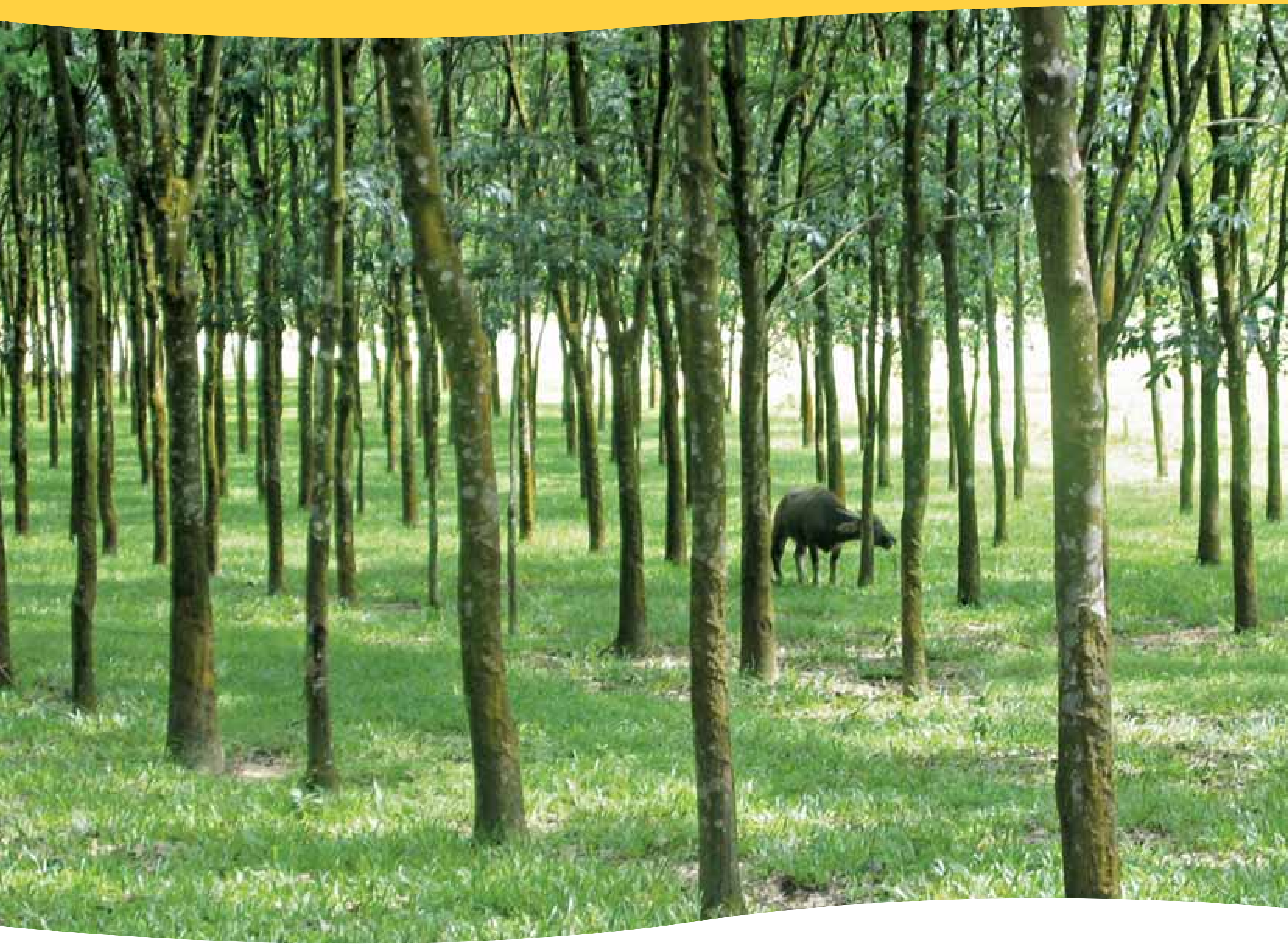
WORKING PAPER



Chopping for chips

An analysis of wood flows from smallholder plantations in Vietnam

Nguyen Quang Tan

Working Paper 65

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Abbreviations

BBPM	Bai Bang Paper Mill
CCA	Company collecting agent
DHLC	Duc Hai Limited Company
NPV	Net present value
PLLC	Phuc Lam Limited Company
QNPC	Quy Nhon Pulpwood Company
VHLC	Vinh Hien Limited Company
VND	Vietnamese dong

Exchange rate: US $1 ≈ VND17 500 at the time of study (November 2008–January 2009)

Acknowledgements

This working paper is part of a research project entitled 'Strengthening Rural Institutions to Support Livelihood Security for Smallholders Involved in Industrial Tree-planting Programmes in Vietnam and Indonesia' funded by the German Federal Ministry for Economic Cooperation and Development (BMZ). I would like to express my gratitude to everyone who has contributed to make this market study possible. Special thanks must go to all informants in the four study sites and to the industrial companies in Binh Dinh and Phu Tho. I am indebted for the support from colleagues in Binh Dinh and Phu Tho provinces, as well as those at the Forest Science Institute of Vietnam during the course of the fieldwork. Last, but not least, invaluable comments from Thomas Sikor on earlier versions of this paper are gratefully acknowledged.

1. Background

This working paper is part of the research project 'Strengthening Rural Institutions to Support Livelihood Security for Smallholders Involved in Industrial Tree-planting Programmes in Vietnam and Indonesia', implemented by the Center for International Forestry Research (CIFOR), the University of Göttingen and the University of East Anglia, in collaboration with the Forest Science Institute of Vietnam (FSIV) and Bogor Agricultural Institute. The project's aim is to advance livelihood security and achieve a sustainable reduction in poverty amongst rural smallholders involved in industrial tree-planting programmes in Southeast Asia. Its outputs will support improved governance of rural institutions, development of innovative partnerships, more effective planning and coordination, and enhanced market access for households and communities participating in industrial tree-planting initiatives in Vietnam and Indonesia.

This market chain study aims to gain a better understanding of the wood flows from smallholder plantations to industrial buyers in Binh Dinh and Phu Tho provinces of Vietnam (see Figure 1). It examines the role of different actors, the value added to the wood at each stage of the market chain and the distribution of costs and benefits amongst these actors.

The paper documents findings from the study. It provides an account of the wood market chain from smallholder tree growers in the study villages to industrial buyers in the main towns. The paper consists of seven sections. Following this introduction, Section 2 provides a short overview of the study sites. Section 3 briefly discusses field data collection. Section 4 goes into detail about the wood market chains in four study sites and Section 5 discusses the distribution of costs and benefits amongst actors involved in these market chains.

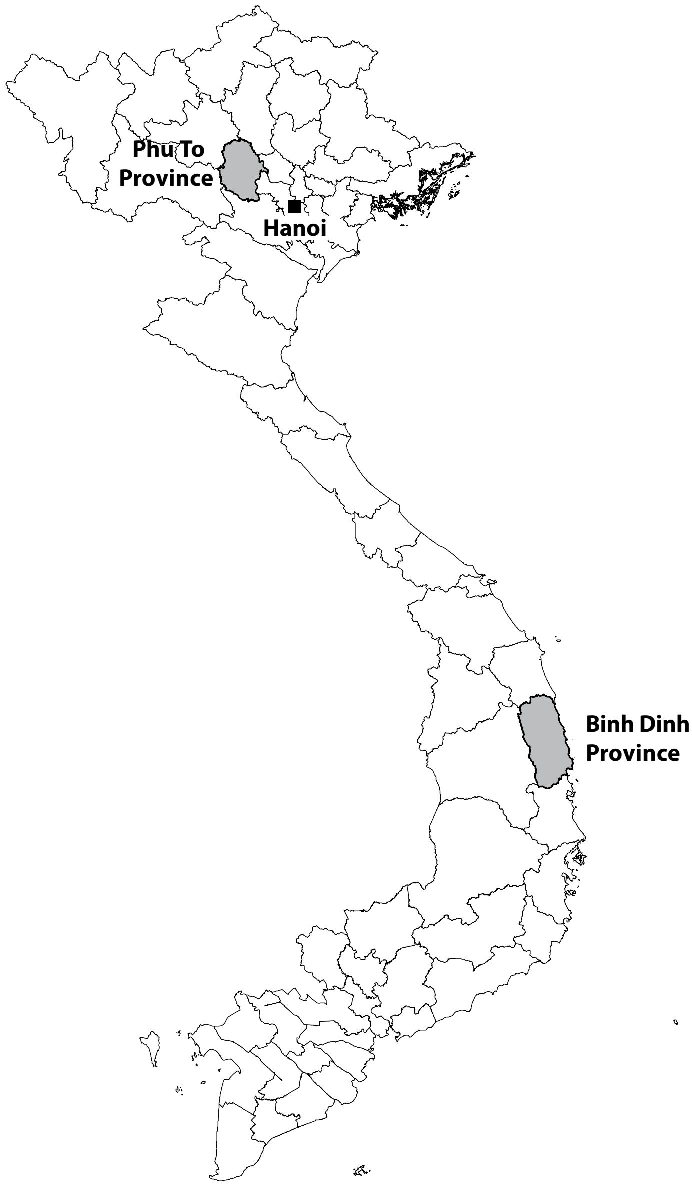

Figure 1. Location of the study sites in Vietnam

Section 0 provides a concluding discussion of the study's findings. Finally, suggestions for further research are presented in Section 7.

2. Introduction to the study sites

Binh Dinh province is located in the South Central Coastal region of Vietnam, about 670 km from Ho Chi Minh City and 1060 km from Hanoi. It borders Quang Ngai province to the north, Phu Yen province to the south, Gia Lai province to the west and the Eastern Sea (also known in the Western Literature as South China Sea) to the east. The province has about 1.6 million people and covers about 600 000 ha, of which 257 500 ha (40.4%) is forest.

