13.
- Study Tour to Bokeo by selected teak grower group members from Luang Prabang who were interested in forming a farmer group enterprise (FGE) on 28-29th November, 2013 (Appendix 3)
- Visit to eucalyptus plantations managed by Burapha in Hin Heup district in December 2013

In December 2013, the Action Research Team held a three day workshop in Vientiane, with the purpose of analysing our research and agreeing upon the content and recommendations of this report, which will be prepared in both Lao and English.

Research Limitations

The research limitations as proposed by the action research team are listed below:

- There was a poor turnout by farmer group members (although the committees were represented) during the action research meetings, particularly in Round 2, which limits the sufficiency of the research. This was due to the way in which farmers randomly selected in Round 1 were subsequently not available in Round2.
- The rich mosaic of ethnic groups that make up northern Laos has meant that it is necessary to be wary about generalising the findings to other parts of the country (or the transportability of the findings)
- It was not possible to examine social dynamics within villages that may have affected grower group formation, both due to the limited amount of time in each village and because the action research team comprised technical experts, rather than social science experts.

[11] Interviews were not recorded as it was considered that apart from being hard to analyse (with multiple interviewees) it would reduce the openness of the participants

4. Key findings of the action research team

The key findings from the two rounds of action research, and the four other relevant activities in 2013 noted above, that have implications for the recommendations of the action research team, are summarized in this section. For details, see Ling (2013a-f)

4.1 Action Research Round 1

The first round of action research was held in two sessions in May and July, 2013.

- Farmers have a very high discount rate – delayed payments (even only one month) result in a loss of confidence that payments will be made. Many farmers don't join the teak groups for this reason.
- The benefits of group membership have to outweigh the costs for people to join. Lots of time consuming processes such as attending meetings need to be factored in when benefits (i.e. I can either come to a farmer's group meeting or earn 50,000 kip).
- Farmers who have teak plantations far away, or have low value (Grade D) plantations do not consider the additional premium (from FSC) worthwhile due to the high cost of extraction, and are reluctant to join the group. It is easier to wait and cut down the whole plantation at once.
- Without a group revolving fund to buy up trees when members want to sell means that most members do not register all their plantations for FSC (i.e. they are hedging their bets in case they need quick cash with an immediate sale). Members may also deliberately sell outside the group in order to raise quick cash.
- The system of individual ownership, while having the advantage of secure tenure, slowly undermines the group as absentee landlords have the opportunity to buy up large percentages of the forest resource. The Hatnyao group considers that the communal land ownership (but not tree ownership as members still have a plantation certificate) has been the main reason that their group has remained while many other groups have failed.
- Groups (rubber and teak) are undermined by seasonal market forces or deliberate tactics by Chinese or Vietnamese buyers, that pay high prices and encourage group members to sell outside the group
- The complicated system of grading teak is both non-transparent and expensive, since most farmers don't understand grading, district staff have to certify it (even though they don't show up they still have to be paid) and different buyers have different standards (e.g. Burapha in Vientiane and TNK in Xieng Ngern). By contrast, rubber is a uniform product and there are no grading costs, with farmers being simply paid on a per kilogram basis.
- The regular system of tendering rubber every month to the highest bidder, as used by the Hatnyao rubber group, is very well received as it is a transparent system for getting the best price

- Strong leadership is very important – the Head of the Cooperative is also the local Party chief in Hatnyao. Groups in which the Village Committee also plays an active role (Hatnyao) seem to do better than those with poor relationships (such as Kok Ngiu)

4.2 Teak management and certification meeting

This meeting, held on October 3rd, 2013, Luang Prabang, was attended by 59 stakeholders in the teak sector, and included government, business, farmers and aid projects. Key points raised by the participants are summarised below.

Mr Sianouvong – Souphanouvong University

- There are many sectors involved in the implementation of the tax policies- eg a land tax exemption for plantations has been issued by the Ministry of Agriculture and Forestry (MAF)[12], but this has been superseded in a later document by the Finance Ministry[13], which requires that land tax exemptions have to pass the District Governor.
- Previously, Luang Prabang had its own rules on teak signed off by the Province Governor, and this worked well. But now each department follows the policies of their respective Ministries and this system at province level no longer functions
- Conflicting laws between different sectors (e.g. MAF and Ministry of Industry and Commerce, mean that both organisations require documents to move wood, and farmers have to pay for both sets. There needs to be regular meetings where the different agencies get together– perhaps every three months
- Why does DAFO have to carry out a pre-harvest inventory and collect money? This should be done by the Village Forestry Committee, since they have already been trained in this task and have a mandate to do so in the regulations. Likewise with post-harvest measure. These kind of tasks need to be streamlined for teak to be competitive.
- The buy/selling rate of plantations (on which tax is levied) is too high, since it is calculated at 2,000,000 kip/m3 (standard fee) when the real price paid for teak wood is only about 1,000,000 kip/m3
- To generate a market for thinnings, there should tax exemptions for thinning stands under 12 years old, which is the age at which there is no longer a response to thinning according to ACIAR's research trials[14]

[12] 196/MAF, 15/8/2000

[13] Document 1927/Min. Finance

[14] Undertaken as part of ACIAR FST/2004/057

- His final recommendations are:
  - Have special exemption on taxes for harvesting thinnings (eg<10 cm) to encourage thinning on time
  - Need to have special technology to process small logs eg gluing (as they have in Thailand)
  - Review all the laws/policies and improve them into one set that is understood

MrBounchanh – Luang Prabang Teak Project (LPTP)

- The teak grower groups paid official transaction costs of between 5.82% and 7.06% of the total value of the wood for the three FSC woodsales to date to Burapha (Lattanavongkhot, 2013). Given that the grower groups also take a 5% management fee to cover their time and expenses (such as grading, administration, meetings), growers lose about 13% of their tree value in additional costs. A list of the transaction costs measured by LPTP is given in Box 7.

