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Strategy for value creation:
Intermediaries of smallholding teak in Indonesia

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1 Introduction

Commercially traded smallholder timber, particularly teak, in developing countries have been challenged with the unremitting problem of low returns (Carsan and Holding 2006, Midgley et al 2007, Aoudji et al 2012, Sabastian et al 2012, Rohadi et al 2012). For Indonesian smallholder teak, it is due to low tree quality standards (Roshetko 2012), unfavourable policies (Rohadi et al 2012), lacking accessible market information, weak bargaining power, and high transaction costs (Midgley et al 2007, Perdana et al 2012).

In Indonesia, most teak plantations are on Java, where the largest grower, Perum Perhutani, a state-owned forest enterprise, manages 2,442,101 ha of teak plantation (Perhutani 2010). In addition to Perum Perhutani, there are approximately 1.2 million ha of smallholders' plantations in Indonesia that primarily produce teak (Nawir et al. 2007). Smallholding plantations rarely use improved germplasm or benefit from silvicultural management such as fertilizer application, weeding, thinning and pruning. Smallholders' teak is different from long-rotation industrial plantations that benefit from professional management, smallholders' logs are shorter, have smaller diameter, less clear wood, more knots, and obtain lower prices (Roshetko and Manurung 2009). Despite these shortcomings, smallholding teak plantations are an important source of wood for many teak manufacturers and retailers in Indonesia.

In the process of transfer from producers to consumers, teak pass through a channel involving a series of changes in form and value, and teak traders as intermediaries play an important role in getting products transferred from farm-gates to the consumers. Teak producers' role would basically end after transferring teak trees to intermediaries, who take the responsibilities of harvesting, processing, transporting, storing, promoting, selling, and delivering products (Perdana et al 2012). Meanwhile, farmers have had a tendency to perceive intermediaries as scroungers who take away a significant amount of share of the benefit accrued from the sale of timber by taking advantage of smallholders' unawareness of market prices, weak bargaining power on one hand, and the oligopsonistic nature of the competition on the other (Midgley et al 2007, Perdana et al 2012).

To seek the answer to the question of whether intermediaries are exploiting farmers would require an assessment of the marketing functions performed by marketing actors. In this pursuit, this paper attempts to identify prices of teak in the context of the roles of two primary actors, the farmers

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and farmer-collectors. Finally, by taking into account the roles of intermediaries and their costs of matters directly related to price, this paper examines their strategies as an entity competing for value creation.

2 Research Methods

A research project on smallholder teak agroforestry systems was conducted by CIFOR and ICRAF from 2007 to 2010 with the support of the Australian Centre for International Agricultural Research (ACIAR Project, FST/2005/177). The project site was Gunung Kidul, one of five districts in Yogyakarta Province (Special Region), located in central Java between 7º46'– 8º 09' latitude and 110º 21' – 110º 50' longitude (Figure1). Gunung Kidul was selected as the research site because it has a long history of successful smallholder teak production.

Figure 1: Map of Gunung Kidul district. Gunung Kidul district positioned on a map of Java Island and Indonesia

The research methodology integrated both primary and secondary information to identify smallholder teak actors, marketing practices, and market access. Surveys were carried out in 37 hamlets in Gunung Kidul, a district within Yogyakarta province, Indonesia, representing seven sub-districts, namely Semin, Nglipar, Karangmojo, Paliyan, Semanu, Purwosari, and Tepus (Figure 1). Data collection employed semi-structured questionnaires and was validated with in-depth interviews and focus group discussions.

Information was collected from teak farmers and marketing intermediaries such as

farmer-collectors, large-scale traders and local sawmill owners. Information required for the analysis of timber marketing margin were collected using comparison of prices at successive levels of marketing. To identify existing marketing actors involved in the smallholder teak trade, a snowball sampling method was used, which relies on referrals from initial subjects to generate additional subjects. The direction of the snowballing approach was from farmers to processors. The researchers participated directly in the teak timber marketplace and, in part due to their direct participation, were able to describe the value chain. Initially, information was collected from teak farmers who helped to identify the intermediaries whom teak stands were sold to. Then, the identified intermediaries were approached for necessary information collection as well as for identification of other traders who had bought teak from them.