Within Binh Dinh, the study covers two villages in two districts: Thuan Phong village of Cat Lam commune (Phu Cat district) and Tan Quang village of Canh Hien commune (Van Canh district). Thuan Phong village is about 80 km from Quy Nhon—the capital city of Binh Dinh province—where the industrial buyers of the timber from the farmers' plantations are located. It has about 405 households. Tan Quang village is 55 km from Quy Nhon, and has about 256 households.

Phu Tho province is located in the mountainous Northeast region of Vietnam, about 80 km northwest of Hanoi. It shares a border with Tuyen Quang and Yen Bai provinces in the north, with Hoa Binh province in the south, with Vinh Phuc and Ha Noi in the east, and with Son La province in the west. Phu Tho covers about 352 000 ha and is inhabited by over 1.3 million people. Forest covers about 172 000 ha of the province (47%).

As in Binh Dinh, in Phu Tho two villages in two districts are covered by the study: Thon 5 village in Ca Dinh commune (Doan Hung district) and Khu 4 (also known as Xom Lam) village in Tram Than commune (Phu Ninh district). Thon 5 is 80 km from Bai Bang Paper Mill—the main industrial buyer of plantation timber. Khu 4 is about 35 km from the mill.

3. Methodology

3.1 Study approach

The main approach employed in the study was commodity chain analysis, using access mapping. Following Ribot (1998), access mapping along a commodity chain provides two maps: distribution of profit and mechanisms, and structures and processes at work in the control and maintenance of that distribution. In more concrete terms, it consists of:

- identifying the actors involved along the commodity chain, from extraction, production, processing, exchange, transport and distribution to final sale and end use of the commodity;
- evaluating income and profit at each level of the commodity chain;
- evaluating the distribution of income and profit within each group along the chain; and
- using the distribution of these benefits amongst and within groups to trace out, or map, the mechanisms by which access to benefits is maintained and controlled.

Originally, commodity chain analysis was used to analyse price formation of a commodity, from raw material to final product (Bernstein 1996). Recent application has shown that commodity chain analysis allows not only the use of a theoretically established market model but also the investigation of 'specific forms of social relations and institutions that constitute real markets' (Bernstein 1996). As Ribot and Peluso (2003, pp. 165-172) indicate, a number of important factors exist that mediate the process through which benefits are acquired, controlled and maintained, including access to technology, capital, markets, labour, knowledge and social relations. In this paper, commodity chain analysis is used to explore the economic (and to some extent social) connections between various activities along wood flows from smallholder plantations to final buyers. It is expected that the analysis will contribute to an understanding of how access is acquired, maintained and controlled in the whole chain.

3.2 Data collection

This study was conducted based on participatory rural appraisal carried out by the project in May–June 2008 and a household survey by the project in September–October 2008. Fieldwork was conducted in two segments: 23–29 November 2008 in Binh Dinh province and 5–10 January 2009 in Phu Tho province.

The main data collection tool used during the fieldwork was direct interviews with selected actors along the timber value chain. The interviews began with smallholder tree planters in the village – the starting point of the market chain – then continued with the actors involved in the next stage of the market chain. Altogether, 36 people were interviewed in four sites. The names of people interviewed are omitted to protect them. Interested readers may contact the author for further information. In addition, direct observations (through village walks) and informal discussions with local people about the plantations, processing and transportation were also made during the course of the fieldwork to generate supplementary information and confirm findings from the interviews. The study also benefited from the results of the participatory rural appraisal and household surveys undertaken in these four sites by the project team in 2008.

Due to time limits, the study mainly focused on the wood flows from smallholder plantations and the vertical distribution of costs and benefits along the line. It did not look at the horizontal distribution of profits to estimate whether there is significant intra-group stratification. In addition, time limits did not allow the study to give adequate attention to the social relationship between different groups of actors involved in the wood flows.

Field data collection for this study was done with institutional support from Mr Hoang Lien Son, Mr Le Van Cuong, Mr Nguyen Van Viet and other colleagues at the Forest Science Institute of Vietnam (FSIV). Mr Bach in Khu 4 also provided important support.

4. Description of the wood market chains in the study sites

4.1 Wood market chain in Phu Cat district

The wood market chain from smallholder plantations in Thuan Phong village (Phu Cat district) is relatively direct. In general, seven groups of actors are involved: smallholder tree growers, local collectors, woodcutters, bark peelers, truckers, company collecting agents and industrial buyers. Smallholder tree growers are the starting point of the market chain, as the primary sellers of the wood. As indicated in , wood from growers' plantations first goes to the local collectors, who hire woodcutters to fell the trees and workers to peel the bark. After that, the bark-clean wood is taken to industrial buyers in Quy Nhon with the help of truckers. Local collectors can sell the wood directly to the companies but most of the wood goes to Quy Nhon Pulpwood Company (QNPC) under the contractual arrangements between the company and a collecting agent, who also lives in the village. Detailed descriptions of these actors, their work and the relationship amongst them follow.

Smallholder tree growers

This is the largest group of actors in the wood market chain from Thuan Phong village. The village has about 250 smallholder tree growers (households), owning over 800 ha of plantation forest of different ages—about 3.3 ha of plantation per household. Legal rights to these plantations were provided by the state in 2005 when the land title (commonly known as the Red Book Certificate) was issued.

Local people prefer eucalyptus to other species as it can be coppiced (after the harvest), saving the costs associated with replanting the trees (details on the costs and profits for tree growers and other actors are discussed in Section 5). In addition to eucalyptus, acacia is also planted in the area. Seedlings of both species can be bought from the local state-run nurseries. Trees are often planted in higher density than is recommended by silviculturalists, as the farmers think a higher density will generate a larger quantity of wood at harvest.

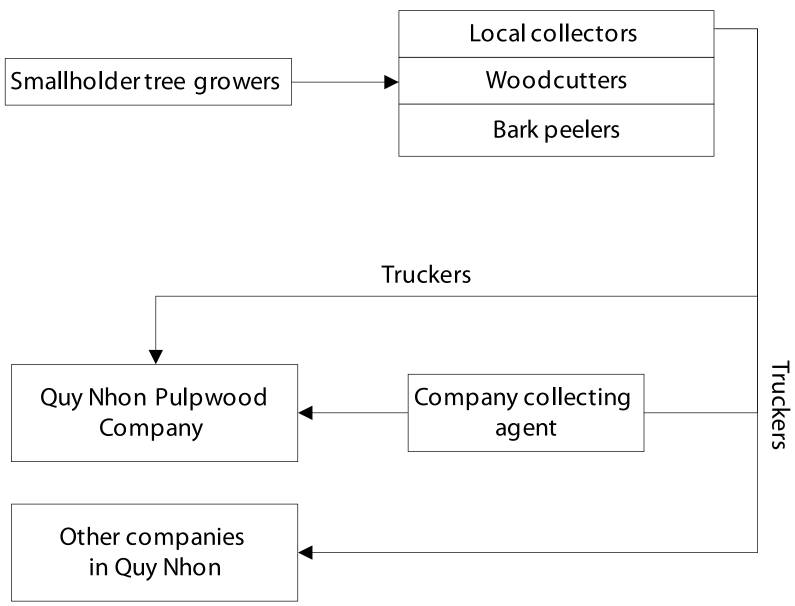

Figure 2. Market chain of plantation wood from Thuan Phong, Phu Cat

Trees in the plantations are often harvested at the age of 4–6 years. The wood is sold in standing stock to the local collectors, who come to the farmers' plantation, examine the standing trees and offer a price. The price is negotiated around that offered by the buyer. Most farmers know the price of wood sold to the end buyers in Quy Nhon. The ability of a farmer to increase the price offered for his wood depends very much on the information he has on the current wood price and on how accurately he can assess the quantity of his standing trees. Farmers do not usually sell their wood at the first price offered, but wait until they have received several offers to choose from. The buyer offering the highest price is often chosen. Once the sale agreement is made, either verbally or in written form,[1] the first part of the payment (about 50%–75% of the agreed sum) must be made before tree felling can begin. All costs associated with the harvest are borne by the buyer. Final payment to the farmer is made about 2–3 weeks after the harvest is complete. Sometimes people in need of urgent cash also sell younger trees. In this case, the price is determined based on the existing timber biomass of the trees. The buyer will have to pay the land rent to keep the trees.

Local collectors

Local collectors are people living in the village who earn their living from buying (standing) trees from the farmers and selling them to industrial buyers after some processing. About six people work as 'fulltime' collectors in Thuan Phong village. These people are ordinary farmers who have some relationship with the company collecting agent (see further discussion under 'company collecting agent'), either familial linkages or a work relationship. Two of them also own a truck and provide transportation services for local people. Most of the time, these local collectors sell wood to QNPC under the name of the company collecting agent. They prefer this because the clearing process is quicker and the price is the same (and sometimes higher) than they would sell the wood for otherwise.

Entry into this primary market of plantation wood is open to anyone with sufficient resources; the two most important being cash (starting from a few million Vietnamese dong) and a relationship with the industrial buyers (either direct or indirect through a third person). To remain in this market, however, the local collector must have the ability to make accurate assessments of the volume and quantity of standing trees that a farmer wants to sell, as this is crucial to the profit he will make (see Section 5). In addition, he will have to maintain his creditability with the tree growers in order to gain the next sale. A local collector's one-time inability to fulfil his payment to a tree grower will give him a bad name as a buyer.

Social relationships are also very important for the local collector as they help him identify potential sellers and more importantly win sales over other buyers. He often has to chat with friends and relatives and make new relationships in order to learn about the needs of farmers to sell trees. Once that need is identified, the local collector comes to talk with the tree grower. He will need to inventory the whole plantation, make his own estimation of the quantity of wood, and offer a price to the tree grower. He may need to come back (several times) to negotiate the price. Once agreed, he will make the first payment to the tree grower and hire the woodcutter to fell the trees. Workers are also hired at the same time to peel the bark. Once the wood is ready, truckers will be hired to transport the wood to the next buyer, usually the industrial factories in Quy Nhon. Branches, tops and bark are sold as fuel wood. The majority of plantation wood from Thuan Phong goes to QNPC, mostly under the name of a company collecting agent.

