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STUDY
ON
THE PROMOTION OF SMALL AND MEDIUM SCALE INDUSTRIAL ENTERPRISES
IN
THE SOCIALIST REPUBLIC OF VIETNAM

INDUSTRIAL REPORT

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Glossary of Names for Organizations.

(New organizations/units proposed in this study)

CTS: Center for Technical Support
(technical support center to provide technical assistance for SMEs to be established under the umbrella of SMESCs)

CPSIT: Center for Promotion of SI Transaction
(information support center for promoting SI transactions)

DOSMEP: Department of SME Promotion
(SME promotion department at local people's committee)

OSAD : One- Stop Advisory Desk
(SME service desk prepared at local people's committee, industrial organizations or other appropriate place to provide necessary information to SMEs)

SMEFC: SME Finance Corporation
(financial institution for SME policy finance)

SMEPA: Small & Medium Enterprises Promotion Agency
(SME promotion organization to be developed at central government)

SMESC: Small & Medium Enterprises Support Center
(regional function center to support SME to be established in core of a region)

(Abbreviations for existing organizations)

HEPZA: HCMC Export Processing & Industrial Zone Authority

MARD: Ministry of Agriculture and Rural Development

MOET: Ministry of Education and Training

MOF: Ministry of Finance

MOI: Ministry of Industry

MOLISA: Ministry of Labor, War Invalids and Social Affairs

MOSTE: Ministry of Science, Technology and Environment

MPI: Ministry of Planning and Investment

NEDCEN: Non-state Economy Development Center

SBV: State Bank of Vietnam

UAIC: Union Association of Industry and Commerce

VCCI: Vietnam Chamber of Commerce and Industry

VICOOPSME: Central Council for Cooperative Alliances and Small and Medium Enterprises in Vietnam
VIETRADE: Vietnam Trade Promotion Commission
VIZA: Vietnam Industrial Zone Authority

(special terms frequently used in the report)

Supporting Industry: SI

Industries which provide major manufacturing enterprises with material processing or formation services such as pressing, metal mold manufacture and heat treatment, or component supply function. SI constitutes the basis of the integration of manufacturing industries which requires multi-steps of processing and assembly work.

Venture Capital

Venture capital is an establishment for investing into the venture business by equity investment or by purchasing a quasi-equity debt instrument issued during the period of initial start-up of either the investee's enterprise as a whole or a distinctive part of its business when the young business is in dire need of capital. The purpose of such investment is placed in the promotion of the venture business and subsequent capital gain for the venture capital. Venture business is defined as an enterprise established and managed with innovative and/or creative ideas and technologies by an entrepreneur of aggressive aspiration and spirits in taking risks for business success.

1. MACHINERY / COMPONENT INDUSTRY

1. Machinery/Component Industry

1.1 Summary and Conclusion

Viet Nam's machinery/component industry developed around state enterprises. It produces in almost all product fields except for certain ones such as high-tech products. The state enterprises pursue production with in-house facilities for all processes, and do not have very high levels of productivity.

Small and medium enterprises (SMEs) have a relatively short history and number only about 1,255. Their activities consist mainly of production and sale of metal products for the home, spare parts for motorcycles and bicycles, and other such products with a low degree of technological intensity, as well as single-item processing of parts for repair of production facilities on contract. Although there are not many SMEs, petty businesses (generally self-managed operations) with less than nine employees number about 30,000 and engage in the same kind of activities as SMEs. These petty businesses are therefore quite numerous and rapidly increasing. There is a growing stock of them in the 5, 6, 11 and Tanbin wards of Ho Chi Minh city, and they are erecting setups for divisions of production in the interest of mutual complementation.

SMEs in the industry can be divided into the following three categories in terms of their activities and customers.

(1) Firms manufacturing products for retail sale

These firms produce simple repair components such as motorcycle and bicycle parts as well as metal goods for the home (such as pots, chairs made of metal pipe, shelving, knives, and scissors) for sale in the domestic market.

(2) Firms manufacturing industrial-use repair components

These firms receive orders from companies in possession of production facilities for agricultural machinery, food processing machinery, etc., and engage in the processing and assembly of repair components. They include state enterprises which used to produce fairly technology-intensive goods but now produce mainly repair components.

(3) Repair firms

These firms are engaged in repair of automobiles, motorcycles, bicycles, etc. Some of them have simple machine facilities for fabrication of repair components in response to customer orders.

For the future advancement of the machinery/component industry, it is crucial to increase the rates of self-supply (i.e., the share of the domestic market occupied by domestically produced goods) and local contents. In the field of automobiles, the market is still small and the domestic

production is limited. For the time being, substantial market growth cannot be expected, and there are consequently no prospects for a rapid increase in the self-supply and local contents rates. In the field of motorcycles, the market is expanding and the domestic production volume is on the rise. There are also prospects for a further expansion of the market, with a corresponding rise in the production volume. In the fields of bicycles, agricultural machinery, food processing machinery, and engines, the market is expanding, but the volume of domestic production is not increasing very rapidly. In these fields as well, however, the future should bring further expansion of the market, and production should also expand if firms build their cost competitiveness by improving the efficiency of their activities. In the case of engines in particular, the big state enterprises are raising their production efficiency and competitiveness by receiving instruction in product design and production methods through technology alliance with foreign counterparts and by outsourcing certain components and supporting industry (SI[1]) processes such as metalworking and heat treatment. As this suggests, achievement of more efficient production requires the development of groups of firms capable of carrying out component production and SI processes.

SMEs have an indispensable role to play as the principals of component production and SI processes. It is essential for the current SME groups to improve their capabilities and transform themselves into component manufacturers and SI process firms. Some of the current SMEs could evolve into assemblers engaged in design and assembly of products that are not very technology-intensive, such as threshers and food processors.

It is therefore hoped that today's SME stock will produce three new groups, i.e., assembly firms, component manufacturers, and SI process firms, as the existing three groups refine their capabilities. The orientation for development of these six groups from the existing SME stock may be summarized as follows.

The current retail product firms would increase their technical capabilities and supply goods of higher quality to the domestic market. They could also begin exporting by boosting the international competitiveness of their products. These ends would require a rise in the level of mass production technology, i.e., production and quality control in mass production.

The current industrial-use repair component firms produce an extremely wide range of items in response to orders. In this scenario, they would acquire a greater degree of dedication to a certain field and become set apart from counterparts as specialists in processing in it. In so doing, many would build transactions with a diversity of foreign-affiliated firms and other SMEs, and raise their levels of processing technology and precision.

These two groups could spawn the future ones of SI firms resting on specialized processing

[1] The term "supporting industry" (SI) refers to the aggregate of industries in possession of fundamental technology in areas such as metal stamping (pressing), machining, metal mold manufacture, heat treatment, plating, forging, and casting. As used here, the term "SI processes" refers to industrial activities in these areas. Components are produced through combination of these processes.

technology, component manufacturers with high levels of mass production technology and design, and assemblers with good capabilities for product development. Although some of the firms now producing industrial-use repair components could evolve into component manufacturers, many more would presumably turn into SI firms. Similarly, among the current SMEs producing goods for retail sale, some could grow into component manufacturers, while others could bolster their marketing capabilities and become assemblers of goods of a more technology-intensive nature.

Meanwhile, the current repair firms hold the possibility of evolution into either retail product firms or industrial product firms. Some could also join the new groups of SI firms, component manufacturers, or assemblers.

The following is an account of the measures thought to be necessary for raising the level of SME activities. This account concerns both measures for evolution into the three new groups (assemblers, component manufacturers, and SI firms) and refinement of the capabilities of the three existing groups (retail product firms, industrial-use repair component manufacturers, and repair firms).

Development of assemblers will require support in aspects such as management and technical training to boost capabilities for marketing and product development, provision of information on markets and technologies, and assistance with the staging of trade fairs to broaden the scope of customers. It will also be essential to nurture the growth of component and SI firms supporting assembly activities.

The growth of component manufacturers will demand the establishment of test centers with inspection capabilities and training programs toward the goals of higher levels of quality and stronger quality control. It will also require programs of training in production planning and control as well as arrangements for factory diagnosis and guidance to ensure systematic production of components in large lots. An additional requirement is the provision of technical consulting services to enhance skills of component development, and the establishment of joint-use facilities and training programs for design using CAD.

The emergence of SI firms will call for the establishment of the centers to upgrade specialized capabilities and furnish technical assistance. These centers would offer production and inspection facilities for certain types of sophisticated processing to all firms at reasonable charge. They would also offer services in technical consulting and instruction in areas such as quality control by parties. Support for broadening the circle of customers would also be necessary. For this purpose, preparation of corporate directories and assistance for corporate marketing and sales efforts will be needed.

As for the existing three types of SMEs, the activities of the retail product firms could be upgraded with basically the same kind of support as furnished for the growth of assemblers. There would be a particularly strong need for assistance with the staging of trade fairs, for example,

to build sales might. The refinement of the business of industrial-use repair component firms would require support to raise levels of specialized technology through quality and production control, as described in connection with the future component manufacturers and SI firms. To upgrade repair firms, it would be necessary to help them solidify their customer base and augment their facilities and technical capabilities with a view to stimulating their evolution into retail product or industrial-use repair component firms. It would therefore be advisable to furnish them with assistance for production facilities and technical support. Centers for SI Technical Support and Centers for Promotion of SI Transactions should be established as the seats of such activity. Centers for SI Technical Support would be equipped with facilities for production and inspection, and offer advice on inspection procedures and process conditions as well as guidance in use of facilities. Centers for Promotion of SI Transactions could serve as the seats of the preparation of directories outlining SMEs, their facilities, and their technical expertise, as well as mediation and referral services to promote transactions with foreign-affiliated firms that do extensive outsourcing.

Table 1-1 summarizes these measures of support in various aspects. The execution of such measures must be promoted by a new governmental agency, SMEPA (refer to chapter 2 of "Organization" in the Individual Policy Report). Support in forms such as technical assistance, training, and information collection and provision is being furnished mainly by the MOI and MOSTE. The recommended setup therefore would lie in execution of measures of support under the initiative of the new agency given jurisdiction over the development of SMEs, which would coordinate its actions with those of existing agencies such as the MOI and MOSTE.

Table 1-1 Measures of Support for SMEs in the Machinery/Component Industry

Support area	Specific measures
Cultivation of the market	- Transaction referral and mediation *1 - Provision of information in all fields of business and technology*1 - Assistance with trade fair staging and participation *1 - Elevation of awareness as regards corporate PR*1
Technology	- Establishment of test institutions *2 - Training for assimilation of new technology *2 - Factory diagnosis and guidance by qualified engineers *2 - Support for technology transfer *2
Facilities	- Help for installation of used facilities - Accelerated depreciation for facilities - Sharing of facilities through business associations
Information	- Assistance with establishment of industrial associations - Collection and provision of all sorts of information - Holding of meetings for technical exchange with foreign firms

Support area	Specific measures
New establishments	- Support for establishment of firms by engineers - Stimulation of entrepreneurial inclinations - Financial aid for new businesses (i.e., venture funds) - Provision of start-up know-how
Human resource development	- Training for business planning and administration - Training in mass/ordinary production technology *2 - Training in development and design *2 - Improvement of educational institutions
Induction of foreign capital	- Attraction of industrial siting - Support for technology alliances
Trade	- Support for export - Tightening of control of smuggling - Relaxation of tariffs and regulations

Source: JICA Study Team

Note: *1 will be supported by Centers for Promotion of SI Transactions

*2 will be supported by Centers for SI Technical Support

1.2 Current Status of the Machinery/Component Industry

1.2.1 Outline of the Machinery/Component Industry

Viet Nam's machinery manufacturing industry has thus far been led by state enterprises. It currently consists of some 462 state enterprises and 972 non-state enterprises, and employs a total of about 200,000. The number of state enterprises, which have thus far been at the core of the industry, is in decline; it decreased by one-fourth over the years 1985 - 1995. This decrease was caused by dismemberment, merger, and absorption of mainly provincial state enterprises as the share of the domestic market held by imported goods expanded under the "doi moi" policy of economic reform. In the process, there was also a substantial reduction in the number of employees in the industry as a whole, its gross assets, total VA product, and the demand/supply rate. Since the instatement of the "doi moi" policy line of reform, there has been a great increase in the number of petty businesses (employing less than nine) and non-state enterprises.

Table 1-2 Current Status of Viet Nam's Machinery/Component Industry

Item	1985 (a)	1996 (b)	1996/1985 rate of change (b/a)
Number of state enterprises	610	463	0.76
Number of non-state enterprises	841	972	1.16
Number of petty businesses	--	28,464	--
Total assets (millions of dollars)	400	300	0.75
Number of employees (thousands)	300	197	0.66
Total VA product (millions of dollars)	400	250	0.63
Demand supply rate (%)	40--50	8--9	0.20

Source: General Office of Statistics

Note: Including foreign-affiliated firms, as well as electrical equipment firms involved mainly in a different field.

1.2.2 Trends in the Machinery/Component Industry in Each Corporate Category

This section divides the machinery/component industry into the four categories of state enterprises, foreign-affiliated enterprises, private enterprises, and self-managed businesses, and presents the characteristics and trends in each.

(1) State enterprises (SOEs)

In Viet Nam, state enterprises were originally the chief principals of production activities and manufactured almost all types of machine products other than high-tech items. They are under the jurisdiction of national ministries/agencies or people's committees. Those under MOI jurisdiction account for the largest portion and produce the major types of machine products through an

arrangement of 18 corporate groups (the so-called "general corporations"). The biggest of these groups are the Vietnam Engine & Agricultural Machinery Corp. (VEAM), which produces agricultural machinery and engines, and the Vietnam Machinery and Industrial Equipment Corp. (MIE), which produces mainly machine tools and other industrial machinery. In plants affiliated with them, these groups possess production and processing facilities of all types, including casting, forging, machining, pressing, heat treatment, plating, and coating. Machine equipment for use in agriculture, forestry, and fishery is produced by firms under the jurisdiction of the Ministry of Agriculture and Rural Development (MARD), while items such as safes are produced by firms under the jurisdiction of the Ministry of Finance (MOF). In the provinces, there are firms under the jurisdiction of local people's committees engaged in activities such as assembly of bicycles and motorcycles, and production of special machinery and components for repair work.

Almost all of this production is marked by low levels of productivity and quality. The volume is on the decline due to an increase in import of counterpart goods from China and other countries.

Table 1-3 Outline of Major Corporate Groups in Viet Nam

<VEAM Group (Vietnam Engine & Agricultural Machinery Corp.)> * This group has the widest range of production, which is centered around engines but also includes bearings, food processing machinery, etc. * It has 6,800 employees, a yearly product of roughly 18 million dollars, and yearly sales of 19 million dollars. The 1997 production was up 1 percent from 1996. Its member firms number 15. * Joint ventures linking group members with foreign firms number eight (subscription rates range from 25 to 30 percent). * It also has an extensive production of engine components, gear boxes, crankshafts, bearings, and other components as well as various types of rice-cleaning machines. * Many of the members (especially the tractor and engine firms) are promoting business fairly aggressively; at many, competition with Chinese products is a key issue, and this suggests active promotion of partnership with foreign capital. * The group is producing small engines based on technical partnership with the Japanese firms Kubota and Yanmar. However, production of 20-hp diesel engines for four-wheeled tractors has been discontinued due to lack of payability. <MIE Group (Vietnam Machine & Industrial Equipment)> * The Group consists of 18 member firms producing plants, machine tools, cutting tools, etc. * It has sales of about 50 million dollars. This amounts to about one-fourth of the country's annual machinery product excluding automobiles and motorcycles manufactured by foreign-affiliated firms. * Of the 18 members, nine have yearly sales in excess of 1.5 million dollars. The biggest is HAMECO, which produces machine tools and has yearly sales of some 5 million dollars. Joint ventures pairing members with foreign firms number four. Two are joint ventures with Japanese firms (Shiroki, for metal molds, and Ebara, for pumps); the other two are joint ventures with Korean firms. * Products consist of equipment for power, cement, and sugar plants; machine tools (lathes, bores, etc.) and cutting tools; irrigation, high-pressure, and other types of pump; harvesters and other agricultural machinery; nuts and bolts; and pliers and other types of tools. * Many firms in the group are attempting to move into other fields due to a loss of competitiveness in their main ones and are searching for fields to serve as future pillars

Source: JICA Study Team

(2) Foreign-affiliated firms

Cases of direct investment by foreign concerns in the machinery/component industry in the broad sense (i.e., including electric/electronics firms) over the years 1988 - 1997 numbered 158 and were worth a combined 1.716 billion dollars. In almost all cases, the foreign side formed joint ventures with state enterprises. A high proportion concern business in automobiles or motorcycles. These fields accounted for 54 of the cases, or about one-third of the total number, and about 1.1 billion dollars, or about 70 percent of the total value. Fourteen foreign-affiliated firms have sited in the field of automobiles, but operations are not paying owing to the as yet limited market and low volume of knock-down assembly.

The domestic market for motorcycles (including motorscooters) is larger than that for automobiles and is growing faster. Production is led by the three Japanese firms and is rapidly rising. These firms are actively working to source more components from within the domestic market, but the local contents rate is failing to rise appreciatively because firms that are not foreign-affiliated do not possess mass production technology.

The foreign-affiliated firms producing automobiles or motorcycles direct their production to the domestic market. Many of those in other fields avail themselves of the abundant supply of low-cost labor to conduct labor-intensive production for export to the home country or third countries.

(3) Private enterprises

Private enterprises do not have a long history. They consist almost entirely of firms producing sundries and other final products with a low degree of technical intensity and SMEs producing repair-use components. Some have capabilities for machinery design and manufacture, but these are extremely few in number. Even among the firms producing comparatively technology-intensive items, some are able to do their own design work, but these are extremely small in number. More specifically, there are a few such firms designing and manufacturing food processing machinery in Ho Chi Minh city.

Partly because they have few opportunities for alliance with foreign firms, the private enterprises generally lack capabilities for original design. They typically design imitations of foreign-made machinery and produce them after importing the requisite components.

(4) Self-managed businesses

Recently, there has been a rapid increase in the number of self-managed businesses. Firms engaged in repair of motorcycles and bicycles account for the majority, and many have the same kind of business as private enterprises. Some specialize in certain processes such as heat treatment. Most are petty operations employing less than ten, but some have nearly 100 employees.

Table 1-4 Characteristics of Vietnamese Machinery Companies by the Number of Employees and Organizational Format

Number of employees	SOEs	Foreign-affiliated firms (Domestic market)	Foreign-affiliated firms (For export)	Private enterprises	Self-managed businesses
Large companies 500 or more	Engaged in integrated production from machine assembly to SI technology	Some large assembling companies	--	--	--
Large companies 200-499	Same as above.	Parts makers which supply Vietnamese and other assembling companies	Engaged in labor-intensive processes of parts to be exported to home countries	--	--
Medium-sized companies: 100-199	Engaged in simple machinery assembly or parts making under the wing of big companies	Same as above.	Same as above.	Hardly any (firms separated from SOEs, etc.)	Same as in the left column.
Small companies: 10-99	--	Hardly any (foreign start-ups and offices of parts makers)	Hardly any (foreign start-ups)	Replacement parts, products that can be made easily	Same as in the left column.
Very small companies: 9 or less	--	--	--	Mostly repair work (motorcycles, etc.	Specialize in certain processes (new cos.) Mostly repair work (motorcycles, etc.

Source: JICA Study Team

1.2.3 Trends in the Major Product Fields

This section summarizes the trends in the fields of automobiles, motorcycles, bicycles, agricultural machinery, food processing machinery, machine tools, and diesel engines. These products command fairly large markets and have relatively great ripple-effects on domestic industry in other fields.

(1) Automobiles

In Viet Nam, there are a total of 14 automobile producers that are joint ventures with foreign capital. Taken together, they produce about 150,000 automobiles of 45 different models. Owing to local contents regulations, these firms source components from about 20 firms that are also joint ventures with foreign capital. However, the local contents rate remains low, and the production is close to the CKD level.

In 1998, only about 25,000 automobiles were sold in Viet Nam, and sales were therefore far

below production capacity. Of this total, only about 6,000 units (or about 25 percent) were produced (assembled) in Viet Nam. Most of the remaining 20,000 or so units were imported used models, and about 2,000 new autos were imported. In short, the market is small and still led by low-cost used models. It is expected to take considerable time for sales of new autos to gather momentum.

(2) Motorcycles

In Viet Nam, there are six joint ventures with foreign capital that produce motorcycles (including motorscooters). They have a combined production capacity on the order of 900,000 units. An additional 70 state enterprises have productions based on assembly of CKD kits by state enterprises. Sales have been rapidly increasing, particularly in the urban areas, and reached 260,000 units in 1998. However, some 100,000 units of this total derived from the CKD assembly by domestic firms; the remaining roughly 160,000 were produced by the foreign-affiliated joint ventures, and this amount represented less than one-fifth of their total production capacity. The government banned import of used models in 1997 and extended the ban to new models in 1998.

The government is planning to raise the local contents of motorcycle production to 60 percent by around 2005, but the rate is still in the range of 30 - 40 percent. Joint ventures with foreign firms for production of motorcycle components number about 20, but they are not yet sufficiently localized. They must search out domestic enterprises (whether state or private) capable of acting as sources and provide them with the necessary guidance.

Motorcycle registrations numbered about 4.83 million as of the end of 1997, and the demand associated with repair has assumed enormous dimensions. Although the regular repair components designated by manufacturers are imported from markets such as Thailand, Taiwan, and Japan, these are quite expensive, and customers themselves generally prefer low-cost alternatives. This has led to a fairly extensive production of copies by repair SMEs.

(3) Bicycles

Bicycles are produced by numerous firms, including state enterprises under the jurisdiction of people's committees. There are virtually no foreign-affiliated firms in this field. The demand for bicycles ranges from about 800,000 to 1 million units a year, but the domestic production came to only about 120,000 units in 1997. There is a certain aversion in the market toward domestically produced models due to drawbacks in the aspects of quality and styling, and imported models hold a large share of the market. Models smuggled in from China are particularly numerous; some 400,000 units are estimated to be smuggled in each year. Although people are replacing bicycles with motorcycles in the cities, the bicycle demand remains solid in the rural areas, where some 80

percent of the population live, and is expected to continue expanding overall.

There are some 15 million bicycles on the road in Viet Nam, and this stock constitutes an immense demand for spare parts. The state enterprises engaged in production of bicycle components and assembly of bicycles have been joined by newly established private enterprises and self-managed businesses. The latter produce repair component copies not only for domestic models but also for models made in China or other countries. Their production is estimated to total some 3 million components yearly.

(4) Agricultural machinery and food processing machinery

The leading firms in the field of agricultural machinery (including production of related components) are the VEAM Group companies, which are under the jurisdiction of the MOI, and the state enterprises under the jurisdiction of MARD. Besides these state enterprises, some private enterprises process repair components (spare parts) for agricultural machinery. Sales of tractors, for example, come to about 10,000 units a year. Of this total, about 3,000 units are produced in Viet Nam; the remainder are imported. China is the source of about 40 percent of the import; the other roughly 60 percent consist of used models imported from Japan. Although there is a limited domestic production of tractor engines, most tractors are mounted with Chinese-made engines.

In the field of food processing machinery, the main products made in Viet Nam are processors for coffee beans, sugar, etc. At present, there are about 220,000 such processors in operation in the country, and the yearly demand is estimated at about 25,000 units. The domestic production is declining as import of models from other countries increases.

(5) Machine tools

Machine tools are produced by four firms in Viet Nam. Among them, HAMECO produces mainly cutting tools, and the others, presses and other such machines. Their combined production amounts to only about 1,000 units a year, and the production of lathes and other such cutting tools accounts for only about 500 units of this total. The production consists almost entirely of copies of machines made in the former Soviet Union or China; virtually no models are independently developed. Moreover, the products are of poor quality and not necessarily less expensive than the Chinese-made models. This is leading to an increase in sales of models imported from China. There is also substantial import from Taiwan, Korea, and Japan. The import from Japan consists mainly of used models. There has not been any siting by foreign concerns in this field, but there is some technology tie-up activity.

(6) Diesel engine

Diesel engines are produced by three firms in the VEAM Group. Their annual production totals about 10,000 units. Sales are in the area of 100,000 units, and the domestic production therefore supplies only about 10 percent of the demand. China is the main source of the import, but there are also some used engines imported from Japan.

Two of the three firms producing diesel engines recently formed technology partnerships with Japanese firms. These firms have switched to a production system making extensive use of the energies of subcontractors, which is rare in Viet Nam, and are expanding their production volume. The technological guidance from Japanese firms is tailored to the attributes of the domestic firms, and efforts are being made to nurture the growth of collaborating companies while improving productivity and quality.

Table 1-5 Supply and Demand in Major Product Fields

	Sales (number of unit)	Domestic production (number of unit)	Import	Export	Self-supply rate	Comments
Automobiles	25,000	0	25,000 (almost all used models; CKD kits account for roughly 5,000 units, and new models, for roughly 2,000 units).	Hardly any	0%	CKD production (assembly) is not counted as domestic production.
Motorcycles	260,000	160,000	Prohibition of import of used models effective 1997 and new models effective 1998; about 100,000 units are imported in the form of CKD kits.	Hardly any	50%	Sales estimated on the basis of the number of new motorcycle registrations; CKD production (assembly) is not counted as domestic production.
Bicycles	1,000,000	100,000	900,000 (models smuggled in from China account for 300,000 - 500,000 units)	Hardly any	10%	Stock comes to about 15 million units
Agricultural machinery	10,000	3,000	7,000 (about 40 percent from China; the remainder consists of used models from Japan, etc.).	Hardly any	30%	In the case of two-wheel tractor frames and bodies.
Machine tools	2,000--3,000	500	Import of models from China and used models from other countries, amounting to about 2,000 units.	Hardly any	15%	—
Diesel engines	100,000	10,000	95% (China: 70%, used models from Japan and other countries: 25%)	Hardly any	10%	—

Source: JICA Study Team

Note: 1. In the field of agricultural machinery, the domestic production capacity for other products comes to about 2,000 units for threshing machines, 150,000 units for sprayers, and 3,000 units for cultivators. The actual production volume is held to 15 - 40 percent of capacity.

2. In the field of machine tools, the production volume at HAMECO, the biggest manufacturer in this field, amounts to about 320 units, and the figure of 500 units is an estimate based on this datum. The figure for sales is also an estimate made with consideration of the distribution of used equipment from failed firms and of Chinese-made machine tools.

1.2.4 Business Domains of Machinery SMEs

In Viet Nam, SMEs are tentatively defined as firms employing no more than 200 and capitalized at no more than 500 million dong. The Ministry of Industry (MOI) estimates the number of firms in the machine/component industry in the broad sense (including some electrical machinery firms) at 1,225. Of this total, those involved with steel and steel processing account for this single greatest portion at 511, followed by machinery facility firms at 247 and firms producing transportation machinery (motorcycles, etc.) at 185. These SMEs fall into two general categories: private and state. The characteristics of each may be described as follows.

The activities of many of the private SMEs are confined to fields where final products can be produced by simple processing of materials, such as pots/kettles and construction materials. Manufactured products such as bicycles and agricultural machinery are produced mainly by state enterprises that carry out basically all processes in-house. There is virtually no butting or overlap between state and private SMEs in respect of product fields.

As for the state SMEs, although some are producing components for supply to the large state enterprises, most make final products for industrial use that do not require very complex processing, such as simple agricultural tools such as hoes and plowshares, and security-related equipment such as safes. However, some of these firms have lost their market due to increased import and have begun to engage in the same kind of business as private SMEs producing in growing fields such as repair components for bicycles.

Table 1-6 Number of SMEs in the Machinery/Component Industry by Product Field (1995)

Field	Number of SMEs		
	Total	With no more than 200 employees	With no more than 500 million dong in capital
Manufacturing sector as a whole	8,577	7,690	7,376
Machinery/component industry (in the broad sense)	1,225	1,072	945
Steel and steel processing	511	471	443
Machinery and facilities	247	198	178
Electrical products	88	74	58
Office equipment	6	6	4
AV products	76	65	38
Precision machinery	25	21	16
Bicycles	87	77	64
Other transportation machinery	185	157	140

Source: Estimation of MOI

Note: The total number of firms is not equal to the simple sum of those with no more than 200 employees and 500 million dong in capital because it is based on the number of firms fitting into either one of these categories.

Many of Viet Nam's SMEs produce mainly cheap essentials that can be manufactured with

simple metal or machine processing and repair components (i.e., spare parts). However, they number only about 1,000, and this figure is not large enough for forming a base of SI and component production capable of transaction with foreign-affiliated firms and large enterprises, as will be required for the future advancement of the machinery/component industry. In addition, there are about 30,000 self-managed businesses that are not registered enterprises but nevertheless engage in production activities (at the least; this figure is based on the number of known businesses only). While these mainly perform repair, not a few have the same kind of business as (registered) SMEs. Studies for promotion of SMEs in the machinery/component industry must take account of the activities of these operations. There are concentrations of them in the 5, 6, 11, and Tanbinh wards of Ho Chi Minh city, and some are developing their business by compensating for each other's weaknesses. In this way, there are some self-managed businesses which are erecting new schemes for divisions of labor of the sort that did not exist in Viet Nam before.

This section divides these SMEs into the three categorie, and presents the characteristics and trends in each.

(1) Firms manufacturing products for retail sale in the domestic market

These firms produce metal goods for the home (such as pots, chairs made of metal pipe, shelving, knives, and scissors) as well as components which can be readily sold in the domestic market, such as motorcycle and bicycle parts. Some were originally repair operations which began to produce repair parts as they acquired more facilities. This group consists mainly of self-managed businesses employing less than ten, but includes some private enterprises with about 100 employees.

(2) Firms manufacturing industrial-use repair components in response to orders from other firms

These firms receive orders from companies in possession of production facilities for agricultural machinery, food processing machinery, etc., and engage in the processing and assembly of repair components. State enterprises in this group used to produce goods with a fairly high degree of technical intensity, but now produce mainly repair components. Although some of these firms are state enterprises with about 100 employees, many are on the order of cottage industries with less than ten employees.

(3) Repair firms

These firms are engaged in repair of automobiles, motorcycles, bicycles, etc. Some of them have simple machine facilities for fabrication of repair components in response to customer orders. They are petty businesses with only a few employees at the most, and are sometimes run solely by the owner.

Table 1-7 Types of SMEs in Viet Nam's Machinery/Component Industry and Their Activities

Type	Characteristics
(1) Firms manufacturing products for retail sale	* Firms producing simple essentials such as pots/kettles and scissors as well as repair components for motorcycles, for direct sale in the market. * The number of employees ranges from less than ten (at self-managed businesses) to about 100. * There are many such firms in wards 6 and 11 in Ho Chi Minh city. * Some of these firms are making marketing efforts; in some cases, the president has come from a trading firm or other principal in the market.
(2) Firms manufacturing industrial-use repair components	* Firms taking orders for simple processing directly from companies engaged in production activities. * The group consists mainly of self-managed businesses with less than ten employees, many of which are located in Tanbinh ward in Ho Chi Minh. * Their heads tend to have a keen interest in technology and to care about quality.
(3) Repair firms	* These firms generally do not have their own production facilities; they purchase parts from suppliers in the Tanbinh market and keep them on hand as inventory for performance of repairs on motorcycles and bicycles brought in by customers. * These businesses are sited along the major roads in certain city districts. * In many cases, the business is run solely by the president; most are basically petty operations.

Source: JICA Study Team

Table 1-8 presents the typical activities of firms in each of these groups in the aspects of development and design, production, sourcing, inspection, and sales. The three salient characteristics are as follows.

- The firms generally use outdated facilities to produce conventional goods already circulating in the market, taking stop-gap measures as necessary to keep the operation going.
- The firms generally have a low awareness of quality; few possess inspection facilities.
- None of the firms has established continuing transaction relationships with other firms.

Table 1-8 The Typical Activities of Firms in Each of These Groups in the Aspects of Development and Design, Production, Sourcing, Inspection, and Sales

Step	Firms manufacturing products for retail sale	Firms manufacturing industrial-use repair components	Repair firms
Development and design	Many firms process copies of repair components for products now being sold in the market. However, some develop original components or products in response to requests from acquaintances selling in the market. These firms make designs right from the drawing stage. Nevertheless, the subject is form only, and design does not extend to key components.	The firms produce copies of broken/failed components brought in by companies. They do not do original design work, and sometimes make components without drawings. They generally decide what kind of material to use themselves, but usually select material that is immediately available.	The firms merely repair manufactured products that are brought to them; they do not have development or design capabilities.
Production	Firms use outdated facilities to manufacture products in fairly large lots. Some (mainly those also designing products) have facilities of their own design which they assembled from components purchased on the market.	The firms process all sorts of components singly using old facilities. They may vary in respect of the size of components which they can handle, but there is not much of a gap in respect of materials and technology. By the same token, the corporate customer does not have requirements extending to designation of materials.	There are almost no production facilities; equipment is simple, on the order of drills. However, some firms can process repair components themselves.
Sourcing	Basically, the firms source from the market and trading firms with which they have long had dealings.	Supplies are purchased mainly from the retail market or trading firms with which the firm has a long acquaintance. There is little opportunity to handle new materials, and little need to search for new sources.	Sourcing activities are on the order of purchase of repair components on the market for stock on hand.
Inspection	The market tends to emphasize cost over quality. Inspection is infrequent, and there is little awareness of the importance of quality. Many firms focus merely on shape and appearance.	Inspection is rare and awareness of quality is low. Firms tend to have the idea that the component is suitable if it fits.	Most firms have no concept of inspection. They think repairs are successful if the part functions when installed or attached.
Sales	Products are sold mainly in the retail market, but some of the firms with original products are capable of selling independently.	The firms produce in response to orders; the circle of customers widens through referrals from existing customers.	The firms merely deal with customers who come to them.

Source: JICA Study Team

1.3 Future Targets in the Machinery/Component Industry

Studies of ways to foster the growth of SMEs in the machinery/component industry require consideration of their positioning in the context of the industry's future development. This section sets forth the strengths and weaknesses of the industry as a whole, probes the possibilities of development in each major product field, and identifies future targets in each. The future outlook for SMEs in particular is treated in the succeeding section (1-4).

1.3.1 Strengths and Weaknesses of the Machinery/Component Industry

As related above, Viet Nam's machinery/component industry is losing its competitiveness even relative to its counterparts in China, for example, not only in fields of technology-intensive products such as automobiles and motorcycles but also in those of products that are not very technology-intensive, such as bicycles and agricultural machinery. The factors behind this loss of competitiveness are the use of antiquated facilities built by the former Soviet Union, and the neglect to establish efficient divisions of production due to the possession of lines for all processes within each state enterprise. As a result, the industry is marked by low levels of productivity and product quality. In addition, managers (especially in state enterprises) have little motivation for rigorous rationalization of the business, and those at the top have little freedom of action. Partly for these reasons, many are merely trying to protect their vested interests; few are taking up the challenge of new business.

Nevertheless, there are also many strengths relative to other Asian countries. Education is enthusiastically pursued, and there are many people with basic technical knowledge (although the level of capabilities for design and other practical operations could not be termed high). As compared to other Asian countries, there is a good availability of talented personnel at low cost. Furthermore, the plants of state enterprises are equipped for processes in basic technological fields (SI processes), although the level of technology is not high. Possession of the second-largest population of all ASEAN countries represents good prospects as far as the supply of personnel and the market are concerned.

Table 1-9 Strengths and Weaknesses of Viet Nam's Machinery/Component Industry

Aspect	Strengths	Weaknesses
Human resources	* Wages that are low compared to those in other ASEAN countries * Diligent, skillful work force compared with ASEAN workers * Many people who have studied basic theory in universities, etc.	- Few managers coming to active grips with the market economy (especially in the case of state enterprises) - Low capabilities for independent product development - Low interest in production control and quality
Industrial structure	* Existence of in-house processes in basic technological fields (SI processes) at state enterprises * Seeds of new industries sprouting (mainly in the south)	- SI processes are generally built into state enterprises and not capable of effective, flexible use - Almost no such processing work by machinery SMEs (due to the end-to-end production in state enterprises and the sluggish state of the domestic market)
Facilities and materials	* Possession of facilities (albeit outdated) for basically all processes	- High rate of defects (20 - 30% in the case of castings) - Antiquated facilities - Difficulty of finding domestic sources for materials
Market	* Large population in the ASEAN context (existence of a large latent market) * High domestic demand in agricultural machinery, food processing machinery , motorcycles and bicycles. * Possibility of expansion under the AFTA order	- Low domestic demand in some product - Prevalence of smuggled goods
Information	* Collection of information on technology, etc., mainly by state enterprises	- No provisions for circulation of information

Source: JICA Study Team

1.3.2 Future Targets in Each Major Product Field

(1) Market potential in each product field

The possibilities for development were viewed in terms of the prospects for expansion of the domestic market, and export to other ASEAN markets. The prospects for export to other ASEAN markets will greatly change with the effectuation of common tariffs under the AFTA order. The outlook for export took account of the scale of the ASEAN market and the characteristics of the goods produced in Viet Nam.

As a result, the market fields in which possibilities for future development were judged to be high are motorcycles, bicycles, agricultural machinery, food processing machinery, engines, and pumps. Prospects for development in the automobile field are thought to be negligible for the time being, for the reasons noted below.

The future outlook for the market was based on future economy level in Vietnam and the state of development in other ASEAN countries. The markets for motorcycles and bicycles are rapidly growing even today, and are expected to assume great proportions as demand spreads from the cities to the provinces. Similarly, agricultural machinery, food processing machinery, and pumps currently constitute considerably large markets which should expand further along with economic growth. In the fields of engines and machine tools, a significant increase over the current market

is not likely in the years before 2005, but rapid expansion is forecast beginning around 2010. The market for automobiles should start to exhibit significant growth around 2010 and reach a few hundreds of thousands of units per year by around 2020.

In the fields of bicycles and agricultural machinery, where there is a large domestic market, the future holds the prospect of an increase in imports as well. However, there is a domestic production in these fields already, and also no great technical gap as compared to other ASEAN countries.

(2) Targets of industrial activities in the major product fields

For the advancement of the machinery/component industry, it is essential for domestic firms to produce and supply products in fields where the market is expanding. It is also important for these firms to procure the components and materials needed for assembly and production in these fields from the domestic market. For this reason, targets were set for self-supply and local contents rates in the major product fields.

In fields such as automobiles, the domestic market cannot be expected to expand significantly for the time being, and there are few prospects for growth of domestic industry. In fields such as motorcycles, agricultural machinery, and food processing machinery, on the other hand, the self-supply rate is rising and production is anticipated to gather momentum.

In the field of motorcycles, volumes in production, which is led by foreign-affiliated firms, are rising and activities are gathering momentum. Active attempts are also being made to increase the local contents rate, which can also be expected to rise.

In the fields of agricultural machinery, food processing machinery, and engines, the share of the sales volume occupied by imports from China and other countries is rapidly rising, with a corresponding decline in the self-supply rate. However, there are many domestic firms producing in these fields, and some of them are dramatically improving their efficiency by outsourcing certain component production and SI processes. For the future, new approaches of this type by numerous firms could heighten the industry's productivity and competitiveness.

The quickening of production activities should widen the circle of locally sourced components, stimulate component and process outsourcing, and give SMEs more opportunities for supply.

Table 1-10 Future Outlook for Rates of Self-Supply and Local Contents in Major Product Fields in Viet Nam

Product field	Item	Present	2000	2005	2010	2020
Automobiles	Self-supply rate	×	×	△	○	○
	Local contents rate	0%	0%	5%	10%	10%
Motorcycles	Self-supply rate	○	○	○	◎	◎
	Local contents rate	30%	40%	50%	70%	80%
Bicycles	Self-supply rate	△	△	○	○	◎
	Local contents rate	70%	80%	90%	90%	90%
Agricultural machinery	Self-supply rate	△	○	◎	◎	◎
	Local contents rate	70%	80%	90%	90%	90%
Food processing machinery	Self-supply rate	○	○	◎	◎	◎
	Local contents rate	70%	80%	90%	90%	90%
Machine tools	Self-supply rate	×	×	×	△	○
	Local contents rate	60%	70%	80%	80%	90%
Engines	Self-supply rate	×	△	○	◎	◎
	Local contents rate	50%	70%	80%	90%	90%
Pumps	Self-supply rate	○	○	○	◎	◎
	Local contents rate	70%	80%	90%	90%	90%
<Projections/assumptions>						
Trade situation				Effectuation of AFTA	Development of WTO	
Population		About 77 million	About 80 million	About 85 million	About 90 million	About 100 million

Source: JICA Study Team

Note:
1. Legend: ◎: self-supply rate of over 70 percent, extensive export, ○: self-supply rate of 40 - 70 percent, some export, △: self-supply rate of 10 - 40 percent, almost no export, ×: self supply rate of less than 10 percent, almost no export
2. Local contents rate: share of all components in products assembled by firms sited in Viet Nam occupied by components sourced in Viet Nam.
3. Population projections assumed that the current population would grow at rate averaging 1.5 percent annually.

1.4 Orientation for the Development of SMEs in the Machinery/Component Industry, and Tasks for Realization

Whereas the previous section presented future targets for the machinery/component industry as a whole, this section views the role to be played by SMEs for attainment of these targets and sets forth tasks to this end.

1.4.1 Role to Be Played by SMEs and Orientation for Development

(1) Role to be played by SMEs in industrial advancement

As noted in the previous section, an increase in the rates of self-supply and local contents is a key prerequisite for the future advancement of the industry as a whole. To achieve these increases, there must be a stock of SMEs engaged in a diverse production of components and SI processing taking full advantage of their quick and flexible powers of action. In the case of certain types of products, SMEs must become able to carry out assembly adapted to the needs of various customers.

At present, there are very few firms engaged exclusively in component production or SI processing such as metalworking of the sort to support assembly, which is done mainly by the big state enterprises and foreign-affiliated firms. The state enterprises carry out component production and SI processing themselves using in-house facilities. The foreign-affiliated firms outsource some components and SI processing to large state enterprises or the operations of other foreign firms in Viet Nam, but generally import the components they need. These firms are attempting to raise their local contents rates, but the circle of components that can be sourced from domestic firms is limited. In addition, the domestic sources do not offer stable quality and flexible accommodation of needs. For these reasons, local contents rates are not rising on schedule. In developed countries, component production and SI processing are left to SMEs which have a high adaptability (a key strength of smaller enterprises relative to large ones) for accommodation of needs and possess specialized technology. These SMEs engage in component production and SI processing with high levels of quality at low cost, and this has the effect of elevating the competitiveness of the assembly firm products in the international market. Foreign-affiliated firms are hoping for the emergence of SMEs that will enable the construction of such production setups in Viet Nam as well. Furthermore, they are willing to furnish the necessary technical guidance through transactions with such SMEs.

Such inclinations are not confined to the foreign-affiliated firms. In the current of reform, the large state enterprises that perform all processes in-house in turning out finished products have begun to take a positive attitude toward the use of external energies. In some cases, activity along this line is being linked to improved results. Programs of dismemberment and privatization should turn large state enterprises into two or more new SMEs. It is also fully conceivable that

they could sell some of their current production capacity to other firms.

In some cases, production of goods that are not very technology-intensive is better performed by the more flexible SMEs than by large state enterprises. For example, production of simple machinery and equipment such as food processors and threshers could be done at lower cost by SMEs as opposed to big state enterprises. Firms of this orientation could arise from the dismemberment and privatization of the latter as well as from the current stock of SMEs.

Based on this scenario, Table 1-11 presents the domains to be handled by SMEs in the future in each product field and in each production phase. At present, SMEs are producing metal products for the home and repair components. In the future, they may be anticipated to do some assembly of agricultural machinery and food processing machinery, although assembly in fields of more technology-intensive products such as automobiles, motorcycles, machine tools, and engines would still be led by foreign-affiliated firms and the large state enterprises. In the phases of component production and SI processing, SMEs would play a major role, although assemblers would still depend on imported components in certain categories.

Table 1-11 Principals in Each Product Field and Phase - Current Status and Future Outlook

Product field	Current			Future		
	Assembly	Component sourcing	SI processing	Assembly	Component sourcing	SI processing
Automobiles	Foreign-affiliated firms	Import	—	Foreign-affiliated firms	Import Foreign-affiliated firms	SMEs
Motorcycles	Foreign-affiliated firms	Import, foreign-affiliated firms	Large enterprises	Foreign-affiliated firms	Foreign-affiliated firms SMEs	SMEs
Bicycles	Large enterprises	Large enterprises	Large enterprises	Large enterprises	Large enterprises SMEs	SMEs
Agricultural machinery	Large enterprises	Large enterprises	Large enterprises	Large enterprises SMEs	Large enterprises SMEs	SMEs
Food processing machinery	Large enterprises	Large enterprises	Large enterprises	Large enterprises SMEs	Large enterprises SMEs	SMEs
Machine tools	Large enterprises	Large enterprises	Large enterprises	Large enterprises Foreign-affiliated firms	Import SMEs	SMEs
Engines	Large enterprises	Import Large enterprises	Large enterprises	Large enterprises Foreign-affiliated firms	Import SMEs	SMEs
Pumps	Large enterprises	Import Large enterprises	Large enterprises	Large enterprises Foreign-affiliated firms	Large enterprises SMEs	SMEs
Metal goods for the home	SMEs	SMEs	SMEs	SMEs	SMEs	SMEs
Repair components	—	SMEs	SMEs	—	SMEs	SMEs

Source: JICA Study Team

Note: Shading indicates the domains of SME activity. Large enterprises are currently state-run, but almost all are expected to be privatized in the future.