To analyze the smallholder teak market, rapid market appraisal (RMA) was used to identify and assess the problems and opportunities related to the smallholder teak market system, how smallholder teak flows from production to consumption, and to understand how the teak commodity system is organized, operates and performs. RMA is an iterative process and interactive research methodology used to better understand complex market systems in a short time (ILO, 2000; Ostertag et al., 2007; Budidarsono et al., 2009), in-depth interviews and focus group discussions.

Following the identification through the snowball sampling method, the intermediaries were interviewed. They provided information on marketing cost and role in transactions, including method, price negotiations, and payment. In order to analyze marketing margin and income distribution, the intermediaries were asked on buying and selling prices, and marketing costs during the survey of 2010. Because information on marketing was collected from different participants at different points of time, marketing margins analyzed in this study are lagged margins, which were determined by analyzing the difference between the price received by a seller at a particular stage of marketing and the price paid at the preceding stage of marketing. This together with the information provided by farmers facilitated detailed analysis of marketing margin among farmers and marketing intermediaries. Despite being aware of the effect of the quality of wood on its price, it was not possible to examine it because the intermediaries bought teak as standing trees. Further, secondary information regarding smallholder teak log inventory and distribution and harvesting permits was gathered from the local forest and estate crop agency.

Descriptive statistics were employed to summarize the data on smallholder characteristics and teak harvesting using the Statistical Package for the Social Sciences version 16. Triangulation was conducted to verify information on teak value chains and marketing practices for trustworthiness and dependability (Seale, 1999; Mishler, 2000; Stenbacka, 2001) among the samples using in-depth interviews and focus groups (Bashir et al., 2008; Simon, 2011).

3 Results and Discussions

3.1 Characteristics of the households and smallholding teak producers

Smallholder teak plantation is dominating the forest cover in Gunung Kidul. The recent total forest

cover in the area has reached more than 42,000 hectares or about 28.5 % of the total district land area (Rohadi et al. 2012). More than 29,000 hectares (69%) of these forests are teak farm forests (BPS Gunung Kidul, 2008). In general, teak is planted on majority land use system practiced by farmers. The types of smallholder teak plantation could be found in the form of (1) kitren, a rain fed smallholder woodlot system where the main objective is teak production; (2) tegalan, a rain fed farming system that produces both teak and agriculture crops; (3) pekarangan or home garden; and (4) as border planting on paddy fields.

Based on the surveyed area, an average of only 10% of farmers' land is allocated to teak production. Similarly, the economic contribution of teak sales to total household income averaged 11.6% (between 2007 and 2008). Teak farmers in Gunung Kidul considered teak plantations as their financial reserve of last resort, maintained until all other disposable assets (motorcycles, electronic devices, jewellery, and livestock) had been sold. For some of Indonesian ethnic groups, especially the Javanese people, teak has become an important part of their culture and is considered more desirable than other wood species or agricultural crop in the country (Muhtaman et al, 2006). Roughly 80% of the respondents harvested their teak when faced with significant financial needs, such as weddings, school fees, medical expenses or social/cultural commitments. Only 14% of respondents harvested trees based on economic maturity.

3.2 Marketing channel and role of market functionaries

Farmers, intermediaries such as farmer-collectors and large-scale traders, and processors are the major functionaries in the smallholder teak marketing system in the study area. Intermediaries sell teak supplied from the study area to large-scale wood processors and furniture manufacturers in cities where advanced wood processing facilities are located, such as Yogyakarta and Jepara, in Central Java. Some enterprising farmers, with relatively high income and some knowledge about trading activities who have been referred to as farmer-collectors in this study, buys teak from farmers and supply it to the large-scale traders based in cities.