Logging will only be done when the local collector is certain that the industrial buyers are buying wood at the desired price. If not, he will keep the trees standing until the price rises. This rarely happens as the industrial buyers often inform local collectors, either directly or through the company's authorised collector, of a planned change in purchase price. It usually takes 3–5 days for the price change to take place, which gives the local collector adequate time to react (i.e. wait until the price rises or hurry to sell the wood before the price falls).

In addition to the 'fulltime' local collectors, a few other people work as 'part-time' wood collectors in the village. However, they only make a few transactions and their wood is sold to QNPC under the name of the company collecting agent.

1 Sometimes farmers require a written contract for the sale to make sure that the buyer does not leave without finalising the payment.

Woodcutters

Woodcutters are strong and skilful men. A good woodcutter needs to learn and practice for a few months as this is a dangerous job and may easily result in an accident if the chainsaw is mishandled. About 20 woodcutters live in the village. A group of woodcutters usually works for a certain local collector. The relationship between the woodcutters and the local collector is mutually beneficial, so that both sides can remain in business. The woodcutter needs the collector to get the job and the collector needs the woodcutter to get the trees felled and cut the way he wants. The woodcutter has various costs to bear. The major one is the chainsaw, which has to be replaced with a new one after cutting about 3000 tonnes of wood. Other costs are more variable, including petrol, lubricants, chains and files (see Section 5 for details).

At the request of the local collector, the woodcutters fell the trees and cut them into desired segments (often 2 m long) for the workers to remove the bark. Payment for the job is per tonne of bark-clean wood bought by the industrial buyers. One woodcutter can finish 10 tonnes of wood per day on average. Woodcutters may request advance payment from the local collector, or wait until the local collector receives payment from the company for the wood—usually within 3 weeks of completion of the job. The wood will not be weighed in the village but at the company. The receipt from the company, showing the date of purchase, the licence number of the truck, and the quantity of the wood, is used as the basis for calculating the payment for the woodcutter (and the bark peeler).

Bark peelers

Bark peelers include both men and women, and sometimes even teenagers. Unlike woodcutting, which requires a lot of skill, bark peeling is an easier job and can be learned within a few days. Also, the costs borne by the bark peelers are lower than those of the woodcutters.

Bark peelers work in groups of 12–17 people. The group is managed by a group leader, who is in charge of finding the job for the whole group. In return, the group leader receives an overhead of about VND2000–3000 per tonne of bark-clean wood that the group handles. Group membership is relatively fixed, though members may be off for some days and re-enter the business later on.

Bark peeling takes place immediately after the trees are felled and chopped. The sooner the bark is removed from the trees, the easier it is, as dry bark is more difficult to peel than fresh. On average, a group can peel 10–11 tonnes of finished wood per day. As with woodcutting, payment for bark peeling is per tonne of bark-clean wood bought by the industrial buyer. Bark peelers can get advance payment or wait until the local collector clears the payment with the company. Again, the receipt from the company is used as a basis for calculating payment.

In addition, bark peelers load the trucks. Payment for this work is made separately by the collector, at VND20 000 per load. Sometimes the workers also receive an extra VND20 000 from the trucker as an incentive to speed up the loading.

Truckers

After the wood is clean of bark, the trucker transports it from the village and the industrial buyer. There is one truck in the village, owned by two brothers, who also collect the wood (see discussion under 'local collectors'). Truckers from outside the village are also involved in the transportation of wood to Quy Nhon. Entry into this business is open to anyone with a truck, which are very expensive for local people. The existing truck in the village cost VND240 million in June 2007. Getting trained as a truck driver is also costly, at about VND11 million for 6 months training. Variable costs are also involved in the transportation of wood, including fuel, maintenance, and road fees (see Section 5 for details).

At the request of the local collector, the trucker takes the truck to the loading site for the workers to load the wood. The trucker then takes the wood to the company, has it weighed and unloaded, gets the receipt from the company and returns it to the local collector. On average, it takes a day for a round trip. The day before the truck's arrival, the local collector has to inform the company (if the sale is under a contractual arrangement) or the company's authorised collector of the estimated amount of wood that is coming. Once all the wood has been transported to the company, the local collector will come and get the payment. Transportation costs are paid on the quantity of wood being transported and are settled afterwards. To increase the profit per trip, the truck is often overloaded. Truckers prefer that the wood is sold to the company under a contractual agreement as it saves time waiting at the mill gate for their turn.

Company collecting agent

There is only one company collecting agent (CCA) in the village, but he is a powerful character in the wood market chain from Thuan Phong as over 80% of the wood coming from the village is bought under his name (either directly by him or by the local collectors buying wood for him). His contract with QNPC allows him to get a preferential price of about VND10 000 per tonne higher than non-contracted collectors. However, the CCA has to collect at least 500 tonnes of bark-clean wood for the company per month in order to maintain the contract. To ensure continuous purchase of a large quantity of wood, the CCA cooperates with local collectors in different locations, including the six collectors from Thuan Phong. The CCA has about 60 collectors in his 'network', working not only in Binh Dinh but also in other provinces. The network operates in a flexible manner: the local collectors take care of their own business, from buying trees and hiring woodcutters and bark peelers to transporting the wood to the company. The CCA is only informed when the wood is coming to QNPC. Local collectors can receive payment for their wood directly from QNPC or through the CCA.

The CCA also buys trees directly from the local tree growers. In this case, he does a similar job to the local collectors. Five groups of woodcutters and bark peelers regularly work with him, one of which is from Thuan Phong. The operation of woodcutting and bark peeling is similar to that described under 'local collectors'. What makes the CCA different from other local collectors is that he often buys young trees from people who need urgent cash, pays them the land rent and waits until the trees are big enough to fell. During our field studies in November 2008, he had about 100 ha of plantation in the village, including forest on his own land and trees bought from local growers.

Industrial buyers

The industrial buyers are located in Quy Nhon, the capital of Binh Dinh. About 64 wood processing enterprises operate in the province (Le 2008). Amongst these enterprises, QNPC is the largest buyer of wood from smallholder plantations in Thuan Phong. Other industrial buyers include Truong Phat and Duc Hai limited companies. QNPC has been in operation since 1993. Its only output is production of woodchips for export to China (70% of production volume) and Taiwan (30%). QNPC's wood comes from three provinces: Binh Dinh, Gia Lai and Phu Yen, of which about 50% comes from Binh Dinh. In 2008, QNPC bought about 32 000 tonnes of wood through four channels:

- the company's purchasing team (about 20% of total wood supplies);
- contracts with state forest companies (10%);
- contracts with local collectors and collecting agents (50%); and
- local tree growers (20%).

The company has 1450 ha of plantation, which were due to mature in 2010 and were expected to supply about 25% of the company's wood. QNPC only buys bark-clean wood for chip production.

QNPC has supply contracts with eight collecting agents (one of whom is from Phu Cat district). The quantity of wood supplied by the collecting agent each month is based on their collecting capacity. Collecting agents are entitled to advance payment for the wood they supply, at a maximum of 30% of the total contract.

4.2 Wood market chain in Van Canh district

As in Phu Cat, the wood market chain from smallholders' plantations in Tan Quang village (Van Canh district) is relatively direct. Six groups of actors are involved: smallholder tree growers, local collectors, woodcutters, bark peelers, truckers and industrial buyers (see Figure 3). Wood from smallholder tree growers is bought by local collectors, who hire woodcutters and bark peelers for the initial processing. After that, the bark-clean wood is transported directly to industrial buyers in Quy

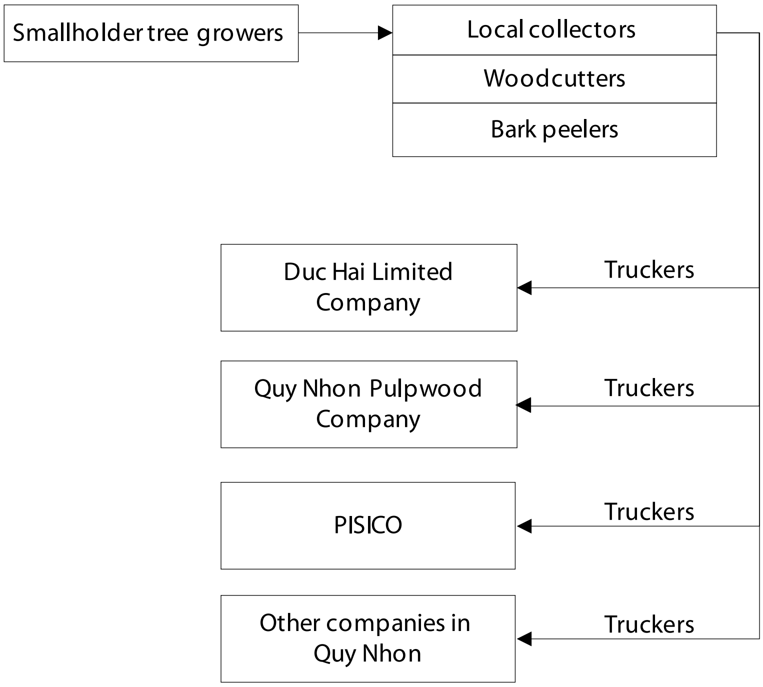

Figure 3. Market chain of plantation wood from Tan Quang, Van Canh

Nhon, with the help of the truckers. A description of these actors, their work and the relationships amongst them follows.

Smallholder tree growers

Tan Quang village has about 106 smallholder tree growers, owning a total of 98 ha of plantation forest (less than 1 ha per household on average). Eucalyptus and acacia are the preferred species in the village. Other information is similar to the case of Thuan Phong (see Section 4.1).