It should be added, however, that the spectrum of machinery components is a broad one containing items that are widely different in character. As such, priorities must be set in production. More specifically, determinations must be made on the components to be sourced domestically, based on evaluation with respect to factors such as level of technology, proper scale of production, and circumstances of material supply. In this connection, Table 1-12 shows the status of component sourcing by a manufacturer of diesel engines with the highest local content in its field. This firm makes the greatest possible use of external energies and has attained a local contents rate of close to 70 percent. Nevertheless, there are currently 18 components for which it cannot find suitable domestic sources and depends on import. Production of connecting rods, for example, requires hot forging of intermediate carbon steel, followed by quenching and tempering. While there are firms in Viet Nam with facilities for forging and heat treatment, none can supply rods with the requisite degree of precision and stable quality. For the time being, supply of such

items will depend on import. A shift to domestic production will require an improvement in the level of forging and heat treatment technology.

Table 1-12 Component Sourcing by a Domestic Engine Manufacturer

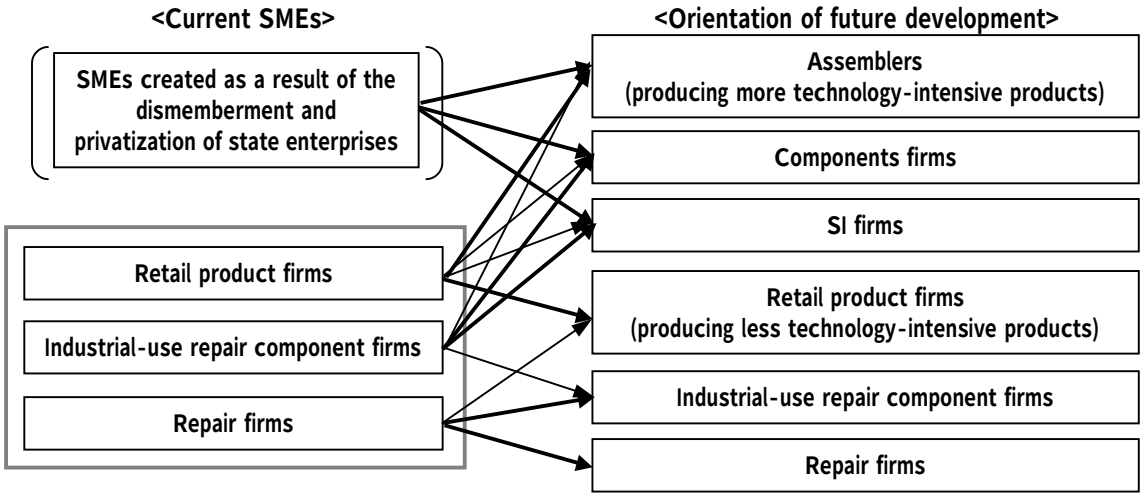
Component	Sourcing cost (unit)	Remarks
Locally sourced components	US$300	Domestic supply of items including engine blocks and crankcases due to siting by foreign firms; sourcing from about 60 domestic firms.
Imported components	US$150	18 items, including connecting rods, camshafts, cylinder heads, crankshafts, and bearing cases
Total	US$450	—

Source: JICA Study Team

(2) Future orientations for each SME group

Under the above scenario, the existing stock of SMEs, which consist of the three groups of retail product firms, industrial-use repair component firms, and repair firms, will upgrade the level of the current business and eventually breed three new groups: assemblers, component manufacturers, and SI firms. In addition, the process of dismemberment and privatization is expected to turn some state enterprises into new SMEs which will eventually enter one of these three new groups.

Figure 1-1 Orientation of SME Development



Source: JICA Study Team
Note: Bold arrows indicate extremely promising orientations.

The features of the newly created groups may be described as follows.

Assemblers

The assembly firms will possess good capabilities of marketing and product development, and produce rather technology-intensive articles. Although such assembly is performed by foreign-affiliated firms and certain state enterprises at present, some SMEs should become capable of it in the future. In particular, retail product firms with a strong interest in marketing could develop in this direction by bolstering their powers of product development.

The prospective products of these new assemblers may be exemplified by threshers, combines, and driers in the field of agricultural machinery, and equipment for making noodles, bread, and confections in that of food processing machinery.

Component manufacturers

This group would supply components for the production by assemblers. The firms would have a stable, high-volume component production and maintain high levels of quality and productivity. The scope of components covered would at first be confined to those in which shape is the most important factor and the production process is simple, such as nails, screws, nuts, covers, and pedals, but eventually extend to structural members such as frames and mechanical members such as springs and shafts.

SI firms

The firms in this group would undertake specialized processing for assemblers and component manufacturers, and would have strong technological capabilities. Some of the existing firms manufacturing repair components for industrial use could evolve into SI firms (or component manufacturers) by focusing on an area of particular technological strength, further refining their skills in it, and reinforcing their relations with customers.

Existing groups (retail product firms, industrial-use repair component firms, and repair firms)

The three existing groups (retail product firms, industrial-use repair component firms, and repair firms) will presumably continue to subsist along with their market, but would conduct activities with higher levels of quality and productivity. In addition, they should become able to test the performance of their own products to ensure the quality.

The retail product firms would sell products of better quality and graduate from items such as pots and pans to other such as water heaters and tanks. The industrial-use repair component firms would raise their production from the level of shape-dominated components for repair use to action-type components. The repair firms could evolve into repair product firms or industrial-use repair component firms by augmenting their facilities and bolstering their sales capabilities.

The process of dismemberment and privatization could immediately break down some of the

large state enterprises into firms of the target type for SME development (i.e., assemblers, component manufacturers, and SI firms). (However, almost all of the firms scheduled for early privatization are not performing well, and their post-privatization business will probably be on the same level as that of the existing SMEs.) At any rate, the firms created by the privatization of state enterprises should also aspire to activities of the types noted above.

1.4.2 Tasks for Development in the Future Orientation

The following can be cited as tasks for actual development in the future orientation outlined above.

(1) Expansion of transactions and cultivation of the market

First and foremost, realization of the aforementioned scenario will require stimulation of transactions between firms conducting assembly and component/SI firms. Currently, foreign-affiliated firms refer to corporate directories in the possession of the VCCI, for example, when looking for component manufacturers and SI firms as outsourcing destinations. It is generally not easy for them to find suitable partners this way, because the directories are either outdated or updated only at long intervals, and do not cover self-run businesses. Similarly, SMEs and self-run businesses may have made some sales approaches to shops on the retail market but very little to the corporate market, and almost none have ever approached foreign-affiliated firms. Some of the SMEs do not even know what kinds of foreign firms have sited in Viet Nam. Therefore, SMEs and self-run businesses must acquire an appreciation of the importance of selling to companies. It is also necessary to improve the store of information by preparing up-to-date corporate directories and compiling data on companies placing and undertaking orders.

(2) Improvement of technical capabilities

SMEs must raise their level of technology if they are to meet conditions imposed in outsourcing by foreign-affiliated firms and large state enterprises performing assembly. They will not be given even trial orders or contracts unless they can meet these conditions, which span the aspects of quality, price, quantitative production capacity, and delivery term. However, once deals are made, they can expect to receive technical guidance from the contracting firm and so boost their level of technology. For this purpose, they must acquire the technical and control capabilities needed to fulfill outsourcing requirements.

(3) Promotion of new establishments

The targeted advancement also requires a quantitative increase in the stock of firms placing

and undertaking outsourcing work. This, in turn, calls for not only active attraction of siting by foreign firms and programs of dismemberment, privatization, and consciousness-raising at state enterprises, but also promotion of the establishment of new SMEs engaged in component production and SI processing.

(4) Upgrading of facilities

SME facilities must be upgraded. The current stock of facilities is generally outmoded, and new ones are needed for incorporation of technology on a higher level. For the time being, however, it is important for firms to make the most effective use of the facilities on hand. New ones should be installed only after firms have reinforced their abilities for production planning, control, and management.

(5) Human resource development

Finally, the human resources needed for proper management and production activities must be developed. Since few of the existing SMEs are hiring additional personnel, the emphasis for the time being should be placed on augmenting instruction for the current employees. Farther in the future, when they are in a better position to recruit talented personnel, SMEs will need workers who can immediately step onto the production line, engineers with sophisticated design skills, and also people who can handle all such duties, especially because of their limited complements of staff.

The first and second tasks outlined above (i.e., expansion of transactions and improvement of technology) are described in more detail in the next section.

1.4.3 Orientation as Viewed from the Standpoint of Transaction Relationships

(1) Orientation as viewed from the standpoint of transaction relationships

Figure 1-2 shows the course of the expansion of the scope of customers by SMEs.

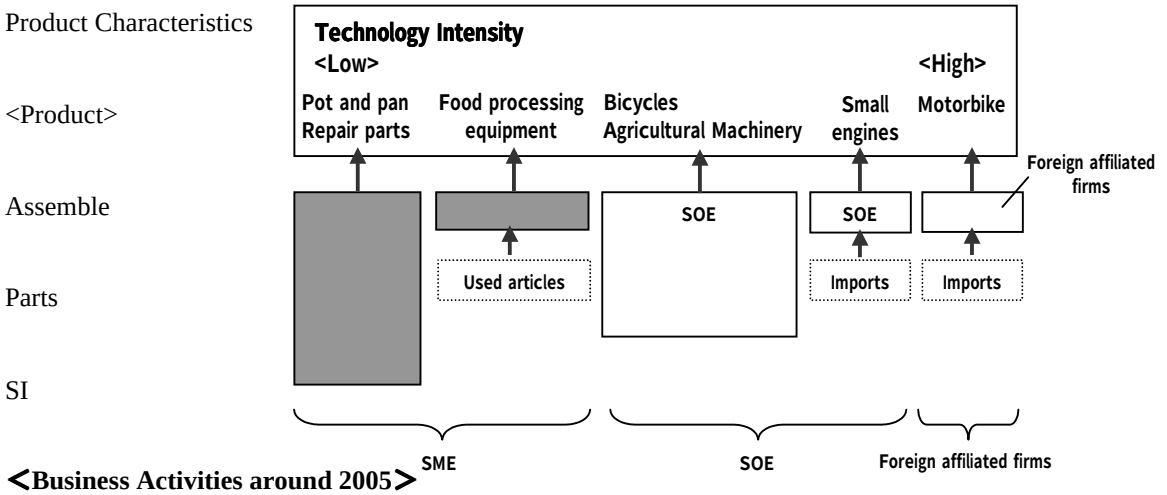
At present, the retail product firms manufacture low technology-intensive goods in-house for supply to the retail market. They have almost no transactions with state enterprises (SOEs) or foreign-affiliated firms. Similarly, the firms manufacturing repair components for industrial use make parts for repair of production facilities at SOEs and foreign-affiliated firms, but they basically carry out single-item production in response to orders. As such, there are no on-going transactions, and almost no technical guidance from or exchange of information with customers.

Foreign-affiliated firms want to increase their local contents rates, and may be expected to source more components from SMEs and consign more processing work to SI firms with sufficient technical capabilities by around 2005. SME involvement in these transactions should begin with repair component firms which have acquired expertise in a certain technical field and retail product firms which have acquired expertise in mass production. These firms should go on to build up their technical capabilities rapidly with the help of instruction from the customers. Furthermore, some SMEs could grow into leading assemblers of more technology-intensive products while sourcing components from and consigning SI processes to numerous SMEs.

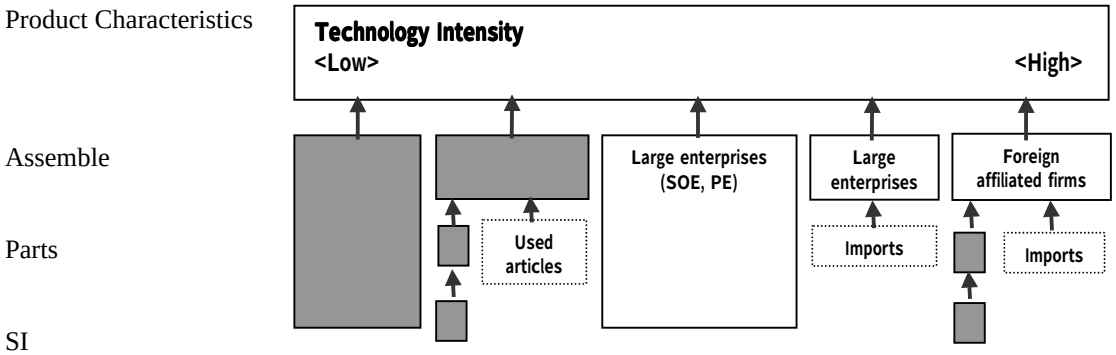
By around 2015, SOEs and private enterprises (including SMEs conducting assembly) should join foreign-affiliated firms and commence transactions with SMEs that have acquired higher levels of technical capability. Once this happens, many SMEs can be anticipated to develop business in basic technical (SI) processes and component processing.

Figure 1-2　Present Positioning of SME sand Future Activity Area

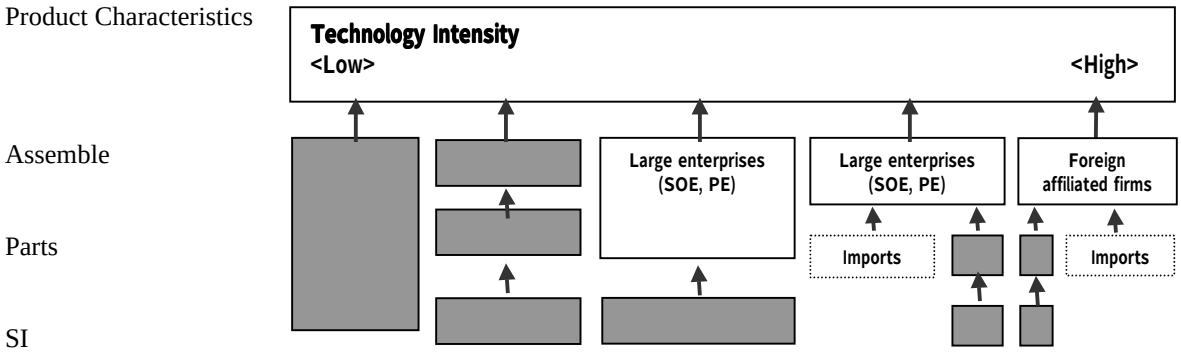
＜Present Positioning of SMEs＞



＜Business Activities around 2005＞



＜Business Activities around 2015＞



Source: JICA Study Team

Note: Painting with net indicates business area of SMEs

PE : there are two types of private enterprises which was grown up from SMEs and was transferred from SOEs.

(2) Prerequisites for development in the aspect of transaction relationships

1) Expansion of firms placing orders

A rise in the quantity and level of transaction relationships will require attraction of siting by foreign firms that outsource components and SI processing. It will also require reform of the management of the large state enterprises with a view to sharpening their inclinations to achieve greater efficiency by the use of external energies (i.e., outsourcing). It is particularly vital to attract siting by more foreign firms, which possess the know-how for providing outsourcing destinations with guidance in the control and technical aspects.

2) Fuller store of transaction information

To build schemes for division of production labor, there must be a full circulation of information on firms considering outsourcing and those desiring to undertake it. At present, such information is virtually unavailable, and SMEs lack the urge to conduct marketing activities. The business environment must be conditioned in areas including provision of information on setups for division of labor and more formidable coordinating functions to support such setups. The SMEs in question will also have to acquire a greater appreciation of marketing and develop aggressive sales activities.

3) Reinforcement of technical capabilities

Before commencing regular transactions, the outsourcing firms generally place orders on a trial basis. In this trial phase, the firms undertaking the work must meet the standards applied by the outsourcing firms in the aspects of quality, precision, and delivery term. To this end as well, SMEs must increase their levels of product precision and quality, refine production control for strict observance of delivery deadlines, master mass production technology, and build flexible setups for swift response to changes of order specifications, for example. All of this will demand improvement of technical capabilities. The following section summarizes the factors in such technical advancement.

1.4.4 Orientation as Viewed from the Standpoint of Technical Prerequisites

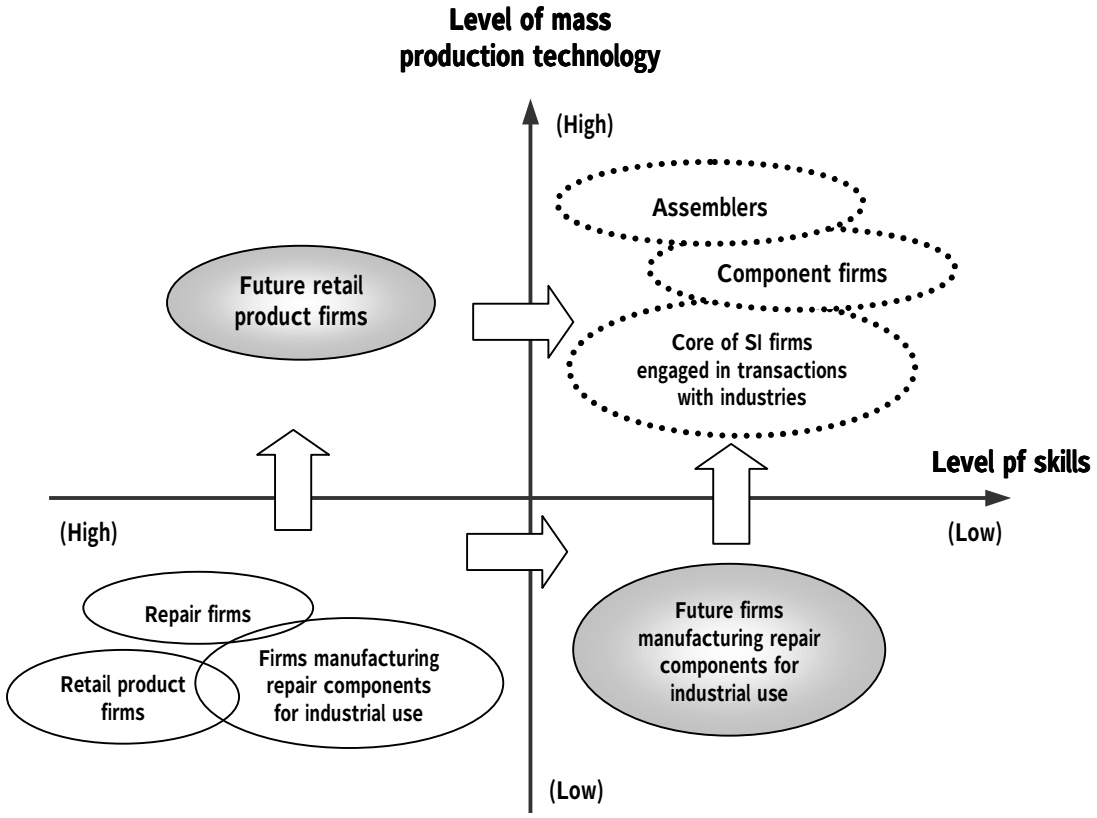
(1) Orientation of technical advancement

This section outlines the orientation of SME development as far as technology is concerned. For the advancement of the machinery/component industry, the retail product firms, whose business is based on mass production, need mass production technology for control of production and quality even more than technology for ensuring product precision. The firms manufacturing repair components for industrial use essentially engage in single-item production and must attain

higher levels of processing technology and precision. The firms engaged in repair work have the latent possibility of evolution into either retail product firms or industrial component firms.

In the future, SI firms could possess both mass production know-how and technical skill. The component firms would draw on their specialized competence and not only carry out processing consignments but also perform all steps from component design to material sourcing and production. For this reason, they would have to acquire higher capabilities for component design, material evaluation, and material purchasing. They would also have to be equipped with abilities in the areas of production planning and control of production and quality. The assembly-oriented firms would have to improve their capabilities for product development, sales, quality control, and outsourcing management.

Figure 1-3 Future Orientation in the Technical Aspect



Source: JICA Study Teams

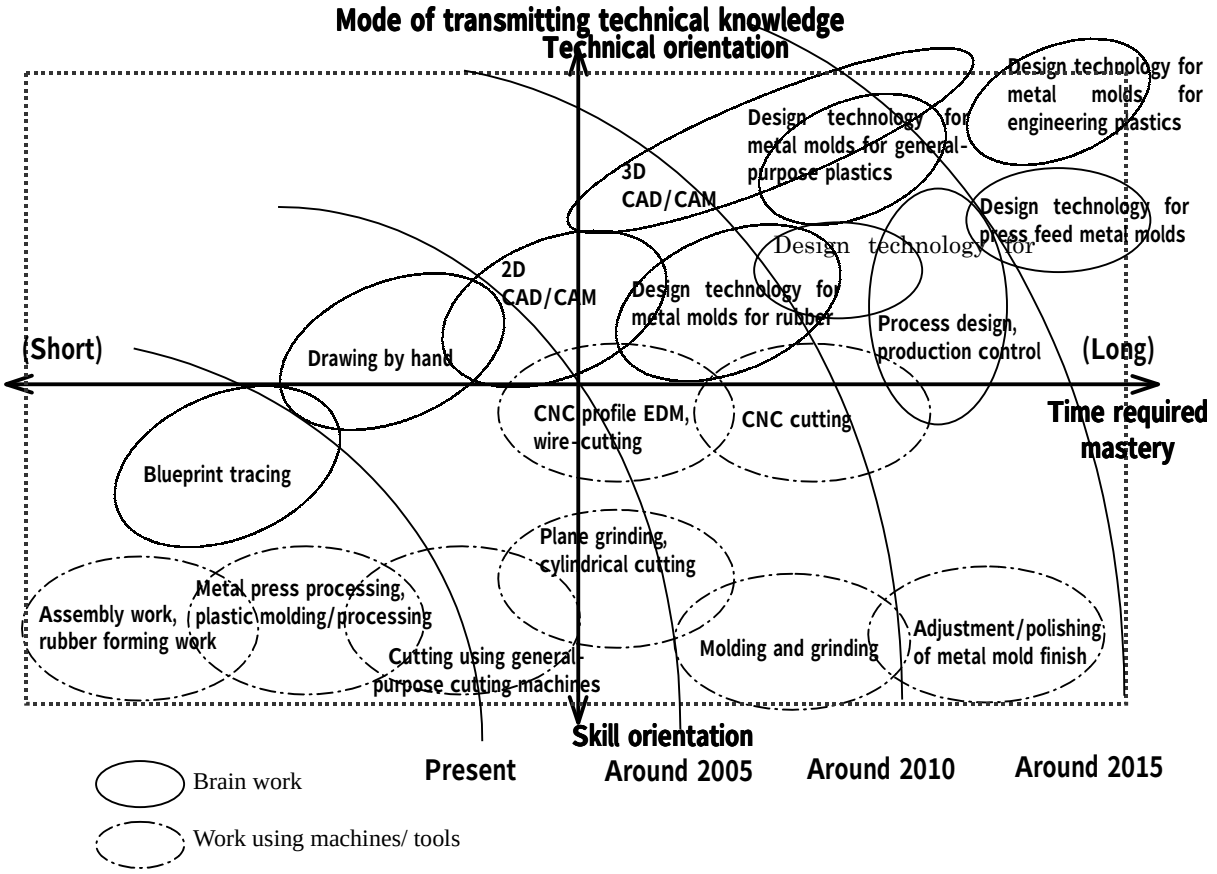
(2) Technical prerequisites

Figure 1-4 summarizes the technical prerequisites for Viet Nam as a function of the time required for mastering processes and the mode of transmitting technical knowledge. The mode of transmitting technical knowledge has the “technology" (upper) end and the "skill" (lower) end. In this figure, the "technology" (upper) end refers to technical knowledge that can be put into the form of data or text and imparted in a systematic fashion (e.g., metal mold design). By contrast, the "skill" (lower) end refers to technical knowledge that can only be imparted through repetitive practice and direct learning (e.g., filing, metal mold finishing).

The domains at bottom left are those of technology available in Viet Nam today, e.g., assembly work, rubber forming, metal stamping (press processing), and plastic processing. As the level of technology and social needs rises, firms will acquire more technology to the right and workers themselves will desire to perform jobs with a higher level. In this case, there are two basic orientations: skill and technical. Progress in the skill orientation would amount to a rise in the level of workmanship through training for mastery of more sophisticated work, and that in the technical orientation, to understanding of both practice and theory of CAD/CAM, metal mold design, etc. In 2005, firms will come to acquire the technology of 2D-CAD/CAM, wire-cutting EDM, plane grinding, cylindrical cutting, etc. In 2015, 3D-CAD/CAM, CNC cutting, molding and grinding, adjustment/polishing of metal mold finish technologies will be widely used.

The possession of technology to the right indicates a higher level of technical capabilities, and this is the orientation for which Viet Nam's SMEs should aim for the future. It is advisable for companies to be able to cover a wide range of technical domains as far as possible for a better overall balance to get many jobs. Firms whose activities are confined to a specific domain may win high ratings as specialists but also get the reputation of being unable to handle technology in adjacent domains. By the same token, this matter depends on management policy and, in the final analysis, concentration in a single domain cannot be termed a negative factor in all cases. At any rate, the priority for the time being is to bring SME technology up to an internationally competitive level and to breed firms with special expertise in specific fields.

Figure 1-4 Orientation of Development as Regards Technical Prerequisites



Source: JICA Study Team

Table 1-13 compares Viet Nam and other Asian countries in respect of the diffusion of industrial facilities, mainly of the types needed for the processing targeted in the future advancement of the industry as described above.

The diffusion level of the machine tool in Viet Nam are lagging, as the case for lathe, general purpose milling machines, a saw machines and so on. The target for next five years will be the level currently attained by China for such equipment as electrical discharge machining, heat treatment, blasting, etc. It should also be noted, however, that other ASEAN countries are weak in areas such as metal mold fabrication, and that Viet Nam could gain an edge over them by building up its stock of facilities needed for full exercise of its skills and strengths in these areas (e.g., electrical discharge machining, heat treatment, etc.). While taking the level of facilities attained by Japan as an eventual goal, the industry should work to establish and expand fields in which it is highly competitive in the international market.

Table 1-13 Diffusion of Machine Tools in Asian Countries

Process	Method (specific)	Tool used	Viet Nam		China	ASEAN	NIEs	Japan
			Current	Future				
Cutting	Turning	Lathe	◎	◎	◎	◎	◎	◎
		NC lathe	△	○	○	○	◎	◎
		CNC lathe	▲	○	△	△	○	◎
		Turning center	▲	△	▲	▲	△	◎
	Milling	General-purpose milling machine	◎	◎	◎	◎	◎	◎
		NC milling machine	△	◎	○	○	◎	◎
		CNC milling machine	▲	△	△	△	○	◎
		Machining center	▲	△	△	▲	○	◎
		CNC profiling machine	▲	△	△	▲	○	◎
	Sawing	Sawing machine	◎	◎	◎	◎	◎	◎
Grinding	Plane grinding	Plane grinding machine	△	○	○	○	○	◎
	Shape grinding	Shaping machine	▲	○	△	△	○	◎
		Profile grinding machine	▲	△	▲	▲	△	◎
	Cylindrical grinding	Cylindrical grinding machine	○	◎	◎	○	◎	◎
		Centerless grinding machine	△	△	△	▲	○	◎
	Inner surface grinding	Jig grinding machine	▲	△	△	▲	△	◎
	Mirror finish polishing	Wrap polishing machine	▲	△	△	▲	△	◎
		Electrolytic polisher	▲	▲	▲	▲	△	◎
Electrical discharge machining	Profile EDM	Profile EDM machine	△	○	○	○	○	◎
		CNC profile EDM machine	▲	○	△	△	○	◎
	Wire-cutting EDM	Wire-cutting EDM machine	▲	△	△	△	○	◎
Heat treatment	Quenching, tempering	Electric furnace	△	○	○	△	◎	◎
		Vacuum furnace	▲	△	△	▲	△	◎
		Salt bath	▲	△	△	▲	△	◎
		High-frequency quenching machine	▲	○	△	▲	○	◎
Surface processing	Plating	Hard chromium plating	▲	○	△	▲	○	◎
	Coating	Physical vapor deposition (PVD)	▲	△	▲	▲	△	◎
		Chemical vapor deposition (CVD)	▲	△	▲	▲	△	◎
Corrosion processing	Surface nitridization	Tufftride processing facilities	▲	▲	▲	▲	△	◎
	Crimping	Satining facilities	▲	▲	▲	▲	△	◎
		Creping facilities	▲	▲	▲	▲	△	◎
		Graining facilities	▲	▲	▲	▲	△	◎
	Etching	Etching facilities	▲	▲	▲	▲	△	◎
Blasting	Blasting	Sandblasting machine	○	◎	◎	◎	◎	◎
		Glass bead blasting machine	▲	△	△	▲	△	◎
Electrocasting facilities	Electrocasting facilities	Electrocasting facilities	▲	▲	▲	▲	△	◎

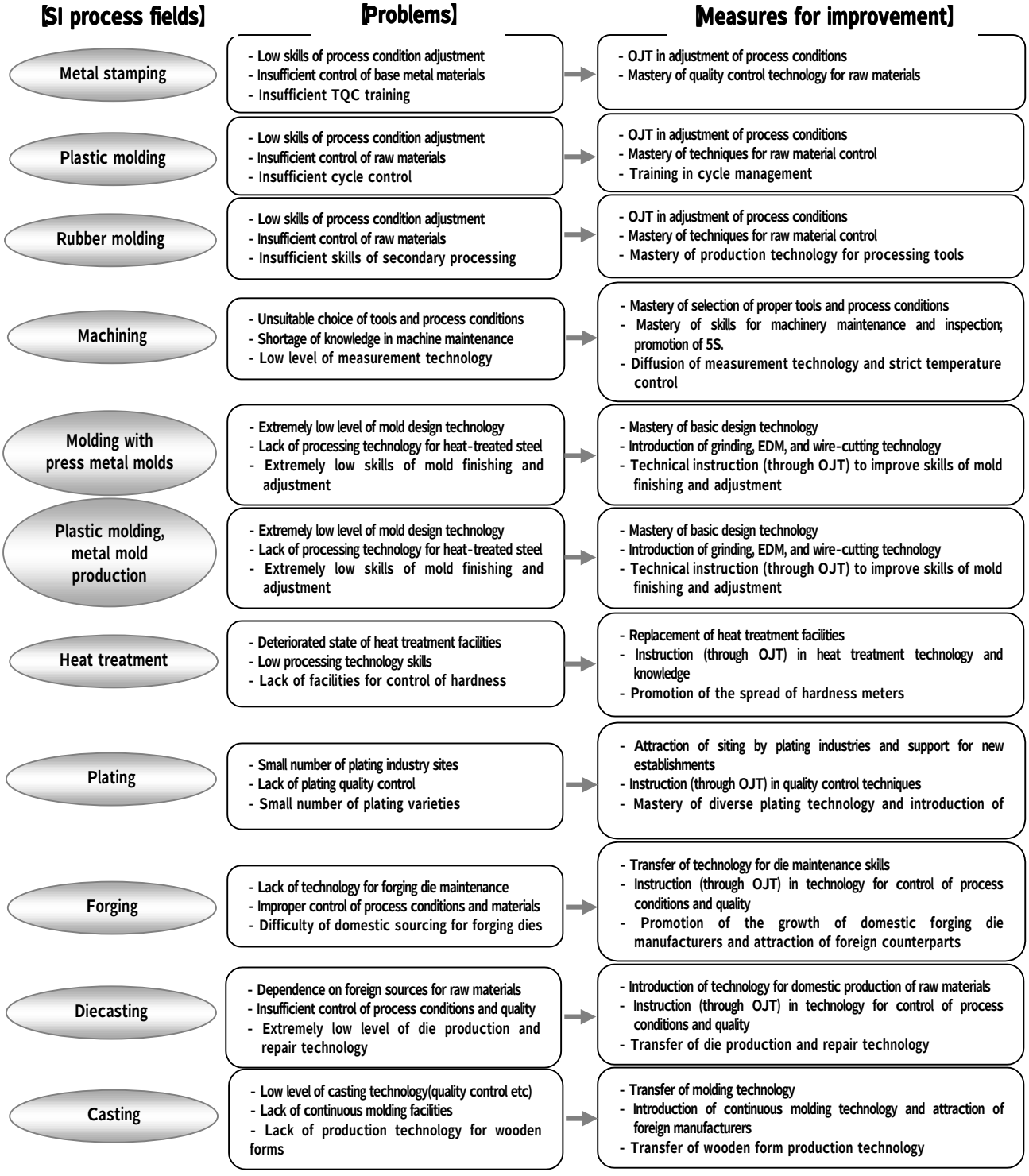
Source: JICA Study Team

Note: Legend: ◎: already in widespread diffusion, ○: in the process of diffusion, △: in limited diffusion, ▲: rare. Based on degree of diffusion in fields of specialized processing technology in the metal mold manufacturing industry.

Figure 1-5 presents measures for improving the level of technology and meeting the targeted technical prerequisites, especially as regards the SI-related fields.

Machinery/Component industry in Viet Nam lacks in basic technologies required. Low level of the production management in such areas as raw material stock control and quality control, and lacking in skills needed for fine processing like finishing technology and process condition adjustment are the major examples. The countermeasures to improve the situation have to be taken with emphasis on OJT besides theoretical approaches since most of skills can't acquired without hand-on experience. This naturally requires the active effort to realize technology transfer from foreign-affiliated firms.

Figure 1-5 Problems and Measures for Improvement in SI Process Fields in Viet Nam



Source: JICA Study Team

1.5 Plans for Promotion of SMEs in the Machinery/Component Industry

The main policy needs identified in interviews with SMEs were provision of market information and technical guidance. However, plans for the promotion of SMEs must take account of needs as viewed from a broader standpoint. This section surveys the advisable measures for support of SME promotion based on the orientation for the future development of the machinery/component industry in Viet Nam.

The recommended measures of support are described below. They must be executed by a new government agency, SMEPA. At the same time, agencies such as the MOI and MOSTE could be in charge of support in such forms as technical assistance, training programs, and information collection and provision. In other words, the new agency, SMEPA would hold the initiative in promotion and execute measures while coordinating its activities with those of the MOI, MOSTE, and other concerned agencies.

(1) Support for market cultivation

Support for cultivation of the market is of considerable importance for the construction of diverse divisions of production labor. Most of the SMEs have no experience of sales promotion activities, and even at those that do, the activities are generally performed by one person - the president. As such, it is vital to furnish SMEs with support for sales efforts. This can be done by establishing Centers for Promotion of SI Transactions. These centers could serve as the seats of the preparation of directories outlining SMEs, their facilities, and their technical expertise, as well as mediation and referral services to promote transactions with foreign-affiliated firms that do extensive outsourcing. Further in the future, they could develop services to pair companies (including state enterprises) looking for buyers with those looking for sellers. To support independent marketing efforts, assistance should be provided for the preparation of brochures to raise employee consciousness, as well as for the staging of and participation in trade fairs and venues of opportunity for SMEs.

* Referral and mediation services for prospective transaction partners; construction of data base on each company's technology (in Vietnamese and English)
* Provision of market information in each field of business, technology, and process
* Support for trade fair staging and participation
* Elevation of awareness of the importance of corporate PR (assistance with preparation of corporate brochures and promotion of outsourcing)
* Establishment of industrial associations, etc., for provision of information on market trends in each field

(2) Technical support

For the time being, technical support should be provided mainly in the areas of quality improvement and control. Subsequently, it should be expanded to include design and development. Centers for SI Technical Support should be established as the seats of such activity. These centers would be equipped with facilities for production and inspection, and offer advice on inspection procedures and process conditions as well as guidance in use of facilities. The immediate target should be to raise the level of production facilities to that of China. Because it may be impossible for many firms to possess their own facilities, arrangements should also be made for joint use. Such joint-use production facilities could be installed in the Centers for SI Technical Support along with inspection facilities. Initially, technical support would emphasize the fullest possible use of the existing facilities. Later, the centers would furnish advice for the installation of new facilities and guidance in production technology contributing to development. Eventually, attention could turn to promotion of technology transfer to SMEs from foreign-affiliated operations in the country and foreign firms through OEM, etc. Activities such as factory diagnosis could be undertaken toward the ends of increasing productivity and improving quality as far as possible with the existing facilities.

* Establishment of organizations (Centers for SI Technical Support) for testing of materials and inspection of quality
* Lending of machine facilities (joint-use facilities installed in the Centers for SI Technical Support)
* Training for introduction of new technology
* Technical diagnosis and instruction by engineers for determination of the positioning of the company technology (by means of data bases)
* Support for technology transfer (collection and transmission of information on SMEs desiring technology transfer, matching services for technical alliance, etc.)

(3) Support for facilities

Various measures of support should be taken for the installation of production facilities. A prospective step is the creation of a scheme for distribution of used facilities to be employed for the time being. Subsequently, it would be necessary to establish a system and associations for the common utilization of new production facilities as well as to introduce the accelerated depreciation system. For these activities, the initiative by SMEPA is highly required.

* Support for introduction of used facilities (construction of a scheme for distribution of used facilities)

* Accelerated depreciation of facilities
* Support for facility sharing through business associations

(4) Provision of venues for information exchange and transmission

SMEs currently have no particular venue for exchange of information. As such, it is difficult for them to gauge the level of their technology. It is also virtually impossible for them to acquire information on the market. In this aspect, support should be furnished for the establishment and operation of industrial associations such as the machinery association being promoted by the UAIC. Similarly, because SMEs have few means of obtaining information, provisions should be made for full supply of information on technology through the Centers for SI Technical Support and on the market through the Centers for Promotion of SI transactions.

* Support for establishment of industrial associations (for provision of information on technology and market trends in each field, training, etc.; activities eventually extended to relay of policy proposals from SMEs)
* Collection and provision of information by the Centers for SI Technical Support
* Institution of groups for technical exchange with foreign capital

(5) Support for going into business

Because there are not so many machinery/component firms to begin with, steps should be taken to encourage an increase in the absolute number. This could be done by offering assistance for the start of new enterprises by people who have acquired technical expertise in secondary schools or universities, as well as for the formation of firms by spinout from state enterprises. Some of the self-run business are engaged in essentially the same kind of operation as the current SMEs. The stock of firms could be increased by having these business incorporate. Support therefore should also be provided for the registration of self-run businesses as companies.

* Support for new establishments by engineers (spinout from state enterprises) and new graduates of technical colleges. For example, SOEs order the new establishments in constant.
* Stimulation of entrepreneurial inclinations (preparation of an environment conducive to spinout and instruction in establishment know-how)
* Financial support for new establishments (institution of venture funds, etc.)
* Training in start-up know-how
* Encouragement of conversion from self-run businesses to private enterprises

(6) Human resource development

For the immediate future, activities on this front should consist mainly of training programs for existing employees aimed at imparting skills for quality control and production planning on the mass production order, as well as technical (skill) training for higher levels of precision. Farther in the future, programs could extend to development of human resources to be newly hired by SMEs. It would also be necessary to offer instruction and training in design and development. Such programs should be implemented with the assistance of experts dispatched to Viet Nam from other countries. Another task would be reinforcement of the training programs offered by the MOSTE, MOI, and VCCI as well as those offered by the newly instituted “Centers for SI Technical Support”.

* Training in management techniques in areas such as drafting future plans and business control
* Training in mass production technology (quality control, production processes, OJT-type training by engineers)
* Training in production technology for conversion from repair enterprises to repair component enterprises
* Training in methods of development for graduation from production of copies to development of original products

(7) Induction of foreign capital

Steps should be taken to attract business from foreign firms, which would make the best candidate customers for SMEs for the time being. Ultimately, support should also be provided for technology transfer from and technical partnership with foreign firms with high levels of technical expertise. Support could be furnished through the MOSTE for technology transfer and alliance, and through Centers for SI Technical Support in aspects such as information provision.

* Attraction of siting: attraction of not only labor-intensive production from developed countries but also component production and assembly operations from NIEs and ASEAN countries
* Partnership: emphasis on SI firms and component manufacturers

(8) Trade policy

The focus for the time being would be aid for export by retail product manufacturers to other countries and tighter control to prevent the smuggling in of goods from China and other countries. Policy must provide support for development of transactions not only with firms sited in Viet Nam but also with the foreign firms in other ASEAN countries.

* Export assistance: support for export of retail products and development of transactions with overseas firms by SI firms; emphasis on support for transactions with the ASEAN sites of foreign firms
* Countermeasures for smuggling: tighter control of smuggling from China (bolstering of the competitiveness of domestic industry in the domestic and intra-ASEAN markets)
* Removal of tariffs and regulations: phased widening of the deregulated product fields (promotion striking a balance between protection of the machine facilities industry and upgrading of SI through input of foreign-made machinery)

(9) Other areas

Financial assistance should be furnished for funding needed for facility investment, operating funds, etc. SMEs are hindered from raising sufficient funds by a lack of collateral, and means such as credit guarantee and lending systems should be established to resolve these difficulties. Assistance for land acquisition should be furnished through measures of support that take account of factory expansion and environmental concerns. Furthermore, the reform and privatization of state enterprises should be promoted to produce firms capable of conducting activities with higher levels of productivity.

* System of financial aid: funding for capital investment and operating funds
* Support for industrial land: preparation of industrial parks taking account of factory expansion and environmental concerns
* Reform and privatization of state enterprises

Table 1-14 Plans for Promotion of SMEs in the Machinery/Component Industry of Viet Nam

Item	Subitem	Around 2005	Around 2010	Around 2015
Support for market cultivation	* Transaction partner candidate referral and mediation * Information provision in all fields of business and technology * Support for trade fair staging and participation * Consciousness-raising about corporate PR	Establishment of Center for Promotion of SI Transactions in Hanoi, Ho Chi Minh city and Danan, which have many SMEs	Establishment of Center for Promotion of SI Transactions in key provincial cities as well	Establishment of Center for Promotion of SI Transactions in other provincial cities
Technical support	* Establishment of testing * Establishment of institutions with joint-use facilities * Training for the introduction of new technology * Factory diagnosis and guidance by technical experts * Support for technology transfer	Establishment of Centers for SI Technical Support in Hanoi, Ho Chi Minh city and Danan, which have many SMEs; construction of schemes for factory diagnosis and initiation of instruction, etc.	Establishment of Centers for SI Technical Support in key provincial cities; advice for original development; education of domestic experts in diagnosis	Establishment of Centers for SI Technical Support in other provincial cities; promotion of technology transfer from foreign firms
Facility support	* Support for introduction of used facilities * Accelerated depreciation for facilities * Sharing of facilities through business associations	A prospective step is the creation of a scheme for distribution of used facilities to be employed for the time being	Examination and Instatement of systems for Accelerated depreciation for facilities, etc.	Expansion of the system scope and scale
Information support	* Support for the establishment of industrial associations * Collection and provision of diverse information * Staging of gatherings for technical exchange with foreign-affiliated firms	Support for the establishment of general industrial associations by the UAIC; collection and provision of existing information in the possession of state enterprises, etc.	Support for establishment of industrial associations in each processing field; collection and provision of information from foreign as well as domestic sources	Increase in the industrial association capabilities of policy proposal; customization of information for SMEs
Human resource development	* Training in business planning and control * Training in mass production technology * Training in production technology * Training in skills for development of original technology * Improvement of educational institutions	Emphasis on mass production technology and ordinary production technology; training mainly for existing employees Training in business planning/administration	Training in design; Improvement of educational institutions with a view to production of human resources of immediate use on the production line, for new hiring by SMEs	Strengthening of programs for production of human resources with development capabilities
Induction of foreign capital	* Attraction of siting * Support for technical tie-up	Preparation of circumstances conducive to siting by foreign firms	Promotion of siting by foreign firms; Provision of information concerning technical tie-up (alliance, partnership, etc.). And Support for the formation of technical tie-ups	Expansion of the supprot scope and scale
Trade support	* Support for export * Measures to counter smuggling * Removal of tariffs and regulations	Staging of trade fairs in the ASEAN region; tightening of smuggling controls	More extensive staging of trade fairs outside Viet Nam, and support for overseas sales efforts; removal of tariffs and regulations	Staging of world-class trade fairs; provision of diverse information on markets, etc.

2. ELECTRIC / ELECTRONICS INDUSTRY

2. Electric / Electronics Industry

2.1 Summary and Conclusion

In the transition to a market economy, Viet Nam's electric/electronics industry has exhibited fairly strong growth in the 1990s, but basically is held to the level of substitution of import and depends heavily on imported components and materials. The scale of production is estimated at about 1.5 billion dollars, representing only 1.5 % of the ASEAN total and about 5% of Viet Nam's GDP. The industry has been seriously affected by the economic crisis in the region, and there has been a significant deceleration of both direct investment from other countries and the growth of the domestic industry.

Since 1995, the MOI has submitted master plans for the electric/electronics industry to the government on several occasions, but a plan has not yet been officially approved. As a result, policy on the industry consists largely of measures for attraction of foreign capital prepared by the MPI, and local contents regulations and import tariff provisions prepared mainly by the MOF. There is consequently a lack of coherence and consistency. Moreover, in some respects, the measures already in place are not appropriate. The government continues to be unable to hammer out systematic policy on the industry from a long-term perspective. However, the effectuation of the ASEAN Free Trade Area (AFTA) is approaching, and Viet Nam must take an enlightened and positive attitude toward the impending AFTA order. As such, there is an urgent need for the MOI's formulation and Government's approval of new master plan with guidelines for the activities of domestic and foreign capital.

The electric/electronics industry spans a wide range of domains and diverse types of production. With investment on a level matching the stage of development, it can set in motion a beneficent cycle of creation of employment, technological ripple-effects, foreign exchange earnings, and economic growth. In some areas, its effects outweigh those of other industries. Historically, this mechanism has been corroborated by the experience of other Asian countries such as Japan, Korea, and Taiwan. In spite of some differences of period and background, it should apply to Viet Nam, too.

