

APPENDIX 1

3.1 Detail Model of Production and Export Value Chains in the Furniture Sector

A general model of wood furniture value chain (VC) is shown in a value chain map (Figure 3.1). The model describes the chain of business activities (functions), actors who are handling activities, interaction among actors, and value distribution along the chain. There are three possible chains that were found in this research. The first chain is VC of integrated producers-exporters of wooden furniture, in which a firm is doing all activities in producing and exporting product. Therefore, the VC consists of one layer of production and export activities (see Figure 3.2). The second one is VC of layers producers-exporters of wooden furniture, in which activities in producing of unfinished products are separated from activities in finishing and exporting products (see Figure 3.3). The last one is VC of indirect and direct export of wooden furniture, in which producers are producing finished product for exporters who directly export the product and or for local traders who indirectly export the product (see Figure 3.4).

Compared to year 2006, current wood furniture value chain (2008) is shorter. There are three layers of sub contracting involve in furniture value chain in 2006, but now only a single layer. Most of the third and second layers sub contractor is micro to small scale business, which work jointly with specific purpose equipment/machine service providers, such as sawmill and kiln dry service providers. Currently, the

third and second layers sub contractors disappear in the chain. Contract worker is not applied any more in Jepara, but still exists in Klaten. Exporters tend to internalize production process of high end product in order to maintain the quality and reduce risk of delivery time. Other reason to internalize the production process is by decreasing order since September 2008, when the global crises begin.