MrNiphone – Kok Ngiu Farmer Group:

- The transaction costs for groups are high. If the farmers measure logs themselves, they still have to pay a flat rate to the district (7,500 kip/m3). If farmers cut their own trees, still pay taxes (this is in contrast to Min Finance 0509, which exempts farmer groups from paying taxes if they cut themselves, but levies taxes on contractors who cut trees)
- there is no incentive for other farmers to join the Kok Ngiu group, as those that have sold their wood in the traditional way through middlemen receive the same price as those who are in the group and sell their wood following all legal administrative processes

MsSouphayvanh – Burapha Agroforestry

- Burapha, which has previously bought FSC wood from groups in Luang Prabang, has many problems with taxation policy in Luang Prabang as laws are applied differently to other provinces eg business tax. Would like to see uniform laws for taxes/fees/charges across the whole country
- All the costs imposed by different government agencies are a constraint to business and means they don't want to invest.

Box 7: Transaction Costs as a percentage of Total Wood Value (Source: Lattanavongkhot, *pers comm*.2013)

		Sale Type	FSC	FSC	FSC	Non-FSC
Time			20.9.2011 - 20.12.2011	6.4.2012- 15.6.2012	30.8.2012- 26.10.2012	
Volume (m3)			20.598	68.75	90.55	16.55
Value (kip)	Unit	Average	19,965,000	49,328,000	71,017,000	
Detail			**Cost (Lao kip)**			
Pre-harvest survey to DAFO	kip/m3	7,000	263,000	313,000	557,000	
Harvest approval document to PAFO	time	10,000	30,000	30,000	60,000	
Document fee to DAFO	time		10,000	50,000	80,000	
Document fee to PAFO	time				30,000	
Log measuring fee to DAFO	kip/m3	5,000		515,000	806,000	
Log branding fee to PAFO Forestry	kip/m3	10,000		680,000	1,074,000	
Perdiem to PAFO staff for log branding	time	35,000	30,000	35,000		
Petrol to PAFO staff for log branding	time	20,000	200,000	115,000	210,000	
Profit tax to DAFO	kip/m3	20,000	422,000	1,375,000	2,149,000	
Wood transport fee to province Trade office			207,000			
Wood transport fee to PAFO Forestry	time	30,000		30,000	30,000	
Document fee to District Finance Office					20,000	
Total			**1,162,000**	**3,143,000**	**5,016,000**	
Transaction costs as a percentage of total wood value	***%***		**5.82**	**6.37**	**7.06**	

Mr Tong – Luang Prabang Wood Association

- Tax costs in Luang Prabang too high- that is why they need to send to Oudomxay (where teak is accepted as plantation tree rather than in the protected species category (which attracts high taxes and supposedly can't be exported directly). In Oudomxay they can export to China.
- Buying thinnings from farmers is unviable for business because of the flat rate of tax levied per cubic metre. They can only offer a low price to farmers and then farmers won't cut their trees.

4.3 Visit by the German Cooperative organisation DGRV to Luang Prabang

Conclusions from the field visit by DGRV to Luang Prabang on October 8-9, 2013 are presented below.

- There is very little understanding of the concept of a cooperative as explained in the Cooperative Decree in by both government officials (eg Head of Trade in Luang Prabang) and farmers (who believe it is a return to collective farming). Confusion would result if it was attempted to form cooperatives in the short term.
- Even where there is some understanding of cooperatives (eg among the Extension Section in PAFO) the general consensus is that the government needs to focus on making strong groups before thinking about more formal organisations.
- The farmer's groups have no real vision – they need a vision and know why they want it!
- It feels like there is a real lack of ownership – the farmer's group arose because they expected benefits from the Project.
- The suggestion by the farmer group leadership during the meeting that the project and government needs to force members to participate will not lead to sustainable farmer organisations. Sustainable groups are member led.
- With few FSC sales to date, farmers lack the evidence to prove that their membership is worthwhile (i.e. by being able to look at market prices on a regular basis).
- The work of measuring plantations and obtaining certificates kept the farmer groups busy in the early stages of establishment. There are now not enough regular activities to keep them together as a close knit group, and interest in membership is therefore falling. Linking to another activity (pineapple processing, regular credit release) would make for more regular activities and encourage better participation
- There needs to be a source of credit available to enable members to encourage the registration of plantations. More villagers will be interested in membership if they know that they can get credit against their trees for immediate needs, and if they know that they will be paid straight away

4.4 Action Research Round 2

The second round of action research was held in November, 2013.

- Only one of the five grower groups studied during the action research reported in Round 2 that they had held regular meetings and completed the action plans they had prepared in Round 1 (Hatnyao). Ban En had held a growers meeting (no minutes were taken), while Houay Dinchy had held a committee meeting which included village elders. Two grower groups (and their committees) had held no meetings at all over the previous six months since the first round of action research (Xianglom, Kok Ngiu).
- The three teak groups reported that interest in group membership was waning, since members had no time to come to meetings and because there were no sales of FSC wood, while the Houay Dinchy group is fragmenting due to disunity amongst the group

leaders. In Hatnyao, the number of members is increasing due to people joining from other villages: it is the only group considered sustainable.

- A precedent has been set in Kok Ngiu for members to sell outside the group without any repercussions (normally they would have to pay a fine of 5%) – this may encourage more members to act in a similar manner and undermine group solidarity.
- None of the teak groups were involved in selling non-FSC teak wood, despite the fact that there were numerous non-FSC sales over the past 6 months.
- With irregular sales of FSC, most farmers have not had a chance to practise grading logs A simple method to calculate standing tree volume (and value) would enable farmers to have a better negotiating position when dealing with traders. While LPTP has done some training and provided a volume table, it still seems understanding is limited (with many farmers not turning up to training!). Android has apps for measuring tree volume, and smartphones are becoming widespread in villages among young people – Chinese models can be bought for as little as $50.
- There are doubts about the added value of certification to producers in Lao, as the extra costs associated with following a legal process in a weak institutional environment may not bring added benefits to farmers compared to selling through the usual channels. For example, Flanagan, (2013), states that FSC itself should be reviewed for the teak resource in Lao PDR, since "*consumers are essentially indifferent to international initiatives designed to develop sustainability credentials and robust markets exist for non-certified wood."*
- There have been several examples where LPTP has taken over tasks that would normally be considered the responsibilities of the teak groups, including:

  - writing the proposal and obtaining approval from the District Governor of Luang Prabang for Ensavanh, Xianglom and Kok Ngiu to become official groups (at least Xianglom group had never seen this approval)
  - writing the results of the election minutes in Ban Kok Ngiu and having them signed by the province
  - writing a constitution for the LPTP villages and then seeking to have it passed by the farmer group members