Neighboring countries such as Singapore, Malaysia, and Thailand are building up a stock of locations for assembly and production of various types of electronic equipment and components by international industrial capital under policies for aggressive attraction of siting. Their supply already accounts for more than 10 % of the global market in this field. This achievement derives from the investment activities of Japanese and other foreign firms of over 20 years' standing and the conditioning of policy on industry and investment in the host countries. Viet Nam has a high rating in the eyes of many international industrial concerns for its abundant supply of quality labor and the potential of the domestic market. With the right policy on foreign investment and infrastructural conditioning (in both the "hard" and "soft" aspects) on the part of its government, Viet Nam could very well build an electric/electronics industry endowed

with great appeal in the AFTA context.

At present, the small and medium enterprises (SMEs) in Viet Nam's electric/electronics industry number 114, and account for about 80 % of the total number of entrants. In addition, there are about 20 supporting industry (SI) firms in the field of plastic molding and about 500 in that of distribution of information equipment (including hardware assembly and software development). The SMEs are generally all characterized by outdated product technology, dilapidated production facilities, difficulties in raising funds needed for short-term operation and long-term investment, shortage of personnel able to pursue technical innovation, and lack of management know-how. While they are comparatively rare, some SMEs are being soundly managed through dependence on owned capital instead of bank loans and staffing with relatives and acquaintances; yet others are avidly moving into the information field (including software development) in view of its growth prospects. Similarly, some state-run SMEs dislike the official control and want to be privatized as soon as possible.

Assembly of electric/electronic equipment (sets) and production of electronic components are supported by SMEs (and SI-Supporting Industry- firms) in the fields of metal molds, plastic molding, and surface processing. With the exception of a few firms affiliated with Japanese or other foreign capital, they have almost no technical capabilities up to international standards. To an extent, this situation is unavoidable, given the lack of a sizable domestic market and the absence of full provisions for education and training; it does not indicate that Viet Nam is not suited to the growth of SI. On the contrary, the findings of surveys with firms sited in Viet Nam suggest that Viet Nam has even more potential than some other ASEAN countries for SI cultivation.

There are two advisable basic orientations for the phased development of the electric/electronics industry in Viet Nam: 1) substitution of imported technology and products; and 2) build-up of a stock of strategic export-oriented industry, albeit with dependence on international capital. To these ends, the growth of mutually different types of SMEs must be systematically promoted with an eye on master plan targets. More specifically, efforts should focus on the following three SME groups in light of the structural attributes of the industry, the circumstances in Viet Nam, and the surrounding environment.

SME Group A - SMEs engaged in assembly and processing of electrical equipment and electrical components

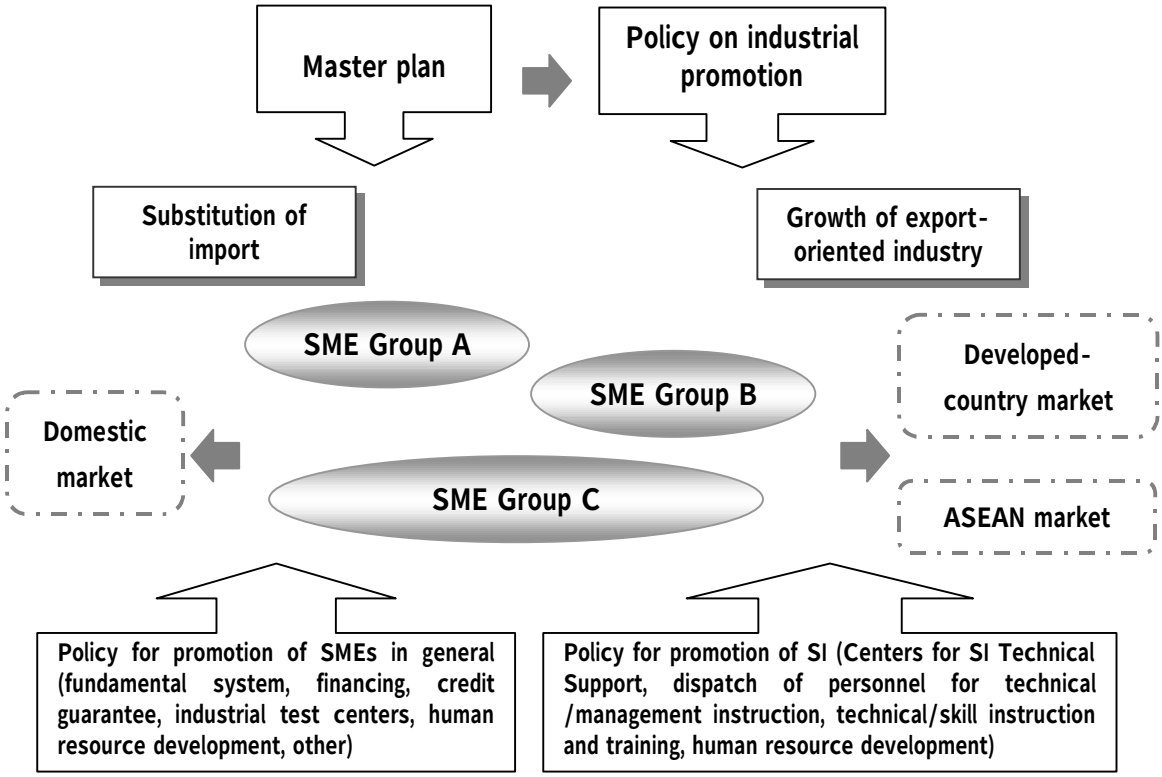
SME Group B - Engaged in processing and assembly of assembly-type special-purpose electronic components

SME Group C - SI firms supporting assembly of electric/electronic equipment and components

SMEs in Group A are engaged in assembly of simple information equipment (including development of the related software), and assembly and processing of minor low-end electrical products for the home (AV sets and white goods) and electrical components. The target is attainment of a level of assembly and processing technology sufficient for the domestic market

within the next ten years and an international competitiveness enabling supply to the AFTA common market at the least over the longer term through promotion of technology transfer and acquisition of business experience.

Figure 2-1 Positioning of SMEs in Viet Nam's Electric / Electronics Industry and Framework for their Promotion



Source: JICA Study Team

SMEs in Group B consist of component firms owned by domestic capital. They produce special-purpose components for assembly, and assemble components of a highly labor-intensive nature. In view of the need to gain the trust of foreign capital, selected state enterprises would make the best candidates for grooming as such SMEs. Their cultivation will require the support of Japanese and other foreign capital through provision of instruction in assembly technology and management know-how and support in actual business. Over the short and medium terms, the target is contribution to a rise in the rate of domestic production (local contents). Over the longer term, it is development of export through the global channels of the supporting (foreign) firms. Although not many companies could participate in this field together with foreign capital, the taste of success by domestic capital would hold immense significance against the backdrop of heavy dependence on foreign capital. An additional prospect is a broadening of the industrial base through these component manufacturers as subcontractors emerge to serve them.

Viet Nam would have to increase the level and stock of SMEs in Group C (SI) in order to spur siting by Japanese and other foreign firms for assembly of equipment and components for export. In this connection, the most important SI areas are metal processing (including metal molds), plastic molding (including metal molds), and surface processing. Other ASEAN countries have begun to put resources into the development of such SI firms in order to underpin their competitiveness. Viet Nam as well must nurture SI growth through policy provisions formulated from a long-range perspective. The key to the advancement of the electric/electronics industry is induction of foreign capital. For this reason, policy on SME promotion must accord particularly high priority to the growth of SI firms that will be given high marks by foreign capital. The target for the time being is attainment of a technical level sufficient for the domestic market, but capabilities up to international standards must be targeted for the succeeding ten years.

The execution of the plan for promotion of SMEs in the electric/electronics industry requires, first and foremost, preparation of the soil for business in the industry. Once measures have been taken in the three areas shown below, the government must instate the appropriate policies in the aspects of conditioning of pertinent legislation, support for funding needed for facility investment and operation, and assistance with laying the technical and management foundation.

- Presentation of guidelines based on the official master plan for the electric/electronics industry
- Revitalization of the domestic economy resulting in expansion of demand associated with infrastructural improvement and consumption in the low-income stratum, creating greater product/component business opportunities
- Creation of business opportunities in the component/SI domain through stimulation of siting by export-oriented foreign firms

In SME Group A, the domestic market should expand as the economy grows. With appropriate technical guidance and a business climate conducive to the raising of funds needed for facility investment, the stock in this group should build due to the self-help efforts or entrepreneurs in the constituent fields. This, in turn, should lead to progressive substitution of imported products and technology as well as the rise of firms oriented toward export to other ASEAN markets over the longer term.

In SME Group B, it will be indispensable to obtain the cooperation of foreign AV firms with operations in Viet Nam, in the form of technical partnerships for component assembly/processing and of receipt of orders for components. It will be no easy task to graduate from the level of domestic transactions to that of export. Nevertheless, successful transformation into global component suppliers would be vital for both the resident foreign firms and the domestic ones. Furthermore, the government should furnish concerned exporting firms

(including JVs) with tax incentives commensurate with the scale of their export.

The thrust of measures for promotion of Group C SMEs is development of more skilled human resources and acquisition of basic technology through provisions including the elements listed below. The program therefore should be formulated from a long-term standpoint, apply a phased approach, and be steadily implemented.

- Training of experts
- Centers for SI Technical Support
- Construction of a scheme for provision of technical information
- Support for participation in overseas trade fairs
- Preparation of industrial standards
- Improvement of the system for certification of conformance with safety standards
- Staging of SI trade fairs
- Strengthen of the linkage connecting major assemblers and SI firms

2.2 Current Status and Orientation of the Future Development of the Electric/Electronics Industry

This section first presents the current status of Viet Nam's electric/electronics industry based on field studies conducted in June and August (i.e., interview surveys with related companies and governmental agencies). This is followed by an investigation of the orientation of the industry's development in light of the findings of the Phase II JICA study for support of the transition to a market economy conducted two years ago, with consideration of subsequent circumstantial changes.

2.2.1 Trends in the Electric/Electronics Industry

Based on the data from MOI, the numbers of firms in the electronic and electrical industry are estimated as follows. The estimates are that there are 144 manufacturing firms and approximately 475 firms that are engaged in importation and sales of information equipment and others. The manufacturing firms comprise 27 SOEs, 50 private-sector companies, 34 joint-venture companies, and 33 wholly-owned subsidiaries of foreign companies. The number of SOEs including distribution of electronics related is smaller than the figure reported in a UNIDO survey (74 companies). It appears that many of these firms have switched to importation and sales or to other business lines, resulting in a large reduction in the number of SOEs.

Table 2-1 Distribution of Firms in the Electronic / Electrical Industry as of August 1999

(The number of firms)

The number of employees	SOE				Private enterprises	Joint ventures	100% foreign capital	Total
	Under MOI	Under governmental agencies except MOI	Local	Total				
Over 200 in manufacturer	9	2	3	14	5	6	5	30
200 or less in manufacturer	7	1	5	13	45	28	28	114
Total in manufacturer	16	3	8	27	50	34	33	144
In Distribution of Information Equipment	6	4	4	14	450	3	8	475
Total	22	7	12	41	500	37	41	619

Source: JICA Study Team, from MOI's and MPI's materials.

Note 1: Although a UNIDO survey reported there were 74 SOEs, the number of manufacturing companies in this industry has dropped to half due to their switch to importation and distribution or to other business lines.

2: SOE under governmental agencies except MOI: MOSTE /Viet Nam Post-telecom/ Ministry of Information & Culture /Viet Nam Information Company etc.
Local SOE: People's Committee in Hanoi / People's Committee in HMC etc.

By the number of employees, approximately half of SOEs are SMEs, employing 200 or less workers. SMEs account for 90 % of private-sector companies and about 80 % of joint ventures and wholly-owned subsidiaries of foreign companies. This means that slightly 80 % of the total is SMEs. The scales of SOEs are relatively large in terms of the number of employees, because

SOEs are unable to terminate redundant workers even when production is scaled down. Consequently, a considerable number of SOEs have redundant workers on their payrolls. In actuality, therefore, the SME ratio in the electronic and electrical industry is estimated at around 90 %.

Businesses engaged in distribution of information and other equipment include those that engage in simple assembly work of PCs on a very small scale. As such businesses can be started with small funds if one uses various channels to procure parts, they are likely to have increased steadily in recent years. The number of SOEs switching from manufacturing to distribution due to stagnant business has been on the increase.

(1) Major groups of companies and its trend

Viet Nam's electronic and electrical industry is still in the import substitution format and its output is estimated at approximately $1.5 billion, which accounts for only 1.5 % of total ASEAN production and about 5% of Viet Nam's GDP. The industry had achieved relatively high growth in the 1990s against the background of the transition of its economy into a market economy, but the domestic market has stopped growing due to the full impact of the ASEAN economic crisis. The industry in Viet Nam comprises the following groups of companies and has the following structural characteristics.

- Assembly companies relying on incomplete knock down (IKD) formula which principally supply the domestic market, centering on such products as audio-video equipment (Foreign capital-affiliated companies and state-owned enterprises (SOEs))
- Vietnamese companies that supply products based on conventional technology primarily to the electric and electrical machinery market (SOEs and private-sector companies)
- Vietnamese companies that manufacture electronic components on commission primarily from Japanese and other foreign companies (SOEs and private-sector companies)
- One-hundred-% foreign companies that assemble electronic components for export primarily in Export Processing Zones (Japanese, South Korean and Taiwanese companies)
- Vietnamese companies that engage in business related to information equipment and system-related business (SOEs and private-sector companies)

1) Assembly companies relying on Incomplete Knock Down (IKD) formula which principally supply the domestic market, centering on such products as audio-video equipment (Foreign capital-affiliated companies and SOEs)

Since the beginning of the 1990s, Viettronics, Hanel and other SOEs have developed the market for color TV sets and radio-cassette players relying on complete knock down (CKD) formula and production on commission. Since the middle of the decade, however, Japanese

companies, including Sony, Matsushita Electric Industrial, Toshiba and JVC, Korean companies, including Daewoo, Samsung and LG, and Hong Kong companies have started operations in this area through joint ventures. At present, products of these foreign capital-affiliated companies account for an overwhelming share of the market. Most of the SOEs have been forced to shift to product lines with lower value added, such as electric fans, to downsize or pull out of the market altogether, or to change business lines.

Large SOEs, such as Viettronics and Hanel, have established joint ventures with foreign companies. In their core business area of color TV sets, a joint venture between VEIC (which has the Viettronics Group under its wing) and a Japanese company now has a market share of approximately 75 %. The rest of the market is shared by Daewoo, which is affiliated with Hanel, other Korean-affiliated firms and Viet Nam's SOEs.

The color TV sets assembly license granted to joint ventures with foreign partners calls for local content ratio of 20 % or more. Companies with the exception of Sony do not have much trouble in attaining this ratio, because they buy cathode ray tubes (CRTs) of 21 inches or less from Orion-Hanel, which produces them domestically. Sony, which uses the Trinitron system, manages to meet the requirement by producing deflection yokes (DYs) and tuners in-house. Because of its "Pioneer Status," Sony is not required to export, but other firms are required to export at least 20 % of their output. These companies are having trouble to secure export markets, because they are not competitive internationally due to Viet Nam's high tariff rates on imported parts and components.

As mentioned above, color TV set components that are available in Viet Nam are cathode ray tubes, deflection yokes, transformers, electrolytic condensers, power source cord, various cabinets, antenna, etc. Viet Nam must depend on imports for many parts and components, which are imported under an IKD formula. Furthermore, the quality of Orion's cathode ray tubes is not very high, and the company now faces the problem of not being able to meet the demand for "flatter" TV sets. Cabinets can be purchased from Vietnam-Showpla, a Japanese-affiliated firm, but there is a bottleneck that the Vietnamese market is not large enough to warrant making metal molds in the country.

2) Vietnamese companies that supply products based on conventional technology primarily to the electric and electrical machinery market (SOEs and private-sector companies)

This is a group of companies that supply electric and electrical machinery, and their parts and components (transformers, generators, motors, power cable, etc.) based on relatively old technology primarily to the infrastructure sector, including electric and power facilities. They sell to the public utilities markets, which are protected under the government's budget system, and rapidly-developing rural markets, where cost reduction is urgently called for. Most SOEs which handle equipment other than audio-video equipment are in this group.

3) Vietnamese companies that produce electronic components on commission from Japanese and other companies (SOEs and private-sector companies)

Using the existing plants and equipment and taking advantage of low wages, a number of SOEs are engaged in production on commission of primarily labor-intensive parts and components, including transformers, choke coils and DC/DC converters. Their clients are Japanese part makers, such as Nemic-Lambda and Sumida. However, it is reported that such business opportunities have been declining since the Asian crisis of 1997. Since they are paid on a piece work basis, this is an unstable format of doing business.

4) 100 % foreign capital companies that assemble electronic components for export primarily in export processing zones (Japanese, South Korean and Taiwanese companies)

The largest company in this group is Fujitsu (which employs 2,500 workers), which assembles and processes printed circuit boards (PCBs) for hard disk drives (HDDs). It exports its entire output to Thailand and the Philippines. If the PC/HDD market grows further, the company plans to double its production.

In the assembly and manufacturing of electronic parts and components, wholly-owned subsidiaries of foreign companies are allowed regardless of whether they sell to export or domestic markets. Currently there are about 10 subsidiaries of Japanese and other component makers in operation in Viet Nam. Many of them operate in Export Processing Zones and export their entire output. However, the scale of assembly is generally small, employing only dozens of people.

South Korea's Daewoo has rather large electronic component businesses, including JV. Orion-Hanel, a joint venture with Hanel, employs approximately 1,350 workers and sells 25 % of its CRT output in the domestic market and exports the rest. An aluminum electrolytic condenser plant, which is a wholly-owned Daewoo subsidiary, employs more than 500 workers.

Table 2-2 Output of Major Electronic and Electrical Components in Viet Nam

(1,000 units)

	1995	1996	1997	1998	Capacity
Color TV sets	621	750	720	673	5,600
B &W TV sets	133	61	50	39	-
Radio-cassette players	112	115	120	160	560
VCRs	na	na	27	37	na
Refrigerators	na	na	na	120	550
Washing machines	na	na	na	64	300
Electric fans	369	268	265	379	800
Air conditioners	na	na	na	15	65
CRTs	na	na	na	1,961	2,000

Source: JICA Study Team, from MOI's and MPI's materials.

Note: The capacity of color TV sets includes capacity of B & W TV sets.

Table 2-4 outlines the major firms in Viet Nam's electric/electronics industry in each field and sets forth the situation and issues in the development of business, mainly in the case of large state-run and foreign-affiliated firms interviewed in the field survey.

(2) Developments in related policy

In 1995, the MOI submitted a master plan to the government regarding policy for electronic and electrical industry. The plan, however, has yet to been approved. A project team, made up mostly of MOI officials, has revised the plan eight times so far, but it has not been approved, because it cannot obtain the understanding of the government. Therefore, concrete industrial policy has yet to be decided on. In practice, however, electronic and electrical industry policy has unfolded through MPI's policy regarding foreign capital and the Ministry of Finance's initiatives on local content rules and import tariff policy.

As a result, discrete measures taken by different ministries regarding the introduction of foreign capital, local content ratios, import tariffs, corporate taxes and royalties lack consistency. The problem is compounded by the question of SOEs, and the government and the administration are far from arriving at a consensus on a policy for nurturing internationally competitive, powerful industries in preparation for AFTA. Measures taken so far are short-term measures taken by the Ministry of Finance with the aim of increasing tax revenues and, therefore, lack a medium- and long-term vision for the policy and its management toward nurturing industries.

Following are some of the related measures being taken, including policy regarding the introduction of foreign capital.

Table 2-3 Outline of the Major Firms in Viet Nam's Electric / Electronics Industry in Each Field (1)

Field		Major SOEs	Major private-sector firms	Major JV firms	Foreign capital-affiliated firms (100%)
Electrical equipment/ component	Industrial electrical equipment/components	・Viet Nam Electronics Service Co. No.2 ・Thinh Hao Electronics ・Industrial Electronics ・Transport Electronic Equipment ・Danang Electrical Motors Factory ・Electrical Equipment ・Viet Nam Hungary Electrical Machinery Engineering ・Post Office Equipment Factory ・Electrical Engineering	・Dai Thanh ・Hgoc Khanh ・Dong A ・Nhat Minh ・Nhat Linh (LiOA)	・Viet Nam-USA High Voltage Lamp ・ABB-THIBIDI Electrical Equipment ・Vina Turbo ・Viet Nam Schneider ・Advanced Medical Electronics ・Viet Sure Star ・Lightning Lamps ・Stanley Viet Nam Electric ・Sali Electric ・Mapro ・LG-VINA Industrial System ・Skoda-Isovina ・ABB Transformer Manufacturing ・Sang Tao Corporation	・HTE Viet Nam Engineering ・Selco Viet Nam ・Tang Hung ・Guideway Viet Nam. ・Hoang Long Industry Joint Stock ・Transfield Viet Nam Factory ・Schneider Viet Nam Electrical Equipment ・ABB Industry Viet Nam ・Sun Lan Viet Nam Electrical Engineering ・VietBice ・Viet Nam Hungary ・Control Techniques Viet Nam.
	White goods (traditional home electrical appliances)	・Saigon Electronics ・District No.10 Electric-Electronic Im-ex Production and Business ・Precision Machinery No.1 Factory	・Hong Nhut Thermal and Refrigeration Engineering ・Thien Cuong Mechano-Electric Factory ・Thuan Phong	・Fremiko ・Toshiba Viet Nam Consumer Products ・Matsushita Viet Nam ・S.T. Electrical and Electronic Products ・Noeske-Kasser Saeretico ・VINA-TAKAOKA Electrical Equipment	・Hanoi Chinghai Electric ・Sanyo Viet Nam ・Lincoware International Viet Nam
Electronic equipment	AV equipment	・HaNam Electronic ・Phu Yen Electronic Electric Machinery Import-Export ・Viettronics Tan Bihn ・Son Tay Electronic and Machinery ・Viettronics Thu Duc ・Hai Phong Electronics (HAPELEC) ・Ha Tay Electronic and Engineering ・Viettronics Dong Da ・Giang Vo Electronic ・Hanoi Electronics ・Viettronics Bien Hoa	・Tien Dat (HCMC) ・Thuan Thao (HCMC) ・Star Electronics (SEL) ・Cong Danh (HCMC) ・Minh Quang Audio	・Daewoo Hanel Electronics ・Singer Viet Nam ・LG-SEL Electronics ・JVC Viet Nam ・Samsung Vina Electronics ・Sony Viet Nam	

Table 2-3 Outline of the Major Firms in Viet Nam's Electric / Electronics Industry in Each Field (2)

Field		Major SOEs	Major private-sector firms	Major JV firms	Foreign-affiliated firms (100%)
	Info-communications equipment and systems	・Informatic and Electronic ・Saigon Electronic and Informatic ・Viet Nam Computer Company No.1 ・FPT HCMC Investment & Tech. Dev. ・Viet Nam Computer Company No.2 ・Software Technology ・Informatics Material Production Science ・Hanoi Informatics ・Viet Nam Electronics Import & Export ・Post Office Material Factory	・Green Mekong ・Computer-Communication-Control-3C ・SPC Computer ・Computer-Communication (CMC)	・Hua Viet Electronics	・Saigon Electronics & Telecommunications Equipment ・Hewlett Packard Viet Nam
Electronic component	Assembly-type electronic components/special-purpose components	・Viettronics Phu Tho Hoa ・Viettronic Binh Hoa ・Electrical Measuring Instrument (EMIC) ・Viet Nam Electric Wire and Cable (CADIVI)	・Dai Thanh ・Ngoc Khanh ・Dien Thang ・Nhat Minh Electric Wire	・Vina-LG Electric Cable ・Metal Electric Wire ・Daesung Viet Nam Electric Cable	・A-Shin Viet Nam ・Jae Won Electronics ・Ohai Viet Nam Electric Wire ・Insytek Co.,Ltd. ・Seoul Electronic Viet Nam ・Dai-Ichi Viet Nam Industry ・Oriental Viet Nam Industrial Electric ・Tokin Electronics Viet Nam ・Rich Sonic Viet Nam ・Daewoo Viet Nam Video Components ・Viet Shang Electronics ・Sae Yong Industrial Complex ・Fujitsu Computer Products of Viet Nam ・E-Hsin Viet Nam ・Dae Yong Viet Nam ・Taya Electric Wire and Cable Joint Stock
	Materials-type electronic components/electronic devices			・Orion-Hanoi Electric Tube	・Daewoo Viet Nam Electronics Components
SI		・Cutting Tools and Measuring Devices ・Export Mechanical Tools	・Mechano-electric 2/9	・Hong Viet ・Daewoo-Viettronics Plastic ・Dona	・Shompla Viet Nam ・TF Viet Nam ・Orion-Hanoi Metal ・Viet Nam-Meiwa

Source: JICA Study Team

Table 2-4 Trends among Major Firms in Each Field of the Electric / Electronics Industry (In the Case of Large Firms and Foreign-Affiliated Firms) (1)

Field		Firm	Scale	Outline	Issues etc.
Electrical equipment	Industrial electrical equipment/components	Thibidi	State-run 400 employees	- Processing and assembly of power-use transistors and motors from the component level based on technology from the former Soviet Union. - Improvement through distinctive incorporation of technology from France and Japan; fully competitive seeing that even competing foreign concerns are lowering specs to meet the cost-reduction needs of the domestic customers. - Dependence on import for almost all items except copper wire and insulators; in-house component processing (machining, metal press stamping, injection, etc.) using facilities made in the former Soviet Union; in-house manufacturing capability for metal molds.	- Strong interest in privatization, but emphasis on maintaining employment over profit as it remains state-run for the time being. - Possibility of an increase in precision and productivity in machining with the right measures; lack of sufficient efforts.
		VIHEM	JV (between the government of Viet Nam and the government of Hungary) 500 employees	- Production of some 20,000 motors of 90 types with rpms ranging from 370 to 3,000 and output ranging from 0.1 to 1,000 kW beginning in 1978 based on technology from Hungary; supplementary production of stabilizers for fluorescent lights to compensate for deficit in the motor business. - Supply of general-purpose items for sales through agencies and custom items sold mainly directly; recent start of trial supply of pump motors to the VN operation of the Japanese manufacturer Egara.	- Revision of the production line and increase in production efficiency since the appointment of a new president (who was previously director of the facilities division). - Possibility of cost reduction with an orientation toward standardization in the aspects of mold development and production; potential for resulting rise in export competitiveness.
	White goods (traditional home electrical appliances)	SEL	Private enterprise 260 employees	- Assembly-based production of refrigerators (30,000/year), washing machines (15,000/year), air conditioners (50,000/year), fans, and other such white goods as well as CTV sets; targeting mainly rural communities and other low-price markets. - One of the 60 VN firms cited for excellence in 1998. - Assembly of CTV sets through a JV with the Korean firm LG (production of 250,000/year by 300 employees).	- Great decrease in the scale of CTV assembly due to competition with foreign-affiliated JVs. - Need for guidelines for promotion of industry; difficult for a private firm to raise funds for capital investment. - Hopes for gradual establishment of the SEL brand (experience of export to Europe).
		Sanyo Home Appliances Viet Nam	Wholly foreign-owned 400 employees	- Start of assembly-based production of washing machines and refrigerators in 1998; high export rate (75%) for washing machines; successor to the factory in Singapore which was closed, as export location; refrigerator production based on partial transfer from the factory in Thailand; sales of virtually all refrigerators in the domestic market. - Dependence on import for motors, compressors, and instrumentation; in-house production of metal stamping components and molded plastic items; some sourcing from foreign Sis (in Taiwan).	- Smooth expansion of export of washing machines, but flat trend for domestic sales of refrigerators (contrary to expectations); extremely poor working rate in refrigerator production since there are no prospects for export either for the time being.
Electronic equipment	AV equipment	Sony Viet Nam	JV (Sony 70%, Viettronics Tan Binh 30%) 636 employees	- Assembly and sales of CTV sets and other AV goods (VCRs, VCDs, radio-tape players) beginning in 1994; IKD production for CTV sets and basically CKD production for other goods; adoption of special CRT not available from VN suppliers; local contents rate in the area of 20% (in-house production of DY and tuners). - Maintenance of market share by being the first to sell flat CTV models, etc., in VN.	- Government policy of tariff rates on imported AV components ranging from 5 to 40%, depending on the local contents rate, effective 2001; apprehensions that such policy could endanger the subsistence of the company with the approach of AFTA.
		Matsushita Electric Viet Nam	JV (Matsushita 60%, Viettronics Thu Duc 40%) 160 employees	- Start of assembly of CTV sets and mini component stereos in 1996; production of about 100,000 CTV sets and 15,000 mini component stereos scheduled for 1999; export rate of just over 20%. - IKD assembly for CTV sets, but local contents rate of about 45% due to sourcing of CRTs from Orion-Hanel and in-house production of remote control units and basic packages.	- Poor prospects for continued business in the event of instatement of the new tariff schedule, especially considering AFTA provisions. - Need for offer of higher incentives than other ASEAN countries in order to attract siting by SI firms.
		Toshiba Viet Nam	JV (Toshiba Singapore 64%, Viettronics Thu Duc 36%) 107 employees	- Start of assembly of CTV sets (14", 20-21", 25", and 29") in 1998 (about 30,000/year); lagging in respect of brand image and distribution system due to late start as compared to other Japanese-affiliated entrants; struggling in sales. - Export rate of 35% on the application, but less than 5% at present; use of imported components drives up cost by more than 30%; complete lack of export competitiveness.	- Separate sales of white goods to VN (and some air conditioner assembly) by Toshiba Singapore; possibility of future consolidation of these productions. - Need for improvement of the local sales system by finding ways to enhance brand image and stimulate distribution.
		JVC Viet Nam	JV (JVC 70%, Viettronics Tan Binh 30%) 219 employees	- Assembly and sales of AV equipment beginning in 1997 (monthly productions of roughly 5,000 CTV sets, 600 VCRs, and 1,000 audio systems); plans to increase its monetary-based share of the AV market from the current 15% to 25%. - Local contents rates average 35%; local sourcing of CRTs, cabinets, packing materials, and instruction sheets; scheduled to consign assembly of VCR mechanisms to the VN partner (Viettronics Tan Binh) in the near future. - CTV set design premised on insert components; scheduled to assemble products of the surface packaging type in the near future (currently testing with mounter)	- Nearly 70% share of the VN market for imported AV equipment in the early 1990s; aiming for an increase in its share through new entry. - Scheduled shift to outsourcing for mechanical decks and other assembly-type components in order to raise the local contents; uncertain about the level of capabilities of local sources.

Table 2-4 Trends among Major Firms in Each Field of the Electric / Electronics Industry (In the Case of Large Firms and Foreign-Affiliated Firms) (2)

Field		Firm	Scale	Outline	Issues, etc.
Electronic component	Assembly-type electronic components/special-purpose components	Viettronics Binh Hoa	State-run 670 employees	- Consigned assembly and processing of coil components (DC-DC converters, choke coils, varistors, etc.) for seven foreign firms (e.g., Nemittaramada (?), Nishimura Denki, etc.). - First VN firm to introduce SMT technology (chip mounters) in 1995 (two vanasart (?) currently in operation, and a third now being installed); accumulating a store of technology in the area of coils and SMT.	- Unstable business, but high rating of production management and quality control among customers such as Nemikkramada; business steadily expanding; plans for supply of transistors to foreign-affiliated firms in VN.
		Viettronics Tan Binh	State-run 240 employees	- Assembly of CTV sets and radio-tape players; now shifting from assembly of AV products to business in components (e.g., remote control units, mechanical decks, and PCB) following AV JVs with Sony/JVC. - JVs in the AV field (Sony Viet Nam, Sony 70%; and JVC Viet Nam, JVC 70%.	- Loss of competitiveness in AV product assembly; degree of ability to expand business in assembly components as a key factor. - Japanese partners in JVs also considering technical support for evolution basically as a component supplier.
		Saigon Electronics (Sagel)	State-run 300 employees	- CKD/IKD assembly of CTV sets and radio-tape players up to a few years ago; activities now confined to consigned assembly of transistors and coils (about 20 types) for Sumida Hong Kong (beginning in 1992). - Also engaged in assembly of CTV sets in JV with the HK firm Loucks Etron (in possession of plastic processing facilities, but low level of technology; no significant production).	- Consigned production of coiling on a level close to manual; little transfer of technology. - Unstable business as far as the management aspect is concerned due to the consignment character.
		Viet Shaing Electronics	Wholly foreign-owned (Taiwanese capital) 768 employees	- Established by Taiwan's Hwachung Electronics, a subsidiary of Dongguang; start of assembly of coils and duplexers in 1996; export of entire volume to Taiwan and Hong Kong. - Possession by Hwachung of in-house production for plastic molding, metal stamping, and metal mold production in Taiwan; in-house production of metal cases and plastic components at the VN plant. - Import of most requisite materials from Taiwan; sourcing from VN out of the question for now.	- Labor regulations as tough compared to other ASEAN countries. - Spending for unclear purposes in dealings with the public sector comes to as much as 10% of the sale revenue. - Good possibility for expansion as a center of coil assembly, depending on the strategy of Dongguang.
		Fujitsu	Wholly foreign-owned 2,500 employees	- Start of PCB assembly in 1995 and multilayer substrate production in 1997; dependence on import for all components and materials; export of all assembled and processed products (to their plants in Thailand and the Philippines). - Currently assembling mainly HDD PCBs at the No. 1 plant and processing PCBs at the No. 2 plant; now constructing another PCB assembly plant; future plans for a fourth plant for PCB processing. - Export of the entire production; automation of the production as far as possible to ensure quality, but still considerable dependence on manual work and "human wave" tactics for reasons of cost.	- Supply mainly to other plants, but development of external sales in order to raise the working rate; however, the working rate is not rising as anticipated due to difficulty of recruiting outside customers because of the delay related to certified work given the short design cycles.
	Materials-type electronic components/electronic devices	Orion Hanel	JV (between the Korean firm Orion, a Daewoo affiliate, and Hanel) 1,300 employees	- Production of CRTs for 14 - 21" sets (capacity of roughly 2 million sets per year), export rate of 85%. - Capacity of 1.2 million sets per year in the initial plans; capacity greatly enlarged due to increased productivity. - Sourcing of DY from the domestic market (a different JV with Daewoo); import of electron gun components from Korea for assembly in domestic plants.	- Existing design becoming outdated in the transition to flat screens; nevertheless, too much time and money required for incorporation of a new design.

Source: JICA Study Team

1) Policy regarding the introduction of foreign capital

In the audio-video equipment and related field, the government has granted license for domestic assembly, basically IKD assembly, on a joint venture format in exchange for local content rules and export requirements to companies that have entered Viet Nam's electric appliances and related market to realize import substitution (Sony, Matsushita Electric Industrial, JVC, Samsung, etc.)

With respect to joint ventures, in the case of Japanese companies, the government has issued licenses for joint ventures with state-owned Viettronics group companies with foreign capital participation ranging from 60 to 70 %. The requirements for these licenses are local content ratio of 20 % or more and export ratio of at least 20 %. Because of its "Pioneer Status," Sony is not subject to the export requirement, but generally this form of foreign operations in Viet Nam is subject to regulations rather than to preferential treatment.

For wholly-owned subsidiaries of foreign companies or joint ventures (not applicable to the case of audio-video and related equipment described above) established for export purposes are granted forgiveness of corporate taxes for four to eight years after the founding and tax cuts for the following four years. Those established for sales in the domestic market are granted forgiveness of corporate taxes for two years after the founding and tax cuts for the following two years.

These incentives are designed to bring in part and component makers which aim to export. Examples of these cases include companies in the Daewoo Group, Fujitsu and Tokin, NIDEC, Toko, Mabuchi Motor, Todai Musen, which operate in an Export Processing Zone. However, the number of foreign companies in this category has stagnated because of the economic crisis in the ASEAN nations and cumbersome red tape, though procedures have been simplified somewhat.

The problem lies in Vietnam's foreign capital policy. Foreign companies have been disappointed by the unexpectedly slow increase in domestic demand despite the on-going transformation of the economy to a market economy. More importantly, lack of consistency in the Vietnamese authorities' policy toward foreign capital, the absence of clear industrial policy, and paucity of domestic resources they can use other than labor (few goods are locally available) have quickly killed foreign companies' appetite for doing business in Vietnam. Though a series of improvements has been made recently, Vietnam should know that once foreign companies' trust in the country has been lost, it takes time to recover it.

2) Tariff system

When audio-video equipment is assembled in Viet Nam, availability of local components is limited. The authorities, primarily the Ministry of Finance, limit the importation of parts and components to mostly to CKD or IKD format. (For example, only IKD but not CKD is permitted

for color TV sets. Importation of finished products and discrete components is subject to high tariffs.)

The government stresses that this policy is aimed at increasing local contents and encouraging in-house production of parts and components by assemblers. However, given the facts that locally available parts and components are limited and that the cost of in-house production is high, the policy appears to be managed from a short-term perspective of increasing tax revenues.

The new Tariff Act made public in January 1999 warns that the local content rule will be revised from 20 % to 50 % after 2001. When this requirement is not met, the import tariff rates on parts and components will be raised (5-40 %). If the new rule is really enforced, audio-video equipment assembly operations in Viet Nam is expected to become extremely difficult for foreign capital-affiliated companies within the ASEAN.

Table 2-5 Status and Issues of the Related Policy in the Electric / Electronics Industry

Field	Competent ministry	Major policy measures	Issues, etc.
Attraction of foreign capital	MPI	・ Incentives are offered in correspondence with the product domain, region of investment, and export rate. —As a general rule, firms exporting at least 80 percent of their production are exempt from the corporation tax for the first four years and receive a deduction of 50 percent for the next four years. Other firms are exempt from the corporation tax for the first two years and receive a deduction of 50 percent for the next two. The usual corporation tax rate applied to foreign firms is 25 percent. —Firms siting in export processing zones (EPZs) are exempt from the corporation tax for four years. Corporation tax refunds for three years are provided for firms reinvesting profits in Viet Nam. ・ The government has recently been taking various steps to stimulate investment from other countries. Examples are simplification of the application procedures, reduction of the application procedure cost in VN dong, and simplification of procedures for issuance of working licenses to foreign nationals.	・ There is a need to strengthen cooperation between central governmental agencies and provincial administrative bodies in the drafting and implementation of measures to attract foreign capital. It is also necessary to improve the control capabilities of the provincial bodies. ・ While exporting firms are offered high incentives, measures must be instated to encourage siting by firms of the SI sort, which may not export directly.
Import and export	MOT General Department of Customs	・ Foreign firms are permitted to export products that are not part of their production items in Viet Nam, with the exception of items whose export is banned. ・ In the issuance of investment licenses, determinations are made of the initial export rate and schedule for increasing the same. ・ Generally, the highest tariff rates (effectively prohibitive) are applied to import on the SKD level, followed in order by the CKD level and IKD level. —In the case of color TV sets, the tariff rate applied for import of IKD kits was 5 percent. However, tuners and remote control units are treated as completely finished products and subject to an import tariff rate of 30 percent. —Audio equipment import is on the level of CKD kits (tariff rate of 15 percent) because of the negligible availability of domestic components.	・ At present, the government is attempting to revise the existing tariff system and complete the revision by 2001 (according to the official announcement made in January 1999). The tariff rates are being revised along with local contents rates. Specifically, the local contents requirement is to be increased from 20 to 30 percent, and the import tariff rate, from 5 to 40 percent. ・ The new tariff law is aimed at increasing the local contents of the production by foreign firms. However, the latter are asking the government to reconsider the matter, which may dictate the survival of their operations in Viet Nam, for a number of reasons, including the extremely limited scope of components that can be sourced domestically and the possible loss of competitiveness under the AFTA order if rates of in-house production are high.
Promotion of domestic production	MPI MOI MOSTE	・ Foreign-affiliated firms are asked to increase the local contents of their production to over 20 percent no later than two years after the start of operations and to keep increasing it thereafter. ・ The local contents of the production of some foreign-affiliated firms in the CTV field reaches nearly 50 percent because CRTs are available in the domestic market, but firms in other product fields depend heavily on import of CKD kits because almost no components can be sourced domestically.	・ Policy for promotion of domestic production is linked with import tariff rates. A substantial rise in local contents requires attraction of foreign manufacturers of components. ・ Policy to attract component manufacturers should not merely encourage export but also provide positive recognition of domestic sales by them.
Employment	Ministry of Labour, War Invalids and Social Affair	・ To hire citizens of Viet Nam, foreign-affiliated firms must work through labor supply organizations. If the organizations are unable to supply the necessary personnel within 30 days, the firm may hire directly.	・ As a reflection of the system of state communism, Viet Nam offers longer paid vacations (12 days a year) and maternity leaves (4 or 5 months) than other ASEAN countries (which typically have 7 days of paid vacation). This feature acts against efforts to attract foreign capital.

Source: JICA Study Team

2.2.2 Orientation of the Future Development of the Electric/Electronics Industry

(1) Summary of the current stage of development

The electronic and electrical industry in Viet Nam depends on imports for most key parts and components and has not outgrown their position as an import substitution industry, which only assembles goods for consumption in the domestic market. Parts and components available locally are CTRs (21 inches or smaller. Use old technology.) transformers, coils, deflection yokes, remote controls, cabinets packaging materials and instruction manuals. Materials for electronic components are hardly available.

Products which can be assembled domestically are color TV sets, radio-cassette players, mini-component audio sets, VCRs, karaoke (sing-along) sets, etc. among audio-video equipment; refrigerators, washing machines, electric fans, air conditioners, etc., among white goods; and PC systems among information equipment. Their production scale is small and they depend on imports for many of the key components. Joint ventures with Japanese partners which assemble finished goods are required to export at least 20 % of output. As a result, they are forced to export, although they are not competitive enough. Three Korean-affiliated joint venture, Daewoo Hanel, LG-SEL and Samsung Vina, are exporting color TV sets, too.

Among electronic parts and components, items which are being exported comprise CRTs and aluminum electrolytic condensers made by the Daewoo Group, PCBs by Fujitsu, and transformers, choke coils, and DC/DC converters manufactured by SOEs on commission from Japanese companies. In Export Processing Zones, wholly-owned subsidiaries of Japanese companies are making labor-intensive parts and components, such as motors and coils, but with the exception of some products, export volumes are still small.

Production of electric and electrical machinery, and their components is being supported by public-sector demand. It is mostly SOEs that manufacture these products using components made in-house at old plants. Although demand is growing thanks to national land development, its scale is still small. In addition, they are required to set low selling prices because of budgetary shortages. As a result, this market does not yet warrant full-fledged entry by foreign capital.

(2) Changes in the global environment

The study of the orientation for the future development of Viet Nam's electric/electronics industry took account of changes in the global environment (i.e., circumstances) in the following three aspects.

- Reconstruction of production systems in the ASEAN region by Japanese and other

international capital
- Technical innovation and the product cycle in electric/electronics industry fields
- Adaptation to new international economic frameworks such as AFTA and WTO

1) Reconstruction of production systems in the ASEAN region by Japanese and other international capital

- In 1998, direct foreign investment in the major ASEAN countries fell by almost half against 1997. In the ASEAN summit conference held in December 1998, it was decided to provide foreign firms establishing new sites in ASEAN countries from 1999 to 2000 with a number of incentives, including a corporation tax reduction, exemption from tariffs on imported raw materials, and recognition of wholly-foreign ownership. Singapore is offering tax deductions (of from 30 to 50 %) for facility investment in the area of production or research and development in the case of applications received by the end of 1999; Malaysia is allowing wholly foreign ownership for cases of investment in the manufacturing sector with the same deadline; and in Thailand, the investment committee is lifting controls on foreign capital in cases of manufacturing sector investment for which applications have been filed by the 31 December 1999.
- Japanese firms are leading the ASEAN electronics industry. Although they are currently faced with adverse circumstances in the form of the recession of the ASEAN demand and increase in import costs, they are enjoying a recovery of export competitiveness due to the currency depreciation and are taking a host of measures in preparation for the AFTA arrangement in the early 2000s. These include additional investment, a revision and reinforcement of existing setups for production and sales, localization of design and development functions, and strengthening of management through local delegation of more decision-making authority.
- Japanese firms are making preparations for expanded production based on recovery of export competitiveness due to the currency fluctuation, while also adjusting production systems with a view to shortening the time required for delivery, shifting to products with higher VA levels, and deepening production processes such as plating. In Singapore and Malaysia, home appliance manufacturers are actively promoting a localization of development functions in response to needs in the market. The reconstruction of ASEAN production locations is making progress. Japanese firms are also working to recruit local engineers and build systems for development support encompassing 3D-CAD and other such technology. In the Philippines, which has more margin for advancement than Singapore and Malaysia, they are investing in mass production plants for info-communications components and semifinished goods, and are actively transforming plants into sites of mass production in growth fields such as PCB packaging and HDD motors.