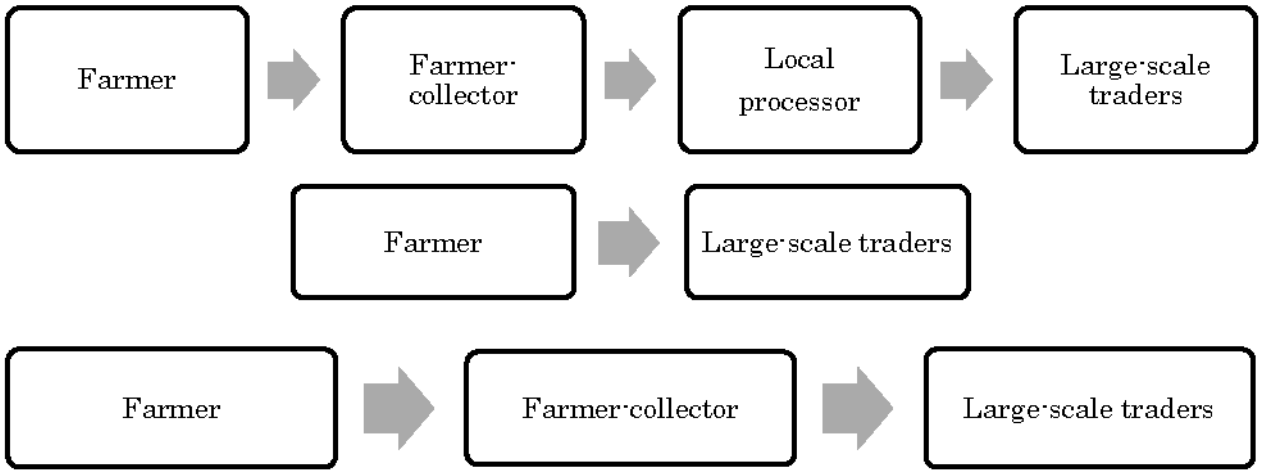

Figure 2: Smallholder teak chain actors in three product flows

3.3 Farmers' marketing practices

Farmers' role is limited to producer and would end after transferring teak trees to intermediaries. They would basically sell what is produced instead of producing what sells. Generally, farmers do not engage in timber processing or conversion activities. Farmers engage in the marketing chain through collectors or large-scale traders, but generally have limited access to market information and were not in a position to negotiate higher rates (Carsan and Holding 2006, Holding and Roshetko 2003, Tukan et al. 2006). Standing trees are the standard unit of sale for farm-grown teak. Negotiation with collectors was done without clear quality or value standards. To obtain a better price, farmers collect information from other farmers who have recently sold trees. To improve their bargaining position, farmers would also offer the same trees to two or more collectors. Regardless of the negotiation approach taken, farmers usually obtain prices that are well below market rates because of their limited access to market information and weak bargaining position.

Perdana et al. (2012) observed that smallholding teak producers compete with a well established, state-owned forest enterprise. Meanwhile, access to markets, market knowledge, financial resources, and tree production and management, all of which bore on product quality, were identified as barriers to entry by smallholders into the teak market. With bargaining power at the supply level, farmers deal with the overwhelming profit-eroding power of buyers, the intermediaries. Improving market information for smallholders, simplifying timber trade regulations to minimize transaction costs, and developing links between teak producers and teak industries are among the recommendations to initiate effective marketing strategies for smallholders growing teak.

3.4 Farmer-collectors' marketing practices

As intermediary, farmer-collectors played an important role. First, they searched the marketplace. Guided by their information network, they visited teak growers and explored upstream for product supply. They had to repeat this search process frequently because supply, quality, and prices changed often. Second, farmer-collectors performed various sorting functions by accumulating the harvests of

Table 1: Activities and costs in the teak market chain

Activities Involved	Cost Represented
Physical possession	Storage and delivery costs
Ownership	Inventory carrying costs
Promotion	Personal selling
Negotiation	Survey time and legal costs
Financing	Terms and conditions of purchase and sale
Risking	Price guarantees, repairs and possible loss, and illegal charging
Payment	Collections, bad debt costs

multiple teak producers into homogenous lots for sale to the manufacturers. Third, traders served to minimize and facilitate the number of contacts in the channel system.

