

Chapter 10. Electronics & Electrical Parts

10.1 Analysis of export

Because Indonesia has a population of 200million, Japanese electronics and electric appliance manufacturers considered potential market and many of them have already opened their brunches in Indonesia 30 years. However, because the domestic sales did not increase as it was originally expected and because there were various restrictions on foreign capital investment, their businesses have not expanded yet.

As preferential treatments such as EPTE system and duty-free measures of the import material were introduced in 1993, large-scale foreign capitals were invested to build the production bases for export purpose by using of good quality and abundant workforces.

Also, when Japanese and Korean companies developed the large-scale industrial parks such as MM2100, EJIP and KARAWANG, expressways to access these parks have equipped. Japanese and Korean manufacturers regard these parks as the re-export production bases as the part of the world strategy. Consequently they increased investments to those parks rapidly. As a result, most of the electronics and electric appliances in Indonesia were produced and exported by Japanese and Korean companies.

(1) Electronics and electric appliances industries

Production increased up to Rp. 31,600 billion in 1998 and US\$3.76 billion of them were exported as shown in Table 10.1.1 and Table 10.1.3

Table 10.1.3 shows the export values of 1999 from January to February. As this is a slow period of export in this industry, total export value in 1999 seems to mark higher than that of previous year.

The main export product among electronics and electric appliances is videocassette recorder in amounts that have no comparison with other products. As Table 10.1.3 indicates, 15.9% of all exports in 1996 and 16.3% in 1997 was comprised of this product and, in 1998 the amount and the composition ratio drops due to a great fall in the unit price, but videocassette recorder remains the leading product for export in the future too.

Table 10.1.1. Electronics and Electric Appliances Production

(Unit:Rp1,000,000)

	1995	1996	1997	1998
Consumer Electronics	7,734,897	8,584,378	5,519,494	9,074,181
Electronic Consumers Product	5,089,166	6,354,196	4,677,328	6,846,429
Electrical Consumer Product	2,645,731	2,230,182	842,166	2,227,752
Business/Industrial Product Segment	2,951,610	3,591,479	3,512,503	5,130,566
Component and Part Segment	3,244,300	3,597,657	6,242,705	13,045,411
PEBT			1,894,974	4,320,120
Total	13,930,807	15,773,514	17,169,676	31,570,278

Source: Dialah dari Central Bureau of Statistics

Table 10.1.2. Production of main Products in 1998

(Units: 1,000)

Products	Q'ty
Video Cassette Recorder	7,130
Headphone Stereo	5,600
Printer	4,800
Stereo	2,700
Monitor	2,600
Radio Cassette Recorder	2,200
Car Stereo	1,800
Color Television	1,700
Refrigerator	900
Air Conditioning	80

Source: Interview survey by JICA Study

Table 10.1.3. Electronics and Electric Appliances Export

(Units: US\$)

	1995	1996	1997	1998	1999(Jan-Feb)
Consumer Electronics	1,658,443	1,703,631	1,330,414	1,080,260	128,830
Electronic Consumers Product	948,460	844,883	482,361	441,502	94,097
Video Recorder	415,281	622,280	636,879	373,549	2,861
Electrical Consumer Product	294,703	236,469	211,174	265,209	31,872
Business/Industrial Product Segment	635,179	889,969	804,043	610,782	58,692
Component and Part segment	960,236	1,317,583	1,458,090	1,553,025	285,847
PEBT			305,640,901	514,300,018	69,825,877
Total	3,253,858	3,911,183	309,233,447	517,544,085	70,299,246

Source: Dialah dari Central Bureau of Statistics

(2) Electronics and Electric Parts

As it has already mentioned previously, videocassette recorder is the main export finished products. Export and production values of the electronics and the electric appliances and their parts are shown as Table 10.1.4 and Table 10.1.5.

Production values increased year by year, up to Rp. 13,000 billion and the export values in 1998 was US\$1.55Billion.

Table 10.1.4. Electronics and Electric Parts Production

(Rp.1,000,000)

	1995	1996	1997	1998
Component Segment	761,532	984,221	1,443,001	2,766,463
Active Component	357,107	585,269	850,973	1,777,852
Passive Component	404,425	398,952	592,028	988,611
Part Segment	2,482,768	2,613,436	4,799,704	10,278,948
Electromechanical Parts	708,290	760,937	1,110,132	2,485,358
Specific Electronic, Electric, non Electric Parts	1,774,478	1,852,499	3,689,572	7,793,590
Total	3,244,300	3,597,657	6,242,705	13,045,411

Source: Dialah dari Central Bureau of Statistics

Table 10.1.5. Electronics and Electric Parts Export

(Unit:US\$ 1,000)

	1995	1996	1997	1998	1999(Jan-Feb)
Component Segment	242,069	342,519	346,405	329,341	53,109
Active Component	139,506	212,300	206,752	211,649	42,763
Passive Component	102,563	130,219	139,654	117,692	10,346
Part Segment	718,167	975,064	1,111,684	1,223,684	232,739
Electromechanical Parts	191,492	271,980	258,010	295,876	35,685
Specific Electronic, Electric, non Electric Parts	526,675	703,084	853,674	927,808	197,054
Total	960,236	1,317,583	1,458,090	1,553,025	285,847

Source: Dialah dari Central Bureau of Statistics

10.1.2 Shares by items

The composition ratio of parts sections to the total export values increases every year, up to 52.62% in 1999 from 41.32% in 1998 and 37.40% in 1997 compared with consumer electronics and electrical appliances and the electronic business equipment section.

In addition, the parts with a remarkable expansion is the Integrated Circuit (IC) of which composition ratio increased up to 7.15% in 1999 from 3.97% in 1998 and parts for Data Processing which increases 29.04% from 17.6%. Exports of Printed Circuit Boards have already reached twice the volume of the previous year in the two months through February of 1999.

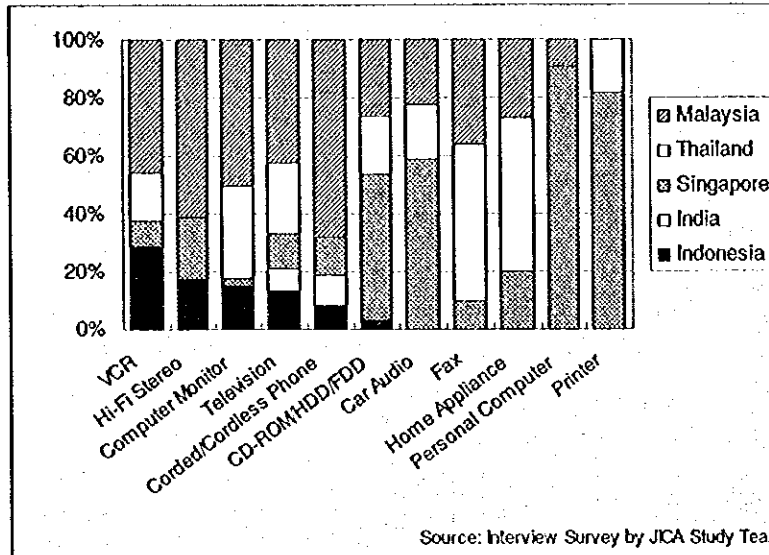
10.1.3 Regional share of export

Multi nationality electronics and electric appliances manufacturers have set up their export production bases in ASEAN countries, including Indonesia, as the part of their world strategy. Therefore, electronics and electric parts, which support to produce them, are exported to those countries. Hence, we can predict regional demand for parts by finding the production volumes of electronics and electrical appliances in those countries.

Figure 10.1.1 shows a comparison of the production volumes of main electronics and electric

appliances by ASEAN and its neighbor countries.

Figure 10.1.1 Electronics and Electric Appliances Production Comparison in ASEAN



Malaysia is ahead apart from another country, in production of the maturity products like video and audio products, etc., and the products which require new technology such as digital technology like the facsimile, the personal computer, the printer, and the peripherals, etc. which have been produced mainly in Singapore. For Indonesia, products are fewer and the production ratio is also lower than those of neighboring countries.

10.1.4 Export and Import

The trade balances of electronics and electric appliances industry, with imports of US\$1.66 billion in 1998 and exports of US\$3.76 billion shows a great surplus as shown on Table 10.1.6.

Table 10.1.6. Electronics and electric appliances industry import

	(US\$ 1,000)				
	1995	1996	1997	1998	1999 (Jan-Feb)
Consumer Electronics	257,515	319,751	362,890	232,031	18,169
Electronic Consumers Product	79,436	91,043	75,406	33,482	3,701
Electrical Consumer Product	178,079	228,708	287,484	198,549	14,468
Business/Industrial Product Segment	1,671,282	1,646,323	1,804,305	845,199	69,644
Component and Part segment	1,799,643	1,651,187	1,469,567	579,421	42,312
Total	3,728,439	3,617,260	3,636,763	1,656,652	130,125

Source: Dialah dari Central Bureau of Statistics

Table 10.1.7. Electronics and Electric Part Import

(Unit: US\$1,000)

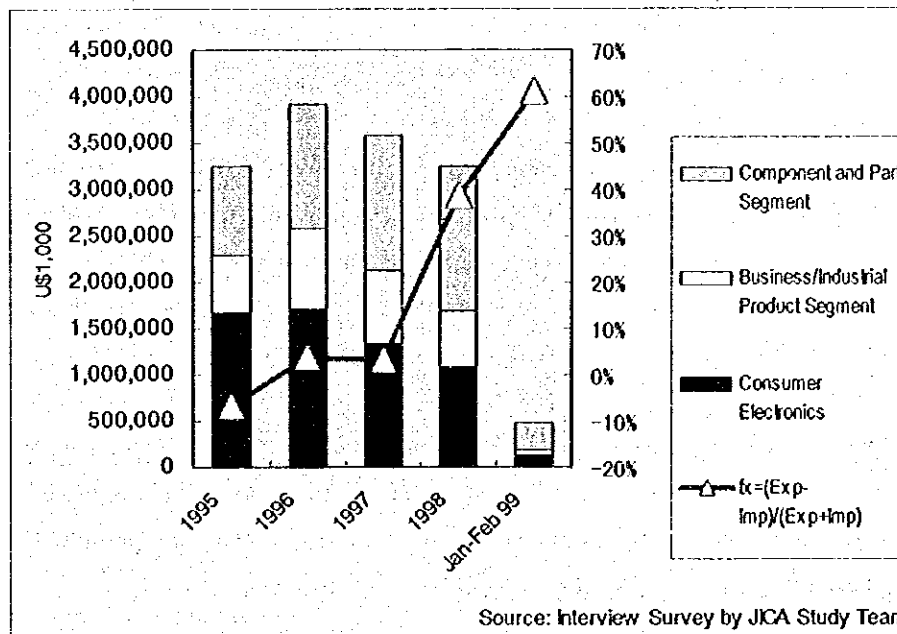
	1995	1996	1997	1998	1999(Jan-Feb)
Component Segment	669,670	495,623	432,279	177,967	7,570,673
Active component	396,220	336,213	218,020	108,686	3,926
Passive Component	273,449	159,411	214,259	69,281	3,644
Part Segment	1,129,974	1,155,563	1,037,288	401,454	34,741
Electromechanical Parts	434,503	428,431	279,909	82,136	7,319
Specific Electronic, Electric, non Electric Parts	695,471	727,132	757,379	319,318	27,422
Total	1,799,643	1,651,187	1,469,567	579,421	130,124,559

Source: Dialah dari Central Bureau of Statistics

When the trade balance of import and export is seen by the following formula fx, the balance is improved greatly by year. Figure 10.1.2 shows the export amount and the import and export balance.

$$fx = \frac{\text{Export} - \text{Import}}{\text{Export} + \text{Import}}$$

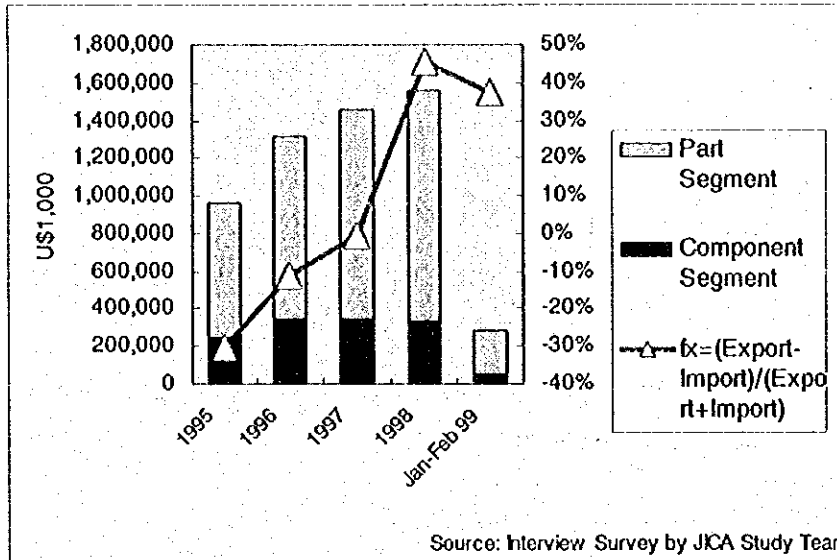
Figure 10.1.2. Electronics and Electric Appliances Export and Trade Balance



The import of parts decreases by year whereas that of export increases at the same time. This particularly indicates that Leading foreign export manufacturers start to localize their production bases for the parts. This is a good indication for the future of Indonesian supporting industries.