  In some cases it appears that documents were taken and typed up, but then subsequently not signed and made public to group members
- Farmers are damaging the long term productivity of their stands by thinning from above, and removing their most productive trees. Once trees are about 12 years old, they become suppressed and do not respond well to thinning. Therefore a typical figure for teak growth is only about 5m3/ha/year, which is only half of the potential stand growth of 11m3/ha/year (Mark Dieters, personal communication, 14th September, 2013)
- Potential group income, with which to calculate group income (5% of sold volume) to pay its expenses may be underestimated. The annual allowable cut (AAC) has been calculated at 892m3/year for the 194 ha of FSC teak that have been registered in the 4

villages of Phousouang cluster, based on an annual increment of 11m3/ha/year. Actual merchantable volume is lower that the AAC figure, since:

- the AAC figure is for overbark, whereas buyers measure underbark
- logs must be cut to buyer specifications, meaning that short lengths are left behind.[15]
- As noted in the point above, the annual increment figure of 11m3/ha is only for well managed stands: 5m3/ha/year is a more typical growth rate

Thus a more realistic figure, in terms of calculating group income, would be to assume potential sales of about 250 m3/year of merchantable timber for the four villages registered with FSC to date. At an average price of $100/m3, this equates to about $1,250/year.

- A key constraint to quickly scaling up FSC volume is that LPTP measure stands and provides plantation certificates to all farmers in a village, regardless of whether those farmers are committed to FSC or not, and regardless of the age of the stand. This takes up a lot of resources and time with little prospect of an immediate return, and means that the FSC area/volume that can be "sold" to potential customers is limited. A plantation certificate, as required by the Lao government, could be organized when the plot is about to be harvested.
- As Lao PDR develops, there are many wage opportunities for rural people. Farmers don't want to attend meetings which cost them a day's wages, or engage in communal activities (such as harvesting together) when they could be earning higher wages elsewhere
- The government itself has no budget to support any of the groups visited over the last six months. In Luang Namtha, the government imposed a 50 kip surcharge on rubber to improve services to growers, but it ended up only resulting in reducing prices to farmers without providing anything in return (Box 8).
- The Agricultural Promotion Bank in Luang Prabang (and presumably all commercial banks) does not accept plantation certificates issued by the DAFO as collateral for the purpose of giving a loan. Farmers who wish to borrow money from banks need to also have a land title certificate.

[15] According to the price list provided by the Lao Furniture Industry Association (LFIA), the seller must provide an additional 1 cm for each diameter measure, and an extra 10cm in length when measuring the squared log to allow for checking eg an 11cm*11cm*2.1m is paid as 10cm*10cm*2m (LIFA, 2013).

Box 8: ***Lack of budget to implement policy reduces farmer's income in Hatnyao,Luang Namtha*** (Source: Action research team)

Luang Namtha has established a Provincial Rubber Management Committee (No. 575, 18/9/2012), comprising the heads of the following agencies: Trade (Chair), PAFO, Tax, Planning and Investment, Natural Resources and Environment, Provincial Governor's Office.

Article 2 explains the Committee's roles as follows:

1. Setting policies, processes, regulations and management mechanisms for the management and sale of rubber in Luang Namtha in accordance with the law
2. Research the establishment of village producer groups to facilitate management and protect the farmer's interests
3. Provide market information and prices from neighbouring countries to the equivalent District Rubber Management Committees and village committees so as to be a regular reference
4. Organise training on planting, maintaining, and selling rubber to village producer groups and rubber farmers in each district, and seek technical support domestically and internationally.

Subsequently, the Governor issued a set of regulations to guide the management of this Committee (No. 14, 4/12/2012). This included an additional tax of 50kip/kg on buyers of rubber to pay for training and study tours for producers and other related work. A further regulation, issued by the Department of Trade (No. 293, 9th January), further subdivided this amount into 35 kip to be managed by the province and 15 kip to be managed by the district.

However, the committee is inactive since it lacks budget (MrPhonexay, Committee Chairman, interviewed on 25th November, 2013). The money is being collected however, and the Hatnyao grower group considers that instead of encouraging group formation, it discourages it, since it means that buyers will just pay a 50 kip lower price to farmers.

4.5 Study Tour to Bokeo by selected teak growers

A 13 member team of growers from the four LPTP villages, LPTP staff and government counterparts visited Bokeo in November, 2013 to study sustainable Farmer Group Enterprises (FGE's).

- Several participants felt that it would be possible to form their own FGE enterprise comprised of interested investors (with shares) from the four villages. Such a group could start by investing their own capital to buy logs (both FSC and non-FSC) from farmers that need to sell, meaning that the profits could be captured by the group rather than by outside middlemen. Then they could consider further processing to add value. Thus a teak FGE would have two functions:
    1. To buy and harvest teak from existing farmers who need to sell,

2. To add value to their teak, through squaring, sawing, transporting

- Growers mentioned that group solidarity would be critical to the sustainability of an FGE, meaning that rules and transparency are very important. Running a group was compared to a football team by one grower – everybody has their own positions (roles), but they must work together to be successful.

4.6 Visit to eucalyptus plantations managed by Burapha

The visit to Burapha was designed to understand what role the private sector can play in facilitating the development of grower groups.

- Burapha's land rental agreements (cooperation agreements) with villages also include income opportunities for farmers by
    - having family labour contracts to plant, fertilise and maintain trees and cassava, and
    - allowing farmers to use the spaces between the trees (planted at 9*1) to grow cash crops (rice and cassava and graze cattle)
- 3+2 outgrower schemes (in which the company provided inputs on credit) have been attempted in the past but they were unsuccessful due to illegal selling by farmers
- There are a total of 4 outgrowers in the Nabong area, with a total of 28ha of FSC registered plantations. They are registered as a group by Burapha for the purposes of obtaining an FSC certificate. Holding an FSC certificate is considered as a strategic part of Burapha's corporate social responsibility policy.
- Signing contracts with individual landowners and managing them is a relatively costly exercise that requires a large number of Burapha staff – in Hin Heup district, for example, Burapha has 15 fulltime staff managing operations in 10 villages. This does not include machine operators using Burapha's own equipment
- There is some staff turnover, partly as a result of better pay conditions with projects and government in Vientiane and also because many staff are from Vientiane and wish to return there for employment
- Villagers in one village visited, Ban Hin Ngon (Hin Heup district) noted that due to a shortage of labour, they were not interested at the price discussed in planting cassava as an intercrop in 2014. There is an upward pressure on daily wages as farmers have more wage options

5. Discussion

5.1 Factors undermining the development of sustainable grower groups

This section summarises the key constraints faced by grower groups as identified during the action research. Box 9 is a case study from Ban Kok Ngiu based on the information collected during the action research, and shows the characteristics of an unsustainable grower group. As well as broader institutional issues, it raises social (or group dynamics) issues that need to be considered when working with small farmers.