Figure 3.1 General model of furniture value chain

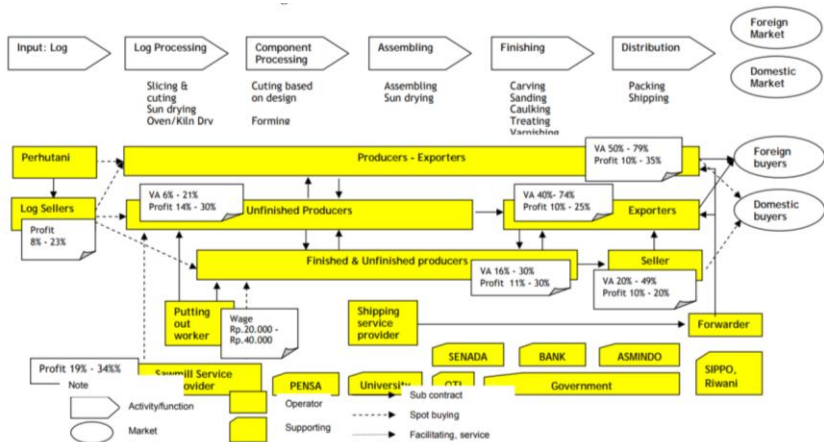


Figure 3.2 Value chain of integrated producers-exporters of wood furniture

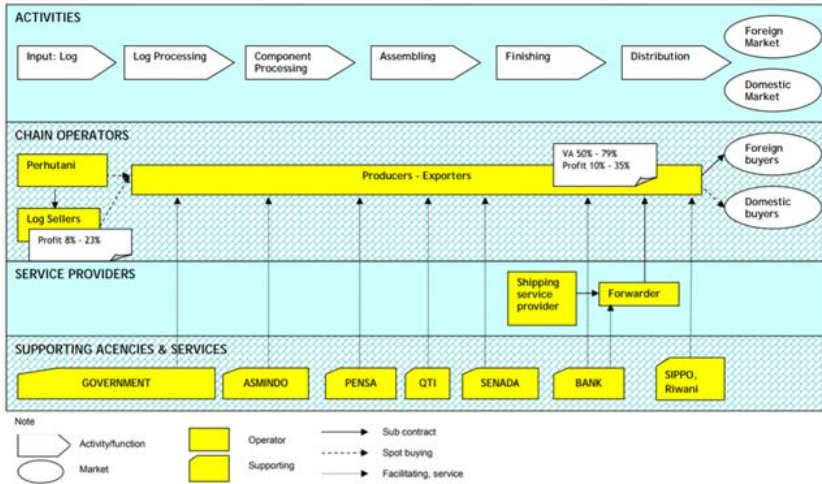


Figure 3.3 Value chain of two layers producers-exporters of wood furniture

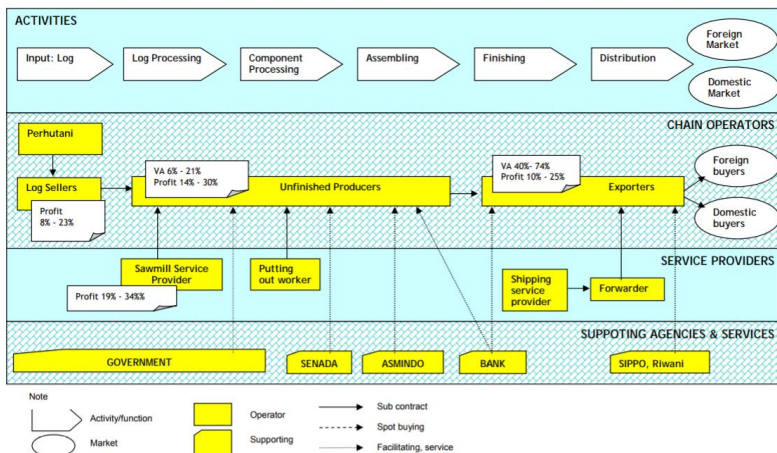
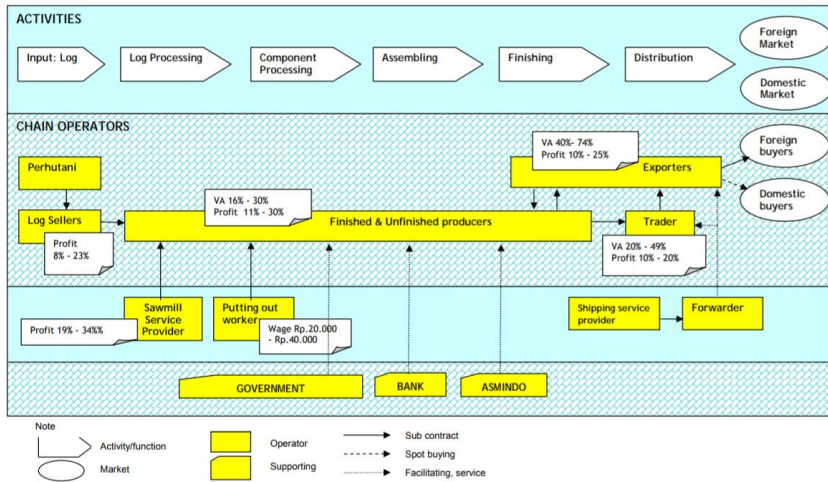


Figure 3.4 Value chain of three layers producers-exporters of wood furniture



3.1.1 The Relevant Actors in the Value Chain

The relevancy of actors is determined by the involvement in the chain functions. We can divide three level furniture chains:

- (1) The micro level of a value chain contains customers/buyers and main actors (operator) that contribute directly to the production and distribution process.
- (2) The meso level of a value chain contains related industry/service providers that indirectly contribute to the furniture business activities.
- (3) The macro level of a value chain includes stakeholders that give influence to the climate of the furniture business.

Based on the detail model of wooden furniture VC (Figure 3.1), the following tables identifies the relevant micro,

meso and macro level actors. The Table 3.1.1 and 4.2 also describe the characteristics of micro and macro level actors.