Figure 10.1.3. shows the trade balance fx in the electronics and electric parts. Fx improves every year and this also indicates the localization of parts industries.

Figure 10.1.3. Electronics and Electric Parts Industrial Trade Balance



10.1.5 Obstruction factor of export

Pleasantly, there were not complaints for export obstruction in the when the interview survey to the foreign export manufacturers was conducted.

- (1) In the beginning, because of the complexity of EPTE system there were some concerns for handling and custody, however, it has been managed well without any particular troubles. Customs officers are positioned according to the business scale and almost no obstacles to sales are produced because they are managed with time flexibility. Auditing is also done smoothly without any difficulty.
- (2) The one obstacle in the EPTE system is that the EPTE parts manufacturers cannot have an IPO function. It is necessary for EPTE parts manufacturers to sell their parts in the kit with parts from other manufacturers to increase the sales. But they are not permitted to purchase parts because of EPTE. This causes loss of business chances.

10.1.6 Possibility of export increase

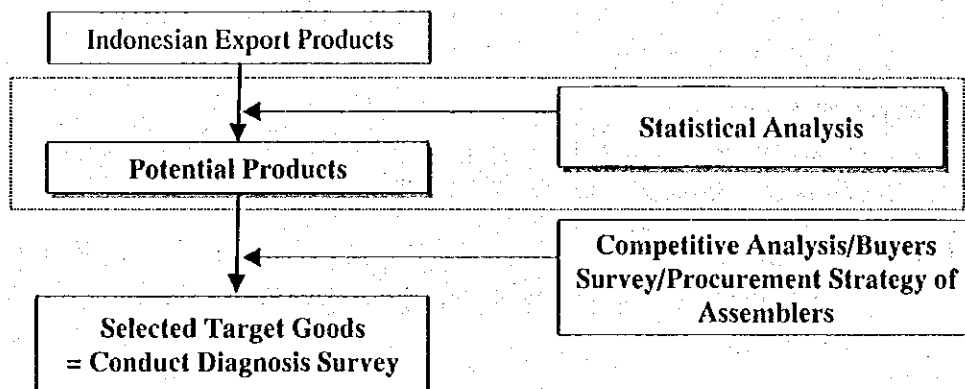
- (1) When electronics and electric parts industry is seen from the viewpoint of indirect export, supporting electronics and electric finished goods, they still occupy only a very small part of the market. This market has a great potential if the manufacturers could make big efforts.

- (2) Indonesian parts manufacturers should promote the sales to foreign export manufacturers in Indonesia more aggressively. It is the most effective strategy to increase export without investing a lot of money in the overseas markets.
- (3) Large-scale investments into Indonesia by foreign export manufacturers have been ceased for past several years. But when the stability of the country is once confirmed, medium sized investments will be restarted and the indirect export market will be expanded continuously.

10.2 Selection of Potential Export Products

10.2.1. Selection of the part group

The target products were selected as follows.



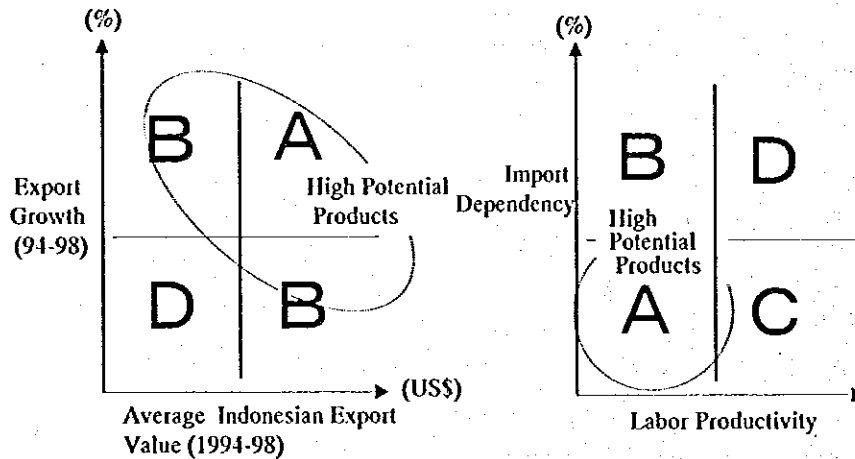
a. Criteria to select the potential parts

- 1) Average Indonesian export values in 1994-98
- 2) Average export growth in 1994 to 98
- 3) Import dependency (Imported raw materials/ all raw materials)
- 4) Labor productivity (Gross output/number of employees)

Products that have large export volume and high growth rate have been selected as target items. For manufactured products, it is important that the procurement of raw materials and intermediate goods do not depend too much on imported goods, otherwise the benefit from an increase in exports would be diminished. Indonesia has an advantage of cheap labor cost as compared with other ASEAN countries such as Malaysia and Singapore. Therefore, potential

products should have low rate of import dependency and labor productivity (to support labor intensive industry). For automobile parts only export values in 1997 and production values in 1998 were used due to data availability.

Figure 10.2.1. Matrix to select potential products

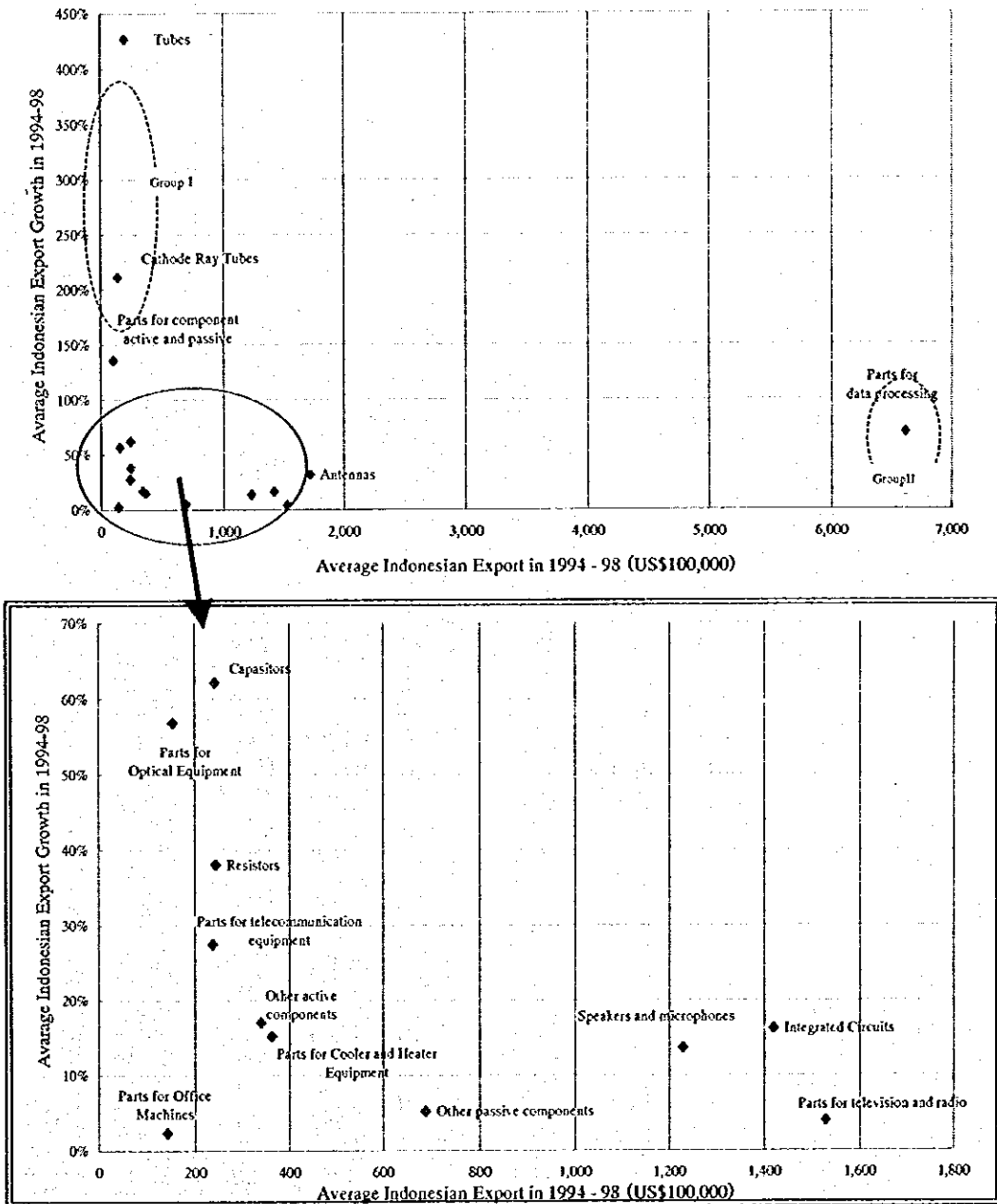


b. Selected potential products

i) Electric and Electronic Parts (see fig.10-2-2/3/4/5)

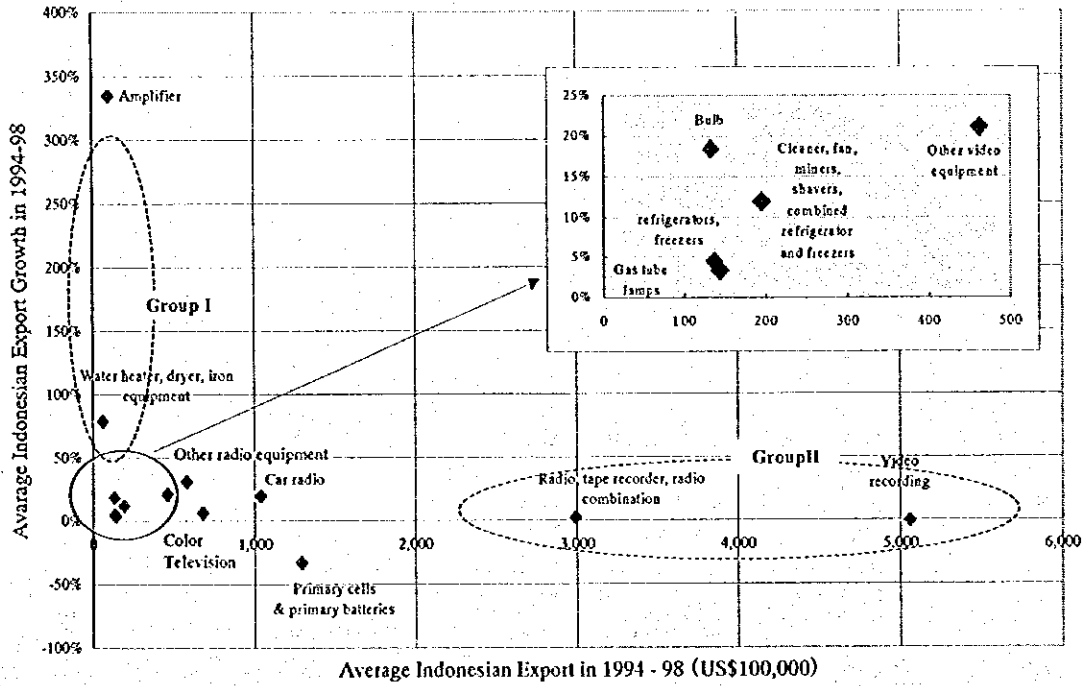
- **Direct exports:** Parts for Data Processing, IC and Speaker
- **Indirect exports:** Parts for TV and radio, Cathode Ray Tubes, Capacitors, Printed Circuit Board, Plastic Injection Molding and Metal Press Parts