Farmers have a very high discount rate

Most farmers, and particularly poor farmers, have a very high discount rate, meaning that they would rather have $100 in their pocket today than $200 in three months time. Any delayed payment is seen as a risk, especially in situations where rice is in short supply. The FSC woodsales process to Burapha took a total of three months, from the time that farmers identified their trees for sale, to receiving their final payments from the group. Although there was an upfront payment of 30% provided by Burapha to try to encourage farmers, part of this was allocated to the costly processes need to run documents and have the DAFO come to do a pre-harvest inventory.

<u>Box 9</u>: Characteristics of anunsustainable growers group, Ban Kok Ngiu, Luang Prabang

Members of Ban Kok Ngiu growers group give their opinions during the first round of action research

Kok Ngiu was the first grower group established by LPTP in 2009. It is now struggling, having held no meetings since early 2013, and being unable to complete any of its planned activities during the action research period. Members are losing interest. The reasons put forward to the action research team were:

- There have been no FSC woodsales for the past year, and farmers who need money are forced to sell outside the group. The group revolving fund (now about $300) is not sufficient to allow the group to buy these trees.
- There is no incentive for other farmers to join the group, since high transaction costs mean that have sold their wood in the traditional way through middlemen receive the same price as those who are in the group and sell their wood following due legal process.
- Farmers take three months to get paid when selling wood through the group, from the time that farmers identified their trees for sale, to receiving their final payments from the group
- Farmers were encouraged to join the group to receive plantation certificates, which allows them to sell their wood and reduced their land taxes. Once they have their certificate, they logically don't feel they need to participate further.
- The rules made by the group are not followed: for example, farmers who should have thinned and sold their wood under the terms of their group membership decided not to do so, which reduced the amount of wood available for buyers.
- Growers have many other income-earning activities, and don't have time to attend meetings or manage their trees
- Members feel the group committee is not transparent, being unsatisfied with the election process and with the way the committee takes a percentage for grading their logs. The previous head of the grower group, Mr Khao, gave a lot of his own free time to ensure that grading was done transparently to be agreement of both sides

Lack of dynamic and transparent leadership

As in other organisations, clear vision, effective communication and good record keeping are among the skills a farmer's group committee needs to motivate its members to participate.

A lack of transparency, particularly with member contributions, quickly leads to group unhappiness, which was a point emphasised by the sustainable FGE's in Bokeo. As in Kok Ngiu, Houay Dinchy growers were unhappy with the decision by the Committee to take a percentage of total sales, which means that they get more for doing the same amount of work when the rubber price rises – at the expense of growers![16] As soon as group members feel that the group leaders are working for their own interest instead of the group interest, the group falls apart.

Group dynamics may be complicated by cultural factors. In Houay Dinchy Rubber Group, there is an ongoing dispute between a father-in-law (the previous group chairman and current advisor) and a son-in law (the current group chairman) that has meant that the group has been inactive for all of 2013: while ordinary members want to move on with the son-in –law in charge, the complex social systems in Hmong culture mean that out of respect they are unable to go against the wishes of the original group founder.

Social inequality at village level undermines group solidarity

Increasing opportunities in the tourist sector have meant that many growers have a relatively high income, and so don't have to rely on the sale of their trees for income. In Ban En, for example, a large proportion of men are boat drivers for tourists to the waterfall, so don't have time to come to meetings[17], maintain their trees according to the FSC management prescriptions or contribute their labour when harvesting. This observation aptly fits into the processes of agrarian differentiation described by Newby et al. in the literature review.

Teak trees are considered as a long term asset by farmers

Teak is only a small proportion of a farmers total income, and as in Indonesia, it is usually planted as a long term asset to be cut to pay large one off expenses (such as a university fee or a hospital expense). Unlike agricultural products which must be harvested at a certain (and everyone harvest together) teak farmers can harvest at their own leisure. Teak farming could be considered a secondary occupation, and farmers treat membership of the teak group as such.

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16 But do growers also complain when the price falls?

17 These growers are represented by their wives or parents at meetings, and the results of the meetings are usually not passed on

Teak grower groups only exist to supply FSC markets[18]

The four teak grower groups in the three Luang Prabang villages were established under LPTP with the objective of accessing FSC markets. Only farmers who were willing to meet those requirements became members of this group, and even then most farmers did not register all their plantations as FSC, with many were waiting to see whether there would be real benefits of FSC. Without any FSC woodsales since January 2013, farmers lack the market information to prove that their membership is worthwhile –they ask "Am I really better off to hold on and sell for an FSC price, or is the price going to be the same anyway?"

Lack of a market for small logs leads to irregular sales, which discourages group participation

Despite the efforts of LPTP and ACIAR/057/2004 to encourage non- commercial thinning, it appears that farmers are unwilling to change their management practices unless there is a market for small logs. Under the current legal framework with its accompanying transaction costs, there is no incentive for businesses to invest. A regular market for small logs would also encourage growers to manage their plantations.

5.2 Characteristics of a successful growers group

By contrast, the Hatnyao growers group has been functioning independently since 1993, and it became a registered cooperative in 2013. The factors that make it successful are given in Box 10.

Compared to Kok Ngiu, Hatnyao growers group has been able to achieve economies of scale, which means that its fixed costs are low as a percentage of total income. At current rubber prices of 10,000 kip/kg, the fixed figure management fee of 150kiprepresents a cut of only 1.5%, while an additional 100 kip is taken for the group revolving fund. There are monthly sales during the seven month harvest season, and with payment made to growers within 2-3 days, there is almost no selling outside the group. Strong and transparent leadership has encouraged new members to join, and there are now about 250 members from outside Hatnyao village itself.