Table 3.1.1 Relevant actors in micro level of wooden furniture VC

The involvement in the chain function	Actors	Firm Size	Structure ¹	Practices and Skills
Consumers (Buyers)	Foreign buyers: Importers Representatives of importers	small – Large	Toward the sellers: oligopsony	Skill: good in design, QC, negotiation
	Domestic buyers	Small – medium	Toward the sellers: competition	> 6 years
Main actors (operators)	Main input (log) providers: Perhutani (Java) & Inhutani (Outside of Java)	Large Micro – Small	Monopolized by state through regulation	Perhutani & Inhutani: since Indonesia independence
	Main input (log) suppliers: Perhutani & Inhutani Traders	Large Small – medium		
	Producer-Exporters	Small – Large	Oligopoly: MS: > 15% Prop: ± 1%	> 5 years

¹ Based on dissertation research in Jepara and Klaten, Sulandjari (2008)

The involvement in the chain function	Actors	Firm Size	Structure¹	Practices and Skills
	Finished product producers	Small – medium	Competition MS: > 2 - 8% Prop: ± 9%	> 10 years Skills: fairly, but inconsistent
	Unfinished product producers	Small – Large	Atomistic MS: < 2% Prop: ± 90%	> 7 years Skills: fairly, but inconsistent (in quality & delivery) Technology: mixed
	Putting-out workers	Micro - Small	Atomistic	> 3 years Skills: fairly, but inconsistent (in quality & delivery) Technology: manual &/or mechanic tools for common purposes
Related Industries / services provider	Sawmill service providers	Small – Medium	Toward the user oligopsony	> 6 years Skills: good Using mechanic tools for special purpose

The involvement in the chain function	Actors	Firm Size	Structure¹	Practices and Skills
	Transportation service providers (trucking, shipping)	Medium – Large	Competition	
	Forwarders	Small – medium	Toward the user oligopoly	

Table 3.1.2 Relevant actors in meso and macro level of wooden furniture VC

The involvement in the chain	Actors	Firm Size	Most services used
	Promotion services: Riwani Global Enterprises	Medium	Toward the user oligopsony
	Association: ASMINDO, Cooperatives	Medium Small	Sharing Information, promotion (exhibition)
	Vocational trainers for: (1) Technical skill: PIKA Semarang, ATIKA Jepara, State Carving School Jepara, Carving school FEDEP Jepara (2) Managerial skill: ATIKA	Small – medium	

	BDS: Detro Jepara,	Small	Accounting and Tax consultant
	Technical support agency: Technical Services Unit of Department of Industrial and Trade Jepara and Klaten	Small	
Influencer (through its policies)	Government: Local and Central government, Perhutani, NGO	-	

3.1.2 Characteristic of the Actors

The furniture sub sector in Central Java in 2007 consisted of a 89.723 units established, 998.756 laborers, a production value of Rp.294.224.730.000,- and an export value of US\$424,161,733 (Dept. of Industry and Trade Central Java, 2008). In Yogyakarta in 2007, there were 3,771 units established and 23,765 laborers and an export value of US\$138.47 (Dept. of Industry and Trade Central Java, 2008).

Based on available data, Indonesian furniture export value are increase from 2000 to 2007, but in Central Java is fluctuated (Table 3.1.3). Number of large and medium firms is decrease form 2000 to 2005, but number of workers is fluctuated. It is estimated that the number of firms and the number of workers are decrease faster until 2009 due to global crises.

Table 3.1.3 Export value of Indonesia and Central Java, and the number of firms and workers in Central Java

Year	Export value (in million US\$)		Central Java		Yogyakarta ³⁾			
	Indonesia 1)	Central Java ²⁾	Large and Medium ⁴⁾	Total	No	No of		
			No firms	no of workers	No	no of	No	No of
					firms	workers	firms	workers
2000	737	503.80	507	48,712				
2001	718	393.00	483	50,378				
2002	789	464.56	483	42,570				
2003	815	544.00	448	39,614				
2004	860	466.80	457	41,898				
2005	1,010	664.80	449	39,656				
2006	1,051	476.00						
2007	1,101	424.16			(89.723)	(998.756)	(3.771)	(23.765)

Source:

- 1) The United Nations Statistics Division (2008).
- 2) The Central Java Industrial and Trade Office (2008)
- 3) The Central Java Industrial and Trade Office (2008)
- 4) Annual Manufacturing Survey (BPS 2006)

This section concerns on the market structure, practice and skills, of the main actors in micro and meso level. The macro-level actors (supporting agencies and services) will be discussed in Appendix 3.