Figure 10.2.2. Selection of potential products (Electric and Electronic Parts)



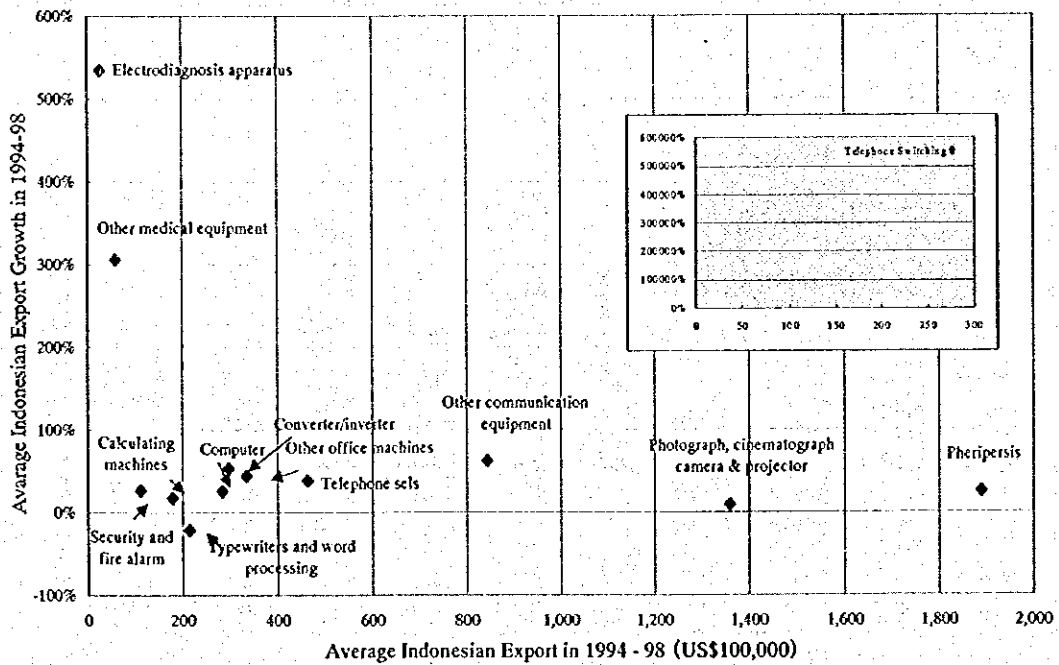
Source: Laporan Kegiatan Direktorat Industri Elektronika 1998, MOIT

**Figure 10.2.3. Selection of potential products
(Electric and Electronic Parts/Consumer Products)**



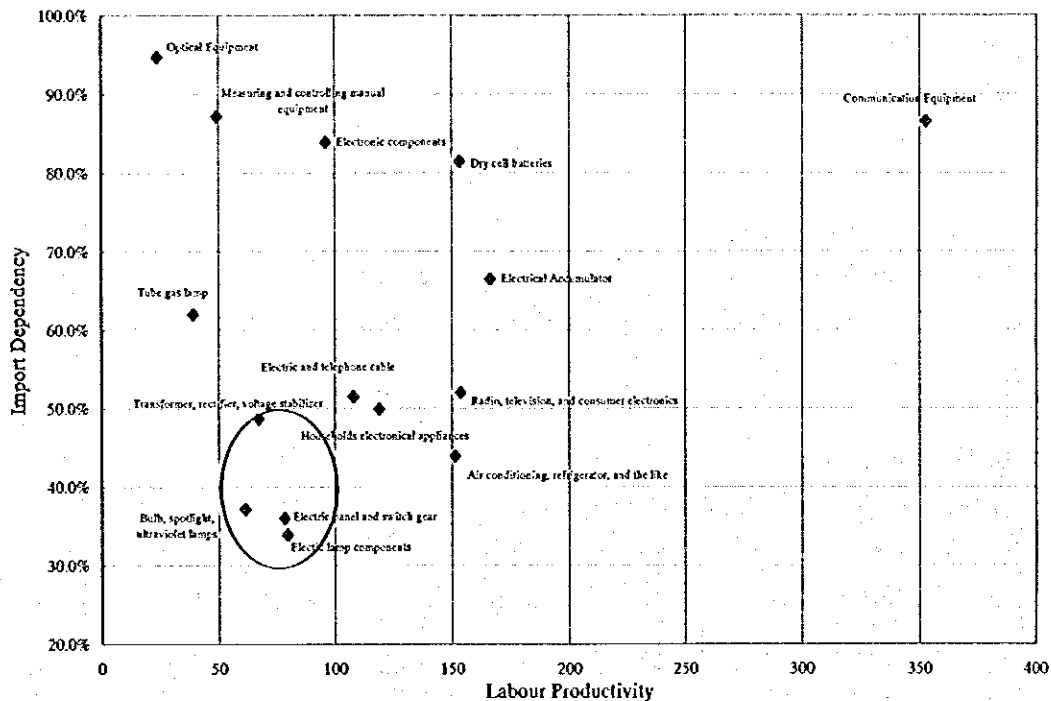
Source: Laporan Kegiatan Direktorat Industri Elektronika 1998, MOIT

**Figure 10-2-4. Selection of potential products
(Electric and Electronic Parts/Business Products)**



Source: Laporan Kegiatan Direktorat Industri Elektronika 1998, MOIT

**Figure 10.2.5. Import Dependency and Labor Productivity
(Electric and Electronic Parts)**



Source: Large and Medium Manufacturing Statistics, BPS 1997

10.3 Satisfaction of buyers

An interview survey was conducted in Japan and Singapore.

10.3.1 Outline of survey enterprise

This company has a parent company in electronics parts manufacturing that produces a tuner, a fly back transformer, a video head, and deflection yoke for TV in Indonesian EJIP industrial park.

10.3.2 Outline of import procedure of industry concerned

This company supplies a video head to the video manufacturing company of the same group in Indonesia. The final products are once brought back to Japan and then are exported to all over the world. TV tuner, a fly back transformer and deflection yoke are also supplies to the television manufacturing company of their group in Indonesia and Japan, and then are exported to overseas similarly. A trading company of their group exports the parts to Japan.

10.3.3 Evaluation of Indonesian product

(1) Quality: Good

Samples are sent to Japan for quality assurance and the products are shipped directly to various countries. Products for Japanese markets are inspected randomly.

(2) Labor force: Good quality

(Compared with their factories in other Asian countries or in Mexico)

Hard working, low rate of job hopping, young, obedient, good eyesight and suitable for minute processing

(3) Technology transfer:

Assembly processes of a video head, which is labor-intensive, have been produced in Indonesia at the moment. However, after the assurance in quality of the work force; Japanese company has decided to transfer the whole process and engineering department from Japan to Indonesia. After the transfer, production in Japan will be ceased.

(4) Trainee:

Trainees have been trained for the processes that will be transferred soon as mentioned above since middle of this year. As the machinery will be also transferred at the same time, trainees for machine maintenance have been also under training.

10.3.4. Suggestion for export promotion of products in Indonesian

(1) Customers are satisfied with Indonesian production in both their qualities and the productivity of workforce. In order to achieve this, the management of production, quality control and machine equipment maintenance must have good ability, however it is difficult to find them at the moment. One of the reasons for electronics and electric assemblers choose Indonesia as their export production bases is that its availability of an inexpensive but good workforce for labor-intensive processes. Working with good management can make the best use of these advantages, however only few are available currently. Human resource development for skilled labors and technicians are expected.

(2) An advantage in the product price is required. In order to achieve this, productivity should be improved and import dependency in the raw materials should be decreased for reducing the cost. At the moment, there is only a few materials that can be procured locally.

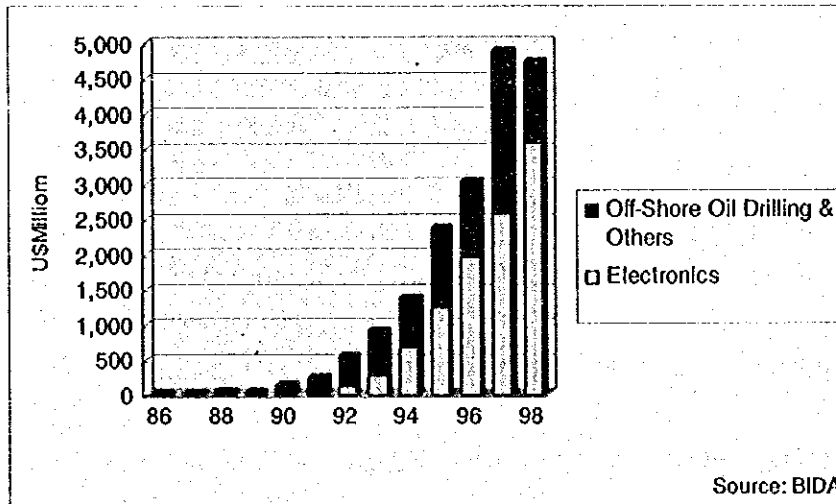
(3) For a full container, materials are delivered within seven days, but it takes 17 days for consolidated one. This is because they cannot open the container until the documents of all companies are completed. If there is a company that has a financial difficulty or does not proceed soon, there will be a delay in opening a container. There is a question of possibility for each company to proceed the customs individually.

(4) Trade infrastructures such as EPTE or other tax systems, harbors facilities and customs procedures are considerably advanced. However, the simplification in its procedure is requested for trade among the companies in EPTE or that of between the company in EPTE and IPO in Singapore (will be mentioned later in this report).

(5) IPO : Interview survey was conducted with multinational foreign manufacturers of electronics and electric finished goods that have IPO (International Procurement Office) in Singapore. At the IPO, they procure raw materials and parts for electronics and electric products from Asian countries and ship them in kits to the production bases all over the world. We have conducted this interview survey to study the level of Indonesian supporting industries from IPO's point of view. Disappointingly, as far as this survey concerned, no Indonesian parts manufacturer has visited IPO in Singapore yet, whereas those of Malaysian, Singaporean or Thai visit them frequently for sales promotion. All IPOs answered that they did not have any information of Indonesian parts industry or even could not think of its existence at all. As Singapore is the nearest overseas market for Indonesian companies, they should visit there for sales promotion with their products more aggressively.

Recently, Batam Island is increasing its presence among IPO in Singapore. Many companies start establishing management body in Singapore and controls production lines in Batam Island, which has good quality and low labor cost, and bring back all products. Production values in Batam Island was U\$4.73 billion in 1998 as shown in Figure 10.3.1 and it is expected to be expand in the future.

Figure 10.3.1. Production in Batam Island



In Batam Island, parts for data processing and IC, which exports from Indonesia are remarkably increased recently, are produced. From IPO point of view, Malaysia keeps the best presence among ASEAN countries for procurements bases of electronics and electric parts and it seems that it will last for a moment. However, the production in Batam Island, with controlling from Singapore, will also continuously increase in the future. Therefore, to keep the infrastructures such as the harbor facilities are necessary to invite more foreign manufacturers to the island.

10.4 Competitiveness analyses of selected product and parts

10.4.1 Market scale of ASEAN

Target products were selected by using statistical data; However, foreign manufacturers in Indonesia produce most of the products that were selected. Their markets for these products do not limit to ASEAN but worldwide.