Local collectors

Three 'full-time' local collectors live in the village. These collectors buy trees from villagers, hire woodcutters to do the logging, bark peelers to process the cut timber and truckers to transport the wood to the buyers in Quy Nhon. These collectors also do other jobs, such as woodcutting and bark peeling. There are also 5–6 'part-time' wood collectors in the village. In general, local collectors prefer buying young trees from the farmers, as people in need of cash are more often inclined to accept a lower than market price. The full-time collectors have wood supply contracts with the industrial buyers in Quy Nhon.

Woodcutters

About 10 people work as woodcutters in Tan Quang village. The local collectors also work as woodcutters for themselves and for others. The logging operation is similar to that in Thuan Phong (see 4.1).

Bark peelers

The operation of bark peeling is similar to that in Thuan Phong (see 4.1).

Truckers

At the time of study, no truckers were living in the village. One of the collectors used to own a truck but had recently sold it. Transportation of wood from Tan Quang to Quy Nhon is provided by truckers from outside the village. At the request of the local collector, truckers will take their truck to the loading site, have the truck loaded, transport the wood to the buyer in Quy Nhon, get the receipt and return it to the local collector (see 4.1).

Industrial buyers

Unlike Thuan Phong, where wood mainly goes to QNPC, wood from Tan Quang is sold to various buyers. The three main ones are Duc Hai Limited Company (DHLC), General Production Investment Service Import Export Company (PISICO), and QNPC. Other buyers include Phu Tai, Thanh Binh and Truong Phat limited companies. Amongst all these buyers, DHLC has been the largest in recent years.

DHLC has been in operation since 2006. Processing pulpwood for export is the company's main output. Woodchips from DHLC are exported to China, Japan and Taiwan. In 2007, DHLC produced 45 000 bone dry metric tonnes (BDMT) of pulpwood for export. To produce this quantity, DHLC had to buy about 90 000 tonnes of fresh, bark-clean wood. Wood supplies come from Binh Dinh, Dak Lak, Gia Lai and Phu Yen. The company has three supply channels:

- directly from the tree growers (at the company's gate);
- supply contracts with state forest companies; and
- supply contracts with individual collectors.

DHLC started its own plantation in 2008 in Dak Lak province; however, it will be some time before the company can harvest this wood. Similar to QNPC, DHLC only buys bark-clean wood for chip production.

4.3 Wood market chain in Doan Hung district

The market chain of wood from smallholder plantations in Thon 5 (Doan Hung district) is much more complex than the two sites in Binh Dinh province, particularly in the wholesale market. In general, there are three main flows of wood:

- woodchips for paper and pulp production sold at Bai Bang and Viet Tri paper mills and for export in Quang Ninh province;
- logs for construction bought by homebuilders; and
- logs for furniture making bought by furniture makers (see Figure 4).

Actors involved include tree growers, woodcutters, bark peelers, local collectors, truckers, several levels of wholesalers, and end buyers (paper mills, woodchip factories, homebuilders and furniture makers). In the study sites in Binh Dinh, most actors know the buy-in prices paid by industrial buyers in Quy Nhon; however, such information is unknown to many actors in Phu Tho. This is to the benefit of those middlemen who have good relationships with the end buyers.

A description of the main actors involved is provided below. Due to limited time, it was not possible to follow all the flows of wood. The discussion here therefore focuses on the flow of woodchips to Bai Bang Paper Mill (BBPM). There is a gap in information on flows of logs to other end buyers.

Smallholder tree growers

As in the two sites in Binh Dinh, tree growers in Thon 5 prefer eucalyptus and acacia. In the past, they also planted styrax but stopped due to problems with marketing styrax wood. Trees are also sold at the age of 4–6 years in Thon 5. However, farmers do not always sell standing trees. They negotiate a price for the trees with the buyers (in most cases a local collector) with or without logging costs. If the tree growers feel it is more profitable for them to do the logging, they will take care of it (either themselves or hire the woodcutters) and sell the logs to the local collectors. If not, they will sell the standing trees. Tree growers also check with different buyers before they decide who to sell the trees to. In most cases, the buyer is either the one who offers the best price or someone who has a good relationship with the seller (e.g. a friend or relative).

Local collectors

Local collectors buy wood from the villagers and sell it to wholesale collectors in Yen Kien commune (about 19km from the village). Depending on the preference of the farmers, local collectors may buy standing trees from the plantation and take care of the logging or they may buy logs from farmers who have done the tree felling themselves. Unlike in the two study sites in Binh Dinh, bark peeling is not commonly done in the village, so local collectors do not have to hire bark peelers. Wood from the village is sold in logs of 4, 5 and 6 m long. Tops and branches are also sold to the wholesalers if they want them. Wood of bigger sizes (e.g. larger than 16 cm in diameter) is sometimes separated and sold for furniture making. However, as the demand for such

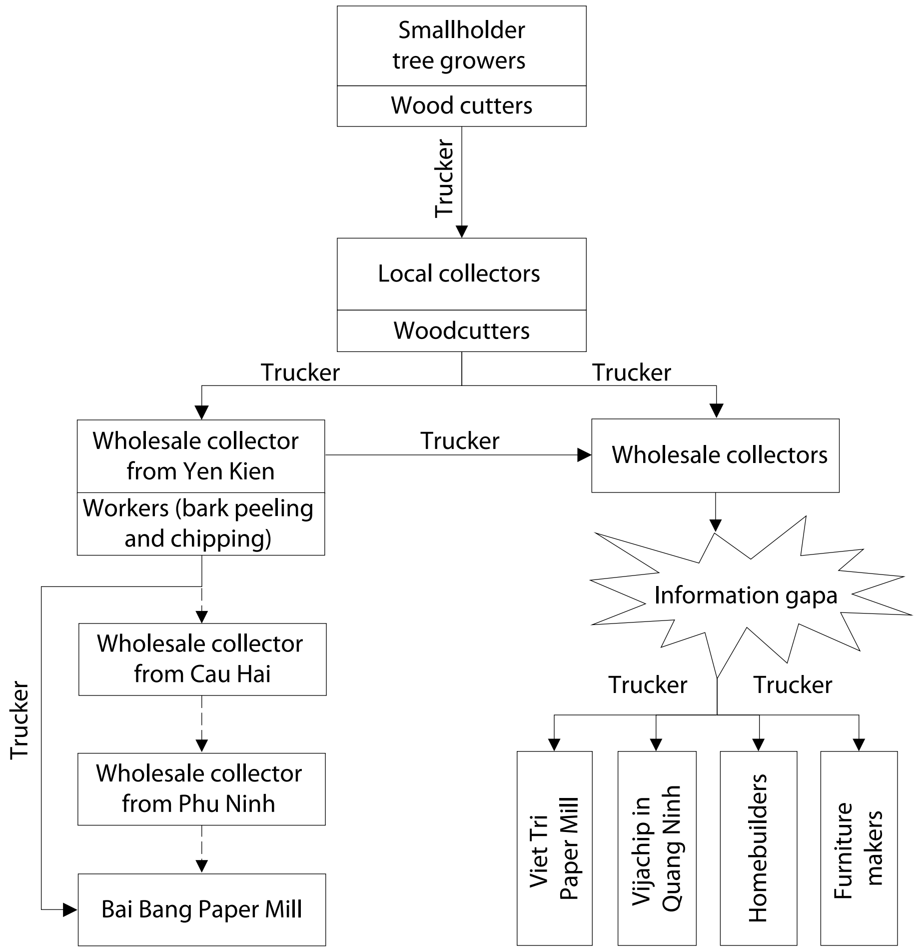

Figure 4. Market chain of plantation wood from Thon 5, Doan Hung

a Information gap due to limited time for data collection

large logs is low, local collectors often sell wood in bulk to the wholesalers.

Woodcutters

There is no clearly defined group of woodcutters in the village. Most adult male villagers are capable of doing the woodcutting, but the majority do not own a chainsaw. As a result, when someone is hiring people for logging, the woodcutters often have to hire or borrow a chainsaw. Unlike in the two sites in Binh Dinh, where payment for woodcutters is based on the quantity of wood, woodcutting in Thon 5 is paid on a daily flat rate (see Section 5 for more details).

Truckers

Various truckers are involved in the transportation of wood at different stages (see Figure 4). Trucks may be owned by wholesale collectors or hired by them on a regular basis. Transportation costs are paid per truck load for an agreed distance (see Section 5 for more details).

Wholesale collectors

Several types of wholesale collectors are involved in the market chain of wood from Thon 5. A wholesale collector from Yen Kien commune (19 km from the village) often buys logs from local collectors. Unlike in Binh Dinh, where wood is sold in logs to industrial buyers (who do the chipping themselves), industrial buyers in Phu Tho also take woodchips. The wholesale collector in Yen Kien processes logs into chips to sell to these buyers, making him a higher profit than selling logs.[2] To do this, the

2 Further information should be acquired from industrial buyers in Phu Tho regarding their buying prices for woodchips and logs to confirm whether selling chips is more profitable than selling logs.

wholesale collector in Yen Kien has to hire workers to do the bark peeling and chipping of the wood. Chips are then sold to a larger wholesale collector in Cau Hai (6 km from Yen Kien), who collects for another wholesaler living in Phu Ninh. The chips are finally sold to BBPM. This is an interesting part of the market chain: Whereas the woodchips are sold and resold through different wholesale collectors, the collector in Yen Kien takes them directly to BBPM without passing through the two middlemen in Cau Hai and Phu Ninh. The transactions described above only happen in words. It would be more profitable for the collector in Yen Kien to sell the chips directly to BBPM. However, his lack of a relationship with the company (as he puts it), and more importantly the requirement for a large quantity of wood to be collected, makes it difficult for him to enter into a wholesale contract with BBPM.

From time to time, logs bought by the wholesale collector in Yen Kien are resold to other collectors for construction. In this case, no further processing is required. The collectors come with their own trucks and take the logs away. There is however an information gap about the flow of these logs to homebuilders (the end buyers of the construction wood) due to the limited resources (time and human) of this study. Further efforts may be needed to investigate this timber flow.