There are three types of relationship/interaction among actors in micro level of a value chain (see Figure 3.1):

- (1) Selling-buying (spot buying) interaction: between input (log) supplier/provider with furniture producers, and between exporters as well as traders with domestic buyers, also between sawmill service providers with producers.

- (2) Commercial sub contracting relationship: between exporters with producers, and among producers.
- (3) Industrial sub contracting relationship: between producers with contract workers, which is the workers who produce furniture components from wood that provided by producers.

The types of relationship in meso level of a value chain are:

- (1) Customer relationship: such as debtor - creditor relationship between furniture operator with Bank, client-service provider between exporters with forwarders and forwarders and shipping service providers.
- (2) Membership of association/cooperatives: such as ASMINDO

Concerning with firm size and the relation with market structure, practice and skills, Table 3.1.1 shows that:

- In the output market, foreign buyers have a strong bargaining position, because of high experience and expertise.
- According to Indonesian regulation, an exporter of wood products (including furniture) should also producer, so-called producer-exporter. The main objective is to restrict timber products trading and to prevent illegal logging. Export license (EPTIK) is an instrument of the regulation. In fact, violations still occur, in which non producer-exporter can export furniture. Therefore, the third model of VC (Figure 3.4) is present.
- In the input market, producers and producers-exporters are facing a monopolized timber market (by government).

Large companies are mostly easier to access raw materials from Perhutani, while SMEs are mostly buying from wood trader without administration.

- In general, small and medium producers use a mixture of production technology: manual and mechanical. The activities are ranging from wood work, making components, shaping up into components and goods in process (unfinished product). About 90% furniture firms are unfinished producers 90% and mostly micro - small scale with market share less than 2%, so the structure is atomistic. Several small-medium firms (the proportion 9%) have 2-8% market share, produce finished product for local traders and exporters. Experience of SMEs more than seven years, but not enough skill to maintain process and product quality as well as speed of work consistently.
- Contract workers are processing raw materials taken from the company in their own workplace and using their own tools/machine. The experiences of contract workers are at least 3 years, but similar with producers, they did not enough skill to maintain the process and product quality as well as the speed of work consistently.
- Timber sawmill is a specific purpose machine for cutting and slicing the log. Sawmill service providers grow in-line with that of the cluster's. Investment value of sawmill is relatively high with low utilization rate, so it will be more efficient if the SME producers outsource to service provider. Sawmill service providers in Jepara and Klaten have been more than 6 years experienced. The technology

is relatively good. Cost of the services is Rp.100.000, -/m³ log.

- Forwarder is services on handling process of export administration and shipment.

Forwarder is outsourcing shipment process to transportation service provider. Market structure of forwarder service providing is oligopoly, so the price is relatively high (about US\$3,000 to USA and US\$2,000 to EU, comparing to export value is about 5% of outdoor or 2,5% of indoor furniture).

3.1.3 The Key Regulatory and Coordinating Agencies in the Sector

The key regulatory agencies in the sector

On the macro level of the chain, government (especially Department of Forestry, Industry and Trade) is the key regulatory agency of input market for wooden furniture sector. ASMINDO is the counterpart of regulatory agencies to get input, justify and disseminate the regulation. There are several related institutions to govern timber production and distribution, namely: Department of Forestry at the central level, Perhutani and Inhutani, District Government and Police. ASMINDO is coordinating the Wooden furniture industry in responding government policy.