Indonesian local companies produce indirect export products for foreign manufactures. The size of these indirect export markets is enormous with considering of the production capacity of Indonesian supporting industries. Including the export companies, which have their production bases in other ASEAN countries such as Malaysia and Singapore, the market size will be even bigger. However, it is very competitive to get into this market.

Table 10.4.1 shows the comparison of production volume between the foreign export and local manufacturers in electronics and electric parts. According to the table, there are only few

products or volumes that are produced by local manufacturers.

Table 10.4.1. Parts production by foreign and local manufacturers (1998)

	Total Production Q'ty ('000,000)	Production Ratio in Amount		
		Japanese/ Foreign Mfrs %	European/USA Manufacturers %	Local Manufacturers %
Speaker	30	65		35
Aluminum Chemical Condenser	1,400	100		0
Ceramic Parts	US\$17Million	100		0
Transformer	36	100		0
Coil	19	100		0
Connector	67	100		0
Small Sized Motor	9	97		3
Video Head	18	100		0
Power Switching	2	100		0
Cathode Ray Tube	6	100		0

Source: Interview Survey by JICA Study Team

10.4.2 Competitiveness with rival countries

Because there are no electronics and electric parts produced by local manufactures, we have studied the present procurement trends of assembling manufacturers in Indonesia rather than discussing the competitiveness of Indonesian parts industries.

■ Electronic parts

Let's see the present procurement trends of export oriented companies in Indonesia.

- (1) A Company in Indonesia exports videocassette recorders to Europe, USA and Japan. Figure 10.4.1 shows its total import procurement values and origin countries. Figure 10.4.2 shows procurement parts and origin countries.

Figure 10.4.1. Amount of parts procurement by country for videocassette recorder

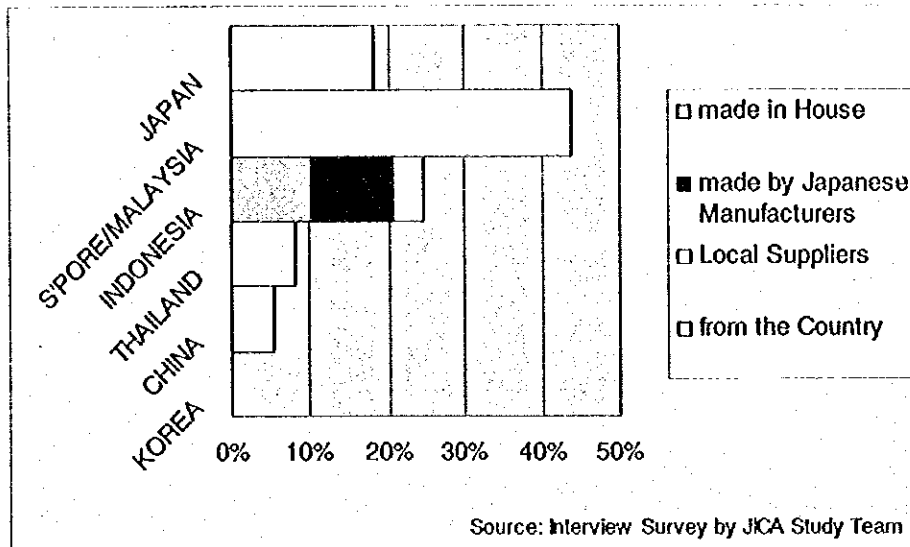


Figure 10.4.2. Parts procurement by countries for Videocassette recorder

Japan	Custom made IC, Mechanical Parts, Special Type Condenser, Special Type Resistor		
Singapore/Malaysia	Cylinder Parts, Motor, Audio Head, IC, Diode, Transistor, Crystal Oscillator, Filter, IR, Receptacle, Switch, Remote Control, Resistor, Fluorescent, Inductance Coil, Chemical Condenser, Ceramic Condenser, Film Condenser, Mechanical Parts		
Indonesia	made in House	made by Japanese Manufacturers	by Local Suppliers
	Tuner, Video Head	Flexible Cable, Power Transformer, Plastic Front Panel, Bottom Cabinet, Other Plastic Parts, Metal Mechanical Parts, Steel Cabinet, Instruction Manual	Printed Circuit Board, Styrofoam, Carton Box, Wire Harness, Power Cord, Fuse, Chip Resistor
Thailand	Mechanical Chassis, Cassette Mechanical Unit, Guide Roller		
China	Remote Control, Connector Terminal, Diode, Loading Motor		
Korea	Leadwire Fixer, Indicator Holder		

Source: Interview Survey by JICA Study Team

44% of the entire cost of materials is procured from Singapore IPO including Malaysia. Next 24% is procured in Indonesia, however, tuners and video heads, which occupies most of the part, are made by group companies of the assemblers thus are not procured locally (In Figure 10.4.1, it is noted as made in House). Power transformer, a plastic cabinet and mechanical components are procured from Japanese companies in Indonesia (In Figure 10.4.1, it is noted as Japanese Manufacturer). Printed circuit boards, packing styrene foam, corrugated cardboard boxes, the

wire harness and the power code are procured from local manufactures (In Figure 10.4.1, it is noted as Local), however, it is very little amount with less than 4% of total material cost. Moreover, the raw materials to produce these products are all imported otherwise assemblers cannot approve them.

Videocassette recorders are the most important product for Indonesia as export products and this seems to continue in the future too. Moreover, the videocassette recorder is a typical electronics product as it consists of a lot of electronics, electric parts and mechanical components. Therefore, procurement trends of videocassette recorder can be referred as procurement trend of electronics products in Indonesia.

Parts procurement of color television, which is another major item for export goods after videocassette recorder, was estimated by interview survey, however it depends on its size. 25% of the entire materials cost is procured from IPO in Singapore and 75% is procured in Indonesia locally. Local content ratio 75% is very high and in case of color television, it is because that high-priced part such as cathode-ray tubes is procured locally. However, important parts like tuner, fly back transformer and deflection yoke are produced from the group company. Moreover, plastic cabinets and plastic parts are procured from Japanese companies in Indonesia. No electronics or electric parts are procured from any local manufacturers. What they procured locally are metal mechanical parts, Styrofoam, carton box and packing materials and these are less than 2% of total cost.

Figure 10.4.3 Parts Procurement Amount of Television by Countries

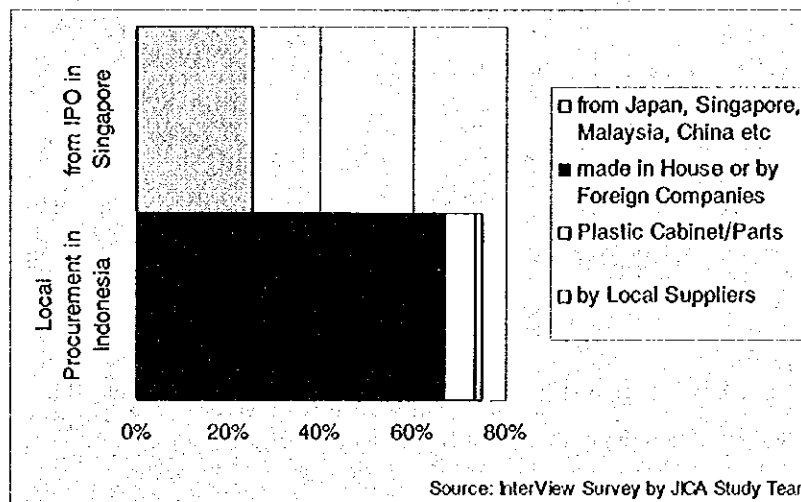


Figure 10.4.4. Parts Procurement of Television by Countries

from IPO in Singapore	25%	from Japan Integrated Circuit (IC)	from Malaysia, Thailand, China Resistor, Ceramic Chip Condenser, Inductance Coil, Remote Control, BS Tuner, PAL Tuner, Speaker
Local Procurement in Indonesia	75%	made in-house or made by Japanese, Korea or other Foreign Companies Tuner, Flyback Transformer, CRT Tube, Deflection Yoke, Other TV Parts	made by Japanese Companies Plastic Injection Mould Cabinet/Parts
			Local Suppliers Mechanical Metal Parts, Styrofoam and other Packing Material

Source: Interview Survey by JICA Study Team

■ Electrical parts

In order to study procurement trend of electrical parts and competitiveness of local parts, procurements for the parts of refrigerators, which are a typical electric product, are listed on Table 10.4.5. It shows origin countries of the parts to produce refrigerators for six local and foreign major manufacturers in Indonesia. For an example, those six companies procured the parts for thermostat from any of the companies in Japan, China, Thailand or Korea.

Thermostat, fan timer, and fan motor are important electric parts of the refrigerator and drier, evaporator and door gasket are important mechanical components. These parts are made in Asian countries especially in China.

Moreover, electric parts also became available from the Philippines recently and competitiveness became severer, with more competitors.

There are no local electric parts in Indonesia and mechanical parts such as evaporators and door gaskets are produced. Because these are bulky parts and transportation cost is very high, Japanese export manufacturer required their cooperative companies in Japan to come to Indonesia to produce them there.

Figure 10.4.5 shows price competitiveness. The Chinese parts are supplied the least cost with 10%-20% more discounted than other countries as a result of mass production.

Figure 10.4.5. Refrigerator parts procurement and competitiveness

Parts	Price Range	Competitiveness		Procuring from						
				Indonesia	Japan	Singapore	China	Thailand	Korea	Philippines
Thermostat	\$2.00-\$2.50	Chinese made 10% cheaper than Thai made by high volume production	A Japanese manufacturer transferred technique to China		•		•	•	•	
Fan Timer	\$2.50-\$2.70	Chinese made 20% cheaper than Japanese made	China making very similar one to Japanese made		•		•		•	
Fan Motor	\$4.20-	Chinese made 10% less than Philippines made	Philippine made 15% less than Japanese made		•		•			•
Dryer	\$0.70-\$0.80	Chinese made, 1/3 of Japanese made	Norwegian makes in Singapore at lower price than Japanese made			•	•			
Evaporator	\$5.50-\$6.50	Japanese Aluminum Company opened factory in Philippines recently besides Thailand			•			•		•
Door Gasket	\$2.20-	Magnet from China			•				•	

Source: Interview Survey by JICA Study Team

■ Related parts, plastic molding parts

The plastic molding cabinets and molding parts are the items that are strongly required by foreign export manufacturers as local procurement parts. As Figure 10.4.6 shows, molding technology has already a good reputation comparing to that of neighbor countries. However, as a big television screen is becoming more and more popular, new technologies such as gas-assisted molding, magnesium molding for tough cabinet and outsert, which molds parts directly to metal chassis, will be required soon. Therefore, training for these technologies will be needed soon.

Figure 10.4.6. Plastic molding technology level

Industry	Points	Evaluation	Comments
Plastic Injection Mould Parts	2 to 3.5	C	ASEAN Low to Average Level
Plastic Injection Moulding Dies	2 to 3.5	D	ASEAN Low

Source: surveyed by the previous team

Injection molding technology is at the level that is accepted by the export manufacturers. Molding dies manufacturing and modification and repair technology need further improvement. As Figure 10.4.7. shows, there is no mold dies maker in Indonesia so that foreign export manufacturers procured most of them from the companies in Korea and Taiwan. To modify or repair the molding dies, they have to take them to Singapore or Malaysia, even though small repairs can be done in Indonesia. Technologies and skills for making molding dies, modification and repairing should be acquired as soon as possible.

Figure 10.4.7. Mold Dies Technology and Competitiveness

	Korea, Taiwan	Singapore, Malaysia	Indonesia
New Moulding Die, Making	●		
Modification & Major Repair		●	
Minor Repair			●

Source: Interview Survey by JICA Study Team

All plastic materials used for the export finished goods are imported; though plastic resins are made in Indonesia naturally as an oil product. Indonesian plastic resins are offered U\$800 per ton and this is equal to imported one or even 2-3% cheaper. However, even though Indonesian local products has a competitiveness in its price compare to imported products, imported ones are used for two reasons - uniform quality and constant quantity.