In practice, farmer-collectors visited the farm to measure, assess and negotiate the price for individual trees or blocks. All collectors would measure the tree diameter at an over-the-head level, and not at the normal diameter at breast height. Given that collectors buying from smallholders had to deal with numerous farmers producing teak of variable quality and quantity, and take the responsibilities of harvesting, cutting, sorting, transporting, storing, promoting, and selling, transaction costs were high, leading to lower prices for farmers. Table 1 shows the costs of post-harvest responsibilities.

Farmer-collectors are practically competing with other collectors, mostly from the neighbouring village. Relationship with farmers is a matter of mutual trust built upon business relationship over several years or based on kinship. Collectors have access to market information such as current price, demand, and specifications. From their informants, collectors are aware of prices offered by other collectors. Farmer-collectors' role ends when logs or sawn timber are delivered to the buyer, large-scale traders or manufacturers.

3.5 Role of local processors and large-scale traders

Sawmills provide wood processing services for collectors. Sawmills in the study area process teak logs, which take more than 60% of the total wood processed. Each have a daily average capacity of six cubic meters with a maximum capacity of 15 cubic meters and charge an amount of about US$13 per cubic meter. All sawmills needs permit from the forest and estate crops agency to operate and process logs to various dimensions for various functions, such as plain planks and boards in various thickness, battens, rafters, and joists for roofing construction, windows and door frames.

Large-scale traders have well established personal contacts with farmer-collectors, retailers and other distribution agents as they have been engaged in business relationships with them for several years. They usually are based in cities and buys logs and sawn timber from farmer-collectors and local sawmills. Similar to the relationship between farmers and collectors, relationship with larger traders is a matter of mutual trust built upon a gradually established business relationship. Large-scale traders act as buyer from farmer-collector and conduct negotiations with large manufacturers mostly in the furniture industry.

3.6 Marketing margin

With regards to the flow of teak timber in market channels, intermediaries managed various interactions—physical possession, ownership, promotion, negotiation, financing, risking, and payment—each carrying costs of its own. From the intermediaries' point of view, each interaction represented sunken costs, costs that may not be recovered because the price was negotiated and agreed prior to the harvest. A significant amount of risk was embedded from the beginning of the negotiation process. The profit and marketing margin of farmers and collectors are shown in Table 2.

Table 2: Price changes for smallholders' teak in Gunung Kidul

Age (year)	DBH (cm)	Price accepted by farmers (USD/standing tree)	Log volume after processing by collectors (m^3)	Log price collected by collectors (USD)	Profit margin received by collectors (USD)	Marketing margin (%)
10	12–18	3–6	0.045–0.189	3–25	0-19	0-76
15	13–31	5–30	0.060–0.515	6–123	1-93	16,7-75,6
20	21–45	10–265	0.307–1.061	57–284	19-47	6,7-82,5
25	29–49	20–296	0.320–1.321	54–329	33-34	10-62,9

As mentioned earlier, farmer-collectors visited the farm to measure, assess and negotiate the price for individual trees or blocks. For obvious reasons, collectors would prefer to buy a block of trees to press costs. As an illustration, collectors would spend the following amount, shown in Table 3, for a block of 15 year-old 20-30 trees. Besieged by the amount of money they will receive, farmers would easily sell their trees.

Table 3: Harvesting cost components by block of trees

Harvesting cost component	Unit	Cost/unit (USD)	Cost (USD)
Village permit	1	2.22	2.22
Labour for tree felling	1	3.33	3.33
Labour for carrying logs from farm to the nearest road	3	3.33	10.00
Chainsaw rental	1	22.22	22.22
Gasoline for chainsaw	5	0.72	3.61
Carpenter	1	3.33	3.33
Meals	5	1.67	8.33
Transport from village to logyard	1	11.11	11.11

This aspect of the buying and selling process incurred risks for both teak farmer and intermediaries. With harvesting costs averaging US$27.26 per tree (US$81.93 per m3) but varying greatly, farmer-collectors sometimes made a net loss owing to unforeseen or arbitrary costs: a distance of one kilometre from the nearest road could increase harvesting costs up to 20%, undetected tree defects reduced the quality of teak wood, decreasing profit by up to half, transaction costs for obtaining timber transport documents from the village and local government authorities could equal 10% of the total cost. An efficient channel is critical to any current or potential industry participant concerned about the availability and cost of current and future supply of smallholders' teak.