The key coordinating agencies in the sector

On micro level of the chain, SMEs of furniture sector tend to agglomerate a certain area as cluster industry. Most of

furniture clusters are export oriented. Competition and cooperation within the furniture clusters are coordinated by the actors who have strong market power (Sulandjari, 2008; Porter, 1998). Market power throughout upstream furniture VC is mastered by foreign buyer (importer), while throughout downstream is mastered by is exporter who directly related to importer (Figure 3.1, Table 3.1.1). So, importer and exporter are the coordinating agencies in the sector.

Focus on downstream furniture VC, exporter has to translate the design of product (desired by importer) into production activities, and then coordinate production and distribution activities in the company. When exporter outsource all/parts of production activities, then he/she has to coordinate joint production activities through “cooperation” with the raw materials (wood) producers/traders, putting out worker, service providers, finished/unfinished producers, and/or other relevant actors.

3.1.4 The Value Added Along the Chain

Figure 3.1 and 4.2 shows that exporters, especially who produce high end furniture product from log (in-wall processing) and/or produce own design product, are creating highest value added (79%) and also profit (35%). The lowest value added (6%) is created by unfinished product producers (Figure 3.1 and 4.3). High end and/or own design product for export market create 80% value added, while low end furniture product is only create 50%. It means that high end product

creates value added almost one and half higher than low end market.

Most of medium and large direct exporters are producing high end product (78% of total export value), while small direct exporters and indirect exporters are produce low end product (22% of total export value). Indirect exporters are SMEs with lower levels of technology and managerial skill, but by producing finished products they create value added up to 31%. Most of medium and large direct exporters produce high end product (78% of total export value), while small direct exporters and indirect exporters produce low end product (22% of total export value). Indirect exporters are SMEs with lower level of technology and managerial skill, but by producing finished product they create value added until 31% (Figure 3.1 and 4.4).

According to distribution of value added, exporters are the relevant operators in creating value added. This finding supports the above statement that exporters are the key coordinating agencies in the sector. Value added are not only created by accessing the end market with own design, but also by serving high quality and fast delivery product to appropriate segment. According to distribution of profit, exporters and sawmill service providers are the relevant operators. Small number of sawmill service providers serve lots of number of small enterprises; one sawmill have to serve 32 enterprises in furniture cluster in Klaten as well as in Jepara². Market power in the hand of oligopolies (sawmill providers) and oligopsonies create high profit.

² Primary data of disertation research 2006 (Sulandjari, 2008)

Value of the chain depends on with whom the operator interact. There are several alternatives of interaction throughout the chain (Figure 3.5).

Figure 3.5 Value interaction a long the chain of wood furniture

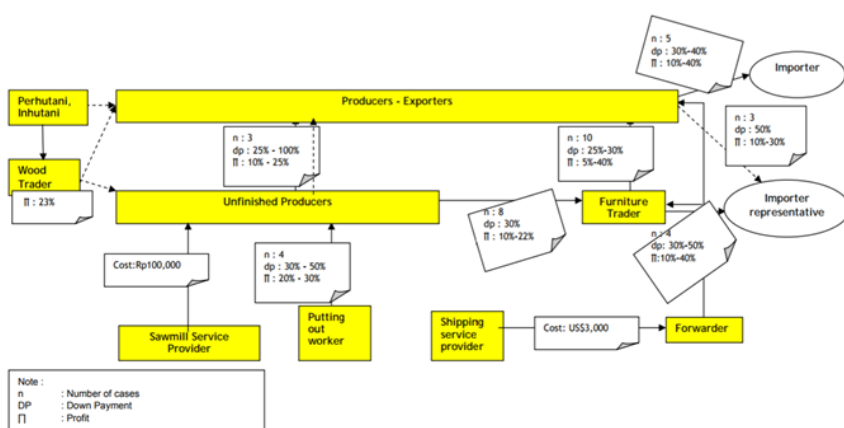


Figure 3.5 shows that:

- Direct interaction with Importer (in foreign country) is more profitable (profit up to 40%) for producer-exporter than with importer representatives in Indonesia (profit up to 30%). Yet, down payment from importer representative is larger than importer (maximum 40% compare with 50%).
- Furniture traders prefer to interact with importer representatives than with producer-exporter, because the down payment is larger (up to 50% compare with 30%) and more profitable (at least 10% compare with 5%). However,

opportunity to access importer representatives is more limited than opportunity to access producer-exporter.