Figure 10.4.8. Plastic Material Competitiveness

	Competitiveness
Price	Around U\$800 /t, Equivalent to Imported or Lower by 2 - 3%
Quality	Unsure on Uniformity
Quantity	Unsure for High Volume Export

Source: Interview Survey by JICA Study Team

10.4.3 Point to good position in ASEAN market.

■ Electronic parts and electronic devices

Semiconductor active parts such as IC and diodes parts, element electronic parts like capacitors (chemical capacitor) and ceramic and electronics devices like cathode ray tubes require very high level and overall technology, starting from the raw material, through development, engineering design and production. And it is the industry in which cannot compete in price and

quality unless the product is mass-produced with fully automated facility.

Therefore, it is necessary to entrust its production to foreign companies with sales network and many years of experience with this production. Because these are the products that automation process is done from the raw material to the final part completed process, subcontracting process is not available and a method of acquiring the technology by a process of subcontracting cannot be adopted.

The only way for local companies to join this field is either allying technology cooperation or establishing joint venture with foreign manufacturers solely (if the company has abundant capital) or as a member of consortium of local companies.

■ Electronics equipment parts

Television parts (tuners, remote controls, etc.) and the data processing parts (HDD, FDD, PCBA, etc.) are composed of the latest digital circuit design technology and precise mechanical components. Foreign export manufacturers produce them in Batam Island using good quality and inexpensive labor force and export them. With technology standards of local manufacturers, they are able to produce some of the parts as a subcontractor, event though they do not have abilities to develop or design the products.

It is necessary for local manufacturers to establish the position in ASEAN market in the future by acquiring the technology while doing the subcontracting business, and making the best use of inexpensive and good quality work force, so as to make themselves independent manufacturers in the future.

■ Electric parts

Though parts, which can be sold as general-purpose parts such as speakers, the antennas, connectors, and printed circuit boards, are manufactured by local industries, the market has expanded rapidly through the advancement of the foreign export manufacturers.

Moreover, technology, the productive capacity, and the quality level can be improved up to the global standard level, and by devising quality management and manufacturing method while supplying products to the foreign export manufacturing, they can acquire business capability to become an export manufacturer.

In Singapore and Malaysia where are advanced in electronics and electric industrial field among

ASEAN countries, they historically improved their technological level through work with the foreign export manufacturers.

"Export product" of electronics and electric parts should be of global standard in their technology levels and price. The foreign export manufacturers in Indonesia do not accept local materials or parts for their export products as Indonesian technology and price standards are not the global level, therefore it is not realistic to use such parts for foreign manufactures to use for their products.

Foreign parts manufacturers started to produce transformer, DC motor, crystal oscillator, or rechargeable battery at the same time as the foreign assemblers established their production bases in Indonesia. The parts manufacturers established those bases to supply the assemblers in Indonesia as well as those in world market. These became important export items for Indonesia.

Printed circuit boards are a basic part of electronics products and important parts to control the performance of the products. Japanese and Korean manufacturers are advancing in this area. Therefore, Indonesian companies have to overcome severe competition in order to take advantage in ASEAN markets.

Because a higher level of technology will be demanded as the information technology improve, it is necessary to acquire more high technology soon in near future.

As an example, there is no reliability as now boards are positioned manually for punching. The more common way is to use a pattern recognition method by computer.

■ Mechanical components

As mechanical components such as plastic, metal and machining parts are bulky parts and are strongly demanded due transportation cost, so the export manufacturers as true local procurement parts demand them.

Because the technological foundation exists in local industry, it is necessary to make great efforts to extend business to support indirect export.

However, export manufacturers is not trust local business 100% yet though the present technological level is at an average level.

There is no superiority or inferiority in equipment because injection-molding machines are

imports. Only the engineer's experience is different.

Export manufacturers do not expect molder not only to mould cabinet with manufacturer's molding die but also to expect them to participate from the stage of the product plan, to make molding die and to supply the molding goods.

In addition, exports manufacturers expect molder participate in the secondary processing of the molding goods, that is, the printing and assembly and other parts installation. Therefore, not only the molding technology but also neither the second processing or pre-assembly technology should be acquired.

At present, the local molding maker cannot do the work of high value added because the level of painting and a delicate print technology does not reach at the level which the foreign export manufacturers require.

The repairing machine, no matter if it is used one, should be facilitated to repair at least molding dies.

■ Supplementary materials and indirect materials

The packing material such as styrofoam and exterior carton box etc. rely on local procurement. As there is concern about moisture in styrofoam and print ink durability on the exterior carton boxes, further quality control should be thorough. It is necessary not to lag behind technically because a revolution is forecast with these materials on the environmental recycling side in the future.

10.5 Interview Survey (Management Diagnosis)

10.5.1 Outline of Business of Diagnosis

Although foreign export manufacturers are majority to export electronics and electric parts, we have selected some leading local companies that are wishing to export and conducted the interview survey with diagnosis purpose.

Diagnosis survey was also conducted with a hypothesis that some local manufacturers use the parts locally produced or subcontracts, etc. comparing to the foreign export manufacturers.

(1) Company selection

- Selected Companies – Finished goods manufacturers (3 companies were selected)
Leading companies who wished to export wish and top market share as local brand
- Selected Companies – 1 Parts manufacturer and 1 trading company were selected.
Leading local parts manufacture
- Selected Companies – 1 molder company and 1 trading company that invested to the molder company were selected. An example of success of SME.

(2) Parts procurement and use of supporting industry

1) Local procurement

Interview were done with local manufacturers on the assumption that they might be using more local parts or there might be supporting industries and subcontractors but contrary to that, it turned out surprisingly that local content ratios of local manufacturers are lower than foreign export manufacturers.

They conclude there are two alternatives, made in house or imports.

2) Import

Main reason to choose imports is availability, but even if local items exist, if price is same they choose imports because there might be uneasiness in the quality, and the delivery date of local items.

3) Made in house

Local manufactures make in house, even the items that foreign export manufacturers even procured locally. This is because of uneasiness with quality and difficulty in production control with subcontractors, to match with in-house production.

Local manufactures understand that to foster the supporting industries and the subcontractors is necessary, but the priority for them is to increase production level from the damage caused by the economic crisis.

10.5.2 Export competitiveness of export manufacturers

■ Finished goods manufacturers

They cannot draw a design for special models of different specification for export, and they export domestic models almost as is to the Middle East and Europe, where the electric safety standard and the broadcasting system are similar.

They do not prefer OEM business about price and sell directly to chain stores through trading companies with their own brand.

■ Audio Tapes

They are producing and exporting almost 100 million pieces of audio tapes yearly, having contract with Japanese biggest tape manufacturer, mixing effectively automatic and manual operation.

They have competitiveness in export with their own brand, with the benefit of high volume production.

This is one strategy for export increase of local manufacturers in Indonesia. When Japanese manufactures switched production from audiotapes to CD, shifting audiotape production oversea, they agreed to OEM business.

Consigning production of work of Japan and other expensive labor country is useful for the improvement of technology and pioneering in the market and eventually acquiring future independent business.

■ Speakers

It is the only company who produces basic parts for speakers among many speaker makers in Indonesia.

Even a Japanese big speaker manufacturer purchases this part from them. They do not have a sales route to foreign export manufacturers, though it seems that price demand of foreign export manufacturers can be satisfied by its corporate principles.

10.5.3 Strategy to take

(1) They avoid exporting to market of the United States, as it is very competitive, especially in the price. But they should challenge to get into the market, as it is the biggest market in the

world.

- (2) Specializing jobs: Pre-assembly job or parts assembly is now done beside the production line due to unreliability of subcontract. However this process should be separated from the line and new incorporated company should be established for this line.

10.5.4 Requests to government

- (1) Despite of their desires to expand the business by starting dealings with large foreign export manufacturers, there is no way for local parts manufacturers to make the first contact with those companies.

Suggestion:

Match making between Electronics Industry Association and foreign export manufacturers are needed by the government. The regular meeting to exchange market and technological information can be organized by the government. Mutual factory tours can be also the effective way to understand each other.

- (2) The government is requesting to note a foreign exchange profit from the appreciation of Rupiah. However, the companies are demanding decreasing valuation of their capitalized assets (reduce production cost), to increase competitiveness in export market. Technical Assistance fee is taxed upon accrual. The tax should have been withheld upon payment. (It should be taxed on payment basis.)
- (3) The government should show their interests towards the foreign export manufacturers, which have already advanced in Indonesia by investing additionally for developing new products or processes. The government should visit them regularly. The government should also request them to transfer higher value added process rather than simple one.

10.5.5. Outline of management diagnosis of model business

■ Model Business: Finished goods manufacturers

(1) Outline of management

Although there were a lot of manufactures that produce AV in the past, only two big companies remain at the present. This probably because an economic crisis was occurred in addition to severe competition in the market. Local manufacturers were most severely damaged by the

economic crisis and have not recovered yet. Their production returned up to almost 60% and they have estimated that it will recover 100% by 2002.

To secure the sufficient amount of work by working on the inside to keep their operation rate is the priority to foster the supporting industries and subcontractors, even though they are both important. Local manufactures are facing difficulties between cheap imported products from China and good branded products of the foreign manufacturers. Even a certain major Japanese manufacturer switched from producing TV for domestic market to producing the audio for exports. On the other hand, the top two leading companies invested for new production lines, which requires a large-scale investment and technology and are expected to expand their future business.

(2) Export strategy and marking

One of the manufacturers exports approximately 10% of their electric appliance. They are mainly Hot & Cold water dispensers exporting to Middle East, where requirements and standards are similar to Indonesia. One of two main AV manufactures, which occupies majority of the market, mainly exports the sound tapes to all over the world, including to Japan as OEM products. This company also exports television and audio.

About 50% of total sales US\$40 million are from export business. In year 2002, total sales are estimated up to US\$ 84 million with 40% of export. Recovery of domestic market is also expected.

Though their present export markets are Europe, Middle East, Australia and New Zealand, export to Central and South America such as Panama and South Africa are expected to start soon. As it is very competitive market, the United States comes last.

Suggestion:

Despite of the largest market in the world, the US market has been kept at a distance due to its severe competitiveness. However, there are lots to learn in terms of technique and design at global standards. Dealing large volume of the products can reduce production cost. They should challenge the US market. They should open the office in the States and assign an employee there.

As for another company that exports about 10% of its sales to Germany and the Middle East, where the TV system is the same (PAL). They stopped OEM business, as it is not profitable

enough. They have not assigned any representative in these areas yet. Apart from using importers and the Internet, they are making best efforts to export directly to chain stores or hypermarkets.

Suggestion:

OEM business is one of the best ways to acquire advanced technology, management know how of high volume production, quality control for export and other many benefits.

(3) Production

Specializing jobs: Pre-assembly job or parts assembly is now done beside the production line due to unreliability of subcontract. However this process should be separated from the line and new incorporated company should be established for this line in order to improve the efficiency.

Subcontractors:

An economic crisis came immediately after capital investment for a new product paid for by loan during the boom and they now lean heavily as an excessive investment.

First of all, this must be absorbed. By separating these processes, the manufacture can concentrate on the process of pre-assembling or parts processing, consequently reduce the production cost. The separated company will also be able to sell their products to other companies. This is how the supporting industries are fostering.

Suggestion:

The subcontractors have a role to adjust the constant production level of the parent company. The parent company should keep its production capacity as least as possible and give the order to the subcontractor for the adjustment.

(4) Financial Matter

Electric home appliances division itself seems to be tight in its cash flow, however for the companies interviewed was another case. Because one company belongs to a business group that has a banking sector and another was under a financially rich group from tobacco business. Therefore, both of them were supported by the group.

(5) Human Resources

Management recognizes that to foster the industry or technical level is to develop the human resource. Even though they understand the importance of human resources, there are very few available at the moment. They want employee training cost to be tax deductible.

Proposal:

It is necessary to bring up their talents by giving responsible task. Giving employee a good fringe benefit is also important for them to feel loyalty to the company.