[18] Certification issues will be examined in detail the report for component 1.3B of VALTIP2.

<u>Box 10:</u> Characteristics of a successful growers group in Lao- HatnyaoLuang Namtha

Members of the Hatnyao growers group stand outside their office, which was built by the Committee using its own resources

The Hatnyao Cooperative was the most successful of the farmer groups visited. It started selling rubber in 2001, and has since grown to include more than 400 members. Hatnyao considers themselves to be a sustainable group for the following reasons:

- All land is communally owned, which has prevented outsiders from coming in and buying up the land. Only the trees are owned, and may be transferred or sold to others within the village
- The leadership takes an active interest in the plantations of its members, and provides free training on how to tap rubber and manage the plantation. Hatnyao rubber is recognised as having a higher quality since it has less impurities (such as stones), which can command a higher price from buyers
- There is a monthly tender of all rubber tapped, and all members must agree before a sale is concluded. Payment is made to sellers within 2 or 3 days of sale
- The large number of members gives the group bargaining power, and they are able to negotiate a higher price for their members due to the large volume available (over 100 tonnes/month)
- The management committee takes a fixed fee of 150 kip/kg on all sales, meaning that if rubber prices rise or fall then a) the committee isn't perceived as taking too much, and b) the income is sufficient to carry out group tasks. Financial management is transparent.
- The coop has a revolving fund (100 kip/kg on all sales) which members can use to access funds in the event of a urgent needs

5.3 Opportunities for developing sustainable grower groups

There is rapidly expanding Chinese demand for teak

While FSC markets have dried up locally for teak growers (or perhaps it is a case of landlocked Lao PDR not being able to compete on price with other FSC producers), the non-FSC export market to China is booming, and there are regular consignments of teak leaving Kok Ngiu. There is an opportunity to assist farmers in accessing these markets, by understanding the value chain (and prices) and its legal requirements, and providing this market information to farmers.

Use of mobile phones opens up possibilities of using new technology

Smartphones, used as cameras and for social networking, are spreading rapidly, and were found amongst young people in all villages. Given the pace of technology, it would not be unreasonable to expect that most farmers would be using smartphones in a few years time as they replace their existing phones. There is an opportunity to develop applications that allow farmers to estimate the volume (and thus value) of their logs and upload this information to a database (managed by LPTP) that connects sellers and buyers. This would improve transparency for both parties. Additional information could also be entered into the system by DAFO/PAFO when they measure research plots or standing trees prior to harvest.

Over time, this stand information would become useful for inventory purposes, as it constitutes a snapshot of a stand at a particular time. New measurements could determine growth rates and site quality classes, for example. Each farmer (and block number) would have his/her own ID number and allow them to track their stands and log sales over time. Annual allowable cut (a requirement of FSC) could be automatically updated.

Another benefit is that loading log information directly into a phone means that log dockets don't have to be computerised by a logsales officer, which is an unsustainable expense to a producer group under the present system, since each log has to be entered individually by an experienced computer operator into Excel.

The existing policies for small business are favourable, if they can be implemented

The Decree on cooperatives (PM135), and the Law on Enterprises (No.11/NA), do have scope for supporting the development of small businesses such as farmers enterprises, in the form of tax concessions, marketing support. At the same time, there are disincentives, such as forestry policies that limit the use of processing equipment.

5.4 Threats to developing sustainable grower groups

Rapid agrarian change in rural areas

As Lao PDR rapidly develops and wages rise, the village profile is changing, particularly in villages that are close to urban centres such as Luang Prabang. There is an increased social mobility, in

which young people leave farming to become engaged in the manufacturing and service industries. There is also increased income inequality within villages as more educated or influential people gain greater access to resources than poorer people.

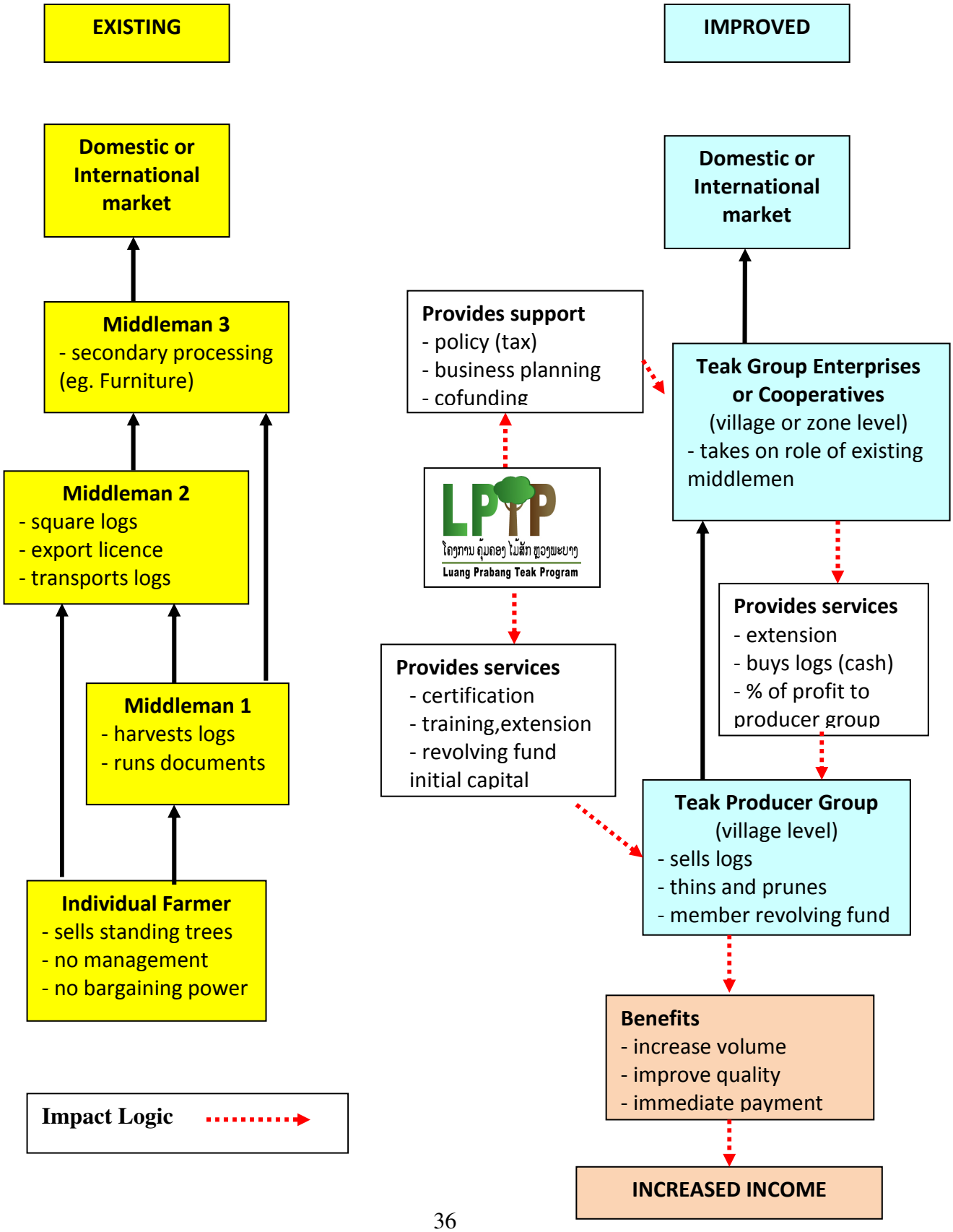
5.5 Smallholders and the teak value chain