- As for the effects of the Asian currency and financial crisis on Japanese firms in the electronics industry, there was a damaging influence on investment inclinations, but direct investment from Japan is anticipated to rebound quickly in spite of the drop over the short term. This is because of the need to provide backing for the immediate difficulties and to support various management and business activities with an accurate perception of the region's growth capabilities over the long term. With the arrival of the 2000s, there is a rising possibility of a phase of relatively evenly distributed investment including NAFTA, the EU, and Central Europe, but the rating of the ASEAN region as one with a good balance between internal demand and export competitiveness should rise (additionally, there are the effects of the stock of industry already there). As such, Japanese manufacturers are anticipated to continue to make vigorous direct investments and reinvestments in the region.
- The reconstruction of Japanese production locations in the wake of the Asian crisis is adding impetus to the shift to high-VA products. Likewise, there is a possibility that firms will take another look at the investment environment of Viet Nam because of the rise of country risks in Indonesia. Coil manufacturers according precedence to reduced assembly costs (e.g., Toko, Copal/NIDEC, Mabuchi, and Tokin) have given a positive rating to siting conditions in Viet Nam and are moving plans for production increase into the implementation phase. This activity as well suggests that Viet Nam will be given high marks as a location for production of labor-intensive components especially.

2) Technical innovation and the product cycle in electric/electronic industry fields

- All fields in the electric/electronics industry are being affected by digitization. Advances in digital technology in the domains of info-communications (PCs, related peripherals, cell phones, etc.) and home appliances are creating markets for new products while also spurring replacement of conventional ones with digital versions. They are also generating huge software and service businesses in addition to the hardware business. Furthermore, they are compelling a revision of business models in respect of supply chain management (SCM) as well as not only quality but also cost, delivery term, and lots in the hardware business.
- Formerly, the ASEAN region grew as a site of production of home appliances and their components. However, it has since come to the fore as a production site for PCs and other info-communications products and components. (The growth of the global market for such products is averaging in the range of 15 - 20 %, as compared to only about 5 % for home appliances.) The technical innovation behind this change is increasing the chances of siting of additional assembly plants by international industrial capital in the ASEAN region. Meanwhile, the shift toward higher-VA items in production at existing locations is being linked to a search for new

production sites for products and components of a more labor-intensive nature.

- Whereas this tendency could take increasing hold among Japanese and other manufacturers of home appliances and related components already in the more developed ASEAN countries, manufacturers of fast-growing info-communications equipment and components would be interested in siting in order to gain additional production locations. In addition, investment in the ASEAN region by Western firms has picked up since the crisis. This raises the prospect of compensation by Western investment for the stagnation of Japanese investment in the region as a whole. As such, there is a strong possibility of increased opportunities for investment in Viet Nam.

3) Adaptation to new international economic frameworks such as AFTA and WTO

- New frameworks for global and regional trade, such as AFTA, APEC, and WTO, are being hammered out under the leadership of the developed Western and Asian countries which are already highly industrialized. Such frameworks would give Viet Nam and other developing countries a vital edge in development of external markets in fields where their export is competitive. However, these trade agreements concluded at the initiative of developed countries pose a critical test to their attempts to nurture the growth of industry in fields where activities are on the level of substitution of import, such as machinery and electronics.
- With the exception of certain items, the AFTA schedule envisions tariff reductions of 0 - 5 % in intraregional trade (i.e., among major ASEAN member countries) by 2000 and for Viet Nam by 2003. The reductions could possibly increase the competitive strength of strategic export locations in the more developed ASEAN countries such as Malaysia. But they could also be viewed as encouraging a shift of the strategic production locations of international capital to countries such as Viet Nam and Myanmar over the longer term, considering the supply capacity bottlenecks in the more developed countries due to cost increases and labor shortages as well as the latent scale of the market and existence of non-tariff barriers in the less developed ones. Therefore, AFTA may be expected to bring some benefits for Viet Nam in the short run, but far more in the long run.
- Concluded in 1993, the GATT Uruguay Round forum of multilateral trade negotiations resulted in the establishment of the World Trade Organization (WTO) as the institution for agreement and implementation of the items determined at the Round. The WTO signatories are bound even more strongly to commit themselves to the basic GATT principles, removal of import/export barriers other than tariffs and surcharges, lowering of tariffs, and equal treatment regardless of nationality, etc., excluding rules for exceptions. Viet Nam and other developing countries promoting industrialization would be forced to instate international economic and diplomatic

policies that would make it hard to build international competitiveness while protecting the domestic industry.

(3) The electric/electronics industry and its growth potential

1) Characteristics of the electric/electronics industry

Characteristics of the electronic and electrical industry are its broad scope (Applications: From household electric appliances and information and telecommunications to defense and space development; Format: hardware, software and services) and a diversity of production format (finished products, parts and components, processing, materials) Therefore, it is necessary to make investments, the size of which matches the segment of the industry or format of production.

Accordingly, the industry has large capacity to contribute to virtuous circle of job creation, technology diffusion and foreign exchange earnings, which in turn leads to economic growth, as investments whose size is suitable for the stage of economic development of the country are made. Such capacity and its benefits are greater than in other industries. This has been proven empirically in Japan and other countries in Asia. Though the times and backgrounds are different, this would also be applied to Viet Nam.

2) Observations from the development of ASEAN electric/electronics industry

Table 2-6 shows the recent trend of production in the electric/electronics industry (properly speaking, the electronics industry only) in major ASEAN countries. This production grew at rates averaging over 10 % annually from the mid to the late 1990s. Although it has slowed down somewhat over the last few years under the influence of the crisis, production of computer-related (mainly PC-related) equipment and electronic components such as semiconductors has recorded high growth recently.

The scale of production in the major ASEAN countries taken together reached an estimated 104.5 billion dollars in 1998. This is about 40 % as high as in Japan, and indicates that the region has acquired an important position as a site for global supply of electronic products. This achievement derives largely from the investment of Japanese and other foreign firms over the more than 20 intervening years as well as the industrial policies and provisions to attract foreign investment in the host countries. The record indicates that, with the right approach in policy operation and development, Viet Nam could build an industrial structure that is highly attractive to potential investors, considering the current scale of production (about 1.5 billion dollars in 1998, representing only about 1.5 % of the ASEAN total).

Table 2-6 Trend of Production in the Electronics Industry in Major ASEAN Countries

(Unit: million of dollar)

		1994	1995	1996	1997	1998	AAGR (94-98)	Ratio of composition 98	Ratio to Japan 98
Electronics equipment	Video	7,647	9,268	9,265	9,091	8,716	3	8	69
	CTV	4,478	5,690	5,899	5,894	5,741	6	5	104
	VCR	3,052	3,442	3,218	3,050	2,828	-2	3	128
	Other	117	136	148	147	147	6	0	3
	Audio	5,331	6,427	6,170	5,993	5,793	2	6	105
	Personal consumer	418	484	524	542	548	7	1	30
	Communications	5,319	6,219	6,989	7,254	7,289	8	7	16
	Electronic data processing	25,981	34,038	40,338	41,410	41,807	13	40	48
	Control & instrumentation	1,269	1,490	1,584	1,633	1,663	7	2	9
	Total	45,965	57,926	64,870	65,923	65,816	9	63	39
Electronics components	Active components	16,387	22,097	23,798	25,633	26,693	13	26	42
	Semiconductors	14,846	20,362	21,869	23,636	24,641	14	24	44
	Other	1,541	1,735	1,929	1,997	2,052	7	2	26
	Passive components	3,424	4,369	4,998	5,402	5,828	14	6	25
	Other Components	4,230	4,761	5,326	5,921	6,262	10	6	59
	Total	24,041	31,227	34,122	36,956	38,783	13	37	40
Total		70,006	89,153	98,992	102,879	104,599	11	100	39

Source: JICA Study Team, from "Yearbook of World Electronics Data 1998" (Reed Electronics Research) and other sources.

3) Viet Nam's potential for advancement

At present, the entrants in Viet Nam's electric/electronics industry consist of state enterprises, small private enterprises, joint ventures of state enterprises and foreign firms, and wholly-foreign-owned enterprises. At firms other than the joint ventures and purely foreign enterprises, the level of technology has not risen above substitution of import. The once-dominant state enterprises are being compelled to rely on JVs with foreign capital due to insufficient technology and funding shortages. Except for those with a pronounced public-sector dimension such as defense firms, they also appear to be inevitably headed for privatization over the medium or long term.

An influx of capital and technology from developed/more developed countries is essential for the advancement of the electric/electronics industry. However, in spite of the measures taken to stimulate this influx by the government as part of its policy for transition to a market economy, siting by foreign capital has been slack on the whole. The effects of the recent currency crisis are undoubtedly one of the factors behind the slow inflow of foreign investment. As additional factors, however, one may cite the lack of consistency and conformance among the measures taken by the MPI (induction of foreign capital), the MOF (corporation tax), the MOT (tariffs), and MOSTE (local contents regulations), as well as the investment climate, which is still not completely in order as regards industrial sites, utilities, employment conditions, and procedural

complexity. With proper conditioning of the investment climate, it appears certain that foreign siting would expand and make a vital contribution to the industry's advancement, given the country's advantages in other aspects. These include an abundant supply of diligent yet low-cost labor, the advantages of a less-developed status in the ASEAN context, and the potential of the domestic market.

The ASEAN region has developed for assembly and production of audio-video equipment and parts using funds provided by Japanese companies. However, growth of this segment of the world market has been slowing. On the other hand, the region is attracting attention as a possible supply base of information and telecommunications and related equipment and parts, including PCs and cellular phones, which are expected to grow sharply. As assembly work of audio-video equipment has developed along with part production, the assembly work of information and telecommunications equipment is expected to develop along with part production for such equipment. At the same time, it will also provide opportunity for assembling sub-assembled parts for various peripheral equipment. The adoption of uniform tariffs under AFTA is expected to increase business opportunities for Viet Nam.

(4) Advisable orientation of development

This section presents the advisable orientation for the future evolution of Viet Nam's electric/electronics industry, based on study of the overall situation in the aforementioned areas, i.e., the current status of the industry, the changes in the global environment surrounding it, and Viet Nam's future potential in this field.

The changes in the global supply and demand structure in the major fields and the related opportunities for Viet Nam are summarized in Table 2-7. Although various interpretations are possible, Viet Nam may generally be said to have many opportunities as far as the investment climate is concerned. A more positive attitude toward AFTA would mesh with the search for sites for centers of highly labor-intensive production. Further in the future, the country could offer a sizable market, too.

It is particularly crucial to realize that the electric/electronics industry spans an extremely wide range of fields, each of which requires in-depth understanding and closely tailored approaches. The prospects for taking advantage of these numerous business opportunities depend greatly, if not almost entirely, on the actions of the Vietnamese side. The following two points as becoming an export base and export competitiveness are especially important.

Table 2-7 Changes in the Structure of Global Supply and Demand in the Electric / Electronics Industry and Opportunities for Viet Nam

Electric/electronics fields		Specific products, etc.	Changes in the global supply and demand structure	Opportunities for Viet Nam
Electrical equipment	Industrial electrical equipment and components	Generators, transformers, motors, switches, breakers, distributing boards, power transistors; related components; electrical cable, cords, and other parts	- Dependence on the demand associated with infrastructural conditioning for industrial and social development. - Slow pace of technical change; need for long-term investment; long replacement cycle; high degree of stability in business including maintenance. - Privatization as the fundamental orientation; emphasis on both cost and quality.	--Potential for long-term growth of demand in this field along with improvement of urban systems, rural development, and other tasks of developing countries. - Development of business under the leadership of domestic capital (including state enterprises and JVs) for reasons of national defense and maintenance. - Introduction of advanced technology in the interest of safety; cost reduction required for diffusion.
	White goods (conventional home electrical appliances)	Washing machines, refrigerators, air conditioners, fans, rice cookers, electrical thermos pots, etc.	- Design of product features grounded in the lifestyle and climate of the country/region in question. - Incorporation of sensors and microcomputers for electronic control; spread of digital networking in the near future. - Domination of production of key components for global products by a limited circle of Japanese and Korean manufacturers.	- Demand centered around cities for the time being; emergence of demand in rural communities along with economic growth. - Development of products with designs adapted to the social climate of Viet Nam. - Separation between high-performance, high-priced versions and standard, low-priced versions due to the income gap.
Electronic equipment	AV equipment	CTVs. VCRs, radio-tape players, high-fi amps, speakers, karaoke systems, etc.	- Acquisition of overwhelming share of the world market by Japanese and Korean firms, and offshore transplantation of production. - Rise in the level of product sophistication and diversity under the influence of advances in digital technology. - Decline in hardware prices and spread of business in software and networking.	- Demand centered around cities for the time being; emergence of demand in rural communities along with economic growth. - Separation between high-performance, high-priced versions and standard, low-priced versions due to the income gap. - Possibility of transformation into base for export to other AFTA markets in progression from the current stage of substitution of import.
	Info-communications equipment and systems	PCs, monitors, printers, FDDs, HDDs, CD-ROMs, cordless phones, cell phones, electronic switches, etc.	- Strong market growth averaging about 20% annually due to the trends of downsizing and networking. - Growth now driven by developed-country markets; expectations for drive by China and other semideveloped and less-developed countries over the longer term. - Division in leadership between Western manufacturers for network and software technology and Asian manufacturers for terminals, components, and devices.	- Field of high growth; possibility of siting of strategic export locations by international capital, particularly in the field of labor-intensive peripheral equipment. - Limited scale but high growth in the domestic market; great margin for participation by SMEs even with limited investment in areas such as simple assembly of imported components and software development.
Electronic components	Assembly-type electronic components/ and special-purpose components	Transistors, coils, power sources, DYs, tuners, remote control units, small motors, PCBs, etc.	- Increase in demand for individual assembly components for transistors (L) amid the trends of built-in ICs and chip formats for resistors and capacitors; rise in the importance of mechanical parts as electronic equipment diversifies; stimulation of use of motors. - Acceleration of outsourcing of the packaging process along with the rise in the performance of and decline in prices for packaging equipment. - Production heavily dominated by Japanese firms including offshore locations (80--90%).	- Possibility of transformation into a site of export of labor-intensive assembly components by international capital availing itself of the abundant supply of low-cost labor (response to the increase in the global demand and selection of destinations for production transfer as plants in Malaysia, etc., shift to high-VA products). - Possibility of transfer of technology by Japanese AV manufacturers and other resident firms, mainly in the form of JVs, to nurture the capabilities of local suppliers for the purpose of increased local sourcing.
	Materials-type electronic components/ electronic devices	Resistors, condensors, connectors, heads, CRTs, semiconductors, LCDs, etc.	- Intensification of competition among Western, Japanese, Korean, and Taiwanese firms in the atmosphere of rapid technical advances and spiraling investment requirements; basic orientation of maintaining competitiveness by relative specialization on the part of Western firms and by generalization on the part of the Asian firms. - Progressive reduction in size, thickness, and weight for all items except display components (CRTs, LCDs) due to switch to chip formats and rising scales of circuit integration; big effect on packaging technology as well. - Maintenance of overwhelming dominance by Japanese firms (and their offshore productions) in the area of general-purpose components such as resistors and capacitors (90%).	- Production of CRTs and condensors due to siting by Daewoo; extensive siting of processes other than assembly essentially ruled out for the foreseeable future due to the frail foundation of supporting industry (materials and facilities) and the small scale of the domestic demand. - Possibility of siting by international capital (mainly Japanese and Western firms) in the areas of IC post-processes and the assembly portion of these devices, for the same reasons as noted for assembly components.

Source: JICA Study Team

1) Becoming an export base by bringing in Japanese and other foreign parts makers

- Approximately 30 foreign parts makers are operating in Viet Nam, including joint ventures and wholly-owned subsidiaries of foreign companies. With the exception of Fujitsu (2,500 workers) which is in PCB processing and assembly, Orion-Hanel (1,350 workers) in CRTs, and Daewoo (520 workers) in aluminum electrolytic condenser production, foreign capital-affiliated firms are generally small, emplying less than 100 workers.
- This is partly due to conditions in which parts makers find themselves. Having already established production and assembly plants in other ASEAN countries, including Singapore, Malaysia, and Thailand, and mired in the currency crisis in the region, these companies are in no position to re-deploy their resources. However, a lack of development or improvement of infrastructure and inadequate policy for bringing in foreign investments in Viet Nam are also greatly responsible for this.
- There is no telling how foreign companies will behave in the future. And the outlook for the U.S. market is also a cause for concern. However, if Viet Nam develops its infrastructure and makes a complete overhaul of its incentives for foreign capital, there is a possibility that Viet Nam's opportunities for bringing in foreign capital will increase sharply over the next several years. The reasons for this are the re-examination by foreign parts makers of on-going concentration of production to the ASEAN nations (e.g., they will have to spread risk in Malaysia), and the need to restructure production bases in the ASEAN nations in preparation for AFTA.
- The targeted component fields are not only assembly-type AV components but also all sorts of assembly-type components for PC peripheral equipment. The latter appear to hold even more promise over the long term, considering their growth potential. This broadening of the scope of products would also enlarge the circle of foreign capital that could be attracted, from Japanese firms to Korean, Taiwanese, and Western ones.

2) Creation of export competitiveness in key components using Vietnamese capital with the help of foreign capital-affiliated audio-video equipment assembly companies

- Foreign companies like Japanese businesses that have expanded into Viet Nam for import substitution purposes must increase local contents in accordance with the new tariff guidelines. While it is almost impossible to purchase from outside sources, these companies could meet this requirement by starting in-house production. However, by the time AFTA comes into effect, this may result in the existence of in-house parts production departments that lack competitiveness altogether and a mini Matsushita format, in which firms comprise small assembly departments. This may well force foreign companies to pull out of Viet Nam.

- In order to avoid such developments, one Japanese AV company has selected, for example, deflection yokes and other parts, which are produced in large varieties and which tend to need customization, for production by Viet Nam-based companies. These parts, which are currently assembled in-house in Viet Nam, are rather labor-intensive and do not require large investments. The company has been contemplating to transfer technology for these products to reliable SOEs and other companies and develop these products for export as well as for use in domestic market-bound finished products. The company will first try to sell these products to its group companies around the world, and, as they become more internationally competitive, sell them to other companies.
- Deflection yokes are already being made in-house, and foreign companies are capable of transferring technology, including that for quality control, to Vietnamese-capital firms. However, the availability of copper wire and plastic parts in Viet Nam is uncertain. Nevertheless, what is important here is the existence of possibility that something could change. It is important for SOEs and other companies to experience successes.
- Other parts and components which are being produced in-house or purchased from suppliers include tuners, power sources, transformers, PCB assembly, remote controls and other customized products. It is important for Vietnamese businesses (most SOEs and private-sector businesses are de facto SMEs) to build some successful experiences in export markets under the managerial and technological guidance of Japanese-affiliated assembly companies in the actual business situation.

Table 2-8 presents the advisable focuses and phases of development for Viet Nam's electric/electronics industry in each major field based on the current status of and issues in the industry, the macroeconomic changes, the changes in the global supply and demand in each field, and related opportunities for Viet Nam, as described above. Table 2-9 presents the image of each phase applied in the study of the industry's phased development.

Table 2-8 Orientation of the Phased Development of the Electric / Electronics Industry in Viet Nam

		Phase 1 (present - 2005)	Phase 2 (2006 - 2010)	Phase 3 (2011 - 2020)
Electrical equipment	Industrial electrical equipment and components	- Substitution of import of advanced technology for infrastructural conditioning related to electric power facilities and telecommunications facilities, and of assembly/processing technology (shift from technology from the former Soviet Union to Western technology).	- Extension of electric power and telecommunications services to rural/mountainous areas for the purpose of regional development (joint research between the public sector and academia). - Reinforcement of plant facilities and maintenance setups to support the activities of domestic firms (promotion of technology transfer from other countries).	- Increase in the international competitiveness of electrical equipment and components (motors, generators, transistors, cable, etc.) and growth into a center of supply in the ASEAN context. - Input of technology for plant automation and further build-up of industrial capital.
	White goods	- Substitution of import of white goods (washing machines, refrigerators, etc.) through attraction of siting by foreign firms and JVs with the same. - Growth as a base of export to Asian markets by foreign firms (mainly Japanese and Korean) siting in preparation for the AFTA order. - Foreign-affiliated productions resting on combination of import of key electronic components/materials and in-house manufacture of structural components, with some outsourcing for molded plastic/processed metal goods (mainly from Japanese or Taiwanese affiliates).	- Wider local sourcing (increase in the rate of plastic molding and metal processing consigned to VN or resident foreign firms). - Establishment of setup for supply of small products (fans, etc.) with limited functions and low prices, in anticipation of demand growth among rural communities; supply led by local firms. - Increase in cost competitiveness and expansion of export (mainly to other ASEAN markets) due to localization of structural components by foreign and JV firms.	- Establishment of setup for white goods supply with a great diversity of performance and price in correspondence with the diversification of the needs of domestic consumers in the course of economic advancement (possibility of an increase in the market share occupied by foreign firms as a result). - Evolution into center of export to various markets (other ASEAN countries, China, the Middle East, former Soviet Union), mainly by Japanese and Korean firms, in major product areas (i.e., washing machines, refrigerators, and air conditioners); development of export of core components such as motors and compressors.
Electronic equipment	AV products	- Import-replacing assembly based on JVs between foreign firms and state enterprises (continued dependence on import for key electronic components, but increase in the local contents through local sourcing of assembly-use special-purpose components such as DYs, PCBs, and remote control units). - VN as destination for transfer of some Japanese production in other ASEAN countries (particularly for AV products) for adjustment to AFTA (promotion of an expansion of siting of strategic assembly plants through vigorous policy to attract foreign investment).	- Possibility of positioning of VN as a center for assembly and export of analog AV products among Japanese and other foreign firms along with the trend toward digital products in assembly operations in other ASEAN countries. - Prospects for smooth development of business by local (VN) firms in supply of the rural demand, owing to advantages in the aspect of price and sales channels (particularly in the area of karaoke sets and other audio equipment).	- Easy sourcing of components from Malaysia and other neighboring countries due to the effects of AFTA and WTO; build-up of strategic assembly locations for internationally competitive AV equipment by Japanese and Korean firms. - Promotion of localization of design capabilities (mainly for analog technology) based on the store of assembly technology accumulated over more than ten years through foreign or JV operations; gradual acquisition of digital technology.
	Info-communications equipment and systems	- Attraction of siting of strategic assembly and export locations by Japanese, U.S., and other foreign capital in the area of info-communications components (all types of board assembly, switching power sources, etc.). - Transformation into site of assembly of relatively labor-intensive mass-production items (e.g., monitors, CD-ROMs, DVDs) by Japanese, Taiwanese, and other foreign firms (formidable measures for investment attraction are absolutely essential in any case). - Assembly and maintenance by foreign firms attracted in connection with telecommunications.	- Expansion of assembly-based production of mechatronics-type information equipment (HDDs, printers, fax, copiers, etc.) through attraction of siting by Japanese, U.S., and other foreign firms. - Promotion of local sourcing of molded plastic and metal parts required for various components and PC peripheral equipment, for reduction of assembly cost. - Reinforcement of human resource development programs (in software development, etc.) and infrastructural conditioning to support the growth of the domestic info-communications industry.	- Transformation into strategic location for assembly of info-communications equipment (albeit dependent on foreign firms) through acquisition of genuine competitiveness (aim for industrial build-up in the area of mainly mechanical peripheral equipment owing to the connection with SI). - Cultivation of a broadly-based info-commnications industry as software industry etc., based on the domestic capital
Electronic components	Assembly-type electronic components/ special-purpose components	- Support for local component sourcing through active attraction of Japanese and Taiwanese manufacturers of special-purpose processed components needed for AV assembly; also an absolute need for active policy support for technology transfer to local (VN) capital. - Conditioning of export processing zones and infrastructure; reinforcement of incentives for firms exporting 100% of their production; active attraction of Japanese component firms with plants in other ASEAN countries as well as Taiwanese firms (coils as the most promising area).	- Acquisition of international competitiveness in set production through domestic production of assembly-type and special-purpose processed components such as coils, PCBs, remote control units, tuners, DYs, and heads; attainment of local contents rate of more than 50% for AV equipment (with the help of Japanese firms). - Transformation into strategic production location of Japanese manufacturers of assembly-type components aiming to reconstruct their ASEAN production systems due to cost increases and labor shortages in other ASEAN countries and in response to the AFTA order.	- Acquisition and mastery of precision processing technology for metal mold components, etc., through technology transfer from Japan etc., for the purpose of domestic production of mechatronic components indispensable for info-communications equipment. - Promotion of domestic production of copper wire, iron coil cores, and various types of molded plastic and processed metal parts for electronic components (cultivation of a broadly-based SI through technology transfer from Japan etc.).
	Materials-type electronic components/ electronic devices	- Conditioning of export processing zones and infrastructure; reinforcement of incentives for firms exporting 100% of their production; active attraction of Japanese and U.S. manufacturers with plants in other ASEAN countries as well as Taiwanese firms (in the areas of resistors, condensors, and semiconductor post-processing).	- Development of preprocessing of materials components enabling a local contents rate of at least 80 percent for electric/electronic equipment, with the help of foreign firms (especially for resistors and condensors). - In-depth development of semiconductor technology through joint efforts linking VN university and governmental research institutes with foreign firms (technology transfer).	- Cultivation of the growth of operations in preprocessing for materials components (resistors and condensors) and of the domestic semiconductor industry (in-earnest attempts to develop preprocessing capabilities). - Research of futuristic devices such as flat display devices.

Source: JICA Study Team, from “Study on Economic Development Policy in the Transition toward a Market-Oriented Economy in Vietnam” 1997

Table 2-9 Image of the Phased Development of Viet Nam's Electric / Electronics Industry

Phase		Image of development
Phase 1 (present - 2005)	Conditioning of the industry's infrastructure (preparation for AFTA)	- Phase of conditioning of the industrial infrastructure with reliance on foreign capital (Japanese, U.S., Korean, etc.) (attraction of siting of strategic export locations in step with the reconstruction of ASEAN production systems by Japanese and other foreign firms). - Policy for both substitution of import by IKD production of home AV equipment and promotion of export emphasizing assembly components (consistency with measures for attracting foreign capital and clear definition of incentives for siting). - Accumulation of a cluster of strategic export locations for assembly-type info-communications equipment (PC peripherals) sited mainly by Japanese, Korean, and Taiwanese firms. - Nurturing of the growth of the domestic component industry (promotion of domestic production of assembly-type components through production consignments and technology transfer from Japanese and other foreign firms, mainly to state enterprises). - Necessity of focusing on the level of the international competitiveness of the assembly and processing industry instead of on customs revenue in setting import tariff rates for components and materials with the approach of AFTA effectuation.
Phase 2 (2006 - 2010)	Cultivation of international competitiveness (adaptation to AFTA)	- Acquisition of competitiveness in external markets (both inside and outside the region) under the AFTA setup (phase of formation of strategic export locations of foreign capital and emergence of domestic capital). - Nurturing of international competitiveness in production of sets and in export of components through a rise in the competitive strength of the component industry (as regards quality, delivery term, and cost). - Build-up of a cluster of strategic export locations of Japanese manufacturers of mechanical info-communications equipment (e.g., printers, HDDs, faxes). - Reinforcement of the foundation needed for development of supporting industry (metal working, plastic molding, metal molds, etc.) (programs for human resource development, operation of Centers for SI Technical Support, attraction of foreign investment, support for ventures). - Bolstering of programs of training in software and network development and other areas for development of the info-communications industry (promotion of the growth of domestic industrial capital).
Phase 3 (2011 - 2020)	Augmentation of domestic industrial capital	- Full-scale development of the electric/electronics industry, which is equipped with international competitiveness in the ASEAN context due to the activities of both foreign and domestic capital (aim for transformation of the industry into one of the leading ones in the ASEAN region and a key pillar of the national economy). - Graduation from simple assembly; build-up of a component industry concentration backed by domestic supporting industry (and consisting mainly of foreign capital) and of engineering capabilities extending to development, design, and facility maintenance. - Acquisition of footing for catching up in the high-VA/high-tech areas of info-communications and electronic devices.

Source: JICA Study Team

(5) Tasks for advancement

The major tasks for the advancement of Viet Nam's electric/electronics industry are summarized below.

1) Nurturing of SI firms

As will be related below, Viet Nam must cultivate the growth of supporting-industry (SI) firms, which are only marginal at present when measured against international standards. There is a need for patient efforts to build up the SI base in order to nourish competitive strength in set and component assembly. This must be done through pursuit of all possibilities for technology transfer and attraction of siting by foreign firms (including joint ventures and wholly-foreign-owned operations) in fields such as plastic molding, metal (press) stamping, surface processing, and metal molding. Furthermore, to attract siting by Japanese and other foreign SI firms, Viet Nam will have to offer incentives that are better than those offered by Thailand and Malaysia, for example.

2) Reform of state enterprises (promotion of privatization)

State enterprises (firms under the direct jurisdiction of the MOI or other agency of central government, people's committees, or district organizations) are generally deficit-ridden. The government is promoting a program for swift privatization and conversion into joint-stock companies, beginning with unprofitable firms that are not under the direct jurisdiction of the central government. Privatization is to be decided by the local people's committees for state firms with capital of no more than 1 million dollars and by the national government for those with capital of over 1 million dollars. However, of the roughly 6,500 state enterprises, only 150 were privatized in 1998 and 250 in 1999. There is uncertainty about the future schedule for privatization of state enterprises in the electronics industry, and the privatization of Viettronics and other relatively healthy firms for which the government has high expectations could very well be postponed indefinitely. In the field of information equipment, firms will reportedly be privatized sooner or later as a matter of policy, but firms in other electronics fields should also be privatized, and promptly. While they acquire increased competitiveness through participation in joint ventures, these firms must also be induced to participate in component business as described above. For this reason as well, all state enterprises, even those under the direct jurisdiction of the central government, should be privatized at an early date.

3) Measures for policy consistency/coherence and organization of policy operation divisions

Essentially, Viet Nam's policy in this aspect has not been systematic. The lack of basic data and information translates into make-shift responses as problems or issues arise. Moreover, although the competent officials have been invested with the authority to make decisions themselves, they show a pronounced tendency to prefer collective decision-making in order to avoid personal accountability, and so needlessly waste time. This propensity is partly responsible for the long delays in reaching decisions on applications for licenses.

The reason that the lack of units for each industry in MOI did not cause substantial problems in the past is the existence of general public corporations like the VEIC, which was a state enterprise under the umbrella of the MOI and had numerous member firms. More specifically, such corporations investigated and submitted numerous proposals, and the MOI or other agencies with jurisdiction over state enterprises did not need units for each industry. However, the prevailing organizational arrangement will obviously not work once state enterprises have been privatized and the industry is led by the private sector. This applies not only to the electronics industry but also to the textile and other industries.

It can also be noted that there is no coordination among policies in such aspects as attraction of foreign investment, customs, promotion of domestic production, and input of technology. As such, the government lacks a coherent policy for the electronics industry as a whole. The MPI has a big say on the subject of attraction of foreign investment, and the MOF, on those of promotion of domestic production and component tariffs; the MOI, which should be in charge, does not have the power to coordinate industrial policy. The MOI and MPI ought to cooperate and take the initiative in drafting policy from a medium-to-long-term vantage while also building a consensus among and coordinating measures with concerned agencies. This points to a need for prompt reconstruction of the master plan, which has been deferred, followed by its prompt approval by the government, its adoption as the guideline for industry, and arrangements for its reflection in actual policy operation.

2.3 SMEs in the Electric/Electronics Industry – Trends and Issues

2.3.1 Positioning of SMEs

The above table shows that SMEs number slightly 114, or approximately 80 % of the total of 144 companies, in the electronic and electrical industry. Other related firms include approximately 20 companies in supporting industries, such as resin molding, and approximately 500 companies in the distribution of information and other equipment (including assembly of hardware and software development).

The number of small and medium-sized SOEs has declined to 13 due to switching to importation and distribution or to other industries. These companies are joint ventures with Japanese or South Korean companies in the audio-video equipment or related business and their parent companies themselves have been scaled down. They are forced to move into various directions for survival, including assembly work on audio-video equipment, such as TV sets and radio-cassette players; assembly of parts, such as remote controls; assembly and installation of PCs; and production of medical equipment.

Among privately-funded (domestic capital) SMEs, there are approximately 45 companies engaged in the assembly and parts manufacturing of electrical equipment, such as electric fans and pots, electric cable and cord, and sockets. They make products for the domestic market using outdated technology and equipment. Many of these companies are having a hard time now because of competition with Chinese products.

None of the privately-funded (domestic capital) companies is up to international standards in technology and therefore able to deal with foreign capital-affiliated companies. Meanwhile, along with an increase in domestic investment in information technology, recently there has been an increase in private-sector companies, albeit in small scales, that engage in PC assembly, software development and other businesses (including those which are simple distribution) which are within the reach of nimble businessmen. Such firms now number 450.

Most of the 56 SMEs which are either joint ventures or wholly-owned subsidiaries of foreign companies engage in assembly of TV sets, radio-cassette recorders, etc. or assembly of electronic components, such as transformers, coils and motors. While finished products are primarily for the domestic markets, parts and components are primarily for export. Due to the ASEAN crisis and the delay in developing the investment environment on the part of Viet Nam, there has been a marked stagnation in new entries to the country by foreign concerns.

2.3.2 Trends among SMEs

Table 2-10 outlines the management and business situation of and issues facing the major SMEs in Viet Nam's electric/electronics industry, based on the findings of field studies. These firms share characteristics including outdated product technology and dilapidated production facilities, difficulties in raising funds (both short-term funds and long-term funds needed for facility investment), a shortage of talent required for technical innovation, and insufficient management know-how. Some are operating mainly with owned funds and being soundly managed by staff composed largely of relatives; others are avidly moving into the information field, including software development, in light of the growth potential. Similarly, some state-run SMEs want to be free of official control and to be privatized as soon as possible.

The following sections describe the conditions of supporting industries that support assembly of finished products and production of electronic components. The conditions are rather dismal. With the exception of a handful of companies affiliated with Japanese businesses, companies are not competitive internationally. Even with Japanese-affiliated companies, purchasing costs are high, as the scale of production of set makers is small. This keeps them from making full use of parts made in Viet Nam. Few indigenous companies exist in the areas of technologies the electronic industry requires in addition to metal and plastic molds and metal presses. For example, there are virtually no indigenous companies that have surface treatment technology (plating, coating, etc.), making it impossible to expect levels of technology that are internationally acceptable.

Metal mold production

- The level of metal mold technology for molding plastics is determined by the levels of equipment and engineer's skills, as stated below. The companies that can meet these requirements are listed below, and their numbers are small.
- Their equipment includes machining centers, electric spark machines, and computer numerical controls and all design work is computerized.
- Their skilled workers have over five years of experience, can understand English and use computes.

Rank A: The following three companies meet the above two requirements and make metal molds for electric parts (cabinets for color TV sets, cellular phone cases, etc.).

- Siroki (Hanoi, a joint venture with a Japanese company)
- Phu Vinh Co. (Ho Chi Minh City, 100 % Vietnamese owned)
- Smith (Ho Chi Minh City, 100 % German owned)

Table 2-10 Trends and Issues among Major SMEs in the Electric / Electronics Industry (State and Private Enterprises) (1)

Electric/electronics industry		Firm	Style/scale	Outline	Issues, etc.
Electrical equipment	Industrial electrical equipment and components	A	Private enterprise Capital: 1.1 billion don Number of employees: 50	- Processing and production of electrical cable (16 - 180 mm in diameter, PVC insulation, voltage of 0.4 - 1 KV, for aerial use, and bare wire, 35, 110, and 220 KV); dependence on import for materials. - Outmoded facilities mainly from the former Soviet Union; will to make investment for new facilities, but hampered by fund-raising difficulties; staffed with relatives and acquaintances; recruitment from the crop of university graduates as a more realistic alternative. - In competition with state enterprises, but at an advantage in the cost aspect; expansion of business fully possible with the rise of demand in rural communities; desire for partnership with foreign firms (viewed as difficult for a private enterprise to do).	- Trouble in procuring funds for business expansion due to difficulty of obtaining approval for land use rights. - End-to-end production from the melting furnace to insulation with PVC, but with outmoded facilities. - Currently involved only with cable for aerial use, but considering movement into the market for buried cable as well.
		B	Private enterprise Capital: 4 billion don Number of employees: 50	- End-to-end production of electrical cable; president formerly worked for a state enterprise and expanded the business using the channels from his service there; converted into a limited liability firm in 1994. - Intention to meet costs with owned funds and funding from relatives; reduction of dependence on borrowing from banks to the bare minimum. - Domestically produced facilities based on Russian technology; recent introduction of facilities from Korea, mainly for the PVC process, to boost production capacity.	- Inability to get long-term loans needed for substantial facility investment; troublesome procedures even for short-term loans; high interest rates and shoddy handling by bank employees. - Too early for instatement of the VA tax in Viet Nam; imposition of a heavy burden on SMEs.
Electronic equipment	AV products	C	State enterprise Number of employees: 188	- IKD assembly of 14" CTV sets designed by Korea's Daewoo (yearly production of some 5,000 sets; operation for about one month a year). - Development of processing and assembly of medical measurement equipment and disinfection equipment to cut back CTV business. - JV in plastic molding with Korean company (CTV cabinets, bottle carrier cases, etc.).	- CTV business driven into desperate circumstances by competition with Japanese and Korean JVs. - Survival through movement into business in the public sector (e.g., medical equipment) and JVs.
		D	State enterprise Number of employees: 137	- Assembly, import, and sales of AV equipment and white goods (agency sales of foreign-made CTV sets). - Assembly and sales of various Japanese and Korean CTV brands until the mid 1990s; subsequent loss of competitiveness due to participation by foreign-affiliated JVs; expansion of trading firm capabilities through extensive use of import-export rights.	- Proposal of JV for production of condensors, but the proposal is pending in consideration of the great risks; focus on component business as a prospective field upon privatization.
		E	Private enterprise Number of employees: 100 (engaged in CTV assembly; 300 in all)	- Private firm engaged in CTV assembly, consigned stitching, and trade; headed by a former state enterprise employee; shift from trade business to assembly of electronic equipment; diversification into stitching due to shrinkage of production. - Facility investment with owned funds; not very positive attitude toward JVs or technical partnerships (which are regulated), but in effect groping for ways to collaborate with foreign firms while retaining its private status.	- Lack of promise for the CTV business; desires for input of communications hardware and software technology from Japan for continuation in the electronics business.
		F	Private enterprise Number of employees: 120	- Business specialized in audio equipment (amps, karaoke sets, equalizers, speaker systems, etc.) to avoid competition with foreign and state firms. - In-house design of circuits and also some panel molds; dependence on import for most components; some local sourcing of condensors (Daewoo JV), cords, and power transistors (in-house).	- Considering export, but lack of cost competitiveness due to lack of local sources for components. - Inability of private firms to obtain medium- or long-term loans; tough screening for short-term loans as well (high requirements for collateral).

Table 2-10 Trends and Issues among Major SMEs in the Electric / Electronics Industry (State and Private Enterprises) (2)

Electric/electronics industry		Firm	Style/scale	Outline	Issues etc.
Electronic equipment	Info-communications equipment and systems	G	Private enterprise Number of employees: 24 (200 in the entire group)	- G Group consisting of nine firms involved in import and sales of information equipment and components; G company (established through consolidation of nine petty businesses) as core member, engaged in assembly and sales of PCs (about 10,000 per year). - Supply of components needed for PC assembly and peripheral equipment needed for system construction (e.g., Intel mother boards, Seagate HDDs, Mitsumi CD-ROMs, FDDs, mouses, and keyboards) mostly through a Group member engaged exclusively in import.	- Only firm other than the state-run VX which conducts assembly based on VN capital and has an inspection system. - Difficulties in raising funds needed for facility investment; funds raised through the Group thus far, but bank loans needed for expansion of business.
		H	State enterprise Number of employees: 100	- Import and sales of PCs and mini computers, assembly of PCs, and sales of software; engaged in training business related to PC systems and networking; also carrying out assembly of components such as PC power sources and transformers. - Business in information equipment mainly on the level of import and sales at present; desire to expand business in PC assembly components in the future.	- No financial support from the government in spite of public status; system of control over activities not appropriate; desire for privatization.
Electronic components	Assembly-type electronic components/ special-purpose components	I	State enterprise Number of employees: 70	- Established in 1985; antenna assembly, metal molds , plastic molding, and metal stamping. - Sourcing of antenna components from private firms in the HMC area. - Molded plastic/metal products include small electrical articles (sockets, etc.) and tableware.	- Outdated technology; not internationally competitive. - Difficult to make a shift to electronics with existing facilities and technology on the order of sheet metal processing, small electrical fittings, and tableware.
		J	JV (state enterprise Ridico 44%, Taiwanese Wan Ho 56%) Number of employees: 90	- Assembly/processing of motors for fans and assembly of fans; 40% of the fans and motors sold in VN, 60% exported; business originally centered around domestic sales, but expansion of export due to intensified competition, improvement of production technology, and rise in cost competitiveness. - Almost all materials imported from Taiwan; outsourcing for aluminum diecast materials, but quality is poor and the articles often have to be reprocessed; suppliers not used to handling metal molds/dies.	- Frequent disputes with authorities over interpretation of tariff rates for imported materials; improvement possible if the situation is explained and the authorities are convinced. - Fairly close inspection of quality by the quality inspection bureau at HMC with reference to the TCVN standards (equivalent to Japan's JIS); setup sufficient for checking the level of export.
SI	Metal molds	K	Private enterprise Number of employees: uncertain	- Equipped with MC, discharge processor, and CNC for metal molds for plastic molding; computerization of the entire design process. - Certain capability for metal mold operation for electronic components (CTV cabinets, cell phone cases, etc.).	- Not a very high level of processing capabilities; low level of demand per se; few opportunities for acquiring technology.
		L	Private enterprise Number of employees: uncertain	- Equipped with MC and discharge processor for processing metal molds for plastic molding, but design not computerized. - Capability for production of molded plastic goods on the order of small electrical fittings.	- Capable of making molds for small plastic electrical components, but level of technology is on the order of production of sundries.
	Plastic molding	M	JV (HK and VN capital) Number of employees: uncertain	- One of the leading plastic firms in HMC, comparable with Japan's Showa Plastic, but low level of capabilities for electronic components; patronized by Japanese and other AV firms for items that do not require a high degree of precision and must be low-cost.	- Level of technology of HK firms that have supplied Chinese firms very low as compared to those of Japanese firms.
		N	JV (HK and VN capital) Number of employees: uncertain	- JV with the HK firm; plastic processing facilities; CTV assembly.	- Low level of plastic processing technology introduced from HK; actual production negligible.
		O	JV (Korea's Daewoo and Viettronics Dong Da) Number of employees: 76	-Plastic molding/processing; production of CTV cabinets (capacity of 500,000 per year), plastic parts for fans and refrigerators, carrier cases for beer bottles, and sundry articles. - About the only dedicated manufacturer in the field of electronics-related plastic molding in the Hanoi area.	- Very dependence on Daewoo in electronic components industry. - Level of technology is low as compared to those of Japanese firms. - Influenced by restructuring of Daewoo in Korea.

Source: JICA Study Team

Rank B: There are approximately ten companies in this category which make metal molds for small parts for electrical products and sundries for daily use. They own electric spark machines. Some own CNCs. Their products include small components for electrical products.

- Viettronics Phu Tho (The same company, an SOE)
- Mechanical Mold Co. (an SOE under the wing of Ho Chi Minh City People's Committee)
- Companies owned by ethnic Taiwanese Chinese (approximately 10 companies)

Plastic molding

- In the Hanoi region, there are approximately 10 specialized plastic molding companies, including Hanoi Plastic Co. and Thang Long, in addition to a joint venture between Daewoo and Viettronics. Hanoi Plastic Co. and Thang Long are able to make parts for electric fans and so forth, while the joint venture between Viettronics and Daewoo is the only company that can supply color TV cabinets and refrigerator outer frames. In the Ho Chi Minh City region, there are about 100 small plastic processors, but most of them are processing sundiees for daily use. About the only companies that can make parts for electronic products are Vietnam-Showpla and DONACO. Most companies affiliated with Japanese businesses use Vietnam-Showpla. DONACO's reputation is low.
- In short, only the following five companies in Viet Nam can produce cabinets for color TV sets. Product quality is low except at Vietnam-Showpla, making it necessary for almost all firms affiliated with Japanese capital to use Vietnam-Showpla. In practice however, metal molds cannot always be supplied due to the scale of mass production. While it is barely possible to produce color TV cabinets in Viet Nam, almost all plastic parts for radio-cassette players and mini component audio sets must be imported.

Hanoi region:
- Daewoo - Viettronics Plastic
  (a joint venture between Viettronics and Daewoo)

Ho Chi Minh City region:
- Vietnam-Showpla (100 % Japanese owned)
- DONACO (a joint venture between Hong Kong and Vietnamese capital)
- Hong Viet (a joint venture between Hong Kong capital and the 11th Ward, Ho Chi Minh City)
- Singar (a joint venture between Hong Kong's Loucks Etron and Sagel)

Metal mold production for metal presses and pressing

- The block die (metal mold for metal pressing, which is pressed manually each time) and pressing operations using it is a basic form of machinery fabrication. It is thought that there are hundreds of firms with this level of technology in Viet Nam. However, they use old cutting and drilling tools and engage in pressing simple metal parts (metal pieces of about 10 cm.)
- Continuous press technology is required for full-fledged press work. However, there is no firm in Viet Nam that own electric furnaces for cutting wire and heat treatment for increasing hardness (including the treatment of NaCl) and can make metal molds for continuous press work.
- There are few firms in Viet Nam that are engaged in press work by importing metal molds for continuous press from Japan. The only firm that does this seems to be a joint venture between a South Korean and a Vietnamese firm that is making speaker frames.

The following firms are major ones which are engaged in assembly and production, including in-house production, according to internationally accepted technological standards for surface mount. There may be other companies, but their number should be small. (Information is not available regarding assembly lines at South Korean firms or those for component assembly at Japanese-affiliated firms in Special Export Zones.)