Dispatch of trainee to business partner

Use external training organizations and education organization, AOTS, education center of Japanese electronics company in Jakarta which are open to the public. Introduction of employee training technique, OJT, and TWI

■ **Model Business - Parts manufacturer, Speaker maker**

(1) Management strategy

The founder aimed to become a true speaker manufacturer and avoids limiting in a mere assembler of speakers by making necessary parts for it.

It is not a special idea to make necessary parts in-house, but this company had a unique management sense to incorporate two companies with divisional independent business to produce and sell these parts alone.

As no other speaker manufacturer is making these parts, it is independent business to make and sell them outside too. Even a certain Japanese leading speaker manufacturer is purchasing these parts from them.

Suggestion:

The parts can be sold to other companies by specializing business, and it becomes possible too to make new products by adopting the special technique.

If this part was made in its speaker factory, it was limited only to its own consumption and other manufacturers did not purchase their parts. Moreover, these companies can make other products utilizing special technique and cold forging.

It is a good model to show how the supporting industry can be developed.

(2) Export strategy and marketing

They want to deal with foreign export manufacturers but they have no chance to contact them. At first they want to know the technical and price requirements. They are seeking for connections to access foreign export manufacturers.

Suggestion:

Some local companies misunderstood that the Japanese export manufacturers only buy the parts

from Japanese parts manufacturers. Japanese manufactures are making an open door policy. An ardent sales activity and challenge are necessary.

Match making by the government between local, electronics industry association and a group of foreign export manufacturers is necessary.

(3) Production

Foreign export manufacturers have trusted this company for its good quality and production management. It is so-called " the Factory to show to customer"

Well-controlled displays with appropriate sign, 5K, motto, etc. They invited a engineer in the past from a speaker manufacture in Japan to get advices on technical and production management.

Suggestion:

It is important to settle and to maintain the know how that has been learnt. Educational training should not be only limited to those who attend the education training.

(4) Financial matters

TT remittance after import material has been acceptable as credit for many years. Because their main bank is a Japanese bank in Indonesia and this reinforces their credit.

(5) Human Resources

The factory has a gym of badminton courts. It seems that employee have good employee benefit and welfare to have desire to work for the company.

Suggestion:

Management are interested in employee training very much so that to settle TWI program in the company is recommended. There is an educational training center in Jakarta by the official recognition manual in Indonesian language. This program is to train a trainer to expand the circle of the education training to the whole company.

■ Model Business – Plastic Moulding Company:

(1) Management

This is a good example of how a local SME developed their products to the level of export market. Four business partners who had different respective roles worked together to achieve the same goal.

- **Locale SME:** This company only had low technology to make a plastic bottles using brow method for many years foresaw the demand for a plastic molding when foreign export manufacturers started to set up their production bases in Indonesia. The management of the SME got business partner of technical, sales and financial assignment
- **Partner A,** a local individual who has personal contacts in a major Japanese trading company and wanted to invest to business.
- **Partner B,** a major Japanese trading company that wants to promote plastic material business and approached the Japanese molding company to participate in the technical field.
- **Partner C,** a plastic molding company with an advanced molding technology takes charge of technical and production field.

It is a case that SME with only low technique develops the business with desire to expand business and foresees the future and succeeds integrating four business partners who have each different role.

This molding company has grown up to a business which produces about 7,000 tons of plastic cabinets and other large-sized plastic parts for export electronics and electric products with 67% of local capital and 33% of Japanese capital and with 800 employee. Its turn over can be estimated to be around US\$15 million.

(2) Export strategy and market

Both production line and management are separated into two sectors - one for domestic product and the other for export products. It is a perfect idea to separate the factory and to produce products according to different market environment

They have assigned the Japanese sales engineer for Japanese customers because time

consumption is very critical and little time to discuss about schedules, specifications and other matters. It is very important point for dealing with Japanese companies.

(3) Production

A management form one of investor, molding company is in charge of production control.

(4) Financial matter

Its financial performance made profit in three years that are earlier than expected. Fortunately, the company was not affected by the economic crisis as they dealt in dollars. Just in case, a partner, the trading company may support financially on shipment of material.

(5) Human Resources

Have sent trainees to Japanese partners, to learn management and technical matters. Each group has been sent every half a year, and 100 people have been trained in total. An engineer from a partner, Japanese molding company, trains technicians on the job.

10.6 Recommendation on improvement of export competitiveness

In the electronics and electric parts industry, export products by local industry is very few as described up to now. The promotion plan of the supporting industry with export competitiveness in place of export competitiveness improvement strategy of the product is proposed.

(1) Parts making of foreign export manufacturers by themselves

Here is an example of the foreign export manufacturer, which foster the supporting industries by themselves to cover the immature local supporting industry. This case may be applied to other cases.

A foreign export manufacturer, which has set up the export production bases in Indonesia, were desperate to reduce production cost and were searching cheap local parts and materials. Whenever any possibility exists they seriously have examined whether they could adopt it.

However, the current situation in Indonesia is that only few parts, which meet the requested specifications and standards, are available from local manufacturers. Therefore, they are forced to depend on imported parts and materials. But there are cases whereby they have established their own related companies to make parts for their own use, as well as export and outside sales.

Additionally, they asked their cooperative companies in Japan to come to support them by making parts they need.

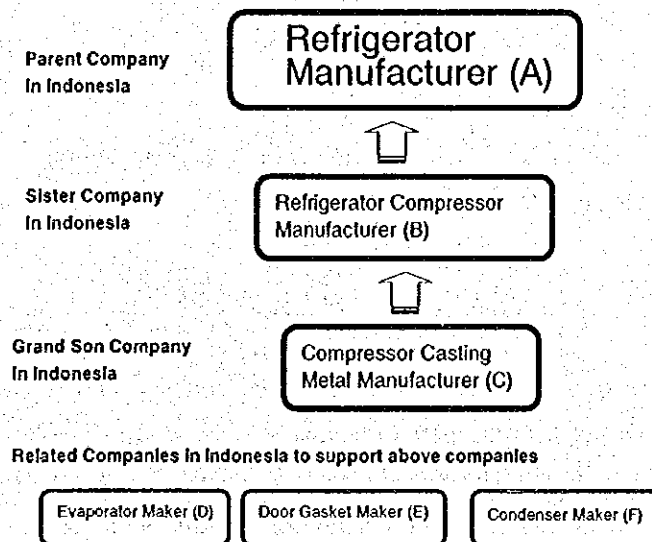
Figure 10.6.1 shows an example of the supporting industry structure of a foreign export manufacturer.

Company A is producing refrigerators for both domestic and export markets. They established Sister Company B to produce compressors for their production and export, because there is no compressor.

They established a grandson company, company C that produced metal die cast parts for compressors to supply company B because there is not local die cast available, which meet their requirements.

Moreover, cooperation maker D, maker E and maker F who supply main parts of refrigerators, evaporators, door gaskets and condensers in Japan are required to come along to make and supply the same parts locally.

Figure 10.6.1 Supporting industry structure



The foreign export manufacturers establish sister and grandson companies with their own investment, not to merely labor intensive assembly, but to solve either the parts or supporting industries, requesting their cooperation company in their home country to come, and also make an effort to raise local procurement rate.

(2) Choices of local enterprise

This Pyramid shape of structure formed by foreign export manufactures to develop supporting industries but they want local industries to participate in this structure in some ways. Directly or indirect technical assistance should be indispensable. The following ways are considered for that. Only summary is described below because details are written in 10.4.3 already.

a. Electronics parts and electronic devices

- ◆ Not possible for local SME to participate partially because this industry needs an overall, latest, electronics technology, highly automated and consistent process.
- ◆ Incorporation of a new joint venture or technical assistance business in a form of collaborative consortium of local good enterprises who have strong financial capability.

b. Electronic equipment parts

- ◆ Acquiring technology while doing assembly jobs under subcontract, to master capability to become an independent export enterprise.
- ◆ Close business relations with partial participation of investment

c. Electric parts, mechanical parts, and supplemental materials

- ◆ Existing field of local industries
- ◆ Modernization of factory machinery and equipments, to correspond to high quality, high speed, and mass production
- ◆ Expansion of business with foreign export manufacturers to acquire global standard technical level and business capability in order to export by itself.

(3) Organic uniting of local industries and foreign export enterprises

Demand of foreign export manufacturers and should be corresponding to local supporting industries. Should be a chance to exchange information.

Regular meeting, discussion, informal social gatherings with purchasers of foreign export manufacturers and local industries held by mediation of electronics and electric association or

other public organization

- ◆ What do foreign export manufacturers want to procure locally?
- ◆ What is hoped for to local industries?
- ◆ What can local industries do?
- ◆ What should local industries do?
- ◆ Cooperative relationship to take for both parties

(4) Measure and strategy for supporting industry promotion and export competitiveness

a. Export competitiveness, management

- Management has strong wish for export, especially, because of slow domestic market but severity is necessary for export.
- Though the United States market is out of reach because of sever competition, it is the biggest market in the world. It is of benefit to get technical level brought up and to learn fashionable design sense. Price competitiveness by the effect of high volume production can be gained. It is necessary to challenge.
- They are hesitating to undertaking sales promotion to foreign export manufacturers. They must be aggressive in sales promotion.
- Foreign export manufacturers take "Open Door Policy" but they do not come for purchase.
- A bureaucracy organization which does Match Making between local parts makers and foreign export manufacturers is a necessary. Electronics and electric industry association.
- Understand the aspects that foreign export manufacturers are judging and correspond.
 - ◆ Can they make a reasonable quotation?
 - ◆ Do they assign a person who can correspond with the customers?
 - ◆ Can they deliver quantity just as scheduled?
 - ◆ Do they have inspection and quality control systems and measuring instruments?
 - ◆ Can they take prompt action on quality problem?
 - ◆ Can they obtain any volume of specified material any time?
 - ◆ Can they follow specified production processes?

- ◆ Can they respond to urgent situations?
 - ◆ Is the management base reliable?
 - ◆ Can they meet UL and other world safety standards?
 - ◆ Is management system certified by ISO?
- Understand the meaning why foreign export manufacturers use subcontractors. It is occasionally demanded what they are not able to do by themselves. .
 - ◆ Things that must be delivered as scheduled without fail.
 - ◆ Things which respond short time delivery (contribute to stock reduction)
 - ◆ Things of high quality can be stably supplied
 - ◆ Thing that contribute to cost reduction
 - ◆ Thing that require of a small quantity of many models
 - ◆ Things which shorten the product life cycle.
 - ◆ Thing which can flexibly correspond to changing demand
 - Divisional Independent Company

Special jobs should be separated from assembly production line and assigned to newly incorporated divisional independent companies, to concentrate on those jobs for better efficiency, better cost and technology transfer to others.

b. Export competitiveness, market

- It should be realized that a lot of big multi national foreign manufacturers have their export production bases in Indonesia and local business are lucky to have big indirect export market in the country.
- The access to this market is easy.
- It is a domestic sales activity, and big cost for pioneering in overseas markets is not needed.
- In direct export to foreign export manufacturers is first. If unacceptable to them, then it is also no good for direct export.
- Sales promotion to IPO. Sales of single parts are difficult. IPO is recommended for access.
- Sales promotion to special trading company. There are small sized trading companies who deal with only electronics and electric parts to manufacturers and have other wide sales network.

c. Export competitiveness, production

- Have a confidence in good workforce.
- Subject to that production, supervision and management being thorough.
- Management target is simplified. Production is composed of 4M+2M.