The value chain visualises the position of the producers relative to other chain actors, and is shown in Diagram 2.

The existing value chain, which covers most smallholders in Luang Prabang is on the left. Individual farmers sell standing trees, which pass through a series of middlemen, each of whom needs to make a profit. Many of these middlemen are Vietnamese or Chinese traders, so the profits do not flow back to local people.

The improved value chain is on the right, which recognises the role that LPTP has played in establishing farmer groups and supporting them with capacity building, certification and FSC markets. However, LPTP has not been able to address other constraints in the chain, such as immediate finance to buy logs from producers, access to non-FSC markets and capital investment for local processing/harvesting. An alternative model is to encourage an FGE or cooperative to take over some of the roles now played by middlemen, in the same manner as the South African Cooperative (section 2), or the FGE's seen in Bokeo. Potential candidates for FGEs/cooperatives should be prepared to invest his/her money, be- someone with a high level of trust and respect, and be someone who still farms themselves.

Diagram 2: Existing and improved teak value chains in Luang Prabang



It is hypothesised that FGE's, with the support of initial support of LPTP, would be able to increase income to the producer groups by shortening the market chain. They will do more than just buying – they will also invest in providing services to the farmers (such as buying in advance when growers need cash, extension advice) and also investing in value-adding (such as harvesting equipment that reduces labour costs) that keeps the income in the local economy. Although village solidarity is declining in villages close to urban areas, the close ties either within or between neighbouring villages, means that local growers have a tendency to support local businesses, and vice-versa. By providing a percentage of profits to producer group in accordance with the amount of timber supplied, this social contract would be reinforced.

In addition, according to the law and policy of Lao PDR (such as the Cooperatives Decree PM135), locally owned small enterprises that process locally grown timber should receive tax exemptions. Rather than relying on a project for markets (like FSC), the FGE needs to seek its own markets, and actively lobby the government to apply its existing laws and policies. This includes allowing the importation of processing equipment such as mobile sawmills. An FGE model harnesses the drive and energy that makes business people successful everywhere.

The FGE model has applications to the three types of grower groups studied in this report (Section 4), being the teak producer groups (supported by LPTP), the rubber groups (Luang Namtha and Bokeo) and the village eucalyptus groups (Burapha).

5.6 The proposed Teak Growers Organisation revisited

As noted in the Literature Review, Ling (2012) proposed a model for the expansion of grower groups in Luang Prabang. Two years on, it is worth reviewing this document to see how the structure proposed in 2012 (shown in Appendix 2) matches with the situation in 2014, and seek to understand the differences.

Successful expansion, to clusters and eventually a teak growers association was based on several assumptions. Firstly, it was assumed that there would be a reliable market for FSC wood, so that growers would be able to sell on a regular basis. Second, it was assumed that growers would be better off by selling FSC wood compared to their normal marketing channels. Thirdly, it was assumed that LPTP would be able to expand the number of grower groups rapidly (at least 9 grower groups by end 2012) so as to have a sufficient supply of FSC wood to attract buyers.

However, these three key assumptions have not been met. Firstly, there have been no sales of FSC wood from the four grower groups since January 2013. Secondly, action research confirmed that while growers acknowledge the higher price for FSC, they perceive that the extra effort to participate in FSC sales and the delays in receiving payments make group membership not worthwhile. Finally, at the end of 2013, there were only six grower groups established,

which could theoretically only supply the market with and Annual Allowable Cut (AAC) of between 300 and 400 cubic metres/year.

An additional contextual change from 2012 to 2014 is that the activities of civil society in Lao PDR (including associations formed under PM115), will be subject to new restrictions now being drafted. Any attempt to form a broad based farmers association would need to be reviewed when the new decree is passed.

5.7 Grower groups and their role in the private sector

In contrast to teak, which is seen as a long term investment, trees planted by farmers under contract farming arrangements with private sector companies (such as eucalyptus) have the objective of generating income over a short growing period. In Lao PDR, forestry companies have sought land concessions as a means to guarantee supply, to avoid the costs and risks of dealing with numerous smallholders (Box 6). However, the temporary ban on land concessions instituted in 2011 has forced companies such as Burapha to seek supply via land rental agreements or outgrower contracts. Is there now a role for grower groups and the private sector in Lao PDR?

In neighbouring Thailand, growers make individual contracts with eucalyptus companies rather than group contracts, with Midgley (2013b) attributing this to the "reliable and transparent' market. However, as Boulay et al. (2012) note, were farmers to be more organised they could better access information and technical advice. In Lao PDR however, given the low rural capacity and ethnic diversity compared to Thailand, and given the moratorium on concessions that would ensure continuity of supply, then it would appear to be in the interests of the private sector to invest in the development of grower groups.