- Fujitsu's PCB assembly and processing plant for HDDs [Employs 2,500 workers; installs several dozen state-of-the-art mounters; owns latest exposure/etching/testing equipment for PCB assembly (for HDDs, mother boards, etc.) and processing; has chemical waste treatment facilities]
- A joint venture plant of a Japanese electrical product maker [PCB assembly using the latest mounters (color TV main boards, tuners, etc.) special winding equipment for deflection yoke manufacturing, a final picture adjustment system for color TV sets, etc.]
- A Viettronics Binh Hoa (SOE) plant making DC/DC converters, etc. on commission for sales to NEMIC LAMBDA (Has purchased two used mounters, is adding another mounter for the production of color TV main boards for JVC)

2.3.3 Issues involving SMEs

The issues surrounding SMEs in the electric/electronics industry may be summarized as follows.

(1) Fund raising

Private enterprises can not get long-term, low-interest loans even if they have the right to use land. Without reforms, capital investment and business expansions will be limited by the availability of credit, because fund raising by these firms is limited to putting together cash savings of the business owner(s) and their friends and acquaintances. Banks need to change their lending stance toward private enterprises, while a financing scheme should be created without delay to extend long-term, low-interest credit for financing capital investment. Otherwise, it is certain that Viet Nam cannot take advantage of the dynamism of private enterprises.

If their investment plans are approved, SOEs are able to borrow long-term (5-10 years) funds from banks at a monthly interest rate of 0.81 % to finance capital investment. However, as it takes one to two years to obtain approval after applications are submitted, there is a strong possibility that business opportunities will be lost.

Bank lending must be clearly divided into short-term loans (operating capital for purchasing parts and materials) and long-term loans (funds for capital investment). There is a need for a financial system which makes it possible to use as the equipment in which the investment was made as collateral for medium and long-term loans. Also to help plant and equipment by SMEs, the system of equipment leasing using leasing companies must be created.

(2) Incentives for foreign capital

The following reforms are urgently needed to bring in foreign capital. Incentives should be extended from those aimed for promotion of exports to include those for companies making products for the domestic market. Similar considerations are essential to promote entry of foreign capital into supporting industries, because most of the companies in this sector are SMEs. Needless to say, improvements should be made on basic matters, such as streamlining red tape necessary for foreign capital’s applications for investment, development of infrastructure, scrapping or easing of export requirements and the elimination of the dual pricing system.

Table 2-11 Incentives for Foreign Capital

Type of firm	Products covered	Firms covered	Incentives
Equipment assembly	AV equipment, information & telecommunications equipment	Big companies	* Presently no incentives. Must meet local content and export requirements to get license. * Incentives should be introduced into the part business in proportion to contribution toward technology transfer to domestic firms.
Parts assembly	Labor-intensive, special-use parts (PCB assembly, DYs, power sources, transformers, coils, remote controls, etc.) in the short term. Multi-purpose parts (resistors, capacitors, etc.) in the long term.	Medium-sized and big companies	* At present, tax incentives to (1) export companies (forgiveness of corporate taxes for 4-8 years and tax cuts for the following 4 years) (2) other companies (2-year tax forgiveness followed by tax cuts for 2 years) * In the future, corporate tax forgiveness and cuts should be extended to firms with lower export ratios.
Supporting industry firms	PCB processing, plating, coating, plastic processing, metal molds, etc.	SMEs	* At present tax incentives offered to (2) above are extended to these firms. * As they are SMEs, incentives at least comparable to those offered to export-oriented firms should be given in order to bring in foreign capital, including joint ventures.

Source: JICA Study Team

(3) Development of human resources

It appears that elementary education generally emphasizes inculcating ideology, and lessons in scientific subjects, such as physics, chemistry and biology, are very few in number. Lessons are given only in a half day, and the study hours are limited. As a result, workers do not even have basic engineering knowledge, resulting in many troubles on shop floor and a lack of improvement in work level.

This seems to be not so much the result of education policy in a socialist state but basically is a result of teacher shortages. Salaries of civil servants, including teachers, are extremely low. It seems that the government is unable to hire a large number of teachers in various subjects due to budgetary constraints. Engineering education at the college level also consists mostly of lectures and from written materials. As there are not enough laboratories for experiments due to a lack of funds, students lack experiences in experiments.

In order to increase local availability of parts and materials required by set makers and also to increase competitiveness, it is necessary to extend technological and financial assistance to existing SOEs and private enterprises that have relatively high levels of technology and are willing to improve. The people of Viet Nam are just as able as those of the other ASEAN countries to master technology,

and could acquire technical skills fully up to international standards with the proper instruction and guidance. Given proper guidance, they can attain levels high enough to compete internationally. It is necessary to solve the problem of no experience, and no guidance programs. Specifically, there are following three means to solve this problem.

- There must be many opportunities for receipt of management guidance and instruction related to production and quality control and other areas of quality, cost, and delivery (QCD). Viet Nam must accept the participation of engineers and technicians from developed countries in these programs. In comparison with Thailand, Malaysia, China and the Philippines, such educational and training programs have hardly taken off in Viet Nam.
- Establish educational funds to assist students (the fact that many talented youths are unable to attend colleges and universities is a social problem). Create a system under which students can gradually repay loans after they start working for a company.
- Japanese and other foreign set makers and other companies can nurture indigenous firms through purchasing parts and components from them.

Most ODA funds in the past have been used for infrastructure investment. As a result, investment in human resources development has been inadequate. Steps have been taken to install research/laboratory equipment in educational institutions and develop training programs with the assistance of engineers from developed countries, but efforts along these lines have not been sufficiently systematic, organized, and continuous. Viet Nam must build with public funds training centers where students can learn QCD, such as basic know-how in machinery processing technology, and production and quality control. It is said that as an ethnic group, the Vietnamese are a very talented people who can take full advantage of their talents if educated properly. The people of this country have very high potential.

(4) Response to the environment law

Without giving much thought to the level of development of the domestic economy, Viet Nam has adopted one of the most strict environment laws in the world. As a result, various problems are expected to arise in relation to the environment law when supporting industries are fostered through the use of SMEs as industrial development is promoted.

As a result of such an environment policy, cleaning plants in the textile industry and chemical factories have been relocated out of the city areas of Hanoi and Ho Chi Minh City to the suburbs. These plants have been located haphazardly to different areas. Viet Nam does not yet have industrial parks where waste liquids can be centrally treated at government expense.

The price of land at the existing industrial parks are high, which tend to keep SMEs from moving into them. Although a large number of SMEs are operating in industrial parks in the suburbs of Ho Chi Minh City, the environmental measures at these parks are not adequate when supporting industries are to be fostered in the future.

In order to develop supporting industries which are important for the electronic industry and which require measures to conserve the environment (such as plating, coating, welding and PCB production), special industrial parks which SMEs can use at low costs should be built, as environmental measures require large investments. It is necessary for the public sector to provide assistance for central processing of liquid waste, and others.

(5) Improvements for certification of compliance with safety standards

Once SMEs begin to mold components from imported or domestically procured materials, it will become necessary to test performance as regards resistance to pressure, resistance to heat, and all other sorts of material properties. At present, law regarding product quality and standards has been enacted under the watchwords of "acting on product quality." However, the system of certification has in effect been applied only to a limited circle of products such as electric fans and cable. It must be applied to all products of the electric-electronics industry. For safety in particular, the standards applied must be in conformance with those in developed countries (e.g., the UL standards).

(6) The timing of the imposition of VAT

Although paying tariffs when parts and components are imported seems reasonable, many firms think the timing of the payment of VAT is problematic. SMEs in Viet Nam do not have enough funds to pay taxes before their products are sold. There are strong voices calling for a change so that VAT could be paid, for example, three months after the importation of parts and components.

(7) Streamlining of red tape and easing of regulations on joint venture companies

Regulations on the establishment of joint venture companies are said to be moving toward easing (starting in July 1999). However, private enterprises are not very aggressive about forming joint venture companies for the following reasons, though the problems vary by the structure of paid-in capital: 1) The export requirements are too high. 2) Charges imposed on joint ventures for rights to use land and buildings are too high. 3) Both taxes and wages are too high. Needless to say, Vietnamese companies need tie-ups and affiliations with foreign companies. They plan to enter into tie-ups with foreign companies, but they tend to avoid formal affiliations that come under the

government's joint venture policy.

(8) Royalty policy on tie-up for technology

Vietnamese government's standards for corporate tie-ups for technology are worlds apart from those of overseas companies. As a result, although private enterprises exchange papers with foreign companies regarding trade mark licensing and technical assistance, they do not submit these papers to the government. Generally, it is assumed that the government is not likely to approve in the near future conditions set forth by Japanese and other foreign companies. It can well be imagined that Vietnamese private enterprises are having a hard time being sandwiched between powerful foreign capital-affiliated companies and the government. Vietnamese are coping with this problem by keeping it private. The government will need to move closer to international standards.

(9) Improvement in procurement of parts and materials

There is a question of whether businesses operating in Export Promotion Zones could be allowed to sell in the domestic market up to a certain percentage of their output (say, from about 5 to 10 %). This would benefit both the sellers and the buyers, because some foreign companies are producing parts and materials that could be used by foreign capital-affiliated assemblers or parts makers. Imposing regular import tariffs and collecting VAT on materials which will be sold in the domestic market after processing will make procedures somewhat more complicated. However, such a scheme will raise the local content ratio and expand production scale in the Export Processing Zones, and will benefits to both parties.

(10) The electronics industries association of Viet Nam (VAEI)

As economic activities in various sectors of the economy pick up, a large number of trade associations are being organized. The Ministry of Industry is encouraging the Electronics Industries Association of Viet Nam, established in 1997, to be active. Although the Association does not yet have effective influences, and some companies in the information sector, for example, tend to look down on it, SOEs and others with diminishing power are pinning great hopes on it.

The Association at present has 45 companies as its members. Ten of them are companies under the wing of VEIC and comprise core members of the Association. Although a large number of members are in household electronics and electrical product sector, three are in broadcasting equipment and parts, and related industry, another three are in telecommunications equipment and related industry, and four are in defense/industrial electronics and related sector. The Association's major activities include 1) policy recommendations to the government, 2) information exchange

within the industry, and 3) holding or participating in overseas trade fairs. It participated in a trade fair in Taiwan in 1998 and one in Tokyo in 1999.

The history of the establishment of the Association has had ups and downs. Initially, related companies got together and discussed the need for a trade association and filed an application for the formation of the Association to MOI. MOI was amenable to the idea and submitted an application for an approval to the government (Prime Minister's Office) in 1997. Although the Prime Minister directed the official in charge to follow through, nothing happened because the official moved to another post. The new person who came to this office asked the companies to file another set of application documents in 1999. Things are now moving in the direction of the formation of the Association, and possibly the approval will be given before the end of this year. The Association will be headquartered in Hanoi/Hanel, with a branch in Ho Chi Minh City.

Such an organization holds benefits in various aspects, including lobbying for policy and serving as a forum for exchange of information among companies. For SMEs as well, it can have extremely great meaning. Therefore, it ought to be open and not biased in favor of large firms.

General conditions for receiving approval for the formation of a trade association are 1) it serves actual needs for the development of the industry; 2) receives approval from the competent ministry (MOI); and 3) the competent ministry files an application to the government and receives approval.

2.4 Plan for SME Promotion in the Electric/Electronics Industry

2.4.1 Framework for SME Promotion

There are two basic orientations for the development of the electric/electronics industry in Viet Nam: 1) substitution of import of products and technology, and 2) build-up of strategic export locations, albeit with dependence on international industrial capital. In this connection, systematic efforts must be made to nurture the growth of different groups of SMEs with an eye on targets.

(1) Substitution of import of technology and products

- While building up industrial capital, conditioning the electric power and telecommunications infrastructure, and improving the socioeconomic foundation in rural and remote areas, Viet Nam must promote of import through production of industrial electrical equipment, their components, and low-end home appliances that are up to international standards of technology.
- Regarding industrial electrical equipment and components, it can be noted that economic rationality demands the structuring of equipment assembly and component supply amid the shift from a supply setup centered around state enterprises to one according a larger role to private enterprises. The cultivation of SMEs resting on domestic capital is particularly important in the area of component supply. As for home electrical appliances, only domestic SMEs will be capable of supplying goods matching the country's income level and market requirements in fields of comparatively small home products and audio equipment. In this domain, there is a strong possibility of influence by neighboring China, and this underscores the urgent need for support of the growth of domestic capital.

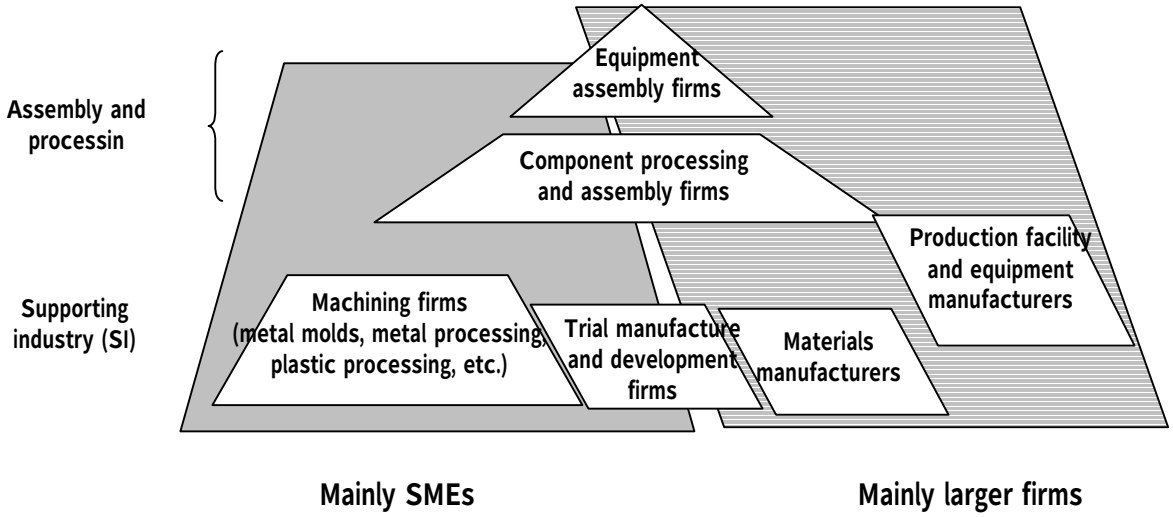
(2) Build-up of strategic export industry with dependence on international industrial capital

- Viet Nam is to lay the foundation for the growth of the electric/electronics industry with the help of foreign capital by attracting assembly plants for labor-intensive home appliances and components. However, to help the industry grow into one with a genuine international competitiveness and export capability over the longer term, there is a critical need for development of SME component or SI firms, mainly owned by domestic capital, to support set assembly and component assembly and processing.
- Viet Nam must formulate its own approach to the development of SI firms, but with full study and consideration of successful efforts in this area in Japan and Taiwan (in the latter, SI is fairly well-developed and influenced by the distinctive mentality of the region's ethnic Chinese business persons) as well as the efforts in Thailand (which has been actively attracting foreign investment

and succeeded in acquiring export capabilities but has many issues to resolve for SI development) and other ASEAN countries.

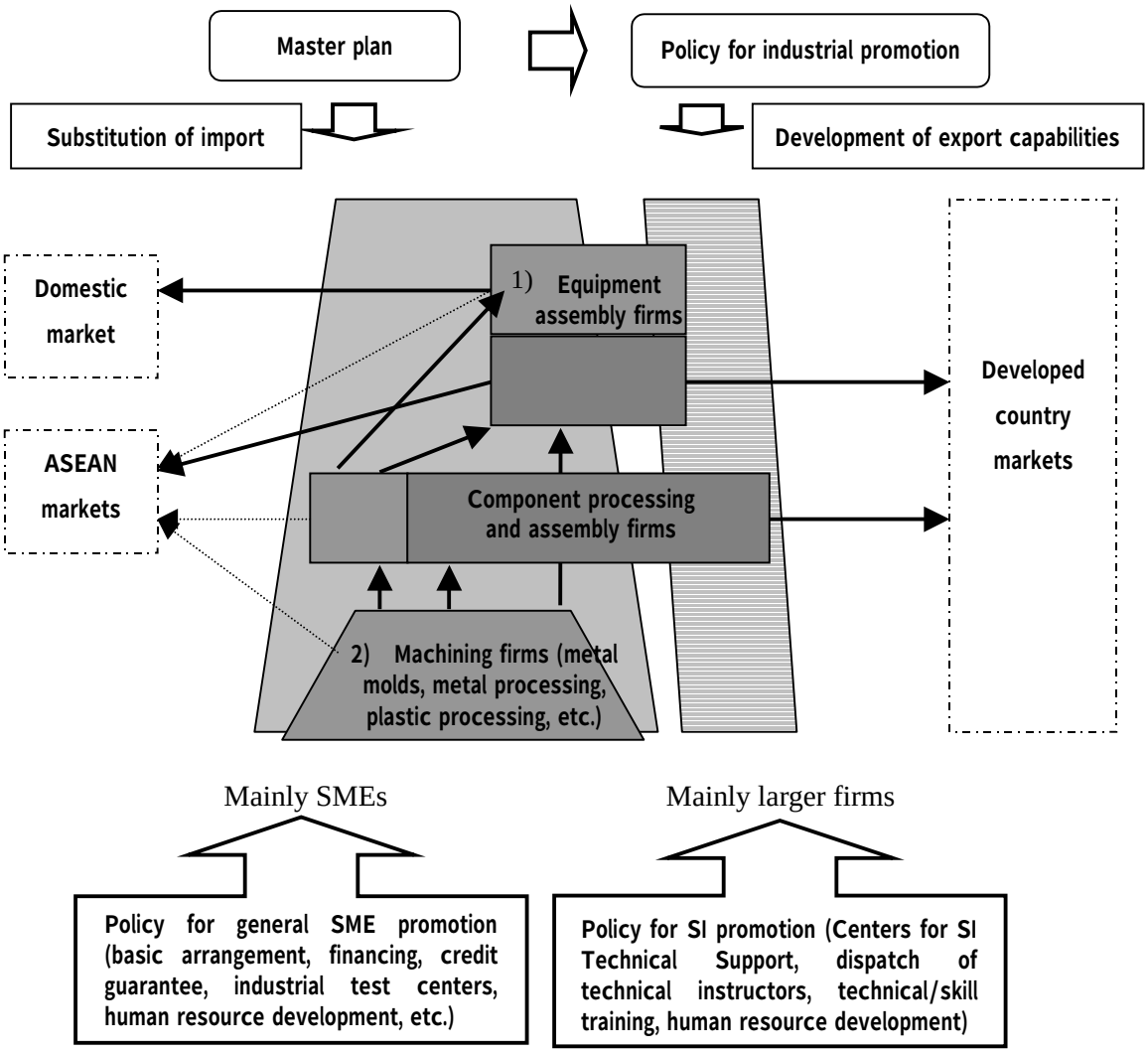
Figure 2-2 shows the structural positioning of SMEs in the electric/electronics industry in general. Figure 2-3 shows this positioning and framework for SME promotion taking account of the orientation for the industry's development in Viet Nam in particular.

Figure 2-2 General Structural Positioning of SMEs (and SI) in the Electric / Electronics Industry



Source: JICA Study Team

Figure 2-3 Positioning and Framework for Promotion of SMEs
in Viet Nam's Electric / Electronics Industry



Source: JICA Study Team

Note: indicates domestic (VN) firms or JVs indicates wholly-foreign-owned firms

（1） SMEs engaged in equipment assembly and component processing

（2） SMEs engaged in component processing capable of transactions with international capital and discharging an SI function

2.4.2 Target SME Groups and Phases of Development

(1) Target SME groups

Below are the three types of SMEs whose development should be promoted in the electric/electronics industry in light of various factors, including the structural characteristics of the

industry, the situation in Viet Nam, and the surrounding environment. Table 2-12 shows the prospective future configuration of these SMEs based on their current status as regards the principals in each field of the industry. Table 2-13 shows the products and technology to be covered for SMEs and their roles.

SME Group A: firms engaged in assembly and processing of electrical products and electrical components

SME Group B: firms engaged in processing and assembly of assembly-type special-purpose electronic components

SME Group C: SI firms supporting assembly of electrical/electronic products and components

Table 2-12 SMEs and Other Principals in Each Field of the Electric / Electronics Industry in Viet Nam

<table>
<tr><th colspan="2" rowspan="2">Field</th><th colspan="3">Principals (present)</th><th colspan="3">Principals (future)</th></tr>
<tr><th>Domestic firms</th><th>JVs</th><th>100% foreign-owned</th><th>Domestic firms</th><th>JVs</th><th>100% foreign-owned</th></tr>
<tr><td rowspan="2">Electrical equipment</td><td>Industrial electrical equipment</td><td>Large firms</td><td>Large firms</td><td></td><td>Large/medium firms</td><td>Large/medium firms</td><td></td></tr>
<tr><td>White goods</td><td>Large/medium firms</td><td>Large firms</td><td></td><td rowspan="3">SMEs (A)</td><td>Large firms</td><td>Large firms</td></tr>
<tr><td rowspan="2">Electronic equipment</td><td>AV equipment</td><td>Large/medium firms</td><td>Large firms</td><td></td><td>Large firms</td><td>Large firms</td></tr>
<tr><td>Info-communications equipment and systems</td><td>SMEs</td><td></td><td>Large firms</td><td></td><td>Large firms</td></tr>
<tr><td rowspan="3">Electrical/electronic components</td><td>Industrial electrical components</td><td>Large SMEs</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Assembly-type electronic components/special-purpose components</td><td>SMEs</td><td>SMEs</td><td>SMEs</td><td colspan="2">SMEs (B)</td><td>Large/medium firms</td></tr>
<tr><td>Materials-type electronic components/electronic devices</td><td>SMEs</td><td>Large firms</td><td></td><td></td><td>Large firms</td><td>Large/medium firms</td></tr>
<tr><td rowspan="2">SI</td><td>Metal molds and mold components</td><td>SMEs</td><td></td><td></td><td colspan="2" rowspan="2">SMEs (C)</td><td></td></tr>
<tr><td>Plastic molding</td><td>SMEs</td><td></td><td></td><td></td></tr>
</table>

Source: JICA Study Team

Note: ▭ with a certain stock at present ▬ to be held by SMEs in the future

Table 2-13 Groups of SMEs to be Developed in Viet Nam's Electronic and Electrical Industry and Their Roles

SME groups		Products & technology to be covered for SMEs	Roles and images for SMEs
SMEs (A)	Assembly of electronic and electrical products	- Information equipment for business use (PC assembly, addition of peripheral equipment, software development, application software customization, maintenance, etc.) - Low-priced AV products for rural areas (Low-end color TV sets, karaoke systems, audio systems, etc.) - Low-priced white goods for rural areas (fans, rice cookers, pots, etc.)	These are SMEs that assemble information equipment and household electrical products for the domestic market, especially those that assemble low-priced or small products for rural markets, or those that assemble PC systems or develop software in a flexible manner. There will be division of labor between these firms and big companies, which will mostly be joint ventures with foreign partners.
	Processing & assembly of parts for industrial electrical products	- Parts for heavy electricals and electrical machinery (parts for generators, transformers, power source transformers, switches, breakers, distribution boards, and lighting equipment, and parts for power cable, cord, and connectors. etc.)	These are SMEs that process and assemble parts for industrial electrical products needed for the construction of domestic infrastructure. Assembly, installation and maintenance of finished products, such as generators, will continued to be primarily within the domain of big SOEs, but it will be more cost effective and better for technological innovation to outsource parts from private SMEs than to depend on in-house production at big SOEs.
SMEs (B)	Processing & assembly of assembly-type specialized electronic parts	- Special parts for household electrical goods (DYs, power sources, transformers, coils, remote controls, tuners, etc. for TV sets) - Subassembly of components for PCs, peripheral equipment, and communications equipment over the long term	These are SMEs that process and assemble assembly-type special parts for AV equipment, etc. In the immediate future, these firms will focus on the domestic market to raise local content ratios of joint venture AV set makers. However, in the medium and long term, they must become competitive enough to export. Therefore, support from Japanese and other foreign companies in terms of technology and finding distribution channels is essential. The possibility of a large number of SMEs developing in this area is not very good, because production of only a few parts is possible domestically and because of fierce international competition. But, the significance of a Vietnamese-capital company(ies) successfully doing business globally is very large.
SMEs (C)	Machinery manufacturing that support assembly of electronic and electrical products and parts	- Metal molds, metal mold parts, (for presses and molds) - Plastic molding - Metal presses - Surface treatment (plating, coating) - PCB mounting - Other	These are SMEs that are essential in increasing international competitiveness of electronic and electrical parts. Some say that such SMEs are practically non-existent in the country, because the parts industry has not yet developed. But, they are essential for bringing in foreign capital to the electronic and electrical industry. While other ASEAN countries have developed heavily dependending on assembly technologies of foreign capital, Viet Nam should help develop these SMEs that form supporting industries that are essential for creating an industrial structure with solid assembly industries. Such efforts should start now and in a well-planned manner.

Source: JICA Study Team

(2) Phases in the development of the target SMEs

Table 2-14 shows the level to be reached by the targeted SMEs in each of three phases over the roughly 20-year period ending in 2020. These respective levels were derived through correspondence with the orientation for the development of Viet Nam's electric/electronics industry to the same year as described above.

1) SME Group A

The SMEs in this group are engaged in simple assembly of information equipment (including the related software development), assembly of low-end AV equipment and white goods, and assembly and processing of various electrical components.

Table 2-14 Phases of the Development of SME Group A

	Present	Present - 2005	2006 - 2010	2011 - 2020
Level of competitiveness	Accommodation of domestic market accepting low specs (low-end market)	Accommodation of the domestic market (substitution of import)		Export capability (rise in the QCD level)
Production facilities	Outdated facilities from the former Soviet Union	Gradual replacement with new facilities (from Korean, Taiwanese, Chinese, or Japanese manufacturers)	Virtual completion of replacement with new facilities (including some domestically produced facilities)	Production with new facilities
Development and design	Continuation of outdated designs from the days of the former Soviet Union	Transition to new design setups through technical partnerships, etc.		Capabilities for original structural and circuit design
Constituent technology	Speakers, motors, coils, cables, etc.	Speakers, motors, coils, cables, etc.	ICs, sensors, microcomputers, etc.	ICs, sensors, microcomputers, etc.
Target market	Domestic state enterprises, ordinary households	Domestic state enterprises, private enterprises, homes in cities and suburbs	Domestic state enterprises, private enterprises, urban and rural homes	Domestic corporate and residential market, ASEAN markets, Chinese market

Source: JICA Study Team

The target for the first phase (ending in 2005) is a level of assembly and processing technology sufficient to accommodate the domestic market. Although firms would rely on import for many requisite components and materials, they would have a certain level of capabilities for metal processing and plastic molding, for example, from the days of domination by state enterprises. The technical setup would have to be in line with international standards in the field of info-communications, but even domestic capital should be fully capable of attaining the targeted level in

the field of electric power and plant facilities through development with low-spec technology, assuming that official policy accords precedence to the rural market and domestic capital.

The target for the second phase (2006 - 2010) is cultivation of SMEs with technical capabilities sufficient to meet almost all needs in the domestic market, as in the first phase. However, they would also have a measure of international competitiveness sufficient at least for supply to the ASEAN common market (AFTA), with transfer of technology from foreign firms and accumulation of business experience. In the interest of accommodation of the domestic market, efforts should not be confined to capabilities of hardware assembly and processing; on the contrary, attempts should be made to cultivate SMEs in the areas of software development and other activities which are keyed by human resources and do not require large investment in production facilities.

The target for the third phase (2011 - 2020) is the realization of SMEs owned by domestic capital that can build their supply in step with the expansion of the rural demand and can compete not only in the domestic market but also in other ASEAN markets. While the domestic firms would probably be at a disadvantage in the fields of AV equipment and white goods, where they would face competition from Japanese, Korean, and Chinese firms in ASEAN markets, they should be fully competitive in that of electrical components, where the pace of technical innovation is slower.

2) SME Group B

The SMEs in this group are component firms owned by domestic capital. The components in question are assembly-type special-purpose components. The basic image is one of firms assembling components of a highly labor-intensive nature. In light of the need to have the trust of foreign firms, the primary candidates would be selected state enterprises. The assistance of Japanese and other foreign capital through instruction in assembly technology and actual business would be indispensable for their cultivation. The target would be substitution of import by domestic production over the short and medium terms and development of export through the global channels of supporting firms over the long term. While not many companies could participate in this area together with foreign counterparts, the experience of success would hold great meaning for domestic firms against the background of heavy dependence on foreign firms. The development of such component manufacturers would also hold the prospect of expansion of the base through the growth of subcontractors beneath them.

Table 2-15 Phases of the Development of SME Group B

	Present	Present - 2005	2006 - 2010	2011 - 2020
Level of competitiveness	Start of technology transfer to only a few JV partners	Accommodation of the domestic market (substitution of import)	Export competitiveness	International competitiveness
Components	Remote control units, etc.	AV-use PCBs, DYs, remote control units, tuners, power sources, VCRs, mechanical decks, etc.		Subassembly of components for PCs, peripheral equipment, and communications equipment
Constituent technology	Packaging technology, etc.	Packaging technology, coiling technology, mechanical assembly technology, etc.		High-density packaging technology, high-density mechanical assembly technology, etc.
Target market	JV partners	Domestic plants of JV partners	Foreign plants of JV partners, unspecified domestic users	Unspecified users (global set manufacturers)

Source: JICA Study Team

The first phase (ending in 2005) would be devoted to promotion of transfer of assembly processes for special-purpose components and consigned assembly and processing from foreign AV firms. Following transfer of assembly and processing facilities and know-how from foreign firms, such SMEs would be positioned as component manufacturers and subcontractors able to accommodate the domestic demand at the least. They would also be able to supply components with specifications up to international standards.

In the second phase (2006 - 2010), these firms would aim for global supply through transaction partners while being transferred more technology, accumulating more know-how, and diversifying the range of components handled. The support of foreign firms would be an absolute requirement for global development of business. In recent years, international capital has greatly diversified its sources for components. Japanese suppliers of home appliances, which make extensive use of components manufactured in-house, are gradually expanding their sourcing from plants offering benefits as regards quality, price, or delivery term, even for their internal supply. The goal would consequently be global supply with the aid of foreign firms already in Viet Nam.

In the third phase (2011 - 2020), the target would shift from a limited market (i.e., the domestic market and global market of the supporting foreign firm) to completely open sales in the entire global market. In spite of the trend toward product diversity, the firms would specialize in assembly components in specific AV areas while receiving technical assistance from foreign firms. The major aim would be producing several domestic firms that have a stock of more than ten years of know-how and are internationally competitive.

3) SME Group C

The phases in the development of SME Group C firms (including SI firms) to 2020 were studied with a focus on metal processing (including metal molds), plastic processing (also including metal molds), and surface processing in electric/electronics fields.

Viet Nam must build up the SI level and stock in order to attract further siting by Japanese and other foreign firms of assembly plants for equipment and components for export. Other ASEAN countries are also putting resources into SI promotion in order to underpin their industrial competitiveness. Viet Nam, too, must nurture SI through policy measures formulated from a long-term perspective. The key to the advancement of the electric/electronics industry is attraction of foreign capital. As such, the growth of SI firms with appeal to foreign capital must be termed one of the top priorities in the context of policy for SME promotion.

a) Metal processing (including metal molds)

Table 2-16 shows the major processing methods, product fields, and metal materials in the sphere of metal processing technology. For electric/electronics equipment, extensive use is made of press processing of steel sheet, i.e., cold-rolled and zinc-plated sheet for exteriors and chassis. In the category of diecasting, the conventional pattern is use of aluminum alloys for weight reduction and zinc alloys for precision and thinness. Recent years have seen more extensive use of magnesium alloys to reduce the weight of high-cost products such as notebook PCs and video cameras. Furthermore, there are various levels of processing of steel plate for component assembly and processing tools, and for molds for plastic and metal presses.

Precision in metal processing (molds) in Viet Nam today is on the order of plus-or-minus 0.02 - 0.05 mm in general and 0.01 - 0.02 mm at best. This is much lower than the corresponding maximum level of 0.0005 - 0.002 mm achieved in developed countries.

It would be advisable for the SMEs in this group to master metal press and mold technology in the sequence shown in Figure 2-4, considering the phases of the electric/electronics industry's development and the relative difficulty of the processing technology. While targeted technology is shown for each phase, there are wide gaps in respect of relative difficulty. It goes without saying that SMEs must always apply approaches that take note of difficulties and gaps right from the start, and aim for mastery through continuous progress.

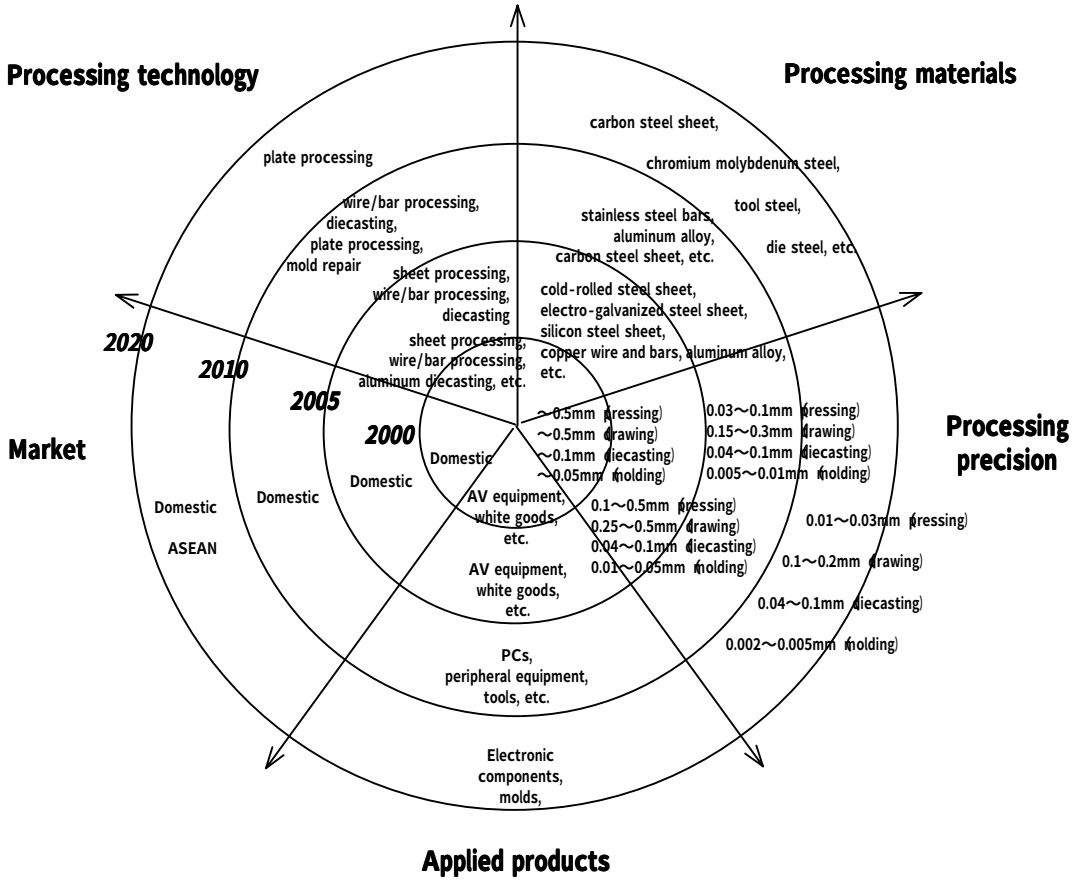
Table 2-16 Major Metal Processing Methods (Including Metal Molds), Application Fields, and Material Characteristics

Processing method	Specific product examples		Metal materials	Comments
Sheet processing	Exterior items	Side panels for AV equipment	Cold-rolled steel sheet (SPCC-SD)	The type of sheet metal in widest use; products already coated are available from manufacturers. ** Back panels, bottom panels, cassette holders, etc.
		Back panels, bottom panels, etc.	Compound electro-galvanized steel sheet	Surface-processed steel sheet with excellent resistance to corrosion; no need for coating.
	Chassis	Mounting bases for major electronic/mechanical components for AV products	Electro-galvanized steel sheet (SECC-C)	Generally, cold-rolled steel sheet is electro-galvanized; extensive use for chassis and other metal structural members inside products in which slight rusting of shear faces does not make much difference; this material is preferred for mechanical chassis of VCRs, but cold-rolled stainless steel sheet is preferred for headphone stereo sets due to the need for a light weight.
	Iron coil cores	Iron coil cores for speakers and motors	Silicon steel sheet	
Wire/bar processing	Bolt nuts and screws	For fixing of structural members in all types of electric/electronic products	Copper/brass wire/bars	Brass: excellent features for extension, cold forging, and rolling; free-cutting brass also offers excellent cutting features.
	Guide shafts	Tape guides, drums, shafts, reel mount shafts	Stainless steel caps	Austenite steel (SUS304-304) is not conducive to cutting but is adapted to cold processing. Martensite steel (SUS420J2) can be heat-treated and has superior resistance to abrasion, but does not offer a very good performance in cutting or molding.
Diecasting	Diecasting	Compressor motor housings, mechanical chassis for FDDs, HDDs, CD-ROMs	Aluminum alloy, zinc alloy, magnesium alloy	
Plate processing	Tools and dies	For assembly and processing of all sorts of electric/electronic components, plastic processing, metal material processing	Carbon steel for machine structures, chromium molybdenum steel, carbon tool steel	Specifically, use of prehardened steel (SKS3 and SKD61), with heat treatment to ensure sufficient hardness.

Source: JICA Study Team, from NRI's matarials.

In the first phase of SME promotion (from the present to 2005), firms must master the sheet metal technology used in processing of numerous types of components for electric and electronic products (exterior items, chassis, iron coil cores, etc.). It should be comparatively easy for them to "catch up" with international levels in technology for processing wires and bars for screws, which have a low VA level but are apt to have durability problems when made in Viet Nam. In preparation for the future increase in demand for low-end white goods, firms must also acquire aluminum and zinc diecasting technology, which does not have such high requirements for precision.

Figure 2-4 Phases in the Development of Metal Processing (Including Molding) in SME Group C



Source: JICA Study Team, from NRI's materials.

In the second phase (2006 - 2010), SMEs must master more precise wire and bar processing technology for items such as guide shafts for mechanical components that are extensively used in AV and information equipment. Additional areas for acquisition of know-how in this phase are aluminum diecasting (in widespread use for mechanical decks for FDDs, HDDs, CD-ROMs, and other PC peripheral equipment), and processing technology for tools, which is generally relatively simple and linked to molding technology. Tools may be unspectacular, but command a diverse demand in connection with assembly and processing of electric/electronic components. Precision requirements are also diverse, ranging from the high to the low. As such, this type of technology could presumably be acquired in stages.

In the third stage (2011 - 2020), the target is mastery of full-fledged molding technology. In recent years, molding has become increasingly mechanized, and no longer necessarily requires a couple of decades of learning to master. However, seeing that it does not have a solid technical foundation, Viet Nam must apply a long timeframe (of about ten years) in its efforts to implant this technology. Although dependence on the latest mechanized systems is rising, the key factor is, as

might be expected, development of human resources. Viet Nam must set about this task with the aspiration of acquiring the best technical skills in all of the ASEAN region. As a consequence, it must begin right from the basics and proceed through a stepwise, long-term program encompassing mastery of mold repair and tool processing technology.

b) Plastic molding (including metal molds)

The table below compares Viet Nam with various other countries in respect of the level of mold production technology needed for plastic molding. It can be seen that Viet Nam has an inferior ranking for all items. With the exception of resident foreign operations, Viet Nam's electric/electronics industry has almost no stock of technology for the sequence of mold fabrication and plastic molding. The following is an outline of the phases in SME promotion in the area of plastic molding, prepared in correspondence with the orientation for the development of the industry.

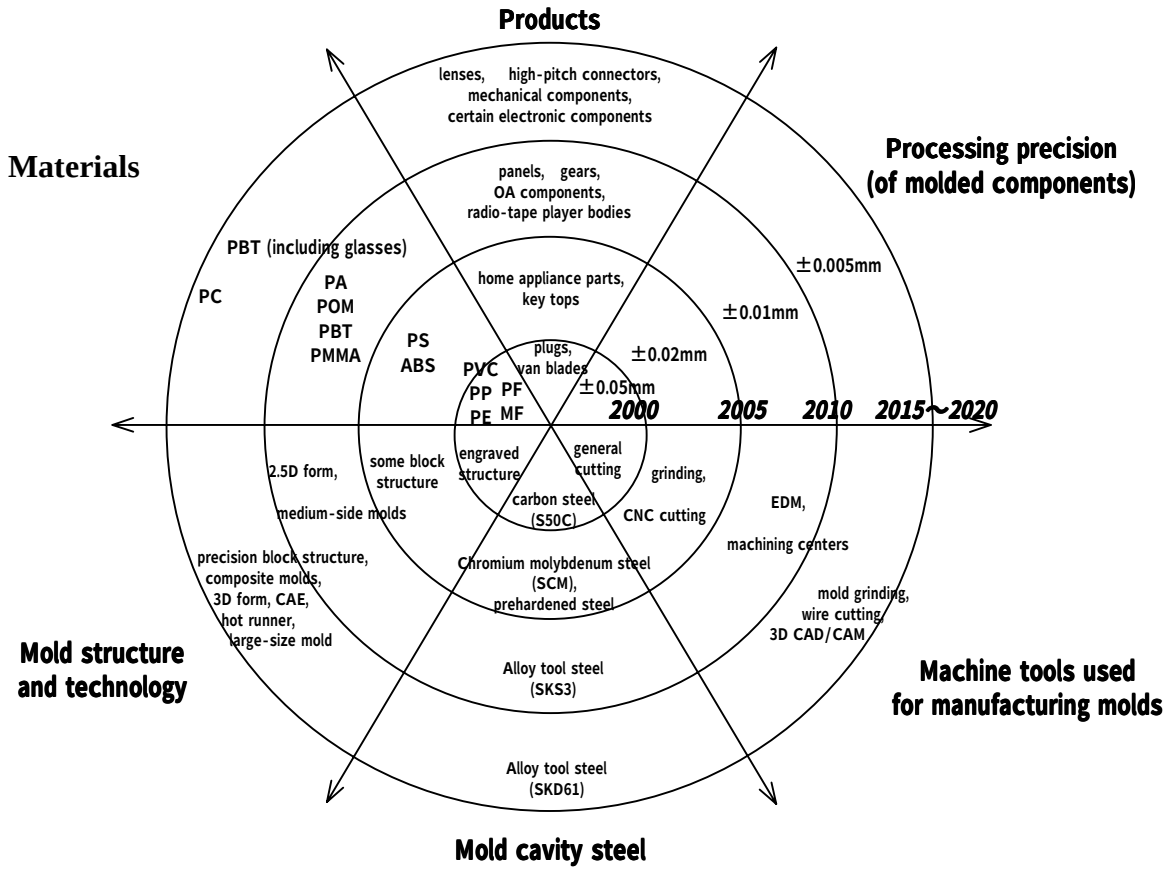
Table 2-17 International Comparison of Production Technology in Metal Molds for Molding Plastic in the Electric / Electronics Industry

Item \ Country/region	Viet Nam	China (coastal area)	ASEAN	NIES	USA/ Canada	Germany	Japan
Initial cost	Low	Low	Low	Rational	High	Extremely high	High
Running cost	High	High	High	Relatively high	High	Rational	Rational
Molds for external body parts	△	△	△	△	△	△	
Molds for mechanical components	▲	△	△	○	△	△	
Molds for electronic components	▲	▲	△	△	△	△	
Molds for forming precision inserts	▲	▲	▲	△	○	△	
Molds with a precision block structure	▲	▲	▲	△	○	△	
Large size molds	▲	△	▲	△	△	△	◎
Molds for ultrafine molding	▲	▲	▲	▲	◎	△	◎
3D CAD applied technology	▲	△	△	○	△	◎	◎
Hot-runner applied technology	▲	△	△	△	△	△	◎
Technology for manufacture of standard mold components	▲	△	▲	○	△	△	
Standard mold base technology	▲	▲	▲	○	△	◎	
Mold finish adjustment skills	▲	△	△	○	◎	△	
Share of the global market (1996, including press molds)	No more than 0.2% (estimated)	0.5～1% (estimated)	1～2% (estimated)	4～5% (estimated)	24.1%	11.9%	42.7%

Source: JICA Study Team, from the mold research group of the Japan Synthetic Plastic Technology Association.

Note: Legend for levels of technology/skill: ☆ excellent, ◎ very good, ○ good, △ present among some firms, ▲ present among almost no firms

Figure 2-5 Phases in the Development of Plastic Molding (Including Metal Molds) in SME Group C



Source: JICA Study Team, from NRI's and Komatsu Engineering Office's materials.

In the first phase (from the present to 2005), the metal molds manufactured in Viet Nam would consist mainly of the type with engraved structures (the simplest kind) made by cutting product shapes into the cavity core. This depends on the existence of a market in which products can be sold in spite of some roughness as regards measurement precision, burrs, etc.

In the second phase (2006-2010), levels of precision would rise and the industry would become capable of using high-grade materials such as ABS and PMMA. The need for specification precision for products molded from these plastics would require improvement in respects such as measurement accuracy, surface roughness, and burrs, and this would compel adoption of molds with block (i.e., sectioned) structures enabling the cavity to be disassembled and reassembled. The division of molds into blocks allows exhaust of the gas arising in molding from the minute interstices (about 0.002 mm in width) between the block faces, as well as reflection of know-how in ways such as improvement of the machining precision for mold parts.