Another wholesale collector is involved in the market chain of furniture wood. Bigger logs are sometimes separated and sold to buyers from outside the commune. Again, the limited resources of this study have not allowed the collection of further information on how such logs flow until they end up with the furniture makers. An interview with a local carpenter near Thon 5 suggests that acacia is very seldom bought for furniture making as local people prefer wood from melia and jackfruit trees.

Bark peelers and chipping workers

These workers are hired by the wholesale collector in Yen Kien to produce woodchips from the logs he buys. All tools are provided by the wholesale collector, and the workers only provide the labour. To make the work easier, logs are submerged in water for about two days before the work begins. It often takes about nine person-days to produce one truckload of woodchips. Payment for bark peeling is per tonne of wood processed and for chipping is on a daily basis.

End buyers

Three groups of end buyers take wood from Thon 5:

- BBPM, Viet Tri Paper Mill and Vijachip Corp in Cai Lan, Quang Ninh;
- homebuilders; and
- furniture makers.

The homebuilders are located in various provinces and use the logs as a framework for construction. Furniture makers are from outside the commune. Wood from the plantation is not used within the commune for furniture making. An interview with a local carpenter shows that local demand for acacia products is very low. In addition, few logs large enough for furniture making are produced in the village as most farmers sell their trees at 4–6 years of age.

BBPM is the most popular buyer of plantation wood. The company started its operations in 1982. Since 2004, BBPM has become a core member of the Vietnam Paper Corporation. Pulp and paper are the company's two major outputs. BBPM produces 68 000 tonnes of pulp and 100 000 tonnes of paper per annum. To produce such outputs, about 350 000 tonnes of raw material are bought annually. Wood supplies for BBPM come from three channels:

- 16 state-owned forestry companies (about 50% of wood supplies);
- wholesale collectors (40%); and
- tree growers (10%).

Under the current buying scheme, individual tree growers can sell their wood directly to BBPM. However, most people prefer selling their trees or logs to middlemen to avoid the administrative burden and transaction costs of taking the wood directly to the factory.

BBPM has contractual arrangements with 10 wholesale collectors. The contracts are renewed quarterly and the wholesale collectors are entitled to an award of 0.05%–0.1% of the total value of the contract if they can provide a large quantity. However, it was not possible to collect information on the qualifications needed to get a supply contract with BBPM, or other details of the contract.

4.4 Wood market chain in Phu Ninh district

The wood market chain from Khu 4 in Phu Ninh is less complex than in Thon 5, Doan Hung. Most of the wood is bought by a local collector and a collecting agent of Vinh Hien Limited Company (VHLC). A small portion is also bought by Phuc Lam Limited Company (PLLC), which is located in the commune centre. The wood then goes to BBPM and to construction sites. In the past, wood from the study site also went to Vijachip in Cai Lan, Quang Ninh for export. However, PLLC has stopped supplying wood to Vijachip and shifted its supply to BBPM. There is no evidence of the wood from Khu 4 being sold to Viet Tri Paper Mill, nor is there any suggestion of the sale of wood for furniture.

In general, eight different groups of actors are involved in the market chain: smallholder tree growers, woodcutters, the local collector, truckers, collecting agents in the commune, bark peelers and chipping workers, the wholesale collector in Phu Ninh and the end buyers. Descriptions of the main actors involved are provided below. Due to limited time and resources, the supply chain of construction wood to homebuilders was not examined in detail, leaving an information gap about how this channel works. The discussion here focuses on the flow of woodchips to BBPM.

Smallholder tree growers

As in the other three sites, smallholder tree growers in Khu 4 prefer eucalyptus and acacia. They also sell trees at 4–6 years of age. In most cases (about 80%), local people sell the trees in standing stock and let the buyers do the logging. In a few cases, tree growers do the logging and sell the logs to the buyers. Again, a farmer's ability to negotiate the price of his wood with the buyer depends very much on how accurately he can assess the standing volume of the trees. In

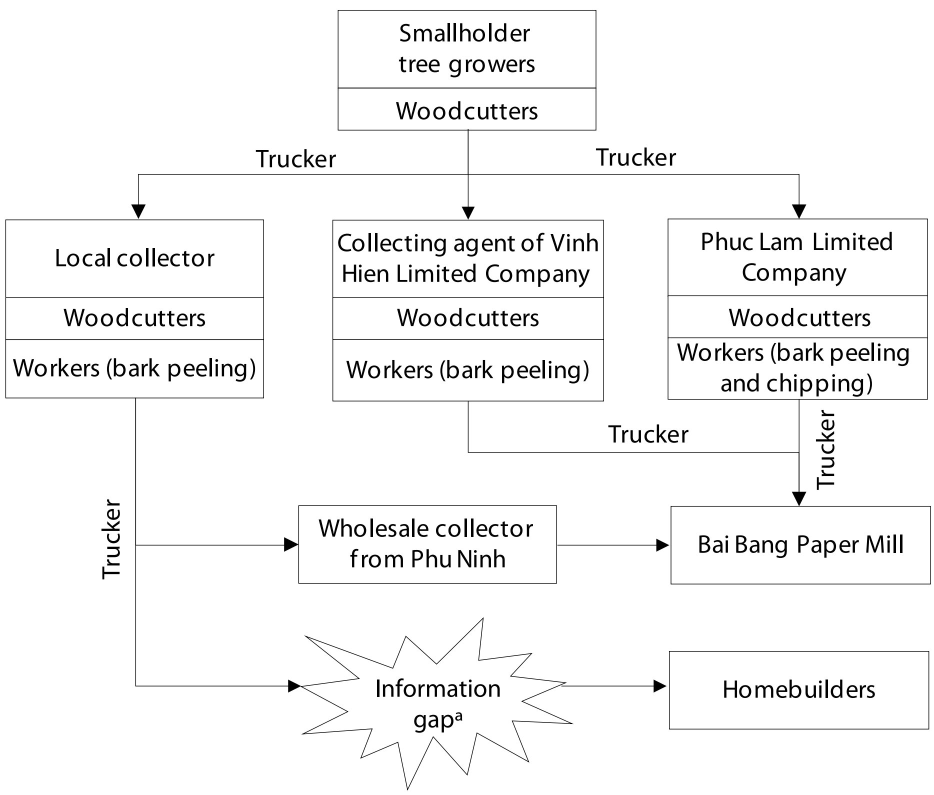

Figure 5. Market chain of plantation wood from Khu 4, Phu Ninh

a The information gap is due to limited time for data collection.

many cases, farmers ask friends or relatives to help with the assessment of the tree stock. Local people prefer selling the trees to buyers in the village or to relatives as they trust them to pay for the sale more than outsiders.

Woodcutters

There are two types of woodcutters in the village: those who work and get paid on a daily basis—associated with tree growers, the local collector and the collecting agent for VHLC; and those who work under contractual arrangements and get paid per month – associated with PLLC. Woodcutters do not have to own a chainsaw or other tools as the people who hire them provide the equipment.

Local collector

Only one local collector lives in the village, and competes with the collecting agents (VHLC and PLLC) for the wood. He often buys standing trees from the villagers and hires people log the timber and transport it to a landing site in the village. He also buys logs from farmers both at their plantations and at his landing site. Of all the logs he buys, about 20–30% are then sold to other middlemen in Cau Hai and Den Hung for construction. The remaining are peeled and sold to BBPM via a wholesale collector in Phu Ninh. An overhead is paid to the wholesale collector in Phu Ninh, but the wholesaler takes care of all the transaction costs with BBPM, which may be too much for the local collector otherwise. The local collector prefers selling logs for construction as it does not require bark peeling. However, the demand for such logs is low and irregular.

The local collector owns a truck and transports the wood himself. He has a team of 23 people (15 women and 8 men) who do the logging, loading and bark peeling for him. Payment for these people is on daily basis.

Company collecting agents

In addition to the local collector, two collecting agents operate in the village, for VHLC and PLLC. Similar to the local collector, the VHLC agent buys wood from the local tree growers (both as standing trees and as logs), hires local people to do the logging (if necessary) and bark peeling, and sells the bark-clean wood to BBPM under the name of VHLC. The PLLC agent also buys wood from tree growers in both forms. PPLC has a group of 20 workers, who do the logging, bark peeling and chipping. The chips are then sold to BBPM.

Truckers

In most cases, transportation of the wood is taken care of by the local collector or collecting agents. Transportation of the wood from the plantation to the landing sites is done by buffalo, at a rate of VND15 000–25 000 per trip (0.8–1.0 tonnes of wood).

Bark peelers and chipping workers

Bark peelers are hired by all the collectors described, on a daily basis and as demanded by the work. Payment is made per tonne of wood by PLLC and per day of work by the local collector and VHLC. Chipping workers are only hired by PLLC under a contractual arrangement and receive a monthly salary.

Wholesale collector

This actor lives in Phu Ninh town, near BBPM. She has supply contract with BBPM. She collects wood from local collectors (including the one in Khu 4) and other middlemen. They have an agreement on the price of the wood. The local collector buys the wood, takes care of the bark peeling, brings the bark-clean wood to BBPM and sells it to BBPM under the name of the wholesale collector. Payment for the wood can be collected directly from BBPM or through the wholesale collector. An overhead per tonne of wood sold is paid to the wholesaler but exact figures were not revealed.

End buyers

BBPM is the main buyer of wood from Khu 4. Other end buyers are homebuilders, who use the wood for construction. Due to limited resources, information on this group of buyers has not been collected.

5. Distribution of costs and benefits along the market chains

This section discusses the distribution of costs and benefits amongst the actors involved in the wood market chains in four study sites. Costs discussed in this section vary during 2008, particularly with regard to wood and petrol; however, to make the discussion easy to follow, average figures are used in the calculations. In addition, most costs and benefits presented in this section are based on personal estimation, particularly those of the local collectors and wholesalers.