- Unfinished producers prefer to interact with producer-exporter than with furniture traders, when they get higher down payment and profit. Producer-exporter will pay 100% unfinished product when the type of interaction is spot buying, but will pay about 25% down payment when the type of interaction is sub contracting. Spot buying interaction with producer-exporter is more profitable than sub contracting interaction, but less sustainable.
- Currently, there is no alternative interaction for contract workers and sawmill service providers, unless with unfinished/finished producers. Producer-exporters use their own timber sawmills and internalizes whole production or finishing process.

3.1.5 The Main Factor/Players Driving in the Sector

From above analysis, it can be concluded that there are three important factors that encourage the growth of furniture sector. First, the most profitable product of furniture sector is indoor furniture for high end market segment. Indoor furniture is a type of product based on functional characteristic that bring on the consequences of technology intensity and various market segment (Table 3.1.4).

Table 3.1.4. Types of wooden furniture product in Central Java

Function of product	Intensity of technology	Market segment	Trend of Production process	Source of origin (in this research)
Indoor furniture	Mostly craft-processing	High end market	Internalized process	Semarang, Jepara, Solo, Yogya
		High-low end market	Internalized process Outsourcing	Semarang, Jepara, Solo, Yogya, Klaten
		Low end market	Outsourcing	Jepara, Klaten
Outdoor furniture	Mostly machine-processing	High-low end market	Internalized process Outsourcing	Semarang, Jepara, Solo, Yogya, Klaten
		Low end market	Outsourcing	Jepara, Klaten

Main activities of indoor and outdoor furniture production are basically similar (Figure 3.1). Start with log processing. SMEs producers use sawmill service provider to cut and slice logs and use their own traditional oven or sun rise for drying the wood. Component processing is a crucial step related to product design as well as a trade-off between selecting good part of wood and minimizing scrap of wood. Therefore, component processing is handled by skilled worker of the firm. Some of sub contractors in Klaten use contract out worker to form and assembly the components. Finishing is a crucial step for export product, so mostly done by exporter it self. Treatment in the finishing process becomes more important when the quality

of wood and process are not good enough. Choosing the high end market requires sophisticated management operations/production and distribution. It is a critical decision.

The second factor is product design. Exporter with own product design could create the highest value added. Investment on product/design development should be accompanied with a marketing strategy at least for medium term, in order to introduce new (design) products up to commercial stages.

As a coordinating agency toward downstream, exporters are the main drivers in the sector. Exporter is the only operator who directly access foreign market. In the micro level, exporter becomes the most important actor because they are the market intelligent with potential capability to catch market information especially on market trend, design, buyer demand on standard as well as specification, and competitors. In fact, many Indonesian exporters did not have enough market intelligent capability, so that there is a lack of international market information. Exporters with lack of international market information will be uncompetitive because of strongly dependent on a specific buyer. Furthermore, exporter has to be able to translate buyers/customers demand into physical design of product, production process as well as wood procurement. However, many Indonesian exporters did not have good capability on designing. The lack capability on designing will be a handicap to access market, and the problem of copying (patent) will be serious in the future. As market coordinators toward the downstream, exporters have to manage suppliers and sub contractors to perform low cost and high quality as well as fast delivery.

3.1.6 The Most Critical Constraints SME Must Overcome to Take an Advantage of

Export Opportunities

In order to get access to the high end market, the most a critical factor that needs to be addressed is the management of operations/production. Constraints in the fields of management and operations can be traced with internal efficiency measures.