4M (Material, Men, Machinery, Method) + 2M (Money, Market)

- Putting things in order and cleaning are basic rules for factory, 5K
 - Kebersihan
 - Ketertiban
 - Kerapihan
 - Keindahan
 - Kesopanan
- "On SITE" is a factory principle to understand the situation
 - On the site
 - Make sure on the actual thing
 - Look at the data (Inspection Data)
- Standardization of work and following
 - ◆ Process chart
 - ◆ Work standard chart book
 - ◆ Work instruction sheet
- Quality Control
 - ◆ Management should take the lead for investigation of defective causes and execution of correction: QC method is used.
 - ◆ Quality Control System, Procedure, and in house Rules
 - ◆ Stability of Quality depends on accuracy of machinery, jigs and instrument
 - ◇ Defective occur, if defective or inaccurate
 - ◇ Maintained well
 - ◇ Measurement Instrument, examination device equipped and maintained well
 - ◆ Record keeping, Accumulation of Defective/Failure Data
 - ◆ QC, Improvement Suggestion, Participation Consciousness
 - ◆ Defect Handling: according to Rule, Not by Personal Judgment
 - ◆ Defects must not be shipped, Next Inspector is Customers
- TQM(Total Quality Management),ISO 9000 Series (overall quality management)
- PDCA (Plan, Do, Check, Action)
- Campaign
 - ◆ 100% Delivery achievement

- ◆ ZD (Zero Defect)
- ◆ Zero Accident, etc.
- Visual Factory Control
 - ◆ Paint White Lines on floor (work environment)
 - ◆ Graph and Table of Achieve on Board (delivery control)
 - ◆ Display, Sign, Partition (working Area)
- Suggestion System with Award
 - ◆ Efficiency improvement of work
 - ◆ Improvement of quality
 - ◆ Exclusion of uselessness
 - ◆ Improvement of Customer Service
 - ◆ Cost Saving

d. Export competitiveness, technology

- Participating from the stage of engineering design and technological development of dealing company is ideal and a person should be designated, whom dealing company can communicate with easily, any time.
- Prompt correspondence to production plan change in dealings company
- Hire with good conditions a few capable engineers who is able to do engineering design and development
- Hire experienced factory supervisor
- Those who has experience is needed, rather than New Graduate
- Is authority given to engineer they will be well motivated
- Deal with export manufacturers
 - ◆ Improvement technical level while making the effort to meet their severe requirements
 - ◆ Improvement production system and productivity due high volume
 - ◆ The latest fashionable design sense acquisition
- Technology introduction is necessary.
 - ◆ Joint venture or new business with contract for technical assistance with specialist company in the form of Collaboration of Consortium of local good businesses who has financial capability.
 - ◆ Close business tie-up is preferable with investment from foreign specialist manufacturer
- Use of external organization
 - ◆ Require assistance of dealing foreign export manufacturers

- ◆ Require assistance of specialist
- ◆ Require cooperation of public research institute or laboratories
- ◆ Joint research with other companies in the industries
- ◆ Cooperation between different business industries. New ideas from other industries
- Technical information collection
 - ◆ Aggressive participates in the seminars, the lecture, and exhibitions sponsored by research laboratories.
 - ◆ Watching for always technical information and challenge, if anything attractive
- Development of original product.
 - ◆ Expansion limited, if being dependent 100% on parent company
 - ◆ Utilization technology accumulated in subcontractor business

e. Export competitiveness, Human Resources

- In conclusion, Technical level and business capability of business depends on human resources
- Production machinery is same, imports. Depending on people to use them, experienced or unskilled
- Good employee benefit and welfare for Loyalty to the company
- Trainees to dealings company
- Introduction of employee training program, OJT(On The Job Training), and TWI(JI,JM,JR,JS)
 - ◆ Education center in Jakarta of Japanese Company
 - ◆ Matsushita Gobel Education Foundation
 - ◆ Human Resources Development Institute
 - ◆ Open to public
 - ◆ Training by officially recognized text book in Indonesian language
- Japanese Government Institute, AOTS ,OVTA
- Skill training, Qualification acquisition, Self Motivation
- Education of Factory Workers
 - ◆ Screening to good employees
 - ◆ Training program for new unskilled hires, by experienced veteran worker
 - ◆ Show how to do and good communication with the subordinates

f. Export competitiveness, Financial matter

- Investment to expand business during boom before economic crisis resulted in

distressing excessive investment

- Domestic sale promotion plans t, to full up production capacity
- Financial support by special credit system
 - ◆ Export credit guarantee, debt facility
 - ◆ Modernization of factory facility
- Improvement of Financial Condition; Profit and Investment
 - ◆ Sales increase and Profitability
 - ◆ Shortening Account Receivables
 - ◆ Reduction of stock
 - ◆ Proper investment for productivity improvement
 - ◆ Proper investment for quality improvement
 - ◆ Proper investment for new products

g. Suggestion to government:

- The government should more pay attention to the foreign export manufacturers, which are operating already here in Indonesia.
- By visiting these foreign export manufactures regularly, the government should ask them to bring higher value added process to Indonesia as well as to use local supporting industries.
- To ask them to accept technical trainees. The government should support the fee for training as well as introducing tax deductible for training expense.
- Match making between local business and foreign export manufacturers.
 - ◆ To have regular conference
 - ◆ To arrange the mutual factory tour
 - ◆ To exchange the technological and market information
 - ◆ To accept trainees
- Reasonable accounting and taxation processing (refer to 10.5.4)
 - ◆ Process of unrealized profit and loss
 - ◆ Withholding taxation

Chapter 11. Automotive Parts

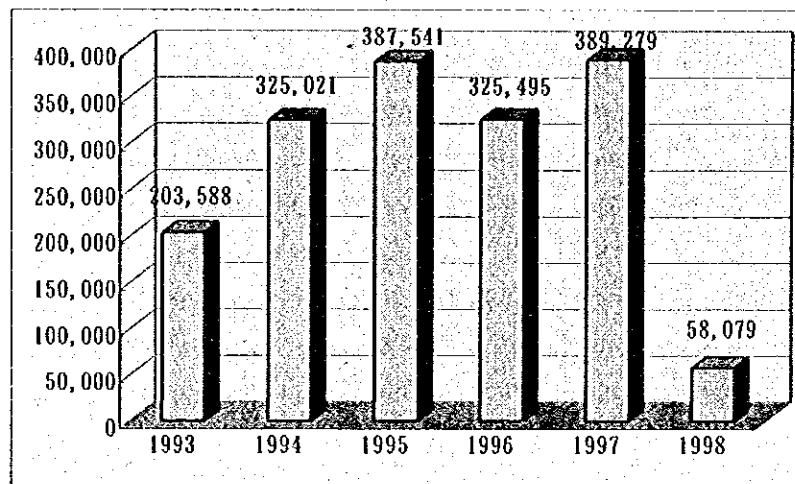
11.1. Analysis of Export Statistics

11.1.1. Present condition of automobile industry

In 1990's, Indonesia automobile industry has grown larger except for certain years. In 1991 to 1992, the market value dropped due to indirect influence of Gulf War. In 1996, the market value also dropped because of the national car plan issue. The main reason of this market grow is the increase of medium income layer spurred by economic growth.

However, due to the economic crisis in 1998, Indonesian automobile market slumped to 58,000 units, an 85% of decrease in comparison to the previous year. (Figure 11.1.1)

Figure 11.1.1 Automobile production in Indonesia

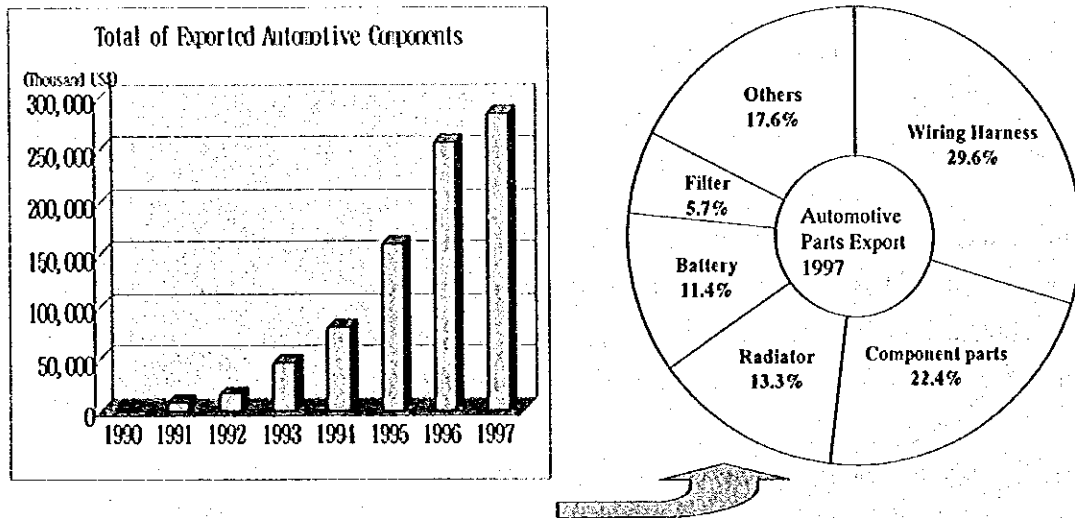


Source: GAIKINDO

11.1.2. Present condition of automobile parts industry

In turn, automobile parts industry suffered greatly from the fall of automobile industry, which was brought about by a sharp increase in import cost and economic stagnation. This affected both OE market and After Market. According to the announcement in October by GIAMM, average production capacity usage of the part industry was only 20%, while 50,000 or more employees were fired. Figure 11.1.2 shows that export of the parts has continued to grow in recent years. No figures were shown for after the crisis. According to the interview survey to GIAMM, a substantial decrease occurred in 1998 compared to the previous years.

Figure 11.1.2 Total of exported automotive components



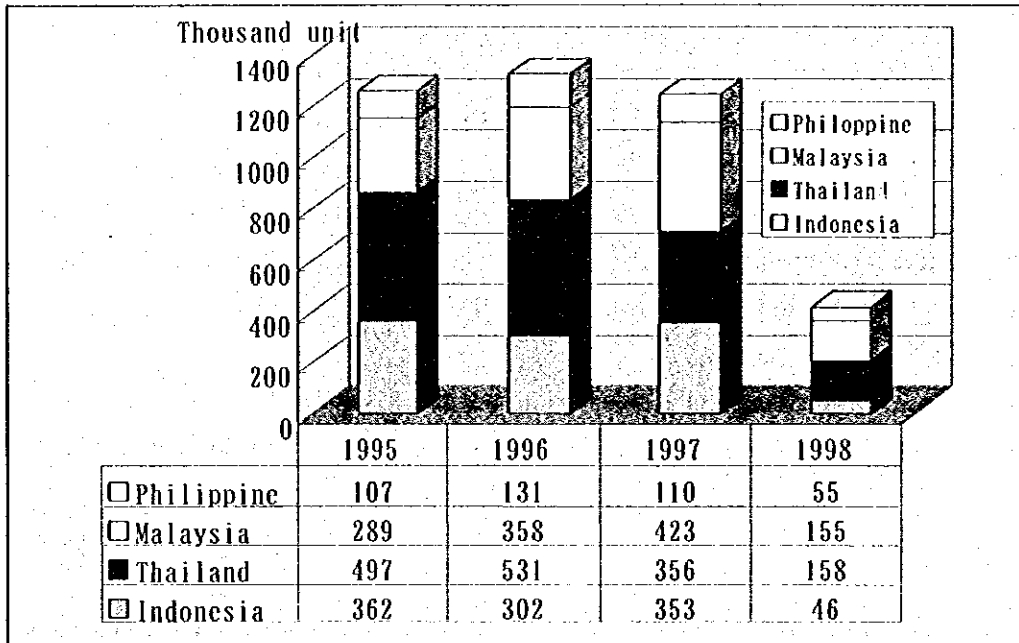
Source: GIAMM

Export of automotive parts can be classified into two main groups. One group is export to OEM, and the second group is export for After Market (AM). Another classification is based on target regions, for example to ASEAN and to other areas outside ASEAN. When we consider the size of OEM market and AM, OEM market depends on production volume of the automobile manufacturer each year, and AM depends on the number of automobile owners.

ASEAN4 (Thailand, Malaysia, Indonesia, and Philippine) market is roughly about 130 million units before the crisis. During the crisis, ASEAN OEM market shrunk rapidly. However, as economic started to recover in 1999, the automotive sector was expected to recover as well, and once again should become an attractive market.