5.1 Distribution of costs and benefits amongst actors in Phu Cat and Van Canh

Actors in the two study sites in Binh Dinh province are grouped together due to the similarities in the nature of costs and benefits involved.

Smallholder tree growers

Most costs borne by the tree growers concern establishing and tending their plantations (see Table 1). In general, a tree grower invests about VND5.5 million per ha of plantation for the first three years (a bit more than half of the cost norms recommended by the World Bank–funded Forest Sector Development Project). Most of the costs occur in the first year—on the establishment of the plantation. Tending the trees stops after the third year (in some cases people do not fertilise the trees after the second year). Harvesting takes place in years 4–6.

The benefit for tree growers comes from the sale of the trees. Assuming a fixed price of VND720 000 per tonne of wood offered by the final buyer, a tree grower receives VND500 000 for a tonne of wood from the local collector. Less the costs, this is a net

Table 1. Costs and benefits for a tree grower in Phu Cat and Van Canh

Items	Average amount in VND	
	Per ha	Per tonne of wood
Costs		
Year 1	2 100 000	60 000
Labour (for land preparation, planting, etc.)	1 100 000	31 429
Seedlings	600 000	17 143
Fertiliser	400 000	11 429
Year 2	1 700 000	48 571
Labour (for weeding)	1 400 000	40 000
Fertiliser	300 000	8 571
Year 3	1 700 000	48 571
Labour (for weeding)	1 400 000	40 000
Fertiliser	300 000	8 571
Total costs	**5 500 000**	**57 143**
Benefits		
Sale of the trees	17 500 000	500 000
Benefits vs. costs		
Benefits – costs	12 000 000	342 857
NPV (assuming harvest in year 5 and no cost in year 4)		
Discount rate at 15% per year	4 471 284	127 750
Discount rate at 25% per year	2 096 000	59 885

NPV = Net present value

Table 2. Costs and benefits for a local collector in Phu Cat and Van Canh

Items	Average amount in VND per tonne of wood
Costs	
Bark peeling	75 000
Wood cutting	40 000
Transportation to landing place	10 000
Transportation to company	70 000
Payment to the tree grower	500 000
Total costs	**695 000**
Benefits	
Bark-clean wood	720 000
Bark and branches (for fuel)	25 000
'Technical' benefit[a]	105 000
Total benefits without the 'technical' benefit	**745 000**
Total benefits with the 'technical' benefit	**850 000**
Benefits vs. costs	
Benefits – costs (without 'technical' benefit)	50 000
Benefits – costs (with 'technical' benefit)	155 000

a 'Technical' benefit refers to the difference in the amount of wood 'accepted' by the tree grower in the transaction and the actual quantity of wood in the plantation.

benefit of VND342 857 per tonne of wood. With an average 35 tonnes of wood per ha paid by the local collector,[3] the tree grower's total benefit is VND17.5 million (or VND12 million net benefit) per ha of plantation for the average of 5 years. The net present value (NPV) of investment in the tree plantation at the discount rate of 15% per year is about VND4.5 million per ha or VND127 750 per tonne of wood produced. At the discount rate of 25% the NPV is VND2.1 million per ha or VND59 885 per tonne.

Local collectors

A local collector has to pay about VND695 000 per tonne of wood (Table 2), which is covered by the price that he gets from the end buyer. Other costs include the costs of establishing and maintaining relationships and time spent on transactions. However, due to limited time for this study it was not possible to quantify these costs and present them here.

Benefits for a local collector include the bark-clean wood sold to the industrial buyer and bark, tops and branches sold as fuel wood to local people. These two sources of benefits add up to about VND745 000 per tonne of wood. Less the costs presented above, the local collector has a net benefit of VND50 000 per tonne of wood.

This seems a relatively small benefit. However, the majority (over two-thirds) of a local collector's income from wood transactions is what is known as 'technical' benefit. This benefit comes from the difference in the amount of wood 'accepted' by the tree grower in the transaction and the actual quantity of wood in the plantation. In the cases studied during fieldwork, this amount was 15%–30% of the total quantity of wood accepted by the farmer. The local collector does not have to pay the tree grower for this amount of wood, and thus gets all the benefit from this quantity. However, he has to pay for the costs of logging, bark peeling and transportation as these costs are paid based on the actual quantity of wood indicated in the buyer's receipt.

Company collecting agent

The company collecting agent (in Phu Cat district) has similar costs and benefits to those described above when he functions as a local collector. However, he also has additional benefits as a collecting agent. The supply contract with the company allows him a bonus of VND10 000 per tonne of wood supplied

3 This figure refers to the quantity of wood used to calculate payment for the tree grower (average 5 year old plantation). It may not reflect the actual standing volume in the plantation as the local collector often buys the trees based on a lower agreed quantity of wood (see Section 4 and the discussion of benefits for the local collectors).

Table 3. Costs and benefits for a woodcutter in Phu Cat and Van Canh

Items	Average amount in VND per tonne of wood
Costs	
Petrol	15 000
New lubricant (for the engine)	1 000
Used lubricant (for the chain)	2 100
Chainsaw maintenance	1 000
Depreciation of chainsaw	3 000
Total costs	**22 100**
Benefits	
Payment received	40 000
Benefits vs. costs	
Benefits – costs	17 900

if he fulfils a quota of 500 tonnes per month (including both the amount he collects himself and that collected through his network and sold to the company under his name). If he can collect 1000 tonnes for the company, an additional VND5000 is added to each tonne. In general, if the collecting agent supplies 1000 tonnes per month, he receives about VND15 000 000 from the company. His market power has enabled the collecting agent to gain this extra benefit, providing a bulk supply of wood to Quy Nhon Pulpwood Company (QNPC) through his network of local collectors. Furthermore, he is also known to receive additional income from the collectors in his network for the time saved in processing wood sales to the company. There are costs involved in the maintenance of relationships between the collecting agent and company staff; however, details were not revealed.

Woodcutters

Woodcutters have to pay for operation and maintenance of their chainsaws, which is about VND19 000 per tonne of wood (Table 3). A new chainsaw costs about VND9 million and has to be replaced after every 3000 tonnes. In total, a woodcutter has to pay costs of about VND22 000 for each tonne of bark-clean wood.

The benefit for woodcutters is payment for the bark-clean wood. On average, a flat rate of VND40 000 per tonne applies. Less the costs, woodcutters receive a net benefit of VND17 900 per tonne.

Bark peelers

The major cost for the bark peeler is the labour that they have to spend. In addition, they have to buy their own tool (a knife of about VND20 000, to be replaced after 20 tonnes). Payment is made per tonne of bark-clean wood at the rate of about VND75 000. Less the cost, a bark peeler receives VND74 000 per tonne of wood processed.

Truckers

Similar to woodcutters, truckers have both fixed and variable costs (Table 4). On average, the total variable costs (petrol, 'road fees',[4] food and loading) are about VND36 500 per tonne, and depreciation of fixed costs is about VND9 300. Altogether, the trucker has to bear the costs of about VND45 800 per tonne of wood transported from the village to Quy Nhon. Payment for this service is VND70 000 per tonne, which implies a net benefit of VND24 200 per tonne for the trucker.

In sum, the tree grower appears to take most of the net benefit per tonne of wood (Table 5). In Phu Cat district, over 54% of the total VND629 000 benefit generated goes to the tree grower. In Van Canh district this is 55.8%. Local collectors are the second highest beneficiaries, with over 24% of the total benefit accrued to them in Phu Cat and 25% in Van Canh. Bark peelers come next, with about 12% of net benefit in both districts. The collecting agent (when functioning as a middleman for Phu Cat only), woodcutters and truckers gain the least of all the actors, with benefits of less than 4% for each of them.

4 This is not a toll; it refers to the money that a trucker often has to pay to the traffic police (to avoid a fine for overloading the truck).

The distribution of net benefits changes drastically when it comes to the annual picture. With an average of 2 ha of plantation, 5 years from tree planting to harvest, and 35 tonnes of wood per ha, a tree grower produces about 14 tonnes of wood or VND4.8 million in net benefit per year and has the lowest benefit of all actors. Bark peelers rank second from last due to the small quantity of wood that they can work on per year (150 tonnes). After that come the woodcutter and then the trucker. The local collector and the collecting agent (in the case of Phu Cat) make a high profit, due to the large quantity of wood transacted through their hands per year.

5.2 Distribution of costs and benefits amongst actors in Doan Hung

5.2.1 Distribution of costs and benefits for woodchips

Smallholder tree growers

As in Binh Dinh, the costs borne by tree growers

Table 4. Costs and benefits for a trucker in Phu Cat and Van Canh

Items	Average amount in VND per tonne of wood
Costs	
Petrol	27 500
'Road fees'	3 000
Food	4 000
Loading	2 000
Truck insurance	1 000
Truck maintenance	3 500
Truck depreciation	4 800
Total costs	**45 800**
Benefits	
Payment for transportation	70 000
Benefits vs. costs	
Benefits – costs	24 200

Table 5. Summary of benefit distribution amongst actors in Phu Cat and Van Canh

	Profit per tonne of wood (VND)		Tonnes per year	Total profit per year (VND)	
Phu Cat					
Tree grower	342 857	(54.5%)	14	4 800 000	(0.9%)
Local collector	155 000	(24.6%)	2 000	310 000 000	(55.3%)
Collecting agent[a]	15 000	(2.4%)	10 000	150 000 000	(26.8%)
Woodcutter	17 900	(2.8%)	2 000	35 800 000	(6.4%)
Bark peeler	74 000	(11.8%)	150	11 100 000	(2.0%)
Trucker	24 200	(3.8%)	2 000	48 400 000	(8.6%)
Total benefits	**628 957**	**(100%)**		**560 100 000**	**(100%)**
Van Canh					
Tree grower	342 857	(55.8%)	14	4 800 000	(1.2%)
Local collector	155 000	(25.2%)	2 000	310 000 000	(75.6%)
Woodcutter	17 900	(2.9%)	2 000	35 800 000	(8.7%)
Bark peeler	74 000	(12.1%)	150	11 100 000	(2.7%)
Trucker	24 200	(3.9%)	2 000	48 400 000	(11.8%)
Total benefits	**613 957**	**(100%)**		**410 100 000**	**(100%)**

Note: All numbers are estimates. Numbers in parentheses are the percentage over the total in the group.

a The profit mentioned in this row only refers to the earning paid by Quy Nhon Pulpwood Company on the wood supplied by him. It does not include the benefits that the collecting agent makes from the wood he collects from local tree growers—see local collector's profit.

in Doan Hung are related to the establishment and tending of the plantation (Table 6). Yet, the costs in Doan Hung are a bit lower due to the lower labour rate. In total, a tree grower invests about VND4.2 million per ha or VND104 000 per tonne of wood. Tending also stops after year 3 (sometimes earlier). Harvesting takes place mostly at year 4 and 5. Sometimes tree growers also hire woodcutters or do the logging themselves (see the cost of logging presented under 'local collectors' and 'woodcutters').