In the third phase (2011-2020), engineering plastics would come into use, and mold products would have to become lighter, thinner, and finer to fill needs in the market. To this end, SMEs would have to acquire design and machining technology enabling application of block mold structures in all areas as well as skills of finish adjustment.

c) Surface processing

In fields of the electric/electronics industry, metal and plastic components are commonly subjected to surface processing as a secondary process aimed at improving quality and increasing the VA level. This is exemplified by the plating of steel sheet parts of AV components with zinc to prevent corrosion, the plating of molds for plastic molding with hard chrome to prevent rusting, and the silk-screen printing of registered trademarks on molded plastic products.

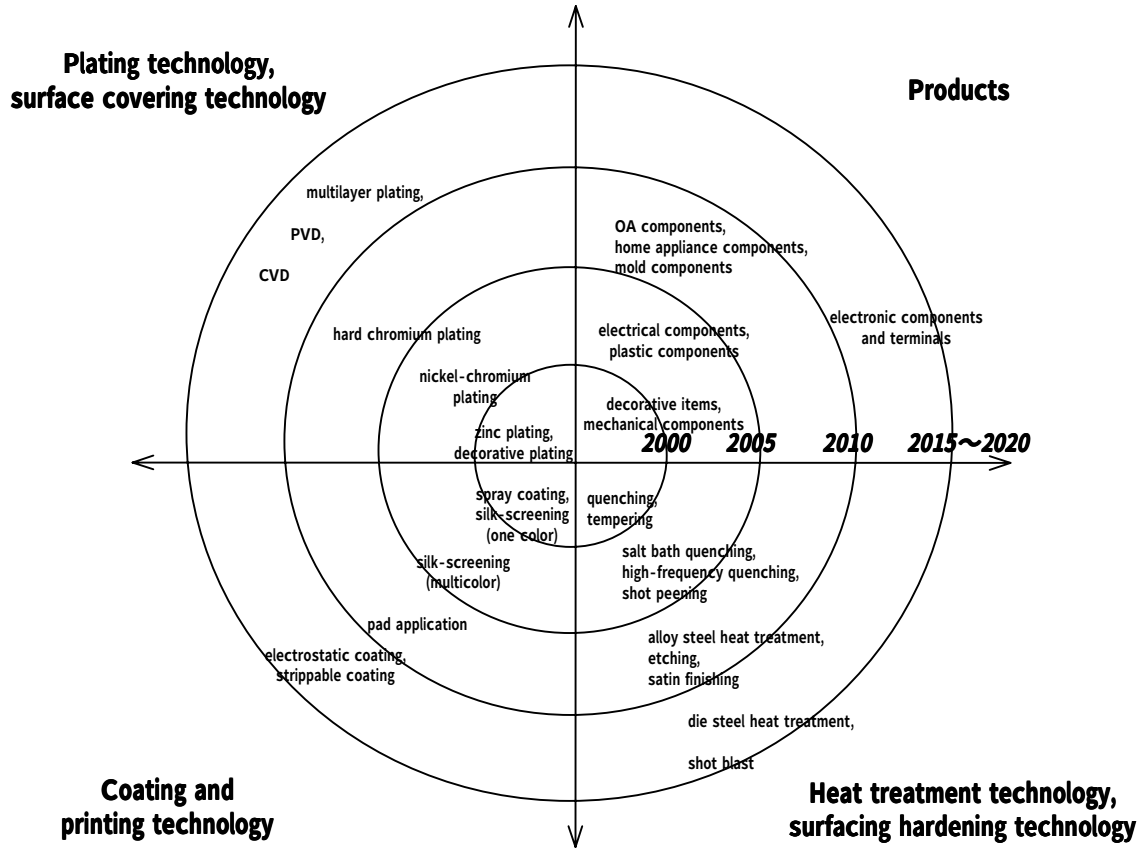
In Viet Nam, some domestic firms are capable of a certain degree of surface processing, but few are in possession of zinc plating and other such surfacing covering technology required in these fields. Even if present, such technology does not go beyond the level of coating or printing by internal divisions (as opposed to separate firms). As a whole, such processing does not meet the specifications required for the electric-electronics industry owing to problems of quality, outdated facilities, and lack of know-how.

In the technical foundation of supporting industry, surface processing is positioned as the final process and has a crucial importance in that it can determine the final quality of the component. The smooth advancement of the industry therefore requires steady improvement of surface processing capabilities. To meet the needs in the market, Viet Nam's surface processing technology must clear several hurdles, as follows.

- Improvement of processing quality
- Increase in the level of processing technology and know-how
- Expansion of variety (e.g., increase in the types of plating)
- Improvement of environmental measures (e.g., wastewater treatment, control of hazardous substances)
- Stable receipt of orders

Fugure 2-6 shows the phases in the development of surface processing technology in Viet Nam's electric/electronics industry. In the first phase (the next five years), the task is mastery of nickel chromium plating, which is applied for electrical components and various plastic components. At the same time, firms must acquire higher skills in all kinds of silk-screen printing, salt bath quenching, and high-frequency quenching.

Figure 2-6 Phases in the Development of Metal Processing (Including Metal Molds) in SME Group C



Source: JICA Study Team, from NRI's and Komatsu Engineering Office's materials.

In the second phase, the industry would have to acquire hard chromium plating technology for PC-related components, household appliance components, and metal mold components. In the third stage, it would need more sophisticated surface processing technology for electronic component terminals (e.g., multilayer plating and physical/chemical vapor deposition; PVD/CVD), as well as electrostatic coating technology and die steel heat treatment technology.

2.4.3 Plans for SME promotion

As noted below, the formulation of plans for the development of SMEs in the electric/electronics industry must begin with conditioning of the business environment surrounding the industry. While measures are being taken as described below, the government must deploy appropriate policies for SME promotion in the aspects of legislation, support for raising funds needed for facility investment and operation, and assistance with building the technical and management foundation.

The SMEs envisioned here are those owned by domestic (Viet Nam) capital (including state enterprises to be privatized in the future), but could also encompass those which are joint ventures with foreign capital.

* Presentation of guidelines based on the national master plan for the electric/electronics industry

- Upon formulation and authorization of a national-level master plan setting forth the orientation for the development of the electric/electronics industry without further delay, the government must present clear guidelines for the future activities of industrial capital (both domestic and foreign, and especially private-sector) as well as concerned governmental and administrative agencies. The plan itself should be subjected to a rolling study as necessary and flexibly adjusted to circumstantial changes.

* Revitalization of the domestic economy for expansion of the infrastructure demand and low-income stratum demand, and generation of business opportunities for products and components

- SME business will be led by industrial electrical components and white goods for the home. The growth of these markets requires operation of economic and industrial policy that will be linked to infrastructural improvement (especially in the electric power and telecommunications sectors) and a rise in the national income level. In any case, stimulation of the rural economy is bound to be a top priority.

* Creation of business opportunities in the component and SI domain through increased attraction of siting by export-oriented foreign capital

- As described above, the key to the future advancement of Viet Nam's electric/electronics industry is held by the capital and technology of Japanese and other foreign firms. The industry is the scene of fast-paced technological innovation, and it will be impossible to progress in it through self-help efforts alone, i.e., without foreign assistance. Indeed, the situation calls for vigorous measures to attract siting by foreign capital.
- Fortunately, the world's leading electric/electronics firms are investing and producing in the ASEAN region (including Viet Nam), and are showing keen interest in the investment regime of Viet Nam. In preparation for effectuation of the AFTA order, it is absolutely necessary for the government to instate measures that will induce active investment in Viet Nam by international capital.

(1) Conditioning of related legislation

The chief tasks as regards conditioning of legislation related to SMEs in the electric/electronics industry are presumably enactment and enforcement of electrical product laws, which are required to assure product quality, and environmental laws and regulations governing production activities. However, there should be no need for other legislation enacted specifically for the industry. By contrast, there appears to be a need for legislation for the protection and promotion of SMEs in general, such as regulations preventing them from being forced into disadvantageous relations with large firms and guaranteeing equality with state enterprises in respect of business and fund-raising opportunities.

(2) Support for facility investment and operating funds

Many SMEs are critical about the current situation surrounding the raising of funds. They will have little chance to expand their production activities or incorporate the latest technology as long as they have access only to short-term loans secured by land-use rights. In this area, the government should institute a system of funding needed for medium- and long-term investment for renovation of production facilities, which will presumably quicken the pace of production activities. In addition, it should promptly study and instate a credit guarantee system and special depreciation provisions for facility investment.

(3) Support for establishing the technical and management foundation

The stock of Group A SMEs should build through the self-help efforts of domestic businesspersons in the related fields, assuming that the domestic market expands along with future economic growth and that this expansion is accompanied by sufficient input of technology and investment in production facilities. The substitution of imported products and technology should move ahead as a result, and foster the growth of firms oriented toward export to other ASEAN markets over the longer term.

Table 2-18 Measures for SME Promotion in the Electric / Electronics Industry

SMEs to be developed		Major perspectives for development of SMEs
SMEs (A)	Product assembly	* Creation of business opportunities through the expansion of domestic market, especially consumer market * Support for technology introduction from Japanese and other foreign companies * Enactment of related laws, including Electrical Product Law, that meet global standards * Financial measures to meet funds demand for fixed investment and operating capital
	Processing and assembly of parts for industrial electrical machinery	* Promotion of the market for these products through an increase in domestic infrastructure development * Support for technology introduction from Japanese and other foreign companies * Enactment of related laws, including Electrical Product Law, that meet global standards * Financial measures to meet funds demand for fixed investment and operating capital
SMEs (B)	Processing and assembly of assembly-type, specialized electronic parts	* Creation of business opportunities through the expansion of domestic market, especially consumer market * Support for technology introduction from Japanese and foreign companies (incentives for technology transfer from joint ventures and foreign companies) * Information delivery system for the development of export markets * Enactment of related laws, including Electrical Product Law, that meet global standards * Financial measures to meet funds demand for fixed investment and operating capital
SMEs (C)	Machinery fabrication to support assembly of electronic and electrical products and parts (SI)	* Promotion of the market for industrial electrical products through the expansion of domestic infrastructure investment * Support for technology introduction from Japanese and other foreign companies * Incentives for foreign companies that enter Viet Nam through joint ventures (corporate taxes, siting, etc.) * Public assistance to training programs in machinery fabrication technology * Technology guidance by consultants from advanced, industrialized nations under ODA programs, etc. * Public assistance to QCD seminars for management of firms in the supporting industries * Introduction of qualification systems in technology, such as machinery fabrication * Financial measures to help meet funds demand for fixed investment and operating capital * Normalization of business relationship through the enactment of a Subcontracting Basic Law

Source: JICA Study Team

The growth of Group B SMEs cannot be effectively promoted without the cooperation of resident foreign AV firms in the form of technical partnerships and placement of orders for component assembly and processing. Although it will not be easy for the industry to graduate from the level of domestic transactions to that of export, the experience of success in breeding component firms that are global suppliers would be important in the eyes of the cooperating foreign capital as well as domestic capital. In the interest of SME promotion, the government should also furnish foreign firms and JVs exporting under such cooperative schemes with tax incentives commensurate with the scale of their export.

The focuses in SME Group C promotion are essentially development of more skilled personnel and mastery of the basic technology. As such, the related measures must be implemented steadily, in a phased sequence, and with a long-range viewpoint. The major such measures are summarized below.

* Training of experts

Experts must be trained for the provision (direct or indirect) of technical and management guidance to SMEs. The former would have special expertise in engineering technology in areas such as machining, machine design, electrical design, quality control, press processing, plastics processing, and metal molds. Specifically, the specialized talents of domestic personnel (including university students) with the potential to discharge this function and provide technical and management guidance must be nurtured through programs of training by overseas experts. For this purpose, these personnel would be sent to other countries for such training or participate in programs conducted in Viet Nam by specialists from other countries.

* Centers for SI Technical Support

Outfitted with relevant machine facilities, measurement devices, computers, etc., the centers would provide services including supply of technical documents and information, corporate directories, technical consulting, mediation of order placement and receipt, and short-term training. They would be staffed with full-time technical and management consultants with a wealth of actual experience, and should be operated by a public institution or a third-sector public-private partnership. A model is provided by the Sumida SME Center in Japan.

* Construction of a scheme for provision of technical information

Fundamental technical documents related to SI would be translated into Vietnamese and published. It would also be necessary to prepare basic training texts. In addition, provisions would be made for access to information on both basic and applied technology through Internet. Data bases should incorporate information from SI experts and other such parties in Japan and other countries.

* Support for participation in overseas trade fairs

Arrangements would be made to bear expenses, assist exhibits, and otherwise support

participation by qualified SI firms or entire associations in trade fairs held in neighboring countries as well as Japan and other developed countries. Participation would also give talented domestic executives a firsthand experience of the level of technology in the same business among developed-country firms, and therefore motivate management improvements.

* Improvement of industrial standards system

The authorities must bring industrial standards up to date and promote conformance with ISO standards. STAMEQ and other such capabilities must be bolstered for the purpose of proving related standards and conformance.

* Improvement of the system for certification of conformance with safety standards

Systemic provisions for certification of electric/electronic products (particularly as regards safety) must be expanded and reinforced with consideration of the need to attain export quality and cope with product liability (PL) requirements. Legislation governing product safety is already in place in keeping with the principle of acting on product quality. In reality, however, certification is limited to only a few product fields such as electric fans and cable, as mentioned above. Sure coverage of all products in the industry is necessary, also to promote the growth of able SMEs.

* Staging of SI trade fairs

The government would assist SI firms with the staging of trade fairs at which they can exhibit their products and technology, acquire business opportunities, develop new customers, and explore prospects for partnership with foreign counterparts.

* Strengthen of the linkage connecting major assemblers and SI firms

The promotion of SI is to be based on actual business activities, with the assistance of the Center for SI Technical Support in mediation of order receipt and placement and the cooperation of major assemblers, including the plants of foreign firms. In addition, however, a scheme must be constructed to nurture the development of SI firms through the provision of guidance in the aspects of management and technology. To this end, the government should consider offering tax incentives for cooperating assemblers.

Table 2-19 Plans for SME Promotion in the Electric / Electronics Industry

Item	Specific measures	Short-term targets (2000-2005)	Medium-term targets (2006-2010)	Long-term targets (2011-2020)
Human resource development	Training of experts (for management/technical guidance)	Participation in training programs conducted in other countries or Viet Nam by overseas experts	Deepening of domestic/overseas training programs	Expansion of training of experts
Facilities and materials	Establishment of Centers for SI Technical Support	Establishment of model center, training of staff	Spread into core provincial cities	Renewal of facilities and equipment, upgrading of staff
Information	Construction of a scheme for provision of technical information	Translation of SI technical documents, publication of basic texts	Provision of service for provision of technical information via Internet	→
Creation of business opportunities	Support for staging SI trade fairs	→	→	→
	Support for participation in overseas trade fairs	Soliciting of exhibits by qualified firms, collaboration with JETRO, KOTRA, ets.		→
Industrial legislation	Improvement of industrial standards system	→	→	→
	Improvement of the system for certification of conformance with safety standards	→	→	→
Technical education	Modernization of training facilities at colleges of engineering	Updating of training-use machine tools, measurement devices, and electronic equipment →	→	→
	Instatement of a system for advanced technical education	Provision of specialized, advanced technical instruction in five-year courses for middle-school graduates, who could enter firms two years earlier than graduates of engineering colleges; emphasis on practical ability →	→	→
	Support for study overseas by instructors	E.g., study by young researchers at advanced technical schools in deveroped country →	→	→
	Increased dispatch of students for study overseas	E.g., Increase in dispatch for study at national universities and advanced technical schools in deveroped country →	→	→
	Establishment of engineering scholarships	Presentation of talented students with scholarships for higher education →	→	→
	Instatement of a skill certification system	Inauguration of a system for assessment and certification of machining skills →	→	→
Support for fund-raising and management	Support for the raising of funds needed for facility investment and operation	Financing for modernization of SME facilities, system of credit guarantees, etc. →	→	→
	Provisions for preferential tax treatment for facility investment	Special depreciation system for SME facility investment, etc. →	→	→

Source: JICA Study Team

APPENDIX

A.1 Technical Foundation Required for SMEs

The respective kinds of technical foundation required for SMEs in groups A and B depend largely on the kinds of product or component handled and also are of a diverse and distinctive nature. As such, the question will not be treated in this section, which instead presents a rather detailed summary of the technical foundation required for Group C in the capacity of supporting industry.

(1) Metal processing (including metal molds)

Annex Table 2-1 shows the major metal processing methods, the related processes, the requisite facilities and their prices, and the product fields for which they are applied in the electric/electronics industry. The component processors do not procure materials directly from materials manufacturers; instead, they make use of materials that have been put into a form or shape that is easier to process by other manufacturers processing raw materials. Although certain ones (such as metal injection molding; MIM) can be completed in a single step, processes generally have a series of steps beginning with crude processing and ending with finishing. Whereas crude processing is also rough in terms of precision, finishing brings the precision and surface smoothness to the prescribed levels.

Generally speaking, cylindrical grinding and other types of grinding using grindstones offer a good precision and are applied for precision shafts, etc. Turning on an automated lathe may be sufficient for stepped shafts, but cylindrical or centerless grinding is performed to finish parts requiring a higher degree of precision. Sheet or plate-type materials are processed by press. Punching or other shearing usually delivers a higher precision than bending or constriction. Among the types of shearing, fine blanking yields about the same precision as cutting, and firms can achieve equivalent or higher precision even if shaping is performed after ordinary punching. With forging, precision declines as the process temperature rises. Warm or hot forging therefore cannot yield final products; the output must undergo further processes such as cutting.

Costs are generally about 20 - 30 million yen for press machines (500-ton class, single-step), 10 - 20 million yen for forging machines, 20 million yen for automatic lathes , 40 - 80 million yen for a 3D CNC machining center, and 20 - 40 million yen for electrical discharge machining machine.

Annex Table 2-1 Metal Processing Methods, Processes, Major Facilities, and Prices

Method	Application	Materials	Process	Facilities and price
Sheet metal processing	Sheet metal components	Soft steel sheet, tin sheet, phosphor bronze sheet, aluminum sheet	Metal mold → cold rolling → cutting → pressing → secondary processing * 100 - 300-t class sufficient for CTV chassis if welding is possible * Five - ten-fold improvement in productivity with a sequential process	Mold (single-step): Single-step: 500,000 - 1 million yen Five-step average: 4 million yen Mold (sequential): Double that of the single-step (about 7 million yen) Press machine (single-step) -100t (for precision machines): 1 Single-step: about 5 million yen (average) Five-step: 20 - 30 million yen -500t (for CTV chassis): About 20 - 30 million yen Press machine (sequential process) -300t automatic press: about 30 million yen Other equipment (levelers, automatic feeders, uncoilers): about 10 million yen
Wire/bar processing (1) (low-precision)	Screws, shaft components (guide shafts)	Steel wire/bars, brass wire/bars	Drawing (repetition) → cold forging → rolling	Forging machine: 10 - 20 million yen (possibly as little as 5 million yen depending on the size) Rolling machine: 10 - 20 million yen
Wire/bar processing (1) (high-precision)	Shaft components (guide shafts), bearings	Steel wire/bars, brass wire/bars	Shaft components (guide shafts), bearings → cutting → grinding → secondary processing	Automatic lathe: about 20 million yen Cylindrical grinding machine: 10 - 20 million yen (Japanese-made; 5 - 10 million yen for Korean- or Taiwanese-made) Milling machine: a few million yen
Diecasting	Precision machinery	Aluminum alloy, zinc alloy	Casting → casting → diecast molding → cutting	Molding machine: 10 - 20 million yen (as little as 5 million yen depending on the size) Machining center: up to 20 million yen (medium-level performance sufficient)
Plate processing	Mechanical components, mold components	Carbon steel plate, soft steel plate	Mold design → hot rolling → cutting → machining → heat treatment → grinding → surface processing	CAD/CAM system: a few million - 10 million yen 3D CNC machining center: 40 - 80 million yen (Japanese-made; one-fourth - half as much for Korean- or Taiwanese-made) EDM machine: 20 - 40 million yen (Japanese-made; 5 - 20 million yen for Korean- or Taiwanese-made) Other equipment: general-purpose milling machine, general-purpose lathe, general-purpose grinding machine

Source: JICA Study Team, from NRI's materials.

Annex Table 2-2　Major Electrical/Electronic Products and their Metal Materials

Division	Products	Metal components (assembly)	Metal parts	Steel materials				Non-ferrous metal materials			Diecast materials		
				Cold rolled steel	Zinc-plated	Silicon steel sheet	Stainless steel	Phosphor bronze	Brass	Aluminum alloy	Aluminum	Zinc	Magnesium
Video	Color TV	Chassis	Chassis		○								
		Speaker	Iron coil core			○							
	VTR	Mechanical deck	Mechanical chassis		○								
			Head cylinder							○			
			Tape guide shaft				○						
		Outer case	Outer case	○									
Audio	Stereo	Chassis	Chassis		○								
		Speaker	Iron coil core			○							
	Radio-tape player	Mechanical deck	Levers		○								
			Tape guide shaft				○						
		Speaker	Iron coil core			○							
		Chassis	Chassis		○								
	Headphone stereo	Body	Body							○			
		Mechanical deck	Mechanical chassis				○						
	Car stereo	Body	Body	○									
		Mechanical deck	Mechanical chassis		○								
			Levers		○								
			Tape guide shaft				○						
Personal computer	Computer proper	Body	Body	○									○*
		Chassis	Chassis		○								
	FDD	Mechanical deck	Mechanical chassis		○						○	○	
			Levers		○								
			Guide shaft				○						
			Head arm					○					
		Body	Body	○									
	HDD	Mechanical deck	Mechanical chassis								○	○	
		Voice coil motor	Iron coil motor			○							
		Body	Body	○									
	CD-ROM	Mechanical deck	Mechanical chassis		○						○	○	
			Guide shaft				○						
		Tray	Guide rail		○								
		Body	Body	○									
White goods	Refrigerator	Body	Body	○									
		Reinforcing panel	Reinforcing panel		○								
		Compressor	Scroll							○			
			Motor housing								○	○	
			Iron motor core			○							
	Washing machine	Body	Body	○									
		Reinforcing panel	Reinforcing panel		○								
		Bucket	Bucket				○						
		Motor	Iron coil core			○							
	Air conditioner	Chassis	Chassis		○								
		Radiator	Cooling fan					○	○	○			
		Outdoor unit	Body	○									

Source: JICA Study Team, from NRI's materials.

Note: * : For notebook PCs only.

(2) Plastic molding (including metal molds)

Annex Table 2-3 shows the major methods, processes, equipment, and equipment prices in the area of plastic molding.

The degree of processing precision in plastic molding with metal molds generally depends on the factors noted below. It can also be used as a yardstick for gauging the possibilities as regards molded product specifications. The number of mold revisions is a factor indicative of the level of mold fabrication technology, and varies from one in developed countries to three in NIEs and four or five in Thailand and Malaysia. The corresponding figure for Viet Nam is five or six.

- Precision of the machinery itself (as regards positioning, rotor shaft wobble, etc.)
- Installation environment (temperature constancy, plant foundation, etc.)
- Tool shape, precision, and material
- Precision and structure of the tool holder
- Processing conditions (number of rotations, cutting depth, tool feed speed, direction of rotation, cutting oil, etc.)
- Processing procedure (rough-cut state, processing steps, tool route, etc.)
- Quality of the material being cut, heat treatment (steel, alloy steel, stainless steel, copper, aluminum, etc.)
- Degree of worker skill (accurate work procedure, measurement method, know-how)

When molten plastic is poured into them, metal molds are subjected to high pressures ranging from 200 to 500 kgf per square centimeter. Deformation and destruction can occur instantly unless the molds are made of high-strength metal materials. For this reason, carbon steel and other types of steel are usually chosen for them. Molds are composed of a cavity core (into which the plastic is poured), mold base, and related parts such as pins and springs. The choice of material for each component depends on its function. Generally, the options are as follows.

- Cavity core: special steel, other materials with a high hardness
- Mold base: carbon steel for machinery structures (S50C)
- Other parts: special steel, carbon steel for machinery structures (S50C), others

Remarks about steel materials for molds are usually in reference to the cavity core. The choice of steel for the cavity core is made upon consideration of all relevant factors, including mold service life, materials to be molded (transparent/containing glass fibers/engineering plastics), surface roughness, corrosiveness, machinability, and cost.

Annex Table 2-3　Molding Methods, Processes, Major Facilities, and Prices

Method	Application	Materials	Process	Facilities and price
Injection molding of thermoplastic general-purpose plastic	Fan blades, juicer components, mixer components, key tops	Polyvinyl chloride (PVC), polypropylene (PP), polyethylene (PE), polystyrene (PS)	Plastic materials→ heating/melting→ mold filling→ cooling/hardening→ product extraction	Metal injection mold：15t: 2.5 - 3.5 million yen 75t: 5 - 7 million yen 200t: 7 - 12 million yen Mold：varies depending on size, piece count, structure, materials, and specifications, but is ordinarily in the range of 2 - 100 million yen. Specifications: Type of steel: carbon tool steel, prehardened steel, heat-treated steel Measurement precision: ± roughly 0.02 mm
Compression molding of thermosetting plastic	Fan push-buttons, iron parts, electric heater components, plugs/sockets	Melamine-formaldehyde resin (MF), phenol-formaldehyde resin (PF), urea-formaldehyde resin (UF) polyurethane (PU)	Plastic materials→ mold filling→ heating/chemical → reaction hardening→ product extraction	Compression molding machine： 15t: 2 - 3 million yen 75t: 4 - 6 million yen Mold：varies depending on size, piece count, structure, materials, and specifications, but is ordinarily in the range of 1 - 70 million yen Specifications: Type of steel: carbon tool steel, prehardened steel, heat-treated steel Measurement precision: ± roughly 0.02 mm
Injection molding of thermoplastic high-strength general-purpose plastic	Personal computer bodies, air conditioner bodies, TV bodies, decorative panels, key tops	Acrylonitryl butadiene styrene resin (ABS), polymethyl methylacrylate resin (PMMA), high-impact styrol (HIPS)	Plastic materials→ heating/melting→ mold filling→ cooling/hardening→ product extraction	Metal injection mold：15t: 2.5 - 3.5 million yen 75t: 5 - 7 million yen 200t: 7 - 12 million yen Mold：varies depending on size, piece count, structure, materials, and specifications, but is ordinarily in the range of 2 - 100 million yen. Specifications: Type of steel: prehardened steel, heat-treated steel Measurement precision: ± roughly 0.01 mm
Injection molding of thermoplastic engineering plastics	Switches, cassette reels, lenses, plastic bearings, body parts, gear wheels, cell phone cases	Polyamide nylon (PA), polyacetal (POM), polybutylene terephthalate (PBT), polycarbonate (PC), polyethylene terephthalate (PET)	Plastic materials→ heating/melting→ mold filling→ cooling/hardening→ product extraction * Need for precise control of mold temperature * Need for air-escape structure inside the mold	Metal injection mold：15t: 2.5 - 3.5 million yen 75t: 5 - 7 million yen 200t: 7 - 12 million yen Mold：varies depending on size, piece count, structure, materials, and specifications, but is ordinarily in the range of 5 - 100 million yen. Specifications: Type of steel: prehardened steel, heat-treated steel, stainless steel Measurement precision: ± roughly 0.005 mm
Injection molding of thermoplastic engineering plastic containing glass fiber	Connectors for consumer products, duct switches, bobbins, components for electrical instrumentation for automobiles	PBT with glass fiber contents of 30%, polyphenylene oxide (PPS) with glass fiber contents of 30%	Plastic materials→ heating/melting→ mold filling → cooling/hardening→ product extraction * Use of steel materials with a high hardness and resistance to abrasion * Need for structure enabling precise control of mold temperature * Need for air-escape structure inside the mold	Compression molding machine: 15t: 2.5 - 3.5 million yen 75t: 5 - 7 million yen Mold：varies depending on size, piece count, structure, materials, and specifications, but is ordinarily in the range of 10 - 120 million yen. Specifications: Type of steel: alloy tool (die) steel, stainless steel Measurement precision: ± roughly 0.002 mm

Source: JICA Study Team, from NRI's and Komatsu Engineering Office's materials.

Annex Table 2-4 Major Electrical / Electronic Products and their Plastic Materials

Products		Thermoplastic resin										Thermosetting resin						
		General-purpose						Engineering plastics										
	Plastics	PVC	PE	PP	PS	ABS	PMMA	PA	POM	PC	PBT	PU	PF	UF	MF	UP	SI	EP
CTV	Cabinet	○	○	○		○				○				○				
	Key top				○	○							○	○	○			
	Lens				○													
	Scale panel						○											
	Feeder		○				○											
	Coil case		○															
	Bobbin												○					
	Other		○		○	○	○	○		○			○					
R-cassette R	Cabinet			○		○								○				
	Reel				○				○									
	Key top				○	○							○	○	○			
	Antenna holder		○						○									
	Scale cover				○		○											
	Bobbin				○								○					
	Headphone			○	○				○									
	Battery case	○			○													
	Other			○	○			○	○				○					
Refrigerator	Insulation				○							○						
	Tray	○	○		○													
	Panel	○			○													
	Stowing compartment		○		○	○												
	Key top		○		○	○												
	Other	○	○		○	○	○	○					○	○	○			
Washing machine	Hose	○																
	Hose holder	○	○															
	Panel				○	○	○											
	Blade			○	○	○												
	Other	○	○	○	○	○		○	○				○	○	○			
Fan	Blade				○													
	Motor cover			○	○	○												
	Dials				○	○								○	○			
	Other	○			○		○	○	○					○				
Vacuum cleaner	Body				○	○												
	Hose extension pipe	○																
	Other	○			○	○			○				○	○				
Juicer					○	○								○	○			
Fluorescent lamp		○												○	○			
Battery case		○			○	○										○		
Cable		○	○	○													○	
Schet													○	○				○
PCB													○					○
Switch								○	○		○		○	○				○
Condensor			○	○	○					○								
High-frequency insulator					○											○		○
Case body				○	○	○				○			○		○			
CPU chip																		○
Connvtor								○			○							
Electrical instrumentation components for automobiles				○							○							
Insulation coating	○											○	○					○

Source: JICA Study Team, from "Yasashii Purasuchikku Seikei Zairyo" (Plastic Molding Materials Made Easy), Sanko Publishing Co.,

Annex Table 2-5 Major Types of Steel Used for Molds for Molding Plastics in the Electric / Electronics Industry

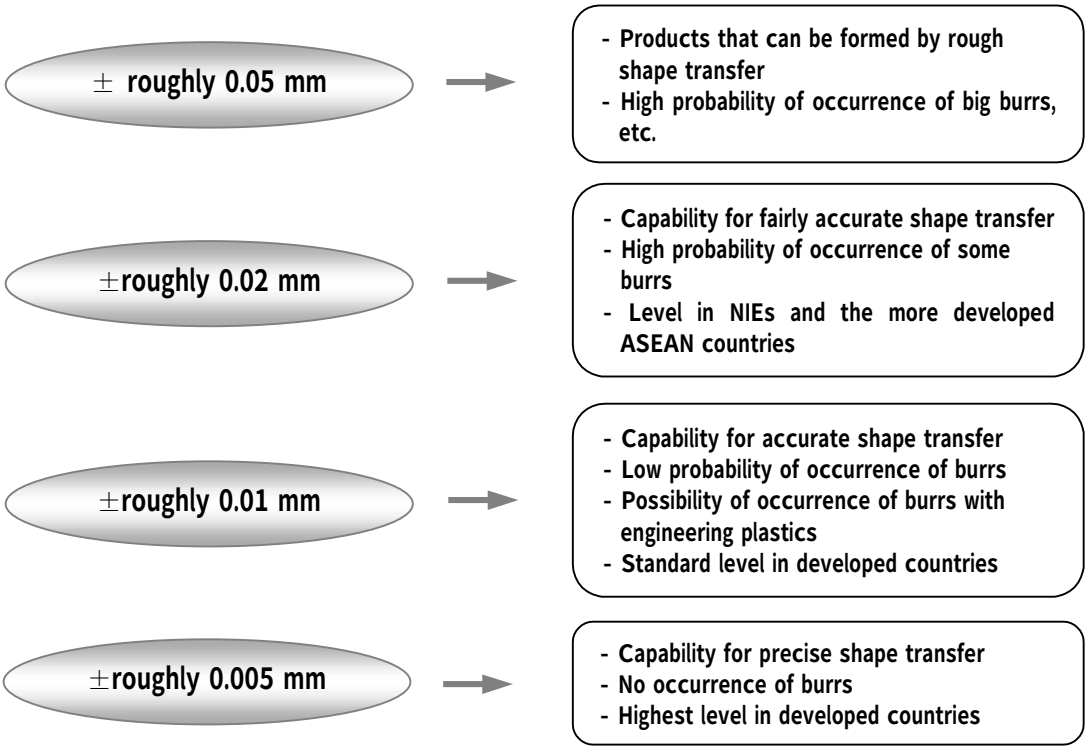
Application		Typical plastics and products		Requisite mold material characteristics	Steel materials
Thermoplastic/ thermosetting plastic	General	ABS, polyacetal, polyamide, polypropylene	Bodies,gears, bearings, key tops, fan blades, etc.	Strength + resistance to abrasion	Prehardened steel, SKS3 (alloy tool steel), SKD61 (alloy tool steel)
	Precision satin finish	ABS	Panels, decorative panels, etc.	Strength + resistance to abrasionsatin finishing capability	Prehardened steel
	Transparent	Acryl, polycarbonate	Covers, reflecting panels, etc.	Strength + resistance to abrasionzmirror finishing capability	Marageing steel, SKD11 (alloy tool steel)
Thermoplastic/thermosetting plastic containing glass fiber	Thermoplastic	Polyethylene, ABS, polycarbonate, PBT, PPS	Electronic components, power tool bodies, connectors, etc.	Strength + high resistance to abrasion	Prehardened steel + surface processing, SKD61+surface processing, SKD11, high-speed steel
	Thermosetting	Phenol, urea, melamine	Gears, electrical insulation components, etc.		
UL-standard (addition of flame-retarding agents)		ABS, polystyrene	TV cabinets, CRT covers, radio-tape player chassis	Strength + resistance to corrosion	Prehardened steel (stainless), stainless alloy tool steel
PVC-use		PVC	Telephone receivers, cable coverings, etc.	Strength + high resistance to corrosion	Stainless alloy tool steel
Lens-use		Acryl, polycarbonate	Lenses, semiconductors	Strength+high mirror finish capability	Marageing steel, SKD11

Source: JICA Study Team, from Komatsu Engineering Office's materials.

The major types of plastic to be used initially in Viet Nam's electric/electronics industry would be PVC, PP, and PE in the thermoplastic category (for pipes, sundries, and simple electrical components) and MF and PF in the thermosetting category (for simple electrical components). The types of plastic used would change along with the development of the industry. With the passage of about five years, the industry could be expected to begin producing electrical and electronic components using engineering plastics such as PMMA (an acryl), POM, PA, and PBT. And once production of electronic components gets on track, the industry could presumably start handling PBT resin containing glass fiber.

It takes about five years for mastery of repair component design technology and basic training for metal molds used to mold plastic. Mastery of applied design requires at least another five years. It therefore should take about ten years for Viet Nam to acquire design technology for metal molds. As a result of the study, it is estimated that there are about 50 people in Viet Nam today who are capable of full design of metal molds.

Annex Figure 2-1 Metal Mold Component Processing Precision and Level of Plastic Molding



Source: JICA Study Team, from Komatsu Engineering Office's materials.

For acquisition of metal mold manufacturing technology, the tasks over the short term are an increase in processing precision through the gradual diffusion of CNC machines plus incorporation of grinding machines to bring the industry up to a level enabling processing of heat-treated steel. Thereafter, it would be necessary to introduce electrical discharge machining (EDM) equipment for even more precise processing of heat-treated steel. There would also arise needs for capabilities for curved surface cutting by machining centers with direct CAD/CAM connections. Wirecutting and mold grinding (with machines capable of precision grinding of angled components) would become necessary later, about ten years in the future. In Viet Nam, the assortment of machines for processing metal molds is currently limited to general-purpose cutting machines and some profiling machines. These machines have been in use for from 20 to 30 years, and are presumably reaching their limits in respect of precision and capacity.

(3) Surface processing

Annex Table 2-6 shows the reasons for the importance and necessity of surface processing technology in the electric/electronics industry. This technology is vital for increasing product

quality, and especially the reliability of the electrical characteristics. It is also important for lengthening product life and enhancing appearance. The level of surface processing technology may even be the chief determinant of product value.

Annex Table 2-6 Necessity of Surface Processing Technology in the Electric / Electronics Industry

Area	Necessity of surface processing technology
Electrical/electronic components	Use of conductive metals such as copper and steel; plating is applied to prevent corrosion.
Plating on metal molds	Gas (chloride), moisture, and other such substances arising at the time of injection molding can adhere to the surface and cause rust, thereby detracting from the physical appearance and measurement precision of the molded products; plating is performed to prevent this from happening.
Coating and printing on plastic	There is a limit to color options with molding materials alone; as a result, extensive use is made of coating and printing for coloration.
Heat treatment	Steel materials for presses for electronic components and metal molds for plastic molding must have certain levels of resistance to corrosion, strength, hardness, and tenacity. Characteristics in these aspects can be dramatically improved by heat-treating (quenching and tempering) steel.
Blasting	Blasting enables cheap yet sure removal of large quantities of burrs arising in press processing. It is applied in mass production in developed countries.

Source: JICA Study Team, from Komatsu Engineering Office's materials.

Annex Table 2-7 Surface Processing Technology and Characteristics

Process		Characteristics, applications, etc
Surface covering	Plating	As described above
	Phosphate processing	Coating of steel components with a black film: low in cost
	Physical vapor deposition (PVD)	Deposition of a nitrided titanium film with a thickness of a few microns; good hardness and resistance to abrasion
	Chemical vapor deposition (CVD)	Deposition of a nitrided titanium film with a thickness of a few microns; good hardness and resistance to abrasion
Surface quality improvement	Surface nitridization	Formation of a nitrided layer on the surface of carbon steel; good hardness and resistance to abrasion
	Surface cementation	Carbon intrusion into the surface of carbon steel, followed by hardening
	Shot peening	Spraying with hard microparticles to harden the surfa
	Etching	Grooving of the metal surface using acid
Heat treatment	Quenching and tempering	Metamorphosis of carbon steel to increase hardness and strength
	High-frequency quenching	Metamorphosis of the surface only using a high-frequency coil
Coating/printing	Spraying	Application of coating with a spray gun
	Silk-screen printing	Printing of logo marks, etc., on electrical products with a silk screen
	Pad application printing	Printing of letters on curved surfaces of electrical products
	Osmotic printing	Printing on PBT components with osmotic ink to reduce abrasion

Source: JICA Study Team, from Komatsu Engineering Office's materials.

In terms of the kind of plate applied, there are three major types of plating: precious metal (gold, platinum, or silver), base metal (zinc, tin, copper, or chromium), and multilayer (two or more kinds of metal). The general pattern is precious metal plating for electronic component contact points, and base metal plating for copper components and mold cavity cores.

The parameters for assessing the quality of plating include layer thickness and uniformity, fastness to the ground material, surface smoothness and luster, and adhesion to fine portions. In the electric/electronics industry, plating is applied for prevention of corrosion of cavities of molds for plastic molding (hard chromium plating), electronic component contact points (gold plating), electronic component terminals (nickel plating, etc.), and tools (zinc plating).

The main problems and issues pointed out in the plating industry are the need for wastewater treatment, environmental pollution from heavy metals, the high cost of plating facilities, the complexity of control technology for water quality and chemicals, and the difficulty of staying in business without steady orders.

A.2 Management Foundation Required for SMEs

Given their nature as SMEs, the three groups (A, B, C) have much in common as regards the management foundation prerequisites for survival and growth. Annex Table 2-8 presents the prerequisites for Group C (SI SMEs) in particular and the corresponding common prerequisites, which also apply to groups A and B. The requirements for optimization of investment plans for machine and processing facilities applies to the other groups as well, albeit with a change of subject facilities.

(1) Mastery of the method of drafting production plans

Understanding of the techniques for drafting long-term (one year), medium-term (about three months), and short-term (about one month) for production based on marketing information, and erection of the planned sales setup.

(2) Thorough-going control of production

Preparation of a setup enabling timely execution of appropriate measures for implementation of the production plans as scheduled; manager training, clear demarcation of responsibility and authority, revision of the corporate organization, employee education and training, encouragement of self-advancement, execution of the plan-do-check-action (PDCA) cycle.

Annex Table 2-8 Prerequisites for Reinforcing the Management Foundation in the Electric / Electronics Industry

SI SME(A)/(B) SME(C)	Particular prerequisites (Group C)	Common prerequisites
Metal press processing	- Optimization of investment plans for press machines and molds - Drafting of plans for rationalization of secondary processing costs	- Optimization of facility investment plans - Mastery of the method of drafting production plans - Thorough-going control of production - Incorporation of total quality control (TQC) system - Incorporation of scientific management techniques - Mastery of techniques for business process improvement - Promotion of work standardization - Mastery of techniques for drafting facility investment plans - Mastery of techniques for profit planning and cost analysis - Improvement of marketing capabilities
Plastic molding	- Optimization of investment plans for molding machines and molds - Drafting of plans for reduction of molding costs	
Rubber molding	- Optimization of investment plans for rubber molding machines and molds - Drafting of plans for reduction of personnel costs for secondary processing	
Metal mold fabrication	- Optimization of investment plans for machining/CAD/CAM facilities - Preparation of plans for technical human resource development	
Plating and surface treatment	- Optimization of investment plans for processing facilities - Preparation of plans for rationalization of costs for treatment of wastewater and solid waste	
Heat treatment	- Optimization of investment plans for heat treatment facilities - Preparation of plans for reducing distribution costs	
Casting	- Optimization of investment plans for casting and wooden mold facilities - Preparation of plans for reduction of secondary processing costs	
Forging	- Optimization of investment plans for forging and metal mold facilities - Preparation of plans for reduction of secondary processing costs	
Diecasting	- Optimization of investment plans for diecasting machine facilities - Preparation of plans for reduction of secondary processing costs	

Source: JICA Study Team, from NRI's and Komatsu Engineering Office's materials.

Note: Secondary processing includes steps such as removal of burrs on the product periphery, washing to remove oil and grime, and additional machining.

(3) Incorporation of total quality control (TQC) system

Construction of a mechanism for stabilizing and improving product quality through a concerted labor-management effort; training for methods of improving TQC, cultivation of TQC leaders, staging of in-house TQC conferences, institution of system of proposals for improvement, etc.

(4) Incorporation of scientific management techniques

Incorporation of time study, motion study, and IE methods; determination of standard hours; improvement of production planning accuracy based on actual data.

(5) Mastery of techniques for business process improvement

Institution of provisions to encourage voluntary improvement of work by employees (through awards for improvement proposals), and instruction in improvement methods.

(6) Promotion of work standardization

Clarification and simplification of standard work procedures in factory and office work, and contraction of intellectual working hours for improvement of production efficiency; input of standard work algorithms into computers to reduce calculation hours and promote accurate processing; also standardization of machine tools, cutting tools, and processing programs on the manufacturing site.

(7) Mastery of techniques for drafting facility investment plans

Mastery of techniques for drafting plans in all phases, including effects of facility investment, costs, depreciation, return, and fund-raising.

(8) Mastery of techniques for profit planning and cost analysis

Mastery of basic theory and practical application of techniques for break-even-point analysis, cost structure analysis, profit planning, etc.

(9) Improvement of marketing capabilities

Acquisition of capabilities for identification/analysis of the position of the company products in the market, position of competitors (domestic and foreign), strengths and weaknesses of the company products, future trends in the market, course of R&D, etc.

3. GARMENT INDUSTRY

3. Garment Industry

3.1 Summery and Conclusion

(1) This study is aimed at drafting SME development policies and plans through empirical identification of various policy needs desired by small and medium-sized garment manufacturers, especially those in the private sector, through research which also includes interviews with various directors of SMEs.

(2) In Viet Nam, there are approximately 600 corporations engaged in garment manufacturing. Their principal business is sewing on commission for overseas clients. The 600 firms include approximately 130 in garment making for the domestic market. Viet Nam's total SOEs, of which the VINATEX Group, directly controlled by the government and comprising some 60 enterprises, is the largest group. In the garment industry, the targets of the SME development policy, which are private small and medium-sized garment making enterprises, number approximately 200 when the employee criterion is used (those with less than 200 employees are classified as SMEs) and approximately 270 when the paid-in capital criterion is used (those with paid-in capital of less than 5 billion dong). In addition, there are more than 80,000 households which engage garment market is worth U.S.$2 billion, consisting of U.S.$1 billion in exports and U.S.$1 billion in domestic sales. SOEs currently enjoy large advantage in Viet Nam thanks to their preferential treatment in terms of export quotas, overseas information, fund raising and government backing. Most enterprises which Japanese businesses have contracts with for sewing on commission are SOEs.