Internal efficiency is an indicator of performance operation / production process. Internal efficiency is attained by excellent management within the firm (Shepherd, 1985:18). Furthermore, Shepherd explains that criteria of internal efficiency are keeping costs down to the “minimum” level, until absence of excess cost. It is difficult to attain efficiency as well as to measure it due to multi aspects that should be taken into account. Nevertheless, concept of internal efficiency is important to provide a fairly reliable guide to trace common problems which often raises cost, reducing quality and postponing delivery. There are seven important problems in area of operation/production process that caused excess cost: error, inertia, staleness, negligence, unordered, delayed and/or impropriety (Table 3.1.5).

Table 3.1.5 Inefficiency problems of operation/production process^{*)}

Chain operator	Error	Inertia	Staleness	Negligence	Un ordered	Delayed	Impro priety	Average
Wood supplier	1	1	1	1	1,3	1	1	1,1
Sawmill service provider	3	1	1	1	1	3	1	1,7
Putting out worker	2,2	2	1	1,8	1,8	1,8	1	1,8
Sub contractor	2,8	2,6	2	2,9	1,9	2,2	1,2	2,2
Producer	2,8	2,5	1,8	2,5	2,4	1,9	1	2,1
Exporter	3	2	1,5	2,2	1,7	1,8	1	1,9
Trader	3	3	3,5	2	2	3	1	2,5
Total	2,6	2,3	1,6	2,3	1,9	2	1,07	1,9

*) score 1 = never occur, 2 = seldom: once a week, 3 = 3 times a week, 4 = once a day, 5 = almost continually occur.

Table 3.1.5 shows that performance of operation/production process a long the chain is inefficient, because at least six of seven problems occur once a week. It means that manager will face a daily problem in operation/production process. Error, inertia and negligence in operation/production process are problem with highest intensity, almost three times a week (score 2,3 – 2,6). Human factor is the main source of performance problems in operation/production process, especially error and negligence (Table 3.1.6). In the second place, fluctuation of demand is the source of each problem except negligence and impropriety. Some exporters and producers

highly depend on specific buyer in certain country, so that the managers are willing to maintain status quo in operation/production process and tending to be resistant to follow market changes. Design is the third source of problem in operation/production process, especially in delayed problem. Design problem is related to the ability in design engineering and ability to translate Figure/photos into technical drawing. While technology, in the fourth place, is the main source of inertia in operation/production process. Most of SMEs didn't care about information of technology (*technoware*) as well as about upgrading technology. Lastly, wood (raw materials) and suppliers (including sub contractors) are main source of the problems of error, inertia and staleness. Human resource management, marketing, designing, technology, raw material (wood) and supplier management should become area of intervention to solve inefficiency problems of operation/production process.

Table 3.1.6 Source of inefficiency problems of operation/production process

Caused	Error	Inertia	Staleness	Negligence	Unordered	Postponement	Impropriety	Total
Labor	15,9%	3,0%	3,8%	18,9%	0,0%	0,0%	0,0%	41,7%
Market demand	1,5%	5,3%	2,3%	0,0%	3,0%	1,5%	0,0%	13,6%
Design	0,0%	0,0%	0,8%	0,0%	3,8%	8,3%	0,0%	12,9%
Technology	0,0%	7,6%	2,3%	0,0%	0,8%	0,8%	0,0%	11,4%
Wood	3,0%	3,0%	2,3%	0,0%	0,0%	0,0%	0,0%	8,3%
Suppliers	1,5%	0,8%	5,3%	0,0%	0,0%	0,0%	0,0%	7,6%
Electricity and oil	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	1,5%	1,5%
Season	0,0%	0,0%	0,0%	0,0%	0,0%	1,5%	0,0%	1,5%
Social responsibility	0,8%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,8%
Quality control	0,0%	0,0%	0,8%	0,0%	0,0%	0,0%	0,0%	0,8%
Total	25,6%	15,4%	19,7%	15,4%	8,5%	13,7%	1,7%	100,0%

Quality of human resource

Table 3.1.7 shows performance characteristics of human resource (operators and managers) in the sample companies, while Table 3.1.8 is showing commitments of sample companies

on business services. Basically, human resource performance and company commitments of exporters are higher than suppliers; such as sub contractors, contract workers and service providers. Operator skills on task are fair average, but technological skills are poor, while ability to achieve target is relatively high. Managerial skills of the managers are fair average, but willingness to take risk, especially risk on investment in product development (including design). Companies (managers) are committed to fulfill customers' satisfaction, also committed to have good cooperation with business partners and to comply rules and regulations.