The benefit for tree growers in Doan Hung is also that from the sale of the trees. The trees are sold either in bulk or per piece. On average, 1 tonne of logs (with bark) is worth about VND280 000 at the village. Compared to the study sites in Binh Dinh province, the farm gate price of plantation wood is lower in Doan Hung (and also Phu Ninh). After costs, a net benefit of about VND176 000 per tonne of wood remains. With an average 40 tonnes of wood per ha paid by the local collector, the tree grower has VND11.2 million total benefit (or about VND7 million net benefit) per ha of plantation for the average of five years. The NPV of the investment in tree plantation in Doan Hung is much lower than that in Binh Dinh: at the discount rate of 15% per annum the NPV is about VND2.3 million per ha or VND56 992 per tonne of wood produced; at the discount rate of 25% the NPV is VND0.8 million per ha or VND20 010 per tonne.

Local collectors

A local collector in Doan Hung has much lower costs than those in the Binh Dinh sites due to the lower price paid to tree growers and no costs for bark peeling. In general, VND358 000 is paid per tonne of wood (Table 7). Benefits for local collectors come from the sale of logs and treetops and branches. These two sources of benefit total about VND406 250 per tonne of wood. Less the costs presented above, the local collector has a net benefit of VND48 250 per tonne of wood. As in Binh Dinh, an important part of a local collector's income from wood transactions is the 'technical' benefit, which comes from the difference in the amount of wood 'accepted' by the tree grower in the transaction and the actual quantity of wood in the plantation. Compared to the two sites in Binh Dinh, this gap is smaller in both sites in Phu Tho, as the farmers seem to be better at estimating how much wood they have in the plantation. In general, the difference is about

Table 6. Costs and benefits for a tree grower in Doan Hung

Items	Average amount in VND	
	Per ha	Per tonne of wood
Costs		
Year 1	2 075 000	51 875
Labour (for land preparation, planting, etc.)	1 250 000	31 250
Seedlings	600 000	15 000
Fertiliser	225 000	5 625
Year 2	1 050 000	26 250
Labour (for weeding)	700 000	17 500
Fertiliser	350 000	8 750
Year 3	1 050 000	26 250
Labour (for weeding)	700 000	17 500
Fertiliser	350 000	8 750
Total costs	**4 175 000**	**104 375**
Benefits		
Sale of the trees	11 200 000	280 000
Benefits vs. costs		
Benefits – costs	7 025 000	175 625
NPV (assuming harvest in year 5 and no cost in year 4)		
Discount rate at 15% per year	2 279 689	56 992
Discount rate at 25% per year	800 416	20 010

NPV = Net present value

10% of the total quantity of wood accepted by the farmer. Nevertheless, it constitutes about 60% of the total net benefits for the local collector.

Wholesale collector in Yen Kien

When there are no buyers of logs for construction, the wholesale collector in Yen Kien produces chips from the logs and treetops and branches. The associated costs are payment for the bark peelers (about VND50 000 per tonne) and chipping workers (VND40 000 per tonne), petrol (for chipping), depreciation of the chipping facility, and loading. After costs, the wholesale collector has a net benefit of about VND10 000–20 000 per tonne of chips produced. This is a rough estimate, as the amount of chips produced from 1 tonne of wood depends on how much water is in the wood. The benefit calculated here is based on 1 tonne of wood equalling 1.5 tonnes of wet chips. [5] Woodchip producers can adjust the water contents to gain higher profit from this business. In addition, because woodchips can be produced from treetops and branches, which are less valuable than logs, woodchip production is preferred by some people.

Wholesale collectors in Cau Hai and Phu Ninh
Within this market chain, the wholesale collectors in Cau Hai and Phu Ninh get an estimated margin of about VND10 000–20 000 per tonne of woodchips, after deducting the transportation costs. They do not have to bear any other major costs, but have to invest in establishing and maintaining relationships with company staff. Such costs are not possible to quantify.

Woodcutters

Unlike in the study sites in Binh Dinh, the woodcutters in the Phu Tho sites rarely own chainsaws, and thus do not have to pay the associated costs. The woodcutters in the Phu Tho sites work as hired labour and get paid on a daily basis. On average, the woodcutters receive VND8 000 per tonne of wood.

5 These woodchips are for paper production in Bai Bang Paper Mill (BBPM). This is not the same as woodchips produced for export (as in Binh Dinh), for which 2 tonnes of materials are required to produce 1 tonne (bone dry) of chips. See discussion on Duc Hai Limited Company in 4.2.

Bark peelers

As with woodcutters, bark peelers often work as hired labour. Their major investment is a knife. Payment is made per tonne of bark-clean wood. On average, a bark peeler receives VND50 000 per tonne of wood processed.

Chipping workers

Chipping workers are also hired labour. Payment is made on a daily rate. On average, a chipping worker gets about VND40 000 per tonne of wood.

Truckers

Truckers have to pay costs related to operation and maintenance of their vehicles. On average, the net benefit for transportation of wood from the village to the wholesale collector in Yen Kien and then to Bai Bang Paper Mill (BBPM) is about VND30 000 per tonne of wood.

5.2.2 Distribution of costs and benefits for logs for construction

Smallholder tree growers
Tree growers sell their trees in bulk and do not distinguish between logs for pulpwood production and those for construction or furniture making (see 5.2.1).

Local collectors

See 5.2.1.

Wholesale collector in Yen Kien

Except for the cost of the wood and transportation (see 5.2.1), no major cost is borne by this actor when he sells logs for construction. Each wood pole has a difference in buying and selling price of about VND500–1000. Minus the transportation cost, the wholesale collector in Yen Kien gets about VND10 000 per tonne of logs sold for construction.

5.2.3 Distribution of costs and benefits for logs for furniture making

Throughout the interviews in Doan Hung, the sale of wood for furniture making was observed only once. A local collector in the village indicated that he

Table 7. Costs and benefits for a local collector in Doan Hung

Items	Average amount in VND per tonne of wood
Costs	
Logging	48 000
Transportation to wholesale collector in Yen Kien	30 000
Payment to the tree grower	280 000
Total costs	**358 000**
Benefits	
Wood	350 000
Branches and treetops	56 250
'Technical' benefit	69 800
Total benefits without 'technical' benefit	**406 250**
Total benefits with 'technical' benefit	**476 050**
Benefits vs. costs	
Benefits – costs (without 'technical' benefit)	48 250
Benefits – costs (with 'technical' benefit)	118 050

Table 8. Summary of benefit distribution amongst actors in Doan Hung

	Profit per tonne of wood (VND)		Tonnes per year	Estimated profit per year (VND)	
Tree grower	175 625	(38.9%)	7	1 229 375	(0.4%)
Local collector	118 050	(26.1%)	700	82 635 000	(26.4%)
Wholesale collector in Yen Kien	15 000	(3.3%)	2 000	30 000 000	(9.6%)
Wholesalers in Cau Hai and Phu Ninh	15 000	(3.3%)	8 000	120 000 000	(38.3%)
Woodcutter	8 000	(1.8%)	800	6 400 000	(2.0%)
Bark peeler	50 000	(11.1%)	100	5 000 000	(1.6%)
Chipping worker	40 000	(8.9%)	200	8 000 000	(2.6%)
Trucker	30 000	(6.6%)	2 000	60 000 000	(19.2%)
	451 675	**(100%)**		**313 264 375**	**(100%)**

takes logs of above 30 cm in diameter and sells them separately for furniture making. However, this does not happen often as local people usually sell their trees when they are small. In addition, as the supply of such wood is infrequent, it takes him a long time to collect even half a truckload. The last time this sale happened, the local collector got about VND420 000 per tonne of wood. Minus the associated costs (see Table 7) a profit of about VND62 000 was made.

5.2.4 Summary of cost and benefit distribution in Doan Hung

The picture in Doan Hung is slightly different from that in Binh Dinh. Tree growers get the largest benefit per tonne of wood (Table 8). Local collectors rank second. Bark peelers come third, followed by chipping workers and then truckers. The wholesale collectors and woodcutters have the smallest net benefit per tonne of wood. In general, the benefits appear to spread out, as more actors are involved in the market chain here than in the other two sites. When it comes to the total benefits per year, tree growers have the least. With an average of 7 tonnes of wood produced from a plantation each year, a tree grower gets only VND1.2 million per year, which is less than 0.5% of the aggregated benefits that all actors have. Wholesale collectors in Cau Hai and Phu Ninh get the largest benefit, due to the quantity of wood they handle. The local collector remains in second place.