(3) However, SOEs are not likely to maintain their superior positions. This forecast is based on the following facts. 1) Their decision making is very slow. For example, when they make equipment investment of more than 500 million dong, the government rules call for them to select the vendor through a bidding. They are also required to obtain approval of the government or a general corporation, which in the case of the textile and garment industry is the holding company of VINATEX, before they take any decision on important matters. 2) Director General, Deputy Director General and Chief Accounting Officer of SOEs are appointed regularly by the government and they are not said to be full of entrepreneurial spirit. 3) Even when the number of employees is too large relative to the scale of production and sales, SOEs cannot layoff employees because of their socialistic management characteristic. They must also shoulder excessive burdens for fringe benefits. 4) When a level playing field between SOEs and private enterprises is realized, stripping SOEs of their protected status, their earnings will deteriorate, making it necessary to carry out corporate restructuring. 5) Given future changes in the international environment and expected fierce competition with China both in overseas and domestic markets, SOEs will

be forced to carry out corporate reforms to cope with such changes. Under these circumstances, the government has begun to equitize state-owned garment manufacturers, including VINATEX.

(4) For this present JICA study for the development plans for SMEs, MPI selected a total of 28 companies, consisting of 16 private enterprises, eight SOEs, two businesses that had been converted into joint stock companies from SOEs and two foreign capital-affiliated firms. Through interviews with executives of these firms, the JICA Study Team has identified various problems facing small and medium-sized garment manufacturers and what kind of policies they want the government to adopt. Their needs for policies can be classified into the three such as 1) needs to enhance their market competitiveness (including the need to strengthen the textile industry, which supplies materials to garment makers); 2) needs to end discriminatory practices vis-à-vis SOEs; and 3) needs for basic development measures for SMEs. These needs lead to what kind of policy is required for SME development.

(5) The first needs to enhance competitiveness in the market place are also commonly shared by SOEs. However, our visits to private small and medium-sized garment makers have revealed that their export ratio was high at around 90 percent and that they are placing heavy emphasis on the development of overseas markets and enhancing their competitiveness vis-à-vis China. This is in order to grow out of the low-wage sewing on commission (the so-called CMT businesses) to move into develop-and-export schemes (the so-called FOB businesses). The second needs for ending discriminatory practices vis-à-vis SOEs are calls for a level playing field through the end of discrimination in getting bank loans or by opening up export quotas, because as it is, there is an overwhelming inequality between SOEs and private enterprises, including small and medium-sized businesses. The third needs for basic policy for SME development are those other than the call for a level playing field. They call for supporting measures for skill training, holding domestic product fairs in order to help procure domestically-produced good quality raw materials and materials, gathering information on overseas markets and improvement of fashion designs and financial assistance to increase exports, and the formation of regional cooperation's for horizontal and vertical integration of production, and supporting measures to these associations.

(6) Generally speaking, SME policies include measures for social welfare, industry development and fostering promising businesses. With respect to small and medium-sized garment manufacturers, what is needed are measures for industry development, beginning with the ending of inequality among enterprises and including enhancement of international competitiveness. Concrete supporting measures are suggested in the latter half of this chapter, namely "The Present Export Environment for Garments and Its Outlook", "A Policy Proposal for Linkage between Textile Companies and Garment Makers", "A Policy

Proposal Regarding Linkage of SOEs and Private-Sector SMEs" and "Other Supporting Measures for Implementation". As the international environment surrounding Viet Nam's small and medium-sized garment manufacturers will change drastically in or around 2005, these enterprises will not be able to cope with rapidly changing environment and win in international competition in the overseas and domestic markets, unless the implementation of various measures is brought forward. Therefore, the top priority in government policies should be placed on short-term policies and plans covering the period up to 2005.

3.2 Position of SMEs in the Garment Industry and Policy Needs

3.2.1 Classification of Entities engaged in the Garment Manufacturing

Statistical data on entities in the garment industry are not complete. However, if data from MOI should be used for classification purpose, it may be estimated that there are approximately 200 private-sector small and medium-sized garment makers (excluding cooperatives and households) on the basis of the number of employees. In addition, state-owned small and medium-sized garment makers are being equitized, while, though still small in number, foreign capital-affiliated SMEs will also need to be covered by SME policy in view of their future equal treatment. **There is the reason that the policy for private-sector small and medium-sized companies in particular among all small and medium-sized garment makers is dealt here. While government-owned small and medium-sized garment makers have received preferential or priority treatment in terms of fund raising and receiving export quotas and other aspects of business, SOEs have accumulated vestiges of socialist business management. By contrast, small and medium-sized garment makers in the private sector as a whole have achieved growth by pursuing efficient business management, despite inferior conditions and discriminatory practices they have been subjected to.** However, the following points should be taken into consideration in drawing up a draft plan for a development policy. 1) Small and medium-sized enterprises that were formerly owned by the state should also be covered by small and medium-size enterprise policy after equitization. Because, as equitization of SOEs has just begun to show progress, preferential and priority treatment extended to SOEs will be abolished after equitization. 2) Development of foreign capital should be considered for firms in the upstream sectors (fabric manufacturing, yarn manufacturing and sewing sub-materials sectors)[1] that supply raw materials to small and medium-sized garment makers and which serve as the foundation for export competitiveness of Viet Nam's garment makers, although they are capital-intensive, large enterprises in an import-substitution industry.

[1] The fabric manufacturing sector comprises knitting, weaving, dyeing, printing, embroidering, finishing, etc., while the yarn manufacturing sector comprises spinning, filaturing, twisting, dyeing, etc. and the sewing sub-materials sector comprises buttons, zippers, names, labels, sewing threads, lining, bags, packing, etc.

Next, including state-owned and other enterprises, the total number of SMEs should be approximately 300 (approximately 50 percent of 602 total garment firms). According to the 1995 census of business establishments (the Number of Economic, Administrative Enterprises and its number of laborers up to July 1, 1995), there were 82,876 offices of corporations and un-incorporated businesses, including main and branch offices, in the garment industry, indicating that there is a vast foothill of households (cottage industries and Pop-and-Mom shops) in this sector.

Table 3-1 Entities in the Garment Industry as of 1998

Number of employees	Total	Private-sector firms	Cooperatives	SOEs	Foreign capital-affiliated firms
Over 200	50%	40%	20%	50%	90%
200 or less	50% (300 firms)	60% (200 firms)	80%	50%	10%
Total	602 firms	348 firms	36 firms	130 firms	88 firms

Source: Estimates based on MOI data.

Note: Among private-sector firms, SMEs with paid-in capital of 5 billion dong or less are estimated to account for 78 percent (approximately 270) of total.

Private-sector garment makers (excluding cooperatives) are classified according to the number of employees. It shows the number of firms with 500 or more employees is larger in the garment industry than in other industries.

Table 3-2 The Number of Firms in 1998

(Number of firms)

Number of employees	Less than 100	100-299	300-499	500 or more	Total
Garment	88	85	24	23	220
Food & beverages	3,026	48	10	21	3,105
Leather	14	13	7	31	65
Lumber	371	25	5	6	407
Non-ferrous metals	627	26	3	1	657
Total private-sector firms	5,155	299	72	94	5,620

Source: General Statistics Office, 1999

Note: Excludes cooperatives and households.

Data on the classification of entities in the garment industry based on their paid-in capital for 1998 have not been made complete public. The following tables are compiled by re-classifying enterprises listed in the Garment Year Book (VINATEX & HCMC Committee of Science-Technology and Environment) issued in 1996 based on their paid-in capital and the number of employees. The Year Book covers only 246 firms compared with the 602 figure mentioned above, but it demonstrates that there is a considerable gap between the number of firms classified as SMEs in the garment industry depending on whether one uses the number of employees or paid-in capital for definition of SMEs. On the basis of the number of employees, there are 69 small and medium-sized firms (28% of total), but on the basis of paid-in capital, there are 121 such firms (49%). In other words, there is an approximately 20 percentage point-gap in their ratios. According to the Year Book, garment makers with paid-in capital of 4 billion to 5 billion dong employ somewhere between 200 and 1,000 employees. However, among private-sector garment makers, it is thought that their paid-in capital is smaller than actual figure. The reasons for this are: 1) Since capital is paid in using the bulk of assets of the owner(s) of the business, capital increases are seldom made after the initial payment; 2) Since revaluation of assets is not made by private-sector garment makers, revaluation reserves, which should be included in paid-in capital, are not posted. If these factors are taken into consideration and the paid-in capital criterion is revised upward, the number of employees exceeds 1,000, further widening the gap with the number of private-sector SMEs arrived at based on the number of employees. At any rate, as garment industry is the capital-saving and labor-intensive industry typically, it has very significant function to absorb excess personnel in rural sector of Viet Nam. Generally speaking, SMEs in garment sector are doing businesses with 40~60 sewing machines equivalent to 3 bill VND investment and less than 200 workers.

Table 3-3 Number of Entities in the Garment Industry in 1995

(Based on the number of employees)

Number of employees	Total	Private-sector firms and cooperatives	SOEs	Foreign capital-affiliated firms
Over 200	177	N/A	46	N/A
200 or less	69	N/A	8	N/A
Total	246	109	54	83

Source: VINATEX & HCMC Committee of Science-Technology and Environment, 1996.

Table 3-4 Number of Entities in the Garment Industry in 1995

(Based on paid-in capital)

Paid-in capital	Total	Private-sector firms and cooperatives	SOEs	Foreign capital-affiliated firms
Over 5 billion dong	125	21	26	78
5 billion dong or less	121	88	28	5
Total	246	109	54	83

Source: VINATEX & HCMC Committee of Science-Technology and Environment, 1996.

An examination of changes in the number of private-sector garment makers shows that their number decreased in 1998, which means that there were bankruptcies. The reasons for the bankruptcies are as follows.

In 1998, exports of textiles and garments stood at $1.45 billion, down 4 percent from the previous year. While exports to the EU were buoyant thanks to quotas, exports to non-quota markets, such as Japan and other Asian countries, declined sharply from $900 million in 1997 to $700 million in 1998 due to the stagnant economic conditions in this region. Since the Asian currency crisis, small and medium-sized garment makers which have engaged in CMT business for export to Japan and South Korea, in particular, and which have not been able to practice sufficient quality control and whose lead time has been long have faced a harsh condition due to the decline in orders.

Table 3-5 Changes in the Number of Private-Sector Firms

(Number of firms)

	1995	1996	1997	1998	'98/'97
Textile	121	122	103	104	1.0%
Garment	190	192	274	220	- 19.7%
Total manufacturing	5,006	5,064	5,122	5,620	9.7%

Source: Quoted from MPDF, the original source is General Statistics Office, 1999.

Note: Excludes cooperatives and households.

In production and exports, SOEs have an edge in Viet Nam thanks to their equipment, technology, information, fund procurement and management resources. SOEs account for the bulk of the companies that have contracts with Japanese businesses to engage in CMT business. The share of private-sector enterprises[2] in total production in 1996 was 44 percent in the garment industry but was only 25 percent in the textile industry. In 1998, exports of textiles and garments combined stood at $1.45 billion, with garments accounting for 80 percent and textiles (especially fabrics) accounting for 20 percent. VINATEX accounted for $400 million, or approximately 30 percent of exports, with garment exports amounting to $250 million and textile (especially fabric) exports amounting to $150 million.

However, one cannot expect that SOEs will maintain these advantages in the future as well. This is because of the following reasons: 1) Their decision-making is slow. For example, when they make capital investment in excess of 500 million dong, the government rules call for a bidding. For important matters, they require approval from General Corporations (the holding company of VINATEX in the case of the textile and garment industries) or the government. 2) Director General, Deputy Director General and Chief Accounting Officer of SOEs are appointed regularly by the government and they are not said to be full of entrepreneurial spirit. 3) Even when the number of employees is excessive in relation to the scale of production and sales, these firms cannot lay off workers because of the socialistic nature of business management. Moreover, the burden of fringe benefits is excessively large. 4) When a level playing field is realized and SOEs are stripped of their preferential treatment, their earnings will deteriorate, making it necessary for them to carry out corporate restructuring. 5) Taking into account future changes in the international environment and intensifying competition vis-à-vis China in both domestic and overseas markets, SOEs must carry out corporate reform to weather these changes. Within the government, equitization of state-owned garment makers, including VINATEX, has already begun.

[2] There are four legal organizational formats for private companies. They are private sole proprietorship with unlimited liabilities, partnerships with unlimited and limited liability partners, private limited companies and joint stock companies with limited liabilities.

Table 3-6 List of SOEs in Garment Sector Selected for Equitization in 1999

Under the umbrella of VINATEX
1) Ho Guom Garment company
2) Garment Workshop 2- Independent Garment Company
3) Garment Workshop No.8 Le Truc-Chien Thang Garment
4) Garment Factory-Vinh Phu Weaving Company
5) Phu Xuan textile Company-a textile company of Hue City
6) Garment Factory-Nha Trang Garment and Packaging
7) Weaving Company
8) Gia Lam Garment Mechanical Company
9) Saigon Garment Company
10) Hao Binh Garment Company
11) Phuong Dong Garment Company
12) Bien Hoa Wool Company
Under the umbrella of the central government
1) Hanoi Knitting Company (Ministry of Industry)
2) The South Garment Company (Ministry of Trade)
Under the umbrella of local governments
1) Thang Loi Knitting Company (Nam Dinh Province)
2) Export Garment Company (Long An Province)
3) Saigon Wool Weaving Company (Ho Chi Minh City)
4) Tay Do Garment Company (Can Tho Province)
5) Garment Company 3 (Hai Phong Province)
6) Thanh Cong Garment Company (Ha Thnh Province)
7) Nui Thanh Garment Company (Quang Nam Province)

Source: JICA Study Team

3.2.2 The Garment Market and Garment Makers

(1) Structure of the Domestic Apparel Market

Although there are no statistics that show the size of the domestic apparel market, JICA Study Team estimates that the market was worth approximately $1 billion in 1998.[3] A breakdown of suppliers to the domestic market shows that domestic garment makers, primarily households, account for approximately 60 percent of the domestic market. SOEs and private-sector enterprises are not supplying the domestic market in full scale. The reasons are as follows: 1) Sales prices of low-priced clothing supplied to the domestic market by households and clothing smuggled into Viet Nam are only one-fourth to one-third of the prices of clothing on

[3] The average monthly spending on apparel per capita in Ho Chi Minh City is small at $3 (1998). Of the total population of Viet Nam of 76.3 million persons (as of April 1, 1999), urban population accounted for 23.5 percent. Assuming that per capita spending on clothing by urban population is at the same level as that in Ho Chi Minh City and by rural population is one-fifth of that figure, the domestic apparel market is estimated at $1 billion.

CMT business by SOEs and private-sector enterprises for export ($10 or more per garment). The market has not yet developed to the stage at which many SOEs and private-sector enterprises can enter. 2) Average monthly spending on clothing per capita even in such large cities as Ho Chi Minh City was only $3 in 1998. 3) Demand for high-priced clothing that costs more than $10 per garment exists only in the urban areas. However, because of custom created over the years for Viet Nam's national costume Ao Xai, women's clothing, such as blouses, is usually custom made with the customers picking materials. The market for ready-to-wear clothes has not yet developed. 4) There are no large scale retailers in Viet Nam, where Pop-and-Mom shops play the central role in distribution. Therefore, neither SOEs nor private-sector firms can grasp each segment of the distribution system. 5) Because of the recession that has lasted since 1997, domestic demand is primarily for low-priced clothing.

Table 3-7 Monthly Spending on Clothing per Capita in Ho Chi Minh City

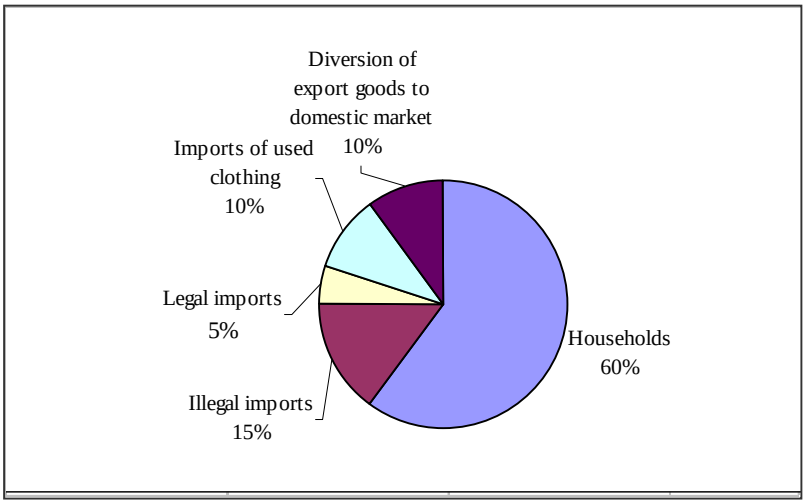
(Unit: Dong)

	1995	1996	1997	1998
Total household expenditure	395,692	461,377	491,828	531,134
Share of clothing	6.8%	6.9%	7.1%	7.2%

Source: The Bureau of Statistics, Ho Chi Minh City

According to a study by SECO Sector Consulting, it is estimated that the remaining 40 percent of the domestic market is supplied by illegal imports, primarily from China (15 percent), legal imports from Hong Kong, South Korea, EU, and the United States (5 percent), used clothing supplied through aid programs or smuggled from China (10 percent) and diversion of export goods to the domestic market (10 percent). Chinese products imported legally or illegally to Viet Nam cost less than Viet Nam-made clothing on CMT business for export and have more variety. They are sold in Pop-and-Mom shops or open-air stalls. As Viet Nam cannot produce and supply materials of all grades as China can, China has made inroads to Viet Nam for products of certain grades. At the same time, as government's anti-smuggling measures are not successful, prices in the domestic market have collapsed, making it difficult for SMEs to supply products to the domestic market. In this sense, the domestic clothing market is not yet ready for the entry of SMEs. To create a domestic clothing market into which SMEs can enter, it is necessary to enhance the government's anti-smuggling measures.

Figure 3-1 A Breakdown of Suppliers to the Domestic Market



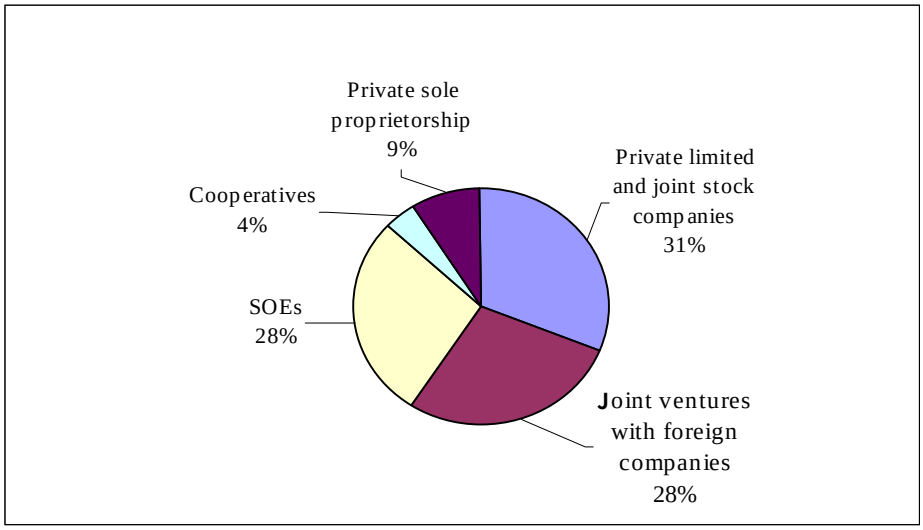
Source: SECO Market Survey 1998

(2) Structure of Garment Market for Export

In 1998, export markets for garments made in Viet Nam were worth approximately $1.2 billion. It is estimated that of this figure 90 percent was CMT business (added value only), while 10 percent was FOB business under the firm's own brand names. The major reasons for Viet Nam's garment industry to depend on CMT business schemes are 1) slow development of capability to develop designs and raw materials domestically, and 2) difficulty in raising fund (funds for purchase of raw materials and financing inventories, and bridge loans to tide over the period before the recovery of funds). Fifty percent of CMT business contracts are with businesses in Hong Kong, South Korea and Taiwan, which sell finished products to EU markets, while the remaining 50 percent are with Japanese businesses for export to Japan.

A breakdown of suppliers to Viet Nam's export market in 1998 shows that of the 268 garment makers which export, private-sector enterprises accounted for 40 percent, while SOEs and joint ventures between SOEs and foreign investors each accounted for 28 percent. Private-sector companies here comprise private limited companies, joint stock companies, private sole proprietorship. The export ratio of private-sector enterprises is especially high at 90 percent, of which 90 percent is CMT business.

Figure 3-2　A Breakdown of Suppliers to Export Markets



Source：MPDF Garment Sector Study 1998

3.2.3　Policy Needs by Garment Makers

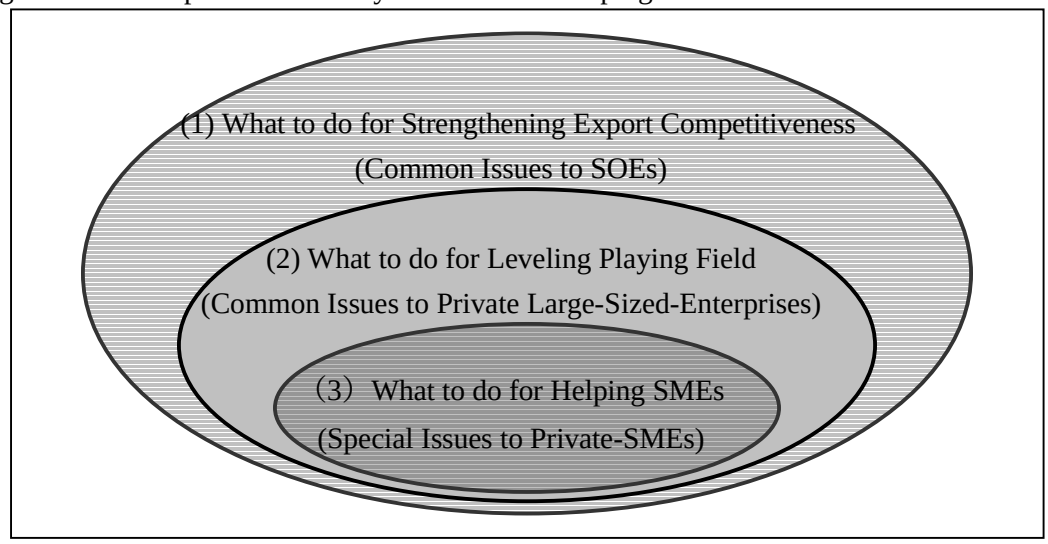
As mentioned earlier, it is estimated that there are approximately 348 private garment makers, approximately 130 state-owned garment makers, and approximately 88 foreign capital-affiliated garment makers in Viet Nam. For this present JICA study for the development plans for SMEs, MPI has selected 28 companies, comprising 16 private enterprises, eight SOEs, two equitized SOEs, and two foreign capital-affiliated companies. Based on this selection, the JICA team has conducted interviews and identified priorities for these companies and government policies desired by them. The findings are listed below by company. These policy needs can be classified into three major categories, namely, 1) the needs to strengthen competitiveness in the market (including the needs to strengthen the textile industry, which supplies materials to garment makers); 2) the needs to end discriminatory practices between private enterprises and SOEs; and 3) the basic needs for the development of SMEs.

The first is the needs to enhance export competitiveness. Needless to say, this applies also to SOEs. However, interviews with directors general of private-sector small and medium-sized garment makers have revealed that the export ratio for these firms is high at approximately 90 percent. Moreover, they have also revealed that these firms are placing emphasis on the development of overseas markets and enhancing export competitiveness vis-à-vis China in order to outgrow low-value added CMT business and to expand FOB business in the future.

The second point is that in Viet Nam there is an overwhelming inequality between SOEs and private-sector enterprises, especially private SMEs. Therefore, policy issue here is to provide a level playing field by eliminating discriminatory conditions in bank borrowing and encouraging the opening up of export quotas etc,.

The third is the fundamental needs for promoting private-sector SMEs. This should comprise the introduction of a credit guarantee system and assuring that such a system will be used by private-sector SMEs, the organization of regional cooperation to attain horizontal and vertical integration of production and measures to support such cooperation, supporting measures for domestic product fairs to encourage the procurement of good domestic materials and for human resource development, etc.

Figure 3-3 Components in Policy Issues for Developing Private-SMEs in Garment Sector



Source: JICA Study Team

In addition to three components, the application of SME policy to equitized SOEs should be reviewed. VINATEX, the largest state-owned textile and garment-making enterprise in Viet Nam, is faced with an urgent need to solve the problem of redundant workers and to modernize management decision-making. It has just begun its restructuring efforts, and the government has announced that it would equitized some of its member firms, which number a little over 60. Approximately 30 percent of VINATEX's member firms have less than 200 employees and approximately 70 percent are SMEs with capitalization of less than 5 billion dong. It is expected that as equitization makes progress step by step, there will be an increase in the number of private-sector SMEs through such formula as management buyout. The problem is that VINATEX's member companies also include a large number of firms that employ more than 200 people and have capitalization of over 5 billion dong. When these firms are equitized in the future, the question is whether SME policy for the private sector should also be applied to these companies beyond the criteria. It would be possible to interpret the present definition of SMEs rather loosely to include garment makers employing up to approximately 500 workers and apply the narrowly-defined SME policy to these companies on a case-by-case basis. However, questions concerning garment makers with more than 1,000 workers are those regarding the level

playing field, and problems associated with them should be resolved from the viewpoint of rectifying the inequality between SOEs and private-sector enterprises.

From the next section onward, necessary policies for meeting each category of needs clarified by interview survey are examined.

Table 2-8 List of Interview Survey

Company interviewed	Legal Status	Major Products	Export Ratio (%)	Workers (Prsns)	Turn-over (Mil VND)	Export Destination	Measures Desired to the Government	Comments by interviewer
T (HN)	LTD	Children skirts, Shorts, Trousers	90	60	600	Russia, Holland, Germany	Needs bank loans secured by L/C. Bank loans for operating funds should be promoted. Industrial sites for SMEs should be secured.	Development of new markets is a priority.
H (HN)	LTD	Shirts, Jacket	70	200	800	Finland, Germany	Bank loans to finance equipment modernization to switch to FOB exports needed. Needs bank loans secured by L/C. Correction of unequal treatment between SOEs and private enterprises regarding quota allocation, etc.	Needs to improve productivity.
M (HN)	LTD	Shirts, Jacket	N/A	170	650	Germany	Needs loans to SMEs to finance operating funds. Support system for employee education. Thorough-going education of tax and customs officials. Support for encouraging activities of associations and cooperatives.	Excessive fixed investment is hurting this company.
H (HN)	LTD	Shirts, Jacket, Bed sheet	40	335	1,200	Japan, Germany, France	Development of industrial parks for SMEs. Promotion of bank lending of medium and long-term funds. Creation of a training center for the garment industry. Expansion of loans from IFC, MPDF and WB. Participation of experts from lending countries in the screening of projects to be financed by ODA. Appropriate valuation of collateral by banks.	As manager general is a former banker, the firm's financial management and business F/S are in good order.
C (HCMC)	LTD	Shirts, Jacket, Sports clothing, Protecting clothing	100	657	14,100	Taiwan, Korea, HK Japan	Improvement of quality of domestically-produced materials and accessories to promote FOB exports. End of employer's payment toward labor union fees. Enforcement of the law of the land, including end to bribery demand by customs officials. Strict enforcement of anti-smuggling laws to foster sound domestic market.	Production lines are well managed.
D (HCMC)	LTD	T-Shirts, Polo-Shirts	N/A	200	3,808	Taiwan, Korea	Supporting measures for borrowing operating funds. Human resources development. Reducing employee turnover ratios. Replacement of outdated equipment and development of overseas markets.	The firm's strength is that it has knitting and dyeing departments.
Y (HCMC)	Pv.	Embroide-ry products	100	5	N/A	France, EU	As promotion in foreign markets, including holding product shows and developing new customers, involves large expenses, subsidies and other supporting measures are needed. Improve the system so that SMEs can borrow operating funds more easily.	After the loss of the East European markets, it is difficult for this company to develop new markets to make up the loss.

Company interviewed	Legal Status	Major Products	Export Ratio (%)	Workers (Prsns)	Turn-over (Mil VND)	Export Destination	Measures Desired to the Government	Comments by interviewer
V (HCMC)	LTD	Jeans, Shirt, Jacket, Shorts, Dress	95	600	37,395	Russia, Singapore, Korea	Reduce heavy tax burden (VAT, import tariffs). Creation of industrial parks for the garment industry to promote technological exchanges and simplify the occupancy procedures. Consistent laws, systems and regulations. Supporting measures for equipment replacement and technological advance. End measures that exempt loss-making firms from VAT. Appropriate valuation of collateral by banks.	Plans to introduce machinery for shape-keeping process. Sales have been rising 30% p.a. over the past few years thanks to the expansion of export markets for jeans. Though it must import raw materials, value added has increased, because the firm owns stone-washing process.
G (HCMC)	LTD	Shirt, Jacket, Shorts, Dress	100	1,000	N/A	EU, Singapore, Indonesia	Support for obtaining bank loans. Improvement of the quality of domestic raw materials and measures concerning VAT and import tariffs for raw materials which will be made into export items. Reduction of pre- payment of corporate taxes based on the previous year's performance. Reduction of items that are not allowed to be treated as tax exempt expenses. Equality in quota allocation. Supporting measures for the development of industry associations. Supporting for market development (e.g., product shows). Quality control and technological guidance.	Studying the feasibility of expanding into spinning,
S (HCMC)	LTD	Jacket, Shirts, Sports wear	100	500	9,800	Japan, Korea, India, Singa-pore.	Quick refund of VAT on export products. Equal treatment in quota allocation. More prompt customs procedures. Supporting measures for employee education, technology introduction and market development.	Restructuring of production lines is a priority.
V (HCMC)	LTD	Jacket, Shirts, Sports wear	90	5135 (including 15 sub-contracter	46,436	EU, Asia	Wants to equitize in order to modernize management. Streamlining of the asset valuation system for equitization. Integration of interpretation and management of laws and systems by the administrative agencies. The same treatment of VAT for direct and indirect exports (VAT refund system). Elimination of bribes to officials. Support for the development of domestically-produced fabrics. Strengthening of anti-smuggling measures. Supporting measures for getting information on materials and overseas markets. Protection of intellectual property rights to develop brand names in the domestic market.	Has very high-quality shape-keeping shirts, trousers, blousons, etc. A British apparel consultant is giving technological guidance. Has high productivity.

Company interviewed	Legal Status	Major Products	Export Ratio (%)	Workers (Prsns)	Turn-over (Mil VND)	Export Destination	Measures Desired to the Government	Comments by interviewer
P (HCMC)	LTD	Ski, Sports	100	850	N/A	EU, USA	Development of domestically-produced materials, especially coated fabrics. End discriminatory practices between SOEs and private enterprises (regarding land use, bank loans, quota allocation, etc.) End the company's payment toward union fees.	A high level of management and control, as it is getting advice from MPDF. Already has a foothold on the U.S. market. Can expect future expansion.
P (HCMC)	LTD	Shirts, Jacket	100	700	$1.6mil.	Japan, Korea, France, Taiwan	Financial assistance at the time of switchover from CMT to FOB. Assistance for receiving overseas guidance on production technology. Collection and disclosure of information on domestically-produced fabrics.	Fairly good in terms of product quality and productivity.
B (HN)	LTD	Children skirts, Shorts, Trousers	100	3,000	$12mil.	France	End unequal treatment regarding quota allocation. Improvement of systems and procedures regarding tariffs, etc. when trade agreement is signed with the U.S.. Development of domestically-produced materials. Support for education in garment-making technology. Supporting measures for joint works and cooperative efforts among SMEs. Linkage between private SMEs and SOEs. Support for holding product fairs.	Steady stream of orders, but needs to improve productivity.
M (HCMC)	LTD	Shirts, Jacket	100	220	$0.6mil.	Japan	Supporting measures for improvement of the levels of technology and management. Introduction of investment partners. Anti-smuggling measures for fostering the domestic market. Supporting measures for the development of domestically-produced materials . Bank loans necessary for the switch from CMT to FOB.	Achieved high levels both in production and management (control).
V (HN, HCMC)	SOE(consisting of 45 member firms)	Garments & Textile	N/A	N/A	N/A	EU, Japan, other Asia	Development of materials, especially to switch from CMT exports to FOB exports	Promotion of equitization is a priority. Linkage with private enterprises is needed.
E (HN)	SOE	Textile, Garment	N/A	3,500	N/A	N/A	There is no system for long-term financing that can be used for equipment investment. Needs supporting measures for equipment replacement and technology development and introduction, centering on dyeing of fabrics.	Issues priorities are redundant workers, equipment replacement and technology introduction.
V (HN)	SOE	Design school	N/A	70	N/A	N/A	Supporting measures for purchase of equipment, overseas training of employees, and improvement of design capability.	Getting information on overseas markets is a priority.

Company interviewed	Legal Status	Major Products	Export Ratio (%)	Workers (Prsns)	Turn-over (Mil VND)	Export Destination	Measures Desired to the Government	Comments by interviewer
G (HN)	SOE	Jacket, Shirts	100	2,600	47,616	EU, Russia, Japan	Promotion of equitization. Easing of conditions for bank loans for replacement of outdated equipment. Collection of information on domestically-produced materials and disclosure of such information. Improvement of quality and competitiveness of domestically-produced materials. Protection of intellectual property rights to eliminate copies. Strict anti-smuggling measures to maintain sound domestic market. Supporting measures for human resources development and training. Improvement of quality and management technology.	Redundant workers are a major problem.
T (HN)	SOE	Jeans, Shirts, Pants, Jacket, T-shirts	90	2,000	90,500	EU, Taiwan Japan, Korea	Development of high quality domestically-produced materials. Streamlining of procedures for bank loans. Extension of period of loans application of preferential interest rates. Streamlining and speed up of export and import procedures. Supporting measures for improvement of technology and management.	Productivity improvement and raising product quality are priorities.
J (HN)	SOE	Jute bags, Jacket, Shirt	35	1,100	18,000	Korea, Japan	Equal tax treatment, including tax filing requirements for private enterprises that are not paying taxes. Supporting measures for productivity improvement at garment factories.	Must improve productivity.
DC (HN)	SOE	T-Shirts, Polo, Children knit,	100	1,560	$12mil.	Japan, EU	Supporting measures for quality improvement, such as in the shrinkage rate of knitted fabrics. Increase the authority of SOE directors general in setting investment plans, etc. Financial assistance to enable investment to enhance capacity aimed at exports to the U.S. market. Supporting measures for the development of domestically-produced materials. Strengthening export competitiveness and integrate laws and systems.	Productivity improvement and study of quality are priorities.
H (HN)	SOE	Knitted Products	45	5,400	380,000	Japan	Supporting measures for the development of overseas markets. Strict enforcement of anti-copy and anti-smuggling rules and protection of intellectual property rights for sound development of domestic market,	Development of overseas markets is a priority.

Company interviewed	Legal Status	Major Products	Export Ratio (%)	Workers (Prsns)	Turn-over (Mil VND)	Export Destination	Measures Desired to the Government	Comments by interviewer
H (HN)	JS (Equitized SOE)	Jacket, Shirts	95	500	N/A	EU, Japan	It took too much time to evaluate assets for equitization. Preferential treatment for interest rates on bank loans immediately after the equitization, Partial subsidies for costs of promotion, such as product shows in Viet Nam and other countries. Disclose and encourage for the use of information on market, materials, etc. gathered by VINATEX.	Carried out equitization based on the management capability and the product groups that are highly competitive, e.g., blousons.
B (HCMC)	JS (Equitized SOE)	Jacket, Shirts, Sports wear	90	2,287	70,000	EU, Japan	Improvement of domestically-produced fabrics. Prompt asset valuation for equitization. Establishment and diffusion of corporate accounting systems. Approval of low-interest borrowing from abroad. Supporting measures for improvement of technological and managerial capabilities.	Equitized company. Is known for good delivery and high quality in CMT to Japan.
V (HCMC)	LTD (100% FDI)	Shirts, Jacket, Pants, Jeans	100	850	$5.0mil.	Singapore, Australia, India, Japan, Korea, Taiwan	End discrimination in quota allocation. Ban on sales of quotas. The introduction of penalties and removal from quota allocation from the following year for undigested portion of quotas. Quota increases for increases in exports to non-quota regions. Do not allocate quotas to firms which do not own plants. ,End discrimination against foreign companies regarding publicly-regulated charges. Development of domestically-produced raw yarn. Anti-smuggling measures. End import tariffs on raw materials.	Future growth expected in exports to the U.S.
V (HN)	LTD (100% FDI)	Jacket, Shirts	100	495	$6.0mil.	Japan, EU	Supporting measures for employee education. Strengthening of anti-bribery measures and strict enforcement of law. End unequal quota allocation. End unequal treatment of foreign companies regarding publicly-regulated charges. Development of domestically-produced fabrics. Financial assistance for replacement of outdated equipment.	Strong in down products.

Company interviewed	Legal Status	Major Products	Export Ratio (%)	Workers (Prsns)	Turn-over (Mil VND)	Export Destination	Measures Desired to the Government	Comments by interviewer
P (HN)	LTD (100% FDI)	Yarn, Fabrics	N/A	N/A	N/A	Korea, Japan, EU, Taiwan Hong Kong	Correction of unequal treatment of foreign enterprises regarding publicly-regulated charges, such as water supply, and electric power. Stable power supply, such as prevention of blackout and fluctuations in voltage. Needs bank loans secured by L/C. VAT refunds should also be applied to indirect exports. Equal treatment concerning quota allocation. Incentives for investment in yarn-making sector. Creation and utilization of credit guarantee system.	The fabric manufacturing sector, such as this firm, is promising both for sales to the domestic and foreign markets.

Source: JICA Study Team

Note: HN: Hanoi, HCMC: Ho Chi Min City, LTD: Private limited companies, Pv: Private sole proprietorship with unlimited liabilities, JS: Joint stock companies with limited liabilities.

3.3 The Outlook of Export Environment for Garments and Export Promotion Measures

3.3.1 Changes in the Japanese Market and Export Promotion Measures for Small and Medium-Sized Garment Makers in Viet Nam

In order to further promote quick responses to consumer needs, Japanese apparel companies are either shortening the channel between production and sales, or integrating production and sales into one system. That is, in Japan the emphasis is shifting away from identifying manufacturers' needs into identifying consumer needs in order to increase non-price competitiveness of products. Product development reflecting quick identification of individual consumer needs is becoming even more important. For example, Japanese firms have reduced mass production of items that have not yet been ordered which are likely to be carried as inventories until the following year and are concentrating on the production of best-sellers which can be sold out before the end of the season. This situation has resulted from the individualization and diversification of demand in the market and shortening of product life cycles. The notion of "quick responses" was first advocated in the United States in the early 1990s and its aim was to realize a distribution reform of the U.S. textile and garment industries to gain a competitive advantage vis-à-vis imports, as import restrictions based on Multi Fiber Agreement (MFA) had not produced the intended effect.

Next, this paper will examine the characteristics for the Japanese market for Viet Nam's SMEs in terms of product development.

- First, apparel must meet the needs for highly-refined sensitivity and fashion sense. The development of new synthetic materials is part of this current. At present, multi-substance spun yarn based on highly developed spinning and yarn manufacturing technologies is attracting attention as a "sensitivity material." Thus, the development of such product is very important. The Japanese market demands very high levels of quality, sensitivity and functions. In the area of latest fashions, it is often impossible to meet such consumer needs with single textile. The companies must take advantage of the individual strengths of natural fiber and chemical and synthetic textiles, as well as those of staple fibers and filaments.
- Second, the trend in Japan is toward emphasizing the function that contributes to personal hygiene, such as "anti-bacterial" and "deodorizing," as indicated by the popularity of product groups that are sold under the catch-all brand "cleanliness revolution."
- Third, clothing must be convenient and useful. The new product groups that have been processed to keep shape even after washing are an example of this trend. In the Japanese dress shirt market, shape-keeping processing has become a standard procedure. Viet Tien, one of the largest companies under the umbrella of VINATEX, is already producing shape-keeping white shirts on CMT business for export to Japan.

- Fourth, the conservation of the Earth's environment has become a major theme in product development in recent years. At present, products made of recycled PET bottles are attracting attention.

In order to better develop the Japanese market, which has the above characteristics, private-sector SMEs in garment sector hope to shift to FBO business based on the technology learned through CMT business as indicated the results of interview survey. Under these circumstances, the following measures are recommended.

- In growing tendency of quick responses in Japan, it is needed for Viet Nam garment SMEs to strengthen quality and delivery control system from the perspective of consumer-driven production and marketing in Japan. This should be leaded through a garment association under the guidance of the government.
- In order to speed up customs clearance, in-plant customs clearance, which is now practiced at some factories, should be unifiedly practiced at many more plants through the guidance of the government. This formula is already used in almost all export-oriented garment factories in China.
- Shorten lead time by improving local physical distribution through the guidance of the government.
- The government should extend financial assistance to SMEs so that many domestic product fairs can be held to allow a greater number of garment factories to share the latest information on domestically-produced materials, including those made by foreign capital-affiliated companies, and to give feedback to domestic materials manufacturers, including foreign capital-affiliated companies, from garment factories on the kinds of materials they need.
- The government should improve the investment environment to encourage local production, i.e., knitting, weaving and dyeing, by foreign capital-affiliated companies to enable the procurement of materials to local SMEs in garment sector.

3.3.2 Changes in the U.S. Market and Export Promotion Measures for Small and Medium-Sized Garment Makers in Viet Nam

Export from Viet Nam to the U.S. market rose handsomely by 20 percent in 1998 to $20 million. As it is highly likely that an MFA will be concluded with the United States in 1999, U.S. import tariffs, which now range from 45 percent (for polyester products) to 90 percent (for cotton products), will be reduced in the near future to zero percent to 17 percent, depending on the ratio of self-procurement ratio. Thus, exports are expected to expand sharply. However, given the fact that the U.S. government has recently imposed quotas, which are to increase by 14 percent per annum during the next three years, on cotton product imports from Cambodia, the U.S. may not allow unlimited exports from Viet Nam. Consequently, it may become necessary to obtain government permits to export to the United States, but in that case, the government must not discriminate between SOEs and private-sector companies, for example, in providing export license.

Under NAFTA, which took effect on January 1, 1994, the United States does not impose any quota or tariff on imports of products made in Mexico using raw materials from the United States. The U.S. textile industry benefits greatly from CMT business because of this system. Thanks to zero tariff, cheap labor (per hour wage, which is about $10 in the United States, is approximately $2 in Mexican maquiladoras), and the convenience afforded by the fact that the United States and Mexico are next to each other on the same continent, 80 to 90 percent of cotton products imported from Mexico use materials made in the United States. The American textile industry has thus successfully realized vertical integration with Mexican garment makers.

The so-called “807 scheme” allows imports into the United States of garments assembled in a NAFTA member country using materials cut in the United States with payment of tariff only on the value added abroad. As mentioned above, Mexico is excluded from this scheme. Although the tariffs on imports from the Caribbean countries have remained unchanged, imports under less regulated quotas under “807A scheme” are in addition to quantitative quotas agreed on bilaterally. Since its inception, there have been large volumes of imports from the Caribbean countries under this scheme.

When one looks at FOB prices of men’s white shirts, one finds that products made in India, Thailand, China and Viet Nam are highly price competitive, as indicated in the following table. However, at the retail level, Mexican products, followed by those made in the Caribbean countries, are the most price competitive thanks to the forgiveness or reduction of tariffs.

A comparison of cost structures for a men’s shirt sold in the United States by place of origin following the conclusion of an MFA between Viet Nam and the United States shows that the cost of materials is relatively high in Viet Nam because of its underdeveloped yarn manufacturing sector. Therefore, the key to developing the U.S. market for Vietnamese products lies in how raw materials costs can be reduced and/or in how to develop a product lineup with a low materials cost ratio and large value added.

Table 3-9 Cost Structure of a Men's Shirt Sold in the U.S. by Place of Origin

($/piece)

	U.S.	U.S.-Mexico	U.S.-Caribbean	India	Thailand	China	Viet Nam
Cost by Process							
Spinning	1.2	1.2	1.3	1.1	1.2		
Weaving	0.6	0.5	0.7	0.5	0.4		
Dyeing, finishing	0.5	0.5	0.6	0.5	0.4		
Cutting, sewing	4.8	2.1	2.1	1.9	2.1		
Total production costs	7.1	4.3	4.7	4.0	4.1		
Cost by Factor							
Raw materials	1.6	1.6	1.6	1.6	1.7	1.6	2.3
Labor	3.6	0.8	0.7	0.3	0.7	0.8	0.6
Energy	0.3	0.6	0.8	0.9	0.6	0.3	0.5
Depreciation	0.6	0.8	0.8	0.9	0.6	0.7	0.5
Other production costs	1.0	0.6	0.8	0.6	0.7	0.4	0.6
Total production costs	7.1	4.4	4.7	4.0	4.1	3.8	4.5
Overhead	0.4	0.4	0.4	0.5	0.5	0.5	0.2
Profits from spinning, weaving, dyeing	0.3	0.3	0.3	0.2	0.2	0.2	0.0
Profits from cutting, sewing	0.8	0.5	0.5	0.5	0.5	0.5	0.4
FOB price	8.6	5.6	5.9	5.2	5.3	5.0	5.1
Shipping	0.0	0.5	0.7	2.1	2.2	2.2	2.2
Tariff	0.0	0.0	0.1	0.4	0.4	0.4	0.4
Purchasing price	8.6	6.1	6.7	7.7	7.9	7.6	7.7
Retail price	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Retail profits	6.4	8.9	8.3	7.3	7.1	7.5	7.6

Sources: Compiled from NCC: National Cotton Council, 1998.

Figures for Viet Nam are estimates by Mr. Ham at DSI.