Another trend to be faced by the private sector will be increased competition for village labour as agrarian change pushes up labour costs. There will need to be an investment in labour saving machinery. As is the case with the teak sector, there is an opportunity to develop small rural industries (enterprises) by contracting out some of the plantation establishment and management activities (including the procurement of labour) to an FGE, which would act like a bridge between the company and the farmers.

To establish FGE's, companies such as Burapha would first have to identify tasks which could be carried out by local businesses, ranging from the relatively cheap (such as a weed sprayer worth about 200 EUR) through to ploughing which requires a large tractor (30,000 EUR). Companies should also work out a credit policy, to enable a registered FGE to pay back a loan over a fixed depreciation period given a certain amount of work. In any case, a FGE must be prepared to put up a significant portion of the initial capital, so that FGE establishment should be trialled in wealthier villages before it is attempted in poorer ones. Capacity development to the new

FGE's, in the form of support to prepare a business plan, a constitution, and registration documents would be part of a company's corporate responsibility program.

Setting up FGE's could be mutually beneficial. Plantation companies would improve their efficiency by mitigating some of the risks of employing its own staff, while at the same time encouraging the development of rural industries. By contracting, farmers (through their enterprises) would be able to sell a value added product and keep more money in their local areas.

Conclusions

In conclusion, there are rational reasons for small farmers to work together in groups, including the ability to generate economies of scale for activities such as buying inputs, accessing credit and marketing. However, examples of sustainable tree grower groups which could be used as a guide for the development of grower groups in Lao PDR are difficult to find. Compared to agricultural farmers groups, in which members come together for short periods (usually one season) to produce and market their crops, tree growers groups are much more challenging to sustain over the long period before there are returns on the investment.

Successful teak grower groups in Indonesia, such as KHJL cooperative, appear to be sustained by relatively high prices compared to world markets, favourable government policies for civil society, a dynamic local processing industry and easy access to ports. In Lao PDR, where the space for civil society is weak, farmers rely on export markets and transaction costs discriminate against buyers and sellers alike, it is even more challenging to develop sustainable grower groups. While cooperatives may have worked well in other countries, the history of cooperatives in Laos following the 1975 revolution, and the present lack of a clear framework for implementation by the government, suggest that it will take time and effort before this model is accepted.

This action research process has identified numerous constraints to the development of feasible and sustainable grower groups in Lao PDR, particularly in the teak sector. Put simply, the costs of membership appear to outweigh the benefits. The viability of the teak farmers groups depends on being able to supply the market regularly, and buyers being able to meet customer orders for wood. Under the current structure, which relies on the sale of FSC wood, there have been no sales for over a year, and member interest is declining. By contrast, the rubber groups, appear to have a better chance of sustainability, since they provide a monthly income to members after the seven year establishment period.

Even if FSC sales were to resume, there are other obstacles to forming and sustaining teak grower groups which may be too great to overcome in the short term. As described by Sianouvong (Section 4.2), these include the complex and conflicting laws and regulations,

unfavourable tax policies for small logs and the lack of a domestic teak processing industry. Equally important is the rapid agrarian transformation taking place in rural areas, which is both reducing the importance of teak in household livelihoods, and reducing the social capital within the village that is vital to build the trust needed to sustain groups. An alternative model is presented, in which local farmer group enterprises (FGE's) could be encouraged (by both development projects such as LPTP and private companies such as Burapha) to provide better services to local growers.

The following section recommends pathways for the development of grower groups in Lao PDR.

Recommendations

The following recommendations were agreed upon by all four members of the action research team over the three day report writing workshop in Vientiane in December, 2013. As noted in the Introduction, some of the findings of the Action Research team overlap with the other subcomponents of VALTIP2, and these recommendations should therefore be considered in conjunction with those subcomponents.

1. ***Expand the teak groups to cover four districts, that are capable of supplying the FSC market with a minimum of 3000m^3/year.***

The small amount of FSC timber available in Luang Prabang is not sufficient to attract buyers and means that farmers sell outside the current groups. The FSC market needs to be tested by offering a large parcel of wood.

Therefore, the action research team considers that LPTP has to rapidly scale up the number of villages to boost FSC volumes and provide regular market information to both buyers and sellers. A reasonable target would be 3,000m^3/year (or about 1,000 m3 every 3-4 months), which should be spread over several districts to ensure that there are sufficient DAFO staff available to support the sales of a larger volume. To reduce complexity, LPTP should also:

- use existing land tax receipts as evidence of legal ownership (a requirement of FSC), to reduce the time consuming process of undertaking inventory prior to issuing plantation certificates.
- Develop a formula to estimate potential wood volumes based on stand age data and site quality instead of undertaking inventory
- only providing free plantation certificates to those who agree to sell their wood (at the agreed price offered), which means there is certainty for the buyer in terms of wood volume
- encourage the formation of independent subgroups in large villages or in villages where there is more than one ethnic group/social strata to reduce the risk of intra-group conflict

2. Encourage grower groups to form farmer group enterprises (FGE) or cooperatives in accordance with government policy, and provide co-funding for investments

Farmer group enterprises (or cooperatives) can boost returns to their members by undertaking a range of value adding services such as harvesting and processing. According to the law, they should also receive taxation benefits, which could include exemption from import duties, certain types of taxes and state support in marketing their products. The position of farmer group enterprises in the value chain, and their relationship with the existing producer groups was represented in Diagram 1.

Wherever there is interest, the existing grower groups should be encouraged to transform themselves into farmer group enterprises (FGE) or cooperatives. Ideally they would form across a cluster of groups, which would create the economies of scale needed to invest in the equipment needed for processing/value adding. Donor agencies should consider co-funding or providing low interest loans for initial capital investments to encourage group cooperation and reduce the risks for those willing to start small enterprises.

3. Build awareness of existing government policies on cooperatives and enterprises

Government policy related to cooperatives (Decree PM/136, 2010) is poorly understood by both farmers and government, since they believe it will be a return to collective farming, and also because it is poorly supported even at the central level. There is a greater understanding of the Enterprise Law (No 11/NA, 2005), but this law as written does not provide for the same benefits as cooperatives.

An awareness program is needed (possibly in conjunction with DGRV) to build understanding of the related laws and decrees at all levels of government, and ensure that clear policy guidelines are developed to encourage and sustain grower groups.