5.3 Distribution of costs and benefits amongst actors in Phu Ninh

Smallholder tree growers

The costs borne by tree growers in the study site in Phu Ninh are similar to those in Phu Tho: about VND4.2 million per ha or VND104 000 per tonne of wood (Table 6). The tree growers in Phu Ninh get

Table 9. Summary of benefit distribution amongst actors in Phu Ninh

	Profit per tonne of wood (VND)	Tonnes per year	Estimated profit per year (VND)
Tree grower	185 625	14	2 598 750
Local collector	104 000	1 500	156 000 000
Wholesale collectors in Phu Ninh	10 000	10 000	100 000 000
VHLC collecting agents	104 000	1 500	156 000 000
PLLC	130 000	2 000	260 000 000
Woodcutter	8 000	1 500	12 000 000
Bark peeler	40 000	100	4 000 000
Chipping worker	40 000	200	8 000 000
Trucker	20 000	2 000	40 000 000

PLLC = Phuc Lam Limited Company, VHLC = Vinh Hien Limited Company

a slightly higher price for their wood than in Thon 5, Doan Hung. On average, 1 tonne of logs (with bark) is worth about VND290 000 at the village, probably due to the shorter distance to BBPM. After costs, a net benefit of VND186 000 per tonne of wood remains. With an average of 40 tonnes of wood per ha paid by the local collector, a tree grower has a total benefit of VND11.6 million (or about VND7.4 million net benefit) per ha (see Table 9).

Local collector

The local collector in the study site in Phu Ninh has to pay for logging (VND45 000 per tonne), bark peeling (VND40 000 per tonne), and transportation to his landing site (VND10 000 per tonne). Bark peeling is only paid for on the wood sold to BBPM, which accounts for about 70% of the total wood he buys. Therefore, the total costs borne by the local collector are about VND55 000 per tonne for the logs sold with bark and VND95 000 per tonne for the bark-clean logs. The local collector gets a margin of about VND35 000 for 1 tonne of wood with bark. He gets a net benefit of about VND40 000 per tonne for the sale of bark-clean wood. With 30% of the wood sold with bark and 70% without bark, the local collector gets an average net benefit of VND38 500 per tonne.

As in other sites, there is a 'technical' benefit for the local collector. Some tree growers estimate that this could be 20%–30% of the quantity of wood sold. If we assume that the local collector gets a 10% 'technical' benefit for every transaction with the local tree growers, this implies a total net benefit of about VND104 000 per tonne.

Company collecting agent

The collecting agent for Vinh Hien Limited Company (VHLC) has similar benefits to the local collector (see above).

Phuc Lam Limited Company

Phuc Lam Limited Company (PLLC) has similar benefits to the local collector and to the VHLC collecting agent. In addition, they also make profits from processing wood to chips. It is estimated that the total net benefits for PLLC are about VND130 000 per tonne.

Woodcutters

Woodcutters in Phu Ninh have similar benefits to those in Doan Hung (see 5.2).

Bark peelers

Bark peelers get a lower rate in Phu Ninh than in Doan Hung. Whereas male labourers, who are often hired for logging and loading, get a similar payment, women who do the bark peeling get a lower rate. As a result, the net benefit for bark peelers in Phu Ninh is about VND40 000 per tonne.

Chipping workers

Chipping workers in Phu Ninh have similar benefits to those in Doan Hung (see 5.2).

Truckers

Truckers in Phu Ninh get about VND20 000 net benefit per tonne of wood transported to BBPM.

6. Concluding discussion

This document aims to provide a better understanding of the flows of plantation wood from the producers in four study sites to large industrial buyers in Binh Dinh and Phu Tho provinces of Vietnam. It describes the actors involved in the market chains, their respective roles, the value added to the wood in the market chain and the distribution of costs and benefits. Findings from the study indicate various differences between the two provinces. In the study sites in Binh Dinh province, the flows of wood are relatively direct and the market price information is transparent. There are various end buyers but most are buying bark-clean wood for chipping production. The division of labour is clear among actors (e.g. woodcutters, bark peelers). Plantation wood brings substantial income for the local tree growers, yet there is great potential for them to improve their income through wood marketing, such as reducing the 'technical benefit' to local collectors in the case of Binh Dinh and improvement of price information in the case of Phu Tho.

In the study sites in Phu Tho, the situation is more complex, with various levels of middlemen involved in the market chain. The most striking difference is that most actors have poor access to price information, even in the wholesale market. Markets are also more various, with four main types of wood being bought: woodchips, bark-clean logs, construction wood and furniture wood; the first two of which make up the great majority of sales. The end-buyer market for these two products is dominated by Bai Bang Paper Mill (BBPM) due to its close location to the tree growers. In the villages, the division of labour is not as clear as in Binh Dinh. The farm gate price of plantation wood in Phu Tho is much lower than that in Binh Dinh, thus the tree growers in Phu Tho have a lower income from wood sales. Plantation wood still forms an important part of local livelihoods, but there is much room for improvement.

A significant portion of the benefit for the tree growers is taken by local collectors and middlemen. This is due to:

- the difference in the quantity of wood agreed in the sale and the actual quantity of the trees (in all study sites); and
- the involvement of many levels of wholesale collectors (particularly in the study sites in Phu Tho).

Some suggested measures to redistribute benefits to tree growers follow.

Firstly, it is necessary to improve the ability of growers to make accurate assessments of the standing volume of the trees. This can be done through training tree growers in estimation techniques. These skills will place growers in a better position to negotiate the wood price with local collectors.

Secondly, tree growers should try to deal directly with industrial buyers (i.e. to reduce role of middlemen). This is much easier said than done, as the size of plantation that an individual tree grower has is not worth the investment in setting up and maintaining a direct wood supply to the industrial buyers. Tree growers could also try negotiating with local collectors and middlemen for a payment based on the end buyer's receipt. This would be similar to how the woodcutters, bark peelers and truckers in the study sites in Binh Dinh are being paid. Tree growers will have to accept a certain margin for local collectors and middlemen. This arrangement may help to redistribute the 'technical' benefits to the tree growers.

In Phu Tho, efforts should be made to make price information from industrial buyers more accessible to the public. Companies like BBPM claim that they publicise their prices, but tree growers and middlemen are not well informed.

In addition, the many levels of middlemen in the wood market chain in Phu Tho should be removed. Again, this is not easy to achieve, as many wholesalers near BBPM make a living from this job and will try to maintain their position for as long as possible. A competitive market with more end buyers and transparent, publicised, buy-in prices (as in Binh

Dinh) would improve the situation. In addition, the public sector can also provide help in marketing wood materials for smallholder tree growers.

Producing big logs for the furniture wood market is also an option to improve tree growers' income. Nevertheless, two problems remain to be solved for the farmers:

- the market chain for the furniture wood is not well developed at the village level, as the quantity of such logs available for sale is not substantial or regular; and
- bigger trees mean a longer period of plantation growth.

For the smallholder tree growers, who mostly have a low income, the discount rate for such trees is too high and thus it is not worth the wait. Again, the public sector could improve this situation by creating and fostering incipient markets for wood furniture. Further research on this wood market chain should take place as this study did not have the resource to do so.

7. Suggestions for further research

The discussions in this paper indicate a number of areas for further research:

Market chains of furniture and construction wood from Phu Tho. Due to limited resources, this study did not cover the flows of these two products. Further study is needed to gain a better understanding of the market chains for this wood, the actors involved, and the benefits and costs for each actor. Findings from any such future study should be compared with those discussed in this paper to produce a more complete picture of the wood market chain from Phu Tho.

Information on buying prices of chips and logs from industrial buyers in Phu Tho. Further information on the purchase of different raw materials should be collected from the industrial buyers in Phu Tho, particularly Bai Bang Paper Mill (BBPM). Such information will be complementary to findings discussed in this paper to create a complete picture of why and when people decide to sell woodchips or logs to these companies. The research for this paper indicated that woodchips are produced not only from logs but also treetops and branches, which are less costly than logs and thus may be more profitable for the woodchip producers than just selling logs. Further study would shed light onto this issue.

Qualifications needed for a supply contract with BBPM. It is not clear what the criteria are for receiving a contract to supply BBPM; nor are the terms of the supply contract known (e.g. the minimum quantity of wood supplied, the bonus for meeting the supply target, prices of products sold under the contract). Further study may reveal these details.

Quantification of costs that the collecting agent in Phu Cat has to pay to maintain the relationship with Quy Nhon Pulpwood Company and the benefits he gets from the local collectors in his network. This study indicates that such costs and benefits exist for the collecting agent; nevertheless, due to limited time in the village, it was not possible to quantify them. Quantitative estimate of these costs and benefits will improve understanding of the benefits the collecting agent gets from control of the market and how much he has to pay to maintain such control.

Prices of wood materials in Binh Dinh and Phu Tho. There is a huge difference in the price paid to tree growers in Binh Dinh and Phu Tho provinces. An investigation into the reasons behind this was not undertaken due to time limitations. An educated guess is that in Binh Dinh woodchips are collected for export, which commands a higher price than the domestic market, such as in Phu Tho. Further study is required to confirm the reasons for this price difference.

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This paper aims to provide a better understanding of the wood flows from smallholder plantations to industrial buyers in the Binh Dinh and Phu Tho provinces of Vietnam. It describes the actors involved in the market chains, their respective roles, the value added to the wood in the market chain and the distribution of costs and benefits.

Various differences between the two provinces exist. In Binh Dinh, wood flows are relatively direct and the market price information is transparent. There are various end-buyers but most are buying bark-clean logs. The division of labour is clear among actors. Plantation wood brings substantial income for the tree growers, yet there is great potential to improve their income through better marketing.

In the Phu Tho province, the situation is more complex with various levels of intermediaries. The most striking difference is that most actors have poor access to price information, even in the wholesale market. Markets are more varied with four main types of wood; the most prominent are woodchips and bark-clean logs. The end-buyer market of these products is dominated by Bai Bang Paper Mill because it is located close to the tree growers. At site level, the division of labour is not as clear as in Binh Dinh. The farm gate price in Phu Tho is much lower than the price in Binh Dinh, thus tree growers in Phu Tho have a lower income from wood sales.

Plantation wood plays an important part in local livelihoods, but there is still room for improvement.

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