3.7 Intermediaries' strategies

Most market participants are both buyers and sellers in a market. Therefore, it is important to understand how to minimize pressure on profits that can be exerted through bargaining power. Suppliers with bargaining power can extract excess profit by charging higher prices, limiting quality or services, or shifting costs to industry participants and hence obtain more of the value for themselves (Porter 2008).

Similarly, buyers with bargaining power can extract excess profit by putting downward pressure on prices, demanding better quality products or services, and play industry participants off against one another, all at the expense of industry profitability (Porter 2008). To be able to obtain bargaining power at the supply level, intermediaries should focus on the uniqueness and relative scarcity of the product and consider value-added approaches. By taking these steps, intermediaries can retain more profit through value-added manufacture, and control more of the value chain.

Cost leadership strategy, i.e. having the lowest prices in the target market segment, can also be applied to intermediaries of smallholding teak, although it needs to be structured down to fit with smallholder conditions. This strategy involves a business entity winning market share by appealing to cost-conscious or price-sensitive customers. This is achieved by having, at least, the lowest price to the price compared to what customers receive. To succeed at offering the lowest price while still achieving profitability and a high return on investment, the entity must be able to operate at a lower cost than its rivals (Porter, 1980).

The first approach is achieving a high asset turnover. This approach means fixed costs are spread over a larger number of units of the product or service, resulting in a lower unit cost, i.e. the intermediaries hopes to take advantage of economies of scale and experience curve effects. Higher levels of output both require and result in high market share, and create an entry barrier to potential competitors, who may be unable to achieve the scale necessary to match the low costs and prices.

The second approach is achieving low direct and indirect operating costs. This is achieved by offering high volumes of standardized products, offering basic no-frills products and limiting customization and personalization of service. Production costs are kept low by using fewer components, using standard components, and limiting the number of models produced to ensure larger production runs. Overheads are kept low by paying minimal wages and locating premises in low rent areas. Maintaining this strategy requires a continuous search for cost reductions in all aspects of the business. This will include outsourcing, controlling production costs, increasing asset capacity utilization, and minimizing other costs including distribution.

The third approach is control over the supply chain to ensure low costs. This could be achieved by bulk buying to enjoy quantity discounts, squeezing suppliers on price, instituting competitive bidding for contracts, working with vendors to keep inventories low using methods such as Just-in-Time purchasing. Other procurement advantages could come from preferential access to raw materials, or backward integration. This strategy may have the disadvantage of lower customer loyalty, as price-sensitive customers will switch once a lower-priced substitute is available. Nevertheless, ideas on the profit impact of marketing strategy that indicate entities with a high market share are often quite

profitable, but so are many others with low market share, needs to be explored further.

4 Conclusion

The findings of the study lead to a number of conclusions, that farmer-collectors play a significant role to the value chain and addresses the needs to reduce transaction costs in order to be 'fair' to farmers. Several recommendations to initiate effective strategy for farmers and farmer-collectors were identified. The first would be to improve market information system that can be accessed by farmers and collectors. Regular market information on teak prices and qualities could be provided through local mass media, such as radio and local newspaper.

Second, through government's involvement, is to simplify timber trade regulations to minimize transaction costs, making the smallholding teak market more efficient, for example, by including smallholder teak into the certificate of origin scheme or to promote the exclusion of smallholder teak from the obligations of the certificate of legal logs and certificate of legal forest product to the government. Simpler procedures for timber distribution would provide incentives to smallholders to invest in teak plantations and in turn will benefit farmer-collectors by providing them better quality logs.

Third is the application of the cost leadership strategy for intermediaries to gain sustainable competitive advantage. By achieving high asset turnover, low direct and indirect operating costs, and control over the supply chain to ensure low cost, intermediaries would, in turn, provide chance to win the competition and at the same time perform 'fairplay' to their suppliers, the smallholder farmers.

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