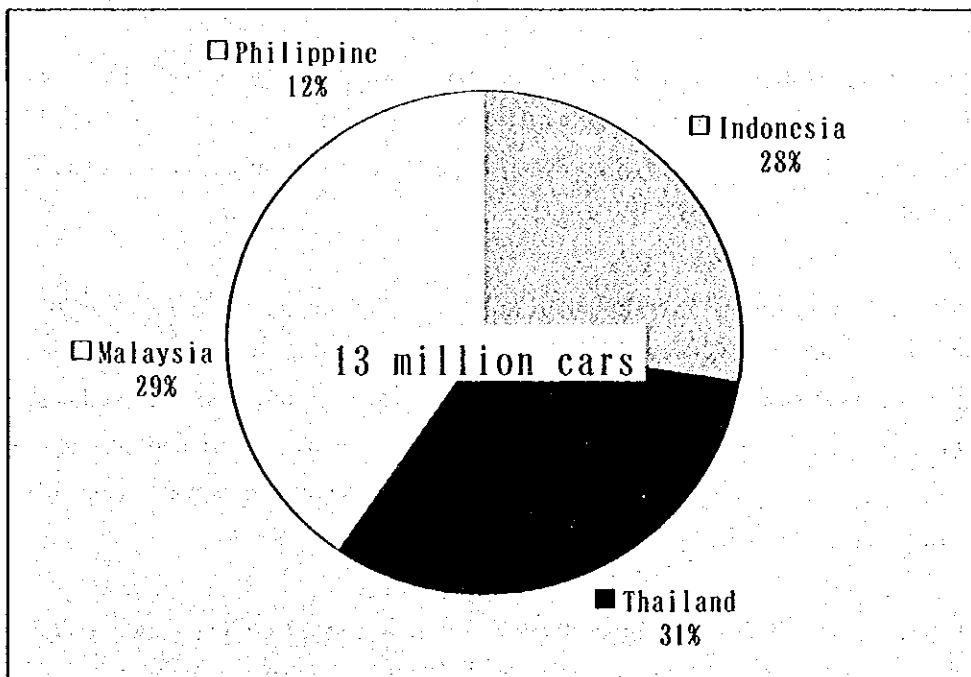
In 1998, the number of automobile owners in ASEAN4 was approximately 1,300 million units. If it is assumed that a certain part should be replaced twice a year, the market size would be approximately 2,600 million units. Basically, the market size of automobile parts in the AM market depends on how often the parts should be replaced and the number of cars where the parts are used.

Figure11.1.3 ASEAN4 OEM market size: the automotive production of ASEAN4



Source: Automotive association of each country

Figure11.1.4 The size of the After Market : automobile holding number in 1998



Source: statistics of each country

11.1.3. Problem on the export promotion

Whether the situation of OEM market and AM is good or not, the security of the production quantity is the most important subject under the operation rate of 20%. The expectation to the export expansion is big, with the substantial recovery of the home market is not able to expect. According to the interview survey, each manufacturer is trying to expand export. However, in this survey, manufacturers that were able to increase export were doing the preparation of export before the monetary crisis. They also said that the export expansion of the emergency evacuation by the fall of interior production were difficult.

Furthermore, the most of export-oriented companies that is under 20 are Japanese companies. Domestic company which can export is rare case such as 1 filter manufacture.

According to interview survey, we pointed out problems of export promotion as follows:

(1) Difference of specification: Many of automotive parts are of special use and different for every type of car except for some general parts such as the lamp plug and battery. Because of this, to produce new model, one must invest in plant and equipment for new mould and dies. When we think the depreciation of such new investment, the production in Indonesia becomes comparatively expensive.

(2) Long preparation period until part delivery: Both the car manufacturers and parts manufacturers usually design parts during the design stage of new concept cars, and it usually takes two years before full production occurs. Therefore, a current business activity does not bring results right away.

(3) Difference of quality perception: This fact is often mentioned or discussed by automobile manufacturer. For example, several micrometer off precision is considered important by automotive manufacturers, while several domestic parts manufacturers considered them as small variation. Difference perception such as mentioned above prevented the automotive manufacturers to procure domestically. One automotive manufacturer was trying to increase domestic procurement before giving up due to this matter.

(4) Difference of delivery allowance: Same as difference of quality perception, there are also difference of delivery allowance perception. Automobile manufacturer demands strict time for delivery, however several domestic automotive parts manufacturer considers delay sometimes

happens. A real sample is that one automobile manufacturer tested and adopted the part made in Indonesia for their manufacturing in Taiwan. At one point, production line almost stopped due to delivery delay from Indonesia. Fortunately the problem was solved by air transported parts from Japan. As a result, that line cost the most expensive cars in the world because of air transportation expense. When such a situation occurs, automobile manufacturer might stop the transaction after all.

(5) High production cost because of low material import: According to the interview to automobile parts manufacturer, there are many cases that they have to import around 60% of their materials from Japan. In the case of high import material, cost of raw material may rise even if Rupiah is down. In the common case of automobile parts manufacturer, the ratio of labor cost is around 10~20% out of total production cost. Most production cost is from the material cost. Therefore manufacturers which import lots of materials from overseas, producing at high cost. These companies may become weak in term of competitive power.

11.2 Selection of Target Export Products

11.2.1. Selection method

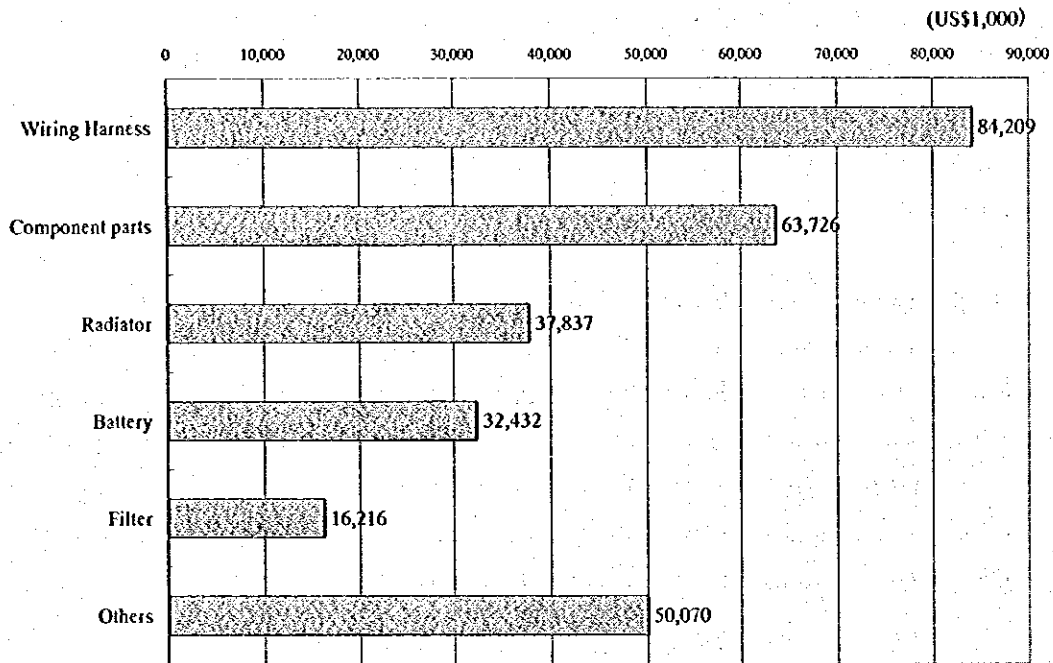
For automobile parts, we used export statistics from GIAMM. Additionally, we referred to procurement strategy of automobile assemblers for example AICO scheme, as buyers' points of view to select potential products. We also incorporated the result of phase I study.

11.2.2. Selection Process

(1) Export Values

Wiring Harness, filter and battery show large values in 1997.

Figure 11.2.1. Export Values in 1997 (Automobile Parts)



Source: GIAMM

(2) Procurement Strategy of Assemblers

Many automobile assemblers such as Toyota, Honda, Mitsubishi, Isuzu and Mazda, consider Indonesia as an assembling base for engines and their related parts as a part of their procurement strategy in ASEAN 4. (Table. 11.2.1.)

(3) Domestic Production Values

Statistics of domestic production also indicated the same tendency with an exception of springs, which showed a considerably high growth rate. Leaf springs ranked the seventh in export value but had a small share in 1997. However, considering its high growth rate, it can be a potential product (see Table 11.2.2).

Table. 11.2.1. Procurement Strategic Plans for Automobile Assemblers and Parts Manufactures in ASEAN 4

Manufacturers	ASEAN 4			
	Thailand	Indonesia	Malaysia	Philippines
TOYOTA	Engine Unit, body parts (for Hilux and Passenger car)	Engine (casting, machine processing, assembling), pressed parts	Manual/power steering, Ball joint suspension	MT assembly, CV joint, body pressed parts, casting parts
Nissan	G/D engine, accelerator shaft, pressed body parts, knuckle spindle/arm	Meter	Leaf spring	Engine and its parts, in-pane, bumper, body pressed parts
Honda	Pressed parts (Side panels, floor, door and trunkhood)	Engine assembly, transmission assembly, seat, fuel tank, exhaust pipe, door, trunk	F/R bumper, in-pane	Engine assembly, sheet metal repair parts, metal cleat parts, fuel tank
Mitsubishi	Engine assembly	G/D engine, muffler, fuel tank, Cross member	Steering gear	MT assembly, G/D engine assembly, accelerator assembly
Isuzu	D engine, pressed parts, crankshaft	Engine assembly, transmission assembly, body parts		MT assembly
Ford/Mazda	Transmission	Engine assembly and related parts	Car audio	Fuel supplier system (from pump to tank)
Denso	Oilmeter, wiper motor, washer, air-conditioner, plug, filter	Air-conditioner, radiator, plug, filter, oilmeter, starter	Air-conditioner, radiator, plug, filter, oilmeter, starter	Meter, air-conditioner
Sanden	Heat exchanger, air-conditioner	Air-conditioner	Air-conditioner parts and system, condenser	Condenser, evaporator
Nippon Cable System	Control cable	Control cable	Control cable	
Kayaba Industry	Shock absorber	Shock absorber	Pump for power steering	
Mitsuba	Wiper, Starter motor, winker relay	Horn, Lock set		Mould maintenance, power wind motor
Delphi		Wiring harness	Catalyst converter, steering colum, wiring harness, audio cable	
Visteon	Air-conditioner parts, plastic parts, starter, oilmeter			
Robert Bosch	Break assitor		Car radio, antenna, relay, Light, switch	
TRW	Engine bulb, steering gauge, suspension pole joint		Tie-rod end, suspension pole joint, steering gauge, power steering gear, cold forging parts	

Source: Automobile Industry in Asia 1999, FOURIN

Table 11.2.2. Domestic Production Values in 1997

		Values in 1998 (million Rp.)	Growth rate	Average growth rate of 1996-98	Growth rate of 1996-98
1	Leaf Spring	122,038	290%	86%	524%
2	Coil Spring	15,608	123%	52%	295%
3	Battery	512,600	80%	48%	293%
4	Radiator	144,978	152%	71%	279%
5	Dongkrak	16,000	130%	106%	266%
6	Filter	93,148	96%	49%	226%
7	Rubeer Part	53,890	100%	35%	190%
8	Seat Belt	3,572	51%	22%	174%
9	Fuel Tank	47,558	33%	25%	154%
10	Busi	75,680	33%	20%	129%

Source: MOIT

11.2.3. Selection results

Based on the above process, the potential products are wiring harness, filter, battery, radiator, sheet cover and engine and its parts. However, except some parts such as filter, most of manufactures which export their parts in Indonesia are Japanese companies. Considering the purpose of this study, the advice for export promotion should benefit Indonesian local companies and not foreign ones. Therefore, we had to exclude some potential parts appeared in statistic analysis although they were selected in previous studies.

Based on the result of interview survey with related government organizations, associations and automobile assemblers, we have selected local manufactures that produce press and casting parts for either original equipment manufacturer (OEM) market or after market (AM) and have conducted diagnosis survey focusing on these manufactures.

11.3 Buyers' Survey in Japan and Singapore

11.3.1. Outline of surveyed enterprises

- Automotive and parts manufactures (8)
- Dealers (3)
- Trading companies (4)
- Associations, Government Agencies (3)