Table 3.1.7 Skills of human resources

Skills	Descriptive Statistics				
	N	Minimum	Maximum	Mean*)	Std. Devi
Operators					
Ability to understand and execute the	35	Suppliers	Exporters	3,26	0,44
Ability to preparing the task	35	Suppliers	Exporters	3,34	0,59
Ability to repairing tools/machine	35	Suppliers	Exporters	2,97	0,66
Ability to imitate spare part	35	Suppliers	Exporters	2,29	0,57
Ability to modify tools/machine	35	Suppliers	Exporters	2,71	0,67
Ability to research and develop product (design)	34	Suppliers	Exporters	2,56	0,82
Ability to achieve target	34	Suppliers	Exporters	4,06	0,74
Ability to plan the task	34	Suppliers	Exporters	3,74	0,71
Managers					
Ability to evaluate and solve task	34	Suppliers	Exporters	3,50	0,56
Willingness to take risk	34	Suppliers	Exporters	2,65	0,65
Ability to solve firms problems	35	Suppliers	Exporters	3,51	0,61
Ability to lead	35	Suppliers	Exporters	3,77	0,65

*) Score 1 (very poor) to 5 (very high)

Table 3.1.8 Commitment of company on human resource development

Commitment	Descriptive Statistics				
	N	Minimum	Maximum	Mean*)	td. Deviation
Commitment to fulfill labor satisfaction	37	Suppliers	Exporters	4,11	0,84
Commitment to create conducive environment for human resource development	37	Suppliers	Exporters	2,62	0,76
Commitment to improve productivity	36	Suppliers	Exporters	3,31	1,41
Commitment to fulfill customers satisfaction	37	Suppliers	Exporters	4,81	0,46
Commitment to cooperation with business partners	37	Suppliers	Exporters	4,81	0,46
Commitment to comply rules and regulations	34	Suppliers	Exporters	4,76	0,50

*) Score 1 (very poor) to 5 (very high)

Table 3.1.7 shows that there is a gap between the operator ability to handle the tasks and equipment used (low) with the ambition to meet the production target (high). Such kind of gap is associated with the high error in operation/production process (Table 3.1.5) and become a major cause of low quality products. Problems of product quality become more serious due to inertia, staleness and negligence in the operation/production process, where human resources contribute the largest share in the occurrence of the events. Quality control becomes increasingly difficult and expensive if the production activities are outsourcing, because of the performance of operation/production process and human resources of the sub

contractors are lower. In that condition, company commitment to fulfill customers' satisfaction (Table 3.1.8) will be difficult to attain.

Company commitments are not easy to be satisfied when the commitments of suppliers are not in line or in the same level. Exporters Commitment to increase productivity is higher than the sub contractors and suppliers. The gap of commitment to improve productivity causes delivery problems. Furthermore, the quality and delivery problems cause to difficulties to meet the commitment to establish good relationships with business partners and meet commitment to customer satisfaction.

Company commitment is also difficult to realize without any strong support from company human resources. The strength of support of human resources depends on the ability of operators as well as managers. In addition, it also depends on the balance between commitments to affiliate with both the workers and to improve the skills of workers. The company can claim workers to increase productivity when meet workers satisfaction. Research findings indicate that the company's commitment to meet the physical needs (salaries and wages) of workers is high, but the commitment to establish good relations (affiliate), to improve the skills and to improve conducive situation for workers are also lower. Human not only needs physical thing, so the gap treatment of labor cause to inertia and negligence in the production process.