4. Grower groups and/or Enterprises should cover both FSC and non-FSC teak

The market for FSC teak is irregular, and there are doubts as to whether FSC will survive in an international market that is demanding legal, rather than FSC wood. There are regular shipments of uncertified teak going to China, and the market trend is upward.

The current FSC teak grower groups (or enterprises) need to be reformed so as to represent all village teak producers, who work together to obtain the best deal for farmers, regardless of who the final buyer is (whether FSC or others). By estimating the volume of their standing timber, they could tender it regularly as a group, in the same manner as Hatnyao – to the highest bidder. A strict and regular tender will eliminate the speculative traders who approach farmers

on an ad hoc basis – and whose investment in time and transport results in a lower price for farmers.

Alternative markets to FSC should also be investigated to compare their cost effectiveness compared to FSC. China for example, has a certification program under PEFC, (Hilary Smith, personal communication, 18/3/2014).

5. Facilitate the establishment of a grower revolving fund for teak which is able to buy up wood from the people when they need to sell

Without a revolving fund, grower groups (or enterprises) are undermined by producers who need to sell urgently, which deprives the market of timber which could be used as a lever to negotiate better prices. Selling urgently also damages the teak stands, since thinning is undertaken from above to remove the most valuable trees.

The exact mechanism for managing a revolving fund would need to be considered. The most sustainable models in Lao involve regular savings as a condition to receiving credit, but these take a lot of monitoring support to be successful. One option may be to have a fund connected to an FGE, who would then be responsible for managing the fund (their own returns to their shareholders are dependent on the sustainable management of such a fund). In such as case, the FGE's would be expected to finance a significant portion of any start-up revolving fund provided by a development partner.

6. Ensure that the grower group committee takes responsibility for their own affairs

LPTP has often taken over some administrative activities that should have been undertaken by farmers, which has led to confusion and a lack of responsibility by the grower groups.

LPTP should only facilitate group processes, and should not be responsible for writing documents on behalf of group leaders. In some cases it appears that documents were taken and typed up, but then subsequently not signed and made public to group members – this has led to a lack of transparency, and has undermined confidence in the group management.

7. Establish a Provincial Teak Platform for the management of teak in Luang Prabang

The complex and contradictory procedures for selling one's own planted timber are a disincentive to both farmers and industry that discourages small groups and encourages the sale of illegal timber (and means groups are no more competitive than individuals who sell to speculative traders).

In particular, a market for small logs would favour teak grower groups, as there would be a more regular income and an incentive to actively manage the stand to maximise growth. Despite the best efforts of both ACIAR projects and LPTP, it appears unlikely that local farmers will thin their stands unless there are tax incentives for industry to process small logs. Through its influence, ACIAR needs to engage in dialogue on this issue at the highest levels.

A multi-stakeholder Provincial Teak Platform should be established, which comprises relevant government officials[19], industry and farmer representatives, and which aims to develop the teak sector. One of its main tasks would be to reduce the taxes and bureaucracy faced by smallholders, and in particular to encourage thinning and small diameter processing in the province through the use of tax incentives for small logs. It should decide which laws and regulations should be applied, and then enforce their application in a consistent manner. In its initial stages, the Provincial Teak Management Committee would have to be financed through a project such as VALTIP2, since this is a new activity that doesn't fall under an existing government program.

8. Develop a log measuring tool using a mobile telephone app

Farmers still have difficulty in measuring logs and calculating volumes - even though training has been conducted, many people have not turned up to the trainings, or find it inconvenient to carry their volume tables to the field. As is the case in Indonesia (as noted by Perdano et al., 2012), the development of a standing tree valuation system would reduce marketing risk for both timber growers and middle-men.

The rapid expansion of smartphones provides an opportunity to not only improve transparency for farmers, but the data could also be uploaded to a database for inventory purposes and linking buyers and sellers.

The initial development of an app for such a purpose would cost about $4,000.[20]

9. PAFO should designate forestry staff to be group liaison officers

There needs to be a mechanism to provide organizational support to the grower groups and FGE's for several years after they have been developed. Important aspects are managing finances, understanding contracts, and recording minutes of meetings.

[19] Provincial Governors office, PAFO, Natural Resources and Environment, Trade and Industry and Finance

[20] Based on a quotation from Mekong Soft Company, Vientiane on November 20, 2014

Therefore PAFO needs to designate extension staff as appropriate to become 'coaches' of these groups that providing technical and administrative support on a regular basis.

10. Undertake research into the impact of rapid agrarian change on the development of sustainable grower groups

As pointed out in the literature review, it is possible that rapid agrarian change and social differentiation may be impacting upon the development of sustainable grower groups in Lao PDR. This has implications for the choice of villages for investment in grower groups by projects such as LPTP.

This aspect deserves further consideration, starting with a literature review and consultations with other organisations promoting farmer groups in Lao PDR. It is intended that this initial work be undertaken as part of the action research process.

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Appendices

Appendix 1: Action Research Team Profile

Mr Stuart Ling (Team Leader) has 17 years experience in Lao and is fluent in Lao language. He was Country Program Manager for the Belgian NGO Vredeseilanden in Lao PDR from 2002 to 2010, and has been a Consultant in agriculture and rural development for the past three years. He is based in the province of Bokeo.

Dr Lamphoun Xayvongsa is a senior lecturer in the Faculty of Forestry at the National University of Lao (Dong Dok). His research interests are participatory forest management, community forestry, non timber forest products and rural development planning.

MrSychan Chandiphit started in late 2013 as a research assistant with the Luang Prabang Teak Program (LPTP), and is based at the Forestry Section of the PAFO, Luang Prabang. Prior to this appointment he spent 20 years is a researcher at the Upland Agriculture Research Centre, Luang Prabang, with a particular specialization in teak silviculture.

Mr Chalylor Laoyongxy is a lecturer in forest mensuration and statistics at Souphanouvong University, Luang Prabang. He is of Hmong ethnicity, which was particularly useful when undertaking action research in the Hmong villages of Hatnyao and Houay Dinchy.

Appendix 2: Structure of a Luang Prabang Teak Growers Association as proposed in 2012

(Source: Ling, 2012)