According to a study by a Japanese trading company, Viet Nam-made garments that are competitive in the U.S. market would be knitting garments including polo shirts with a high degree of processing, blousons that require fine work, lingerie with lace embroidery and heavy-duty jeans. For all of these items, the main business format will be FOB business to meet diverse demand in the U.S. market.

Exports of textile products from Asia excluding Viet Nam have been declining in recent years. However, it can not be forecasted whether imports of the above-mentioned Asian products to the United States will continue to decline. The major reasons are as follows.

Table 3-10 Textile Product Exports from Major Nations to the U.S.

(Converted to square meters, year-on-year change)

	China	Hongkong	Taiwan	Mexico
May 1996	-26.2%	-8.8%	-4.9%	37.8%
May 1997	46.8%	-15.3%	+4.0%	44.8%
May 1998	-6.1%	25.4%	-6.3%	28.3%
May 1999	3.4%	-2.4%	-4.1%	19.1%

Source: Trade Statistics in the U.S. till 1999

- First, the decline in Chinese cotton product exports to the United States since 1993 is due to the following: 1) Peaking out of quota given to China by the U.S. government, 2) the increase in quota bidding prices in China, and 3) the increases in labor and material costs for Chinese garments. A cost comparison for jeans made by a garment maker in Hong Kong in November 1998 shows that while production costs in China are lower than those in Sri Lanka, Indonesia and Mexico, if Chinese costs including those of quota are assumed as 100, the costs are 80 in South Korea, 79 in Sri Lanka, 77 in Indonesia and 85 in Mexico. Under these circumstances, China is emulating the policies Japan adopted in the 1960s, when it was saddled with textile trade friction with the United States. That is, China is guiding the textile and garment industries toward the direction of more labor-saving and knowledge-intensive ones through the introduction of innovative new products and technologies, scrapping outdated equipment and extending subsidies for re-employment of workers.
- Second, as a result of the Asian currency crisis, export competitiveness of products made in South Korea, Thailand and Indonesia, in particular, to the United States has strengthened thanks to the depreciation of the currencies of these countries.
- Third, in order to compete with imported textile products, the United States has switched its equipment to more efficient mass-production type ones and concentrated on the production of heavy fabric. In fact, a large part of garments made in Mexico using fabrics brought in from the United States is jeans and other types of pants or skirts made of denim or twill. As a result, there is considerable difference of fabrics between the United States and South Korea, Taiwan, which are able to export products made of light fabrics. Thus, exports from these countries to the United States are not likely to decline further. In the long term, South Korea, Taiwan, Hong Kong and Singapore are expected to increase investments in Mexico to build garment making systems centering on light fabrics in order to supplement American garment making systems there which center on heavy fabrics.

In order to catch information on the U.S. market trend quickly and to penetrating into the U.S. market for SMEs in Viet Nam, the Vietnamese government should create or upgrade agencies (e.g., industry associations and trade promotion agencies) that support the formulation of market strategy planned by SMEs.

3.3.3 Changes in the European Market and Export Promotion Measures for Small and Medium-Sized Garment Makers in Viet Nam

Under the Textile and Garment Agreement concluded between Viet Nam and the EU in November 1997 (which covers the period from 1998 to 2000), Viet Nam's quota for exports to EU is to increase by 30 percent during the term of the Agreement. Reflecting the sharp increase in exports to Europe in 1998, SMEs in Viet Nam asked the government of Viet Nam to ease regulations regarding the obtaining of quotas for Europe. In December 1998, the government adopted an auction system for part of quotas. However, this has created two problems at least. One is that as only 20 percent of total quotas were up for auctions, the successful bidding prices were said to be close to the black market prices and were very high. Moreover, large companies with ample funds accounted for most of the successful bidders and only a few SMEs were able to obtain quotas. Second, in 1999 there have been signs that the industry might not be able to fill some of the quotas which were not put up for auctions. One reason is that European buyers are becoming more interested in North Africa and Eastern Europe, where labor cost and tariffs are lower and which can make more prompt deliveries. Another reason was that because some of the quotas were allocated very close to the end of the year, businesses will not be able to meet the deadlines for order placement, production and delivery.

Like the United States, EU has preferential treatment on Outward Processing Tariff or Trade (OPT), which is adopted for overseas CMT business for the use of fabrics made within EU countries. At the beginning, OPT imposed tariff only on value added outside of the EU territories, when semi-finished products (woven fabrics and knitted fabrics, and yarn in case of sweaters) were made into finished products outside of EU. At present, however, tariffs are completely abolished for products finished in the six Central and Eastern European countries (Czech, Slovakia, Hungary, Poland, Romania and Bulgaria) and two North African countries (Tunisia and Morocco). Incentives, therefore, are as strong as in the case of the United States.

A discussion of policies necessary for the enhancement of export competitiveness of Viet Nam's SMEs indicates as follows based on the characteristics of the EU market. In order to develop products starting with materials for the EU consumers, whose preference is for unique materials, the government of Viet Nam needs to support SMEs creating research centers for studying new materials for spinning and weaving and centers to promote the diffusion and application of new spinning and weaving technologies. In addition, the capability to propose new products especially for Europe will be needed. This is especially critical for European markets, which have traditionally been surrounded by highly-refined sense of culture. To acquire such capability, tie-ups among SMEs in different regions that engage in production for the EU market will be necessary. It is important to hold regular seasonal shows (autumn-winter show and spring-summer show) in each region for information exchange and product improvement in order to develop the European market.

3.3.4 Changes in the Export Environment and Impacts on the Policy for Strengthening Export Competitiveness of SMEs in Garment Sector in Viet Nam

After 2005, the international environment for Viet Nam's textile and garment-making industries will change dramatically. These changes will include the following:

- First, the WTO's Agreement on Textiles and Clothing (ATC) will go into force on December 31, 2004 and all quotas on international commerce will be abolished on January 1, 2005.
- Second, in accordance with CEPT rules under AFTA, Viet Nam must remove all non-tariff import barriers and reduce import tariffs to 5 percent or less by January 1, 2006.
- Third, when Viet Nam joins WTO, it will be required to implement all membership requirements in full in or around 2010. These requirements will include the assurance of the currency's convertibility, terminating dumping and export subsidies, reduction of tariff and non-tariff barriers and assuring transparency of export measures, abolition of restrictions on foreign capital which are lifted in exchange for obligations to export, and protection of intellectual property rights.

Table 3-11 Trend of Internationalization

	2004	2005	2006	2007	2008	2009	2010	2011
Abolition of quotas		→	→	→	→	→	→	→
Tariff cuts			→	→	→	→	→	→
WTO requirement							→	→

Source: JICA Study Team

Under the conventional quota system, shares of exports are guaranteed to even those countries that are weak in export competitiveness for Veitnamese garments. However, with the abolition of the quota system, it will be very difficult for companies to maintain or expand their market shares, unless they are better than their competitors in some areas, such as productivity, technological capability and customer services, in addition to being price competitive. Developments in other garment-making countries show that the government of Bangladesh has adopted a policy of raising the ratio of integrated production from spinning to sewing in the country in order to strengthen export competitiveness of its apparel industry in preparation for the abolition of quotas in 2005. At the same time, it has decided to liberalize importation of and abolish tariffs on computer equipment and software (CAD/CAM) in order to develop its apparel industry through the introduction of computers.

The reduction of import tariffs will result in a massive inflow of cheap textiles and garments into Viet Nam from the neighboring countries and will hurt Viet Nam's state-owned raw yarn manufacturing sector in particular. On the other hand, the fabric manufacturing, centering on

dyeing, and garment-making sectors will benefit from the use of cheap imported materials.

Exports to the United States of garments made in China have declined year after year since the formation of NAFTA in 1994. For a similar reason, exports of garments made in China to EU are likely to decline. Against this background, China has begun to call for the formation of an Asian free trade sphere and has decided to strengthen exports of textiles and garments to other Asian countries. Especially with regard to Viet Nam, China is aiming to expand its textile exports when the nation reduces import tariffs to 5 percent or less in 2006.

These changes in the environment are expected to have the following impacts on VINATEX and private-sector garment manufacturers in Viet Nam.

Table 3-12 Impacts of Changes in the Environment on Viet Nam's Textile and Garment Industries

	VINATEX	Private-sector garment makers
Abolition of quotas	Merit (Elimination of restriction on export quantity) Neutral (Export competitiveness) Demerit (Will lose income from the sale of quotas to private-sector garment makers)	Merit (Elimination of restriction on export quantity) Neutral (Export competitiveness) Merit (Will not have to pay for quotas purchased from VINATEX.)
Tariff cuts	Demerit (Damage to domestic market) Merit (Cheap Imported Material)	Demerit (Damage to domestic market) Merit (Cheap Imported Material)
WTO requirement	Demerit (Correction of inequalities: Levering Playing Field)	Merit (Correction of inequalities: Levering Playing Field))

Source: JICA Study Team

3.4 SME Development Policies for Small and Medium-sized Garment Makers

3.4.1 A Policy Proposal for the Linkage Between Textile Companies and Garment Makers

At present, the Japanese textile companies have no plans to invest in Viet Nam's fabric manufacturing or yarn manufacturing sectors. Their involvement in Viet Nam is limited to CMT business for re-imports to Japan. This is because 1) Japanese companies have already made large-scale investments in Thailand, Indonesia and China and 2) Japanese companies are already able to meet global demand through these enhancements of Asian supply capacity. Moreover, given the slump in domestic demand in Asian countries since the Asian currency crisis, Japanese companies expect the current oversupply condition in the worldwide scale to last through 2005.

On its part, Viet Nam is considering a reduction of CMT business, which creates only small value added, and has decided on enhancement of FOB business through the strengthening of the yarn and fabric manufacturing sectors under a medium-term plan compiled by MOI. Because

the greatest competitor for Viet Nam is China, developments in and policy for Chinese textile and garment industries are very important for Viet Nam. The following is a summary of procurement situation of domestically produced materials in China. According to a 1998 survey covering 14 large apparel companies in China, the average percentage of items made of domestically produced textile in all products made for domestic and export markets was approximately 67 percent. A breakdown of this figure shows that while more than 90 percent of garments for domestic consumption were made of domestically produced textiles, 45 percent of garments for exports were made of such textiles. The self-sufficiency rate of materials in China is expected to rise to close to 100 percent by around 2010. China could very well become a net exporter of textiles by around 2015.

Table 3-13 Use of Domestically Produced and Imported Textiles in China

(10,000 pieces, %)

	Domestically produced	Imports	Ratio of domestically produced textiles
For domestic consumption	3,124	338	90
For exports	1,656	2,009	45
Total	4,780	2,347	67

Source: China Textile News, 1998

Table 3-14 Breakdown by Material in China

(10,000 square meters, %)

	Domestically produced	Imports	Ratio of domestically produced textiles
Pure cotton	2,499	1,047	70
Cotton blend	2,072	713	74
Pure wool	687	199	78
Wool blend	758	154	83
Silk	818	217	79
Linen and linen blend	53	1	98
Chemical & synthetic	1,359	1,835	43
Others	923	475	66
Total	9,168	4,640	66

Source: China Textile News, 1998

The most serious weakness of Viet Nam's garment industry is that neither the yarn manufacturing sector that supplies cotton yarn and chemical and synthetic materials nor the fabric manufacturing sector is sufficiently developed. As a result, garment makers which choose FOB business must rely on imported raw materials, which results in the loss of cost competitiveness in international trade vis-à-vis Chinese garment makers, who can increase to depend on domestic yarn and fabric manufacturing sectors. Although foreign investments are essential for the development of the yarn and fabric manufacturing sectors, it has been pointed

out that it would be very difficult for new foreign investors to recover their investments by January 2006, by which time Viet Nam must abolish its import tariffs. Therefore, not bringing in new foreign investments in the yarn and fabric manufacturing sectors, but Viet Nam will have to take various measures to make it possible for foreign firms that are already operating in the fabric manufacturing sector to expand into the yarn manufacturing sector. Such measures will include elimination of gaps (e.g. electric charges) between Vietnamese and foreign capital-affiliated firms, and the introduction of powerful incentive measures including the following systems.

- refund all value added tax on indirect exports
- tax exemption of some portion of machinery investment
- accelerated depreciation for machinery
- tax exemption of testing and research expenses
- carrying forward the loss of present year to the profit of following year for shearing
- forgiveness or reduction of corporate taxes under special conditions
- reduction of electricity tariff for foreign capital-affiliated firms to the same level of Vietnamese firms

3.4.2 A Leveling Playing Field between SOEs and Private Sector Enterprises

Many Japanese studies on Viet Nam's SOEs, especially on VINATEX, have failed to take into account a leveling playing field between SOEs and private sector enterprises and have pointed out the efficiency and high profitability of VINATEX. They have failed to notice the advantages of the SOE system. It was, for example, "Mapping the Playing Field" (May 1998) by Mr. Mallon, which pointed out the advantages of the SOE system and the need to rectify the inequality between SOEs and private-sector enterprises. The advantages of SOEs include the following, which is pointed out in studies by him.

- SOEs used to be able to borrow from banks with explicit or implicit guarantee by the government, but since 1998 SOEs have been able to borrow from banks only on the basis of project screening. By contrast, private-sector companies are not able to borrow from banks unless they offered collateral. Moreover, collateral is assessed at a large discount when loans are made. This has had an adverse effect, as private-sector firms suffer shortages of funds when they plan a FOB business.[4]
- SOEs have priority in getting export quotas.

[4] The garment makers engaged in CMT business basically have small demand for funds, as materials and some equipment are provided to them by foreign companies which commission them.

- When a foreign partner's stake in a joint venture is sold, a capital gains tax of 25 percent is levied when such stake is sold to other foreign firms. The tax rate is 10 percent when the stake is sold to non-SOEs, but zero percent when it is sold to an SOE or SOEs.

Our study has unearthed the following advantages which SOEs keeps in addition to those listed above:

- SOEs have priorities in obtaining lucrative quotas, or those for trousers, pants, etc. which sell briskly. Therefore, when there is an order for, say, 80 units from the EU, but a private-sector firm has a quota for only 50 units, it has to purchase the quota for the remaining 30 units from an SOE at a black market price. The problem with this system is that some times, the cost of quota purchase rises to up to ten times the production cost according to the information provided by some foreign capital-affiliated companies in Viet Nam.
- VINATEX can obtain information on overseas markets from the Embassies of Viet Nam, the Ministry of Industry and/or the Ministry of Trade. Such information is not open to private-sector companies, or even when it is open, the disclosure is incomplete.
- When small and medium-sized garment makers under VINATEX's umbrella are equitized, they can no longer get bank loans unless they offer collateral. At the same time, the borrowing rate climbs from 0.81 percent per month to 1.1 percent per month (as of July 1999). This will be an impediment to equitization. For example, Ho Guom Garment Company (in Hanoi with more than 500 employees and a paid-in capital of 31 billion dong) is already facing this difficulty.

VINATEX's earnings could fall, if the present protective system is abolished in the future. Therefore, restructuring efforts of state-owned textile companies in China is examied here, as an examination of these cases may be useful when Viet Nam contemplates restructuring of state-owned textile companies in the future. China's state-owned textile companies have been operating continuously in the red since 1993. In 1996, their losses were larger than those in any other industry. The number of workers employed by loss-making companies and the ratio of liabilities to assets in this sector are the highest among all industries. Their losses can be attributed to the following factors.

- First, these companies shoulder the burden of paying life-time annuities to former workers. In some old SOEs, the ratio of personnel cost between former workers to present workers is said to be somewhere between 1 to 1 and 2 to 1. The existence of redundant workers and generous fringe benefits are also factors in their losses.
- Second, production efficiency is very low due to overlapping investments. While there is over-capacity in spinning, there is a capacity shortage in dyeing. There is imbalance in capacities at different stages of production.

To solve these problems, the government of China announced at a National Conference for the Promotion of Structural Reform in the Spinning and Weaving Industry held at the end of 1997 to scrap 10 million spindles and lay off 1.2 million workers during the three years through 2000 to make the textile industry profitable. The National Bureau of Spinning and Weaving Industry used the phrase "Adjust mercilessly, Implement mercifully" to describe the basic policy for payroll cuts to indicate its decisive stance toward cutting jobs as well as its willingness to give enough consideration to those who will be laid off. The government of China is implementing the following supporting measures so that the industry can reach these goals.

- For the reduction of spinning machines, the government give 3 million yuan (1.5 million yuan each from the central and local governments) in incentive money for every 10,000 spindles scrapped. It will also extend low-interest loans amounting to 2 million yuan per 10,000 spindles scrapped.
- The central government increase by 100 million yuan above the level of previous year loans for the reduction of cotton spinning equipment and other restructuring measures taken by spinning and weaving companies.
- It raises the ratio of refunds of value added tax on textile product exports from 9 % to 11% in order to expand textile product exports.
- In order to reduce redundant workers, it will establish re-employment service centers to guarantee re-employment and to guarantee payments of basic living expenses, and social and medical insurance.

As VINATEX is urgently required to carry out corporate reform in order to cope with changes in the international environment, the government have begun to equitize state-owned garment makers, including VINATEX. The following may be one of the possible shapes of VINATEX as equitization moves forward. In the short term, equitization will begin with small and medium sized garment makers under the umbrella of VINATEX. In the medium term, due to the lack of their international competitiveness, the textile companies within the group may be scaled down to concentrate on production for domestic market. It is possible that textiles for exports will be produced by foreign capital-affiliate companies, including joint ventures. For the textile companies in the VINATEX group to produce materials for exports, they will need to undertake reforms similar to those being carried out in China, which were described in some detail above in this report, and to introduce foreign capital.

3.4.3 A Policy Proposal Regarding Linkage among Garment Enterprises

For the maintenance of international competitiveness of garments made in Viet Nam, it is very important to follow a policy that will lower the wall between SOEs and private-sector companies and enhance linkage between them. For example, in the short term (up to 2005), VINATEX's market research capability could well be opened to private sector companies to

create a public export promotion agency. VINATEX's development center for creating of materials and technologies development could well also be opened to the private sector. In the medium term (up to 2010), the Export and Import Department under the VINATEX umbrella could well be equitized and reorganized into a specialized trading companies for private sector companies. This also will be one of policy options.

- As a level playing field is attained in the future, the boundary between SOEs and private enterprises will disappear de facto, and there will be bi-polarization between firms which can develop FOB businesses and those which will have to continue to pursue CMT businesses. Some SMEs will become subcontractors to companies which can develop FOB businesses. The government of Viet Nam is very much interested in the linkage between the garment makers who are primary contractors and those that are subcontractors toward the future situation . This Study recommends the following administrative measures as concrete policy options.

<Administrative Supervision>

- The original contractor should even out the level of order volume and provide information in advance regarding order placement plans.
- In order to help shorten the working hours of subcontractors' employees, original contractors should refrain from placing the order at the end of the week and demanding delivery at the beginning of the week or making changes on orders, all of which work against shortening working hours.
- The unit price should be calculated in a rational manner, taking into account the volume of transaction, lead time, frequency of orders, terms and method of payments, product quality, materials costs, labor costs and market price trends to assure appropriate income to subcontractors and should be decided through mutual negotiation between the original contractor and the subcontractor(s).
- Subcontractor should strive for modernization and improvement of deployment of equipment in order to improve productivity and product quality. The original contractor should cooperate with such efforts.
- Subcontractor should strive for improvement of design, process control and production technologies. The original contractor should cooperate with such efforts and at the same time provide know-how, etc. to the extent possible.
- Subcontractors should aggressively promote cooperation and joint efforts among them for holding product fairs, establishing physical distribution centers, etc.

<Creation of Subcontractors' Associations and their Functions>

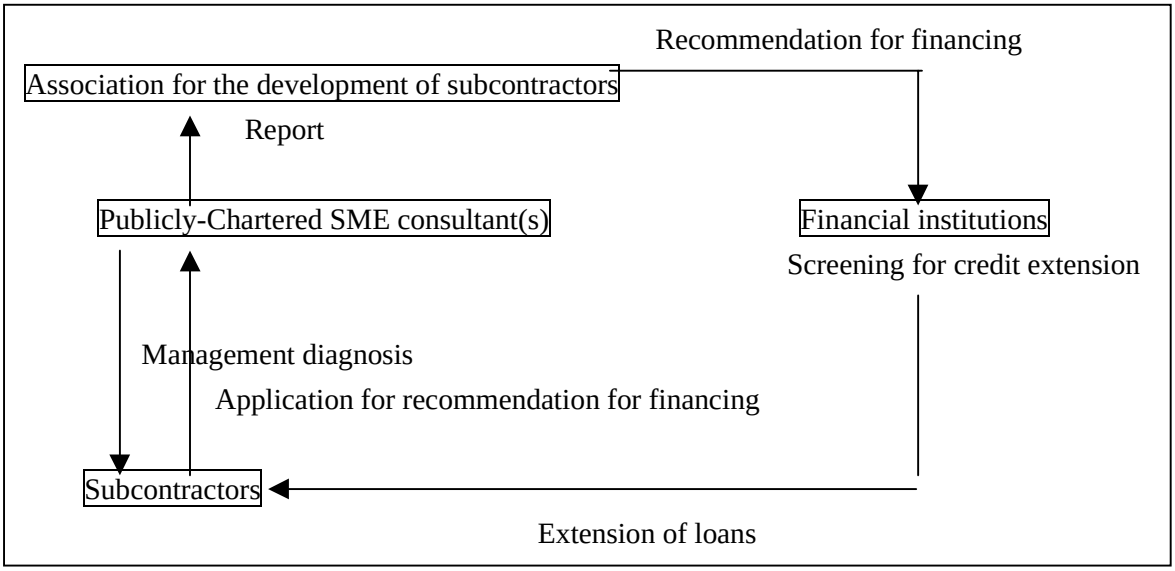
- The government of Viet Nam should create a federation for the development of subcontractors in Hanoi or HCMC and branch associations for the development of subcontractors in major cities. These organizations will provide counseling and

guidance for the management of subcontractors and handle claims and disputes concerning transactions involving subcontractors. It should also create subcontracting business mediation centers to act as intermediaries in transactions involving subcontractors in these organizations to collect subcontracting information offered by original contractors at home and abroad, and make them available to subcontracting firms. Information will be offered via the Internet in the future.

<Utilization of Officially-Chartered SME Consultants>

- In order to develop the businesses of subcontractors, the government of Viet Nam should create a system of SME consultants and use such experts to provide advice to SMEs on various problems they face.
- The government of Viet Nam should adopt supporting measures for subcontractors in the area of financing and taxation. The officially-chartered SME consultants should help SMEs use such systems. These activities can follow the following scheme.

Figure3-4 An Example of Supporting Measures for Subcontractor Financing



Source: JICA Study Team

3.4.4 Other Supporting Measures for Implementation

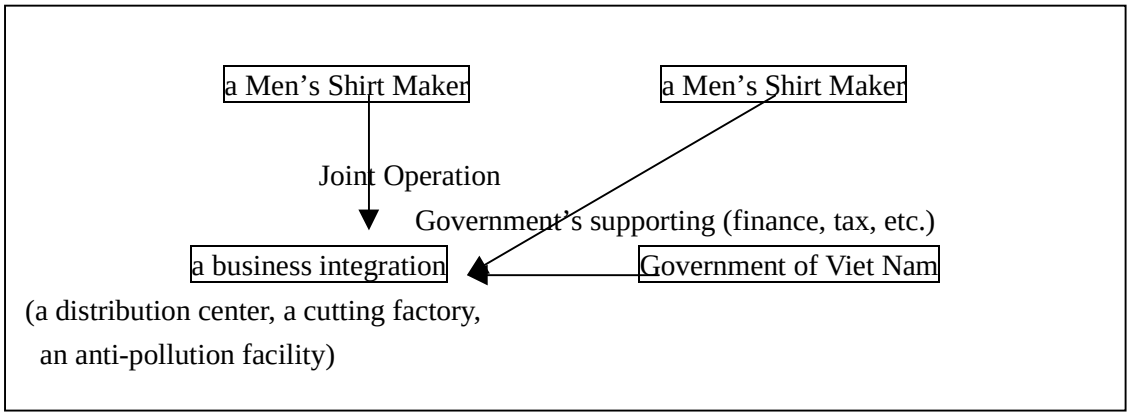
(1) Support for the Formation of Regional Associations to Achieve Horizontal and Vertical Integration among SMEs

- In order to realize a shift away from CMT business to a FOB business, organize an integration (not a labor union and a political union, but a business association) with the participation of garment and textile makers as core members. The core companies can station designers abroad, open antenna shops in other countries and focus on product planning and information gathering.
- Small and medium-sized garment makers that use dying and/or printed fabrics can open joint product development centers in places of consumption. They will accurately gather and analyze domestic fashion information, identify consumer needs and trends in terms of color and print design, and promote research and development on new designs and fabrics at the places of production with the cooperation of every business in the region.
- Those engaged in dyeing and garment making using primarily local textiles can get together and establish common product facilities, such as distribution centers, joint cutting factories, and joint anti-pollution facilities. Enhance dyeing and garment-making functions, so that an integrated production system, which covers from textile to apparel making, can be established within producing regions.

Government's supporting measures can include, for example, financing, including equipment

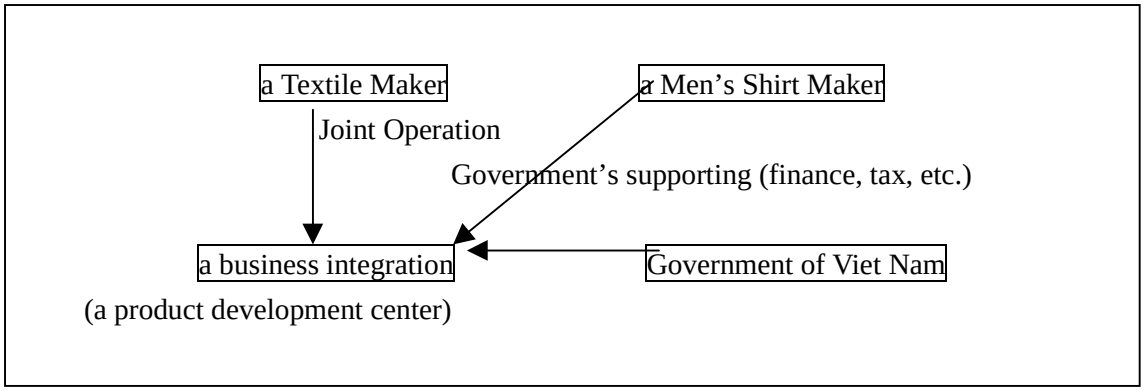
leasing, fostering of skilled and technical workers, and technological guidance to and at these facilities.

Figure 3-5 Measures of Horizontal Integration among SMEs



Source: JICA Study Team

Figure 3-6 Measures of Vertical Integration among SMEs



Source: JICA Study Team

(2) Strengthening of Quality Inspection Systems at Production Stage in addition to Export Inspection

- Major claims from foreign buyers on garments made in Viet Nam are that ; (1) knitted garments lose their shape after washing because of unstable shrinkage rate, (2) color is not fast enough, and (3) the ratio of cotton in cotton blend products is smaller than the indicated figure, because polyester is cheaper than cotton.
- Similar claims are made against products made in China, but since 1999 Chinese government has enhanced quality control measures, including surprise inspections by the government authorities, to avoid damaging the reputation of Chinese products. There are following three reasons for China's new emphasis on quality control; (1) with Asian

markets stagnating generally and export prices of rival countries being reduced as a result of the depreciation of the currencies in the region, with the exception of that of China, China must strengthen the non-price competitiveness of its products, (2) there has been a trend to neglect inspections because of the increasing needs for "quick responses" to the markets, and (3) the problem of quota reduction in exports from China to the United States and the American market's increasing preference for dealing with NAFTA partners. In 1998, while total apparel imports to the United States rose 15 percent, apparel imports from Mexico rose 30 percent, while those from China declined by 9 percent. China, thus, has a sense of crisis that unless it emphasizes quality, its share will decline further.

(3) Implementation of Value Added Tax Refund

- In January 1999, Viet Nam abolished sales tax on imports and instead imposed high value added tax rates of 10 percent on inventories and 20 percent on woven fabrics made of imported raw materials. However, the VAT rate is zero percent on garments for exports made of domestically produced fabrics. Also in January 1999, the import tariff rate on polyester fiber was raised from 10 percent to 20 percent according to the decision by the Ministry of Finance. No import tariff is imposed on CMT business.
- In March 1999, the government gave a briefing that foreign capital-affiliated firms and foreign partners in business tie-up agreements would be exempt from the obligation to make provisional payments of VAT on imports of raw materials to be used for the production of goods to be exported. So far, however, the tax authorities have not announced any concrete measures on this policy. Therefore, these concerns have to make full payments of VAT when yarn is imported and then get full refunds when finished garments are exported. The problem with this system is that in case of indirect exports, fabric makers make full provisional payments of VAT when they import yarn, but they cannot receive the refunds when they sell finished fabrics to large garment makers, because such transactions are domestic sales. They can get the refunds only when the large garment makers export their products. Although indirect exports, as well as direct exports, create value added in Viet Nam when materials are made into garments, the provisional payments of VAT on materials are treated in the same manner as in the case of domestic sales of imported goods. This is a problem.
- According to the Textile, Garment, Embroidery and Knitting Association of the Ho Chi Minh City, smaller subcontractors who make garments are suffering serious fund shortages because of the delay in refunds of VAT. They make provisional VAT payments when they deliver garments to their parent companies but can get refunds only after the parent companies export the products. Since it takes over six months to get the refunds, small operators with no funds face serious financing problems. As a result, the Association asked the tax authorities in April and May 1999 to make garments for direct and indirect exports exempt from VAT.

- A solution would be to shorten the period required for making refunds. Another solution would be to reduce the VAT rates, as Thailand did in March 1999 as part of comprehensive economic measures. Thailand has rolled back the VAT rate from 10 percent to 7 percent as a temporary measure effective for two years. If the government of Viet Nam is unable to shorten the time required to make refunds, it should reduce the VAT tax rate.

(4) Supporting Measures for the Development of Domestic Apparel Market

With the exception of some supermarket chains, there are no large specialized apparel distributors in Viet Nam. As a result, SMEs wishing to enter the domestic market must either open their own clothing stores or sell through agent contracts or sales on commission. For small and medium-sized garment makers which are primarily engaged in CMT business for exports, it is not easy to enter the domestic market because of the prevalent existence of smuggled products and copies of brand name items, and increased demand for funds to finance inventories and build sales channels. It is necessary, therefore, to offer supporting measures aimed at the development of domestic distribution market, in order to enhance the domestic foundation of small and medium-sized garment makers. Policy options include the following.

- Deductible Expenses from Tax: for 1) the development of demand (product fairs and new product development), 2) human resources development, 3) information networks, and 4) market research.
- Financing Support: for 1) entry into domestic distribution (low-interest loans for opening outlets), 2) improve efficiency of physical distribution (joint delivery facilities, improving efficiency and upgrading physical distribution systems), and 3) demand development (permanent show rooms for joint use).
- Tighten measures against and increase penalties for smuggling.

(5) Other Problems that Impede the Development of Small and Medium-Sized Garment Makers and Countermeasures

- When quotas were auctioned in December 1998, most SMEs were unable to obtain quotas, because large companies with ample funds successfully bid for them offering very high prices. Quotas should not be monopolized by SOEs. All quotas should be put up for auctions or allocated by a business association based on rational criteria. By rational criteria, it can be meant that the recipient of quotas has a production factory and also a good track record regarding production capacity, the volumes of orders and exports, and filling quotas. It would also be effective to provide incentives by giving priority in quota allocation to companies that have developed non-quota markets and/or used domestically produced materials.

- It has often been pointed out that credit-screening capability of bank officials is inadequate. Therefore, in case of donor funds, experts with the donor should participate in credit screening.
- Since there are still no industrial parks intended for occupancy by private-sector companies, such industrial parks should be developed and their utilization encouraged.
- Establish modern training centers for the garment industry. Small and medium-sized garment makers have suggested that they need garment-making theory, operation and maintenance of equipment, quality control of goods for exports, special characteristics of overseas markets, market needs and workplace hygiene be included in the curricula.
- Currently, some costs, including the costs of loading and unloading at the time of purchase and shipment, are not treated as deductible expenses for tax purposes. They should be made deductible.
- Domestic companies are required to pay an amount equivalent to 2 percent of total wage payments to labor unions as "cooperation money," while there is no such rule for foreign capital-affiliated companies. Since even these payments are a heavy burden for very small garment makers, and because it is sometimes problematic to make the employer pay the union fees, such payments should be made by union members themselves.

3.5 Draft Proposal of Action Plans for SMEs in Garment Sector

The following is a draft Proposal of action plans based on policy priorities and proposed development policy for small and medium-sized garment makers. Major themes of the plan are listed vertically, while the time horizons for the implementation of the themes are listed horizontally. The time horizons are the first half of the short-term period (1999-2002), the second half of the short-term period (2003-2005), and the medium-term actions (2006-2010). The long-term plan for the period from 2011 to 2020 is not included in this action plan for the reasons described earlier.

The Team classified 8 items and pointed out main factors in a draft proposal of action plans for SMEs specially needed in garment sector. However, such common issues to other industries as a credit guarantee system, VAT, etc. are excluded from the table and described in special chapters. It can be safely said that the first priority should be emphasized on leveling playing field and the second priority should be dealt with measures to expand FOB exports. The third priority should be dealt with measures to develop domestic production of materials, which is related to the improvement of the circumstances for foreign direct investment. At last, it is recommendable that the major player to implement these action plans should be the federation of the association of garment industry with the support of the government of Vietnam.

Table 3-15 Proposed Action Plan for Small and Medium-Sized Garment Makers

	1999-2002	2003-2005	2006-2010
Technical education	(1-1) Improvement of education curriculums and technical education by foreign experts	(1-2) Establish technical education centers and introduce technical competence certification system.	(1-3) Establish a technical high school and create department of textiles.
	(2-1) On-the-job training overseas	(2-2) Expand on-the-job training overseas	
Creation of business opportunities	(1) Support from industry association for participation in product fairs at home and abroad		
	(2-1) Increase overseas offices, such as VIETRADE, for collection of overseas market information.	(2-2) Encourage business matching by expanding VIETRADE, VCCI, etc. membership to foreign firms in Viet Nam.	
Expand FOB exports	(1-1) Overseas training of fashion designers	(1-2) The fashion design center of VINATEX should be opened to the private sector.	
	(2) Enhance inventory and equipment financing for FOB exports and encourage its utilization.		
	(3-1) Strengthen quality and delivery date control.	(3-2) Implement in-plant customs clearance.	
	(4) Encourage garment-making joint ventures (production and sales) with foreign companies.		
Domestic production of materials	(1-1) Create materials development centers.	(1-2) Create incentives for foreign investment in the fabric-manufacturing sector.	(1-3)Create incentives for foreign investment in the yarn-making sector.
Enhance linkage among firms in the same region.	(1-1) Encourage joint establishment of distribution centers, and cutting, and product development centers and provide financial and tax assistance to these centers.		

	1999-2002	2003-2005	2006-2010
	(2-1) Create an association for the development of subcontractors to provide consulting, guidance, claim and dispute mediation services and find jobs for subcontractors.	(2-2) Use Internet to distribute information regarding subcontracting businesses and match businesses.	
Level playing field	(1-1) End discriminatory practices in export quota allocation, bank borrowing terms, etc. After MFA with the U.S. goes into effect, U.S. is expected to strengthen its demand to end discrimination.	(1-2) Strengthen linkage between SOEs and private enterprises. (Equitization and opening up to the private sector of Ex-Import Agency and Material Technology Development Center under the umbrella of VINATEX.)	(1-3) As the playing field is leveled, promote the equitization of SOEs.
Shift in government functions	(1-1) Foster business associations within the garment-making industry.	(1-2) Supervision and guidance should be left to voluntary regulation by the business association. The government should stay away from direct involvement.	(1-3) Government function should shift away from supervision and guidance into policy planning. At the same time, administration should be streamlined.
Bottlenecks in production factors	(1) Improve the quality of domestically-produced materials to reduce unit exports prices.		
		(2-1) Improve financial rewards as the labor supply tightens in the garment industry.	(2-2) The garment industry should be relocated to rural areas or to neighboring countries like Cambodia.

Source: JICA Study Team

3.6 (Supplement) Garment Industry Reform in China

Before concluding this chapter of the report, it should be pointed out abouut developments in China's reform in the garment industry, centering mostly on private and small and medium-sized enterprises, so that it could be used as reference by the government of Viet Nam. Because, China is the greatest competitor for Viet Nam's garment industry.

China's garment industry is the largest in the world both in terms of the unit volume of production and the amount of exports. In 1997, its domestic market in terms of retail prices was worth approximately 264 billion yuan (approximately U.S. $31.9 billion), while exports amounted to U.S.$26.3 billion. It is estimated that approximately half of exports (in terms of value) are CMT business, while approximately 70 percent of the supply to the domestic market is made by households (self-employed entrepreneurs). China's garment makers are classified principally by the type of ownership. Recently the government has established the Bureau of Small and Medium-Sized Business in the State Economic and Trade Commission. In China, the definition of SMEs was set at 50 million yuan or less (approximately U.S.$5 million or less) in total assets or sales income. There are three types of enterprises in China's garment industry: 1) SOEs that have already adopted the self-supporting system. (Since ownership and management are separated in China, these companies are called state-owned but private-management enterprises.) 2) Other enterprises (including township and village enterprises and other private enterprises). 3) Foreign capital-affiliated enterprises.

The second category of enterprises are small and medium-sized private enterprises. An analysis of corporate statistics reveals that "other enterprises (firms)" account for 50 percent of total sales of the garment industry, with foreign capital-affiliated companies accounting for 45 percent. Both combined, they account for 95 percent of total sales of the garment industry. An examination of changes in the organizational structures of garment makers shows that during the eight years from 1989 (the year of the Tiananmen Incident) to 1997, the number of state-owned enterprises dropped to one-twentieth of what it was in 1989. This is a result of the intensifying the market competition and the acceleration of restructuring efforts by state-owned garment makers triggered by Deng Xiaoping's Southern Tour Lectures in the 1990s.

Table 3-16 Companies in the Garment Industry (1997)

Item	Unit	SOEs	Other firms	Foreign firms
Number of firms	Number of firms	935	11,399	4,890
Sales	10,000 yuan	853,800	7,967,400	7,180,600
% of total sales	%	5	50	45

Sources: Estimates by JICA Study Team based on various statistics in China.

Table 3-17 Number of Garment Makers in China

Type of firms	1989	1997
State-owned companies	17,301	935
Other enterprises	6,407	11,399
Foreign capita-affiliated firms	a few	4,890

Sources: Estimates by JICA Study Team based on various statistics in China.

Comparisons of average sales, total assets and net worth of the three types of enterprises reveal the foreign capital-affiliated firms have the highest average per-company sales and net worth, while state-owned enterprises have the highest average total assets.

Table 3-18 Size of Business by Type of Enterprise (1997)

Item	Unit	SOEs	Other firms	Foreign firms
Sales/firm	10,000 yuan	913	699	1,468
Total assets/firm	10,000 yuan	1,528	624	1,376
Net worth/firm	10,000 yuan	435	214	570
Equity ratio	%	28	34	41

Sources: Estimates by JICA Study Team based on various statistics in China.

Also, an examination of management efficiency reveals that other firms and foreign firms are more efficient than states-owned enterprises.

Table 3-19 Management Efficiency by Type of Enterprise (1997)

Item	Unit	SOEs	Other firms	Foreign firms
Sales	10,000 yuan	853,800	7,967,400	7,180,600
Profit	10,000 yuan	-13,800	238,500	156,700
Sales/firm	10,000 yuan	913	699	1,468
Profit/firm	10,000 yuan	-15	21	32
Profit-to-sales ratio	%	-1.6	3.0	2.2
Sales/total assets	-	0.60	1.12	1.07

Source: Estimates by JICA Study Team based on various statistics in China

The following are the reasons why the major players in the garment industry have shifted away from SOEs to “other firms” which are mostly private enterprises, and to foreign capital-affiliated companies.

- As the level playing field was attained in the 1990s, a large number of SOEs which had continued production without any regard to the market condition, as they had done under a planned economy, either went out of business or changed to other lines of business.

- Previously, state-owned trading corporations had handled only export and import businesses of SOEs, but since the 1990s they have been allowed to handle export and import businesses of private enterprises. This has resulted in the strengthening of relationship between township and village enterprises and state-owned trading corporations, which placed emphasis on the market-driven production of township and village enterprises. Additionally, In the 1990s, the township and village enterprises have obtained the right to engaged in export and import trade.

- During the 1990s, as sewing on commission has grown, a large number of foreign capital-affiliated firms started doing business in China.

It is worthy of special note that the government of China carried out the following administrative reforms in 1998 to encourage the development of private garment makers.

- The Ministry of Spinning and Weaving Industry of the central government, which had jurisdiction over SOEs, was scaled down to the Bureau of Spinning and Weaving Industry and was placed under the umbrella of the State Economic and Trade Commission. Its chief function was changed from administrative guidance to industrial policy. Assets of SOEs are managed by the State Enterprise Asset Management Committee.

- The Divisions of Spinning and Weaving Industry of local governments, which had jurisdiction over local SOEs, was scrapped. The Textile and Garment Associations was created locally and is integrated centrally as the Federation of the Textile and Garment Associations. These associations, which are semi-governmental, offers market information, support for the development of new products, etc., and management guidance to member companies and also enforces voluntary regulation of the industry.

- The Fashion Industry Association was created as a specialized sub-section of the Spinning Industry Association to offer the following services through the printed media and the Internet. They are ;1) information on the domestic and foreign markets (inquiries from domestic and overseas buyers, domestic and foreign fashion information, etc.), 2) trends in the production of materials (fabric production and price information from China and other countries, information on new materials, etc.), 3) industry trends (shipment and export information, information on the business environment in the industry, etc.), 4) management guidance and seminars (recently, it has been conducting seminars under the theme of "WTO membership and the issues for the garment industry, business opportunities" in cooperation with relevant departments of the government.), and 5) holds fashion shows by well-known domestic and foreign fashion designers and sends members overseas to conduct business negotiations with foreign firms or to participate in foreign product fairs.

As stated above, China has carried out ; 1) restructuring of state-owned enterprises, 2) realization of a level playing field, and 3) achieved administrative reform to help develop private enterprises. Today, the lead players in the garment industry in China are private enterprises. The government of Viet Nam will do well to investigate and study the policies for small and medium-sized garment manufacturer and the garment industry in China, which is the largest competitor for Viet Nam's garment industry.

4. POLICY SUGGESTIONS FOR PROMOTING ‘OTHER PRIORITY SUB-SECTORS’

4. Policy Suggestions for Promoting 'Other Priority Sub-Sectors'

4.1 Summary and Conclusions

4.1.1 Current Status and Problems

(1) Industries

Among four 'Other Priority Sub-Sectors', characteristics of the industries of 'food processing and plastics' and 'ceramics and wood processing & handicrafts ' are generally categorized as below:

Sub-Sectors	Products	Types of Production	Types of Enterprises	Location	Main Market
Food processing, Plastics	Daily use products	Capital-intensive	SOEs	Mostly urban area (Food is located nation-widely)	Domestic market
Ceramics, Wood processing & handicrafts	Traditional works	Labor-intensive	SMEs	Rural area	Export

(2) Enterprises

1) Legal Forms of Enterprises Surveyed

In 'Other Priority Sub-Sectors', there are legal corporate forms of limited enterprises (Ltd), cooperatives (Coop), and private enterprises (PE), however, such corporate forms mean little. In other words, there are State-Owned Enterprises (SOEs) and non-State Owned Enterprises (non-SOEs), and Small and Medium scale industrial Enterprises (SMEs) are almost all non-SOEs in Vietnam.

2) Business Situation of Enterprises Surveyed

What is most common in each sub-sector is a number of young entrepreneurs to run the enterprises, and among them, female presidents account for about 1/3. Each director has his/her own management policy based on the market system. For example, the directors decide workers' salaries based on their ability and skills, and disclose this wage structure to workers. Moreover, these directors are enthusiastic in learning management skills, often attending night classes at universities.

Non-SOEs don't rely on government assistance and their financing needs are provided by the savings of the directors' friends and relatives etc., and directors seek direct trading channels with foreign customers. Most successful directors finance their business from reserved funds of their own companies.

(3) The Food Processing Industry

1) Position of SMEs

Food processing industry is an old industry which had been well developed long before 'Doi Moi' started. As a result, almost all main food processing industries are dominated by state sectors.

Types of businesses of non-SOEs are centered on as follows:

(a) Niche industries such as soybean milk and local beer which can be started with small capital

(b) New products in Vietnam such as mineral water and western alcoholic beverages,

(c) Low price products for local markets such as cheep sweets

(d) Subcontracting production for SOEs such as instant noodle

Thus, the SMEs' products are mainly for domestic market, with small portion of exports.

2) Problems

Non-SOEs generally have good sales opportunities, but are short of funds, and their factory sizes are small. Thus, it is difficult for them to expand production. Also, due to delayed mechanization, they face difficulty in quality improvement.

(4) The Ceramics Industry

1) Position of SMEs

Ceramics industry has history of several hundred years, and hundreds of enterprises are clustered in specific areas of the North and the South regions of Vietnam. Each enterprise produces ceramics by itself, and also subcontracts to the rural households in the neighborhood, thus creating many jobs in rural areas. Vietnamese ceramics industry has competitive advantages of low-wage and skilled workers, and exports ceramics products to Taiwan, Korea and EU countries, so that the export ratio of ceramics is high. Most of the enterprises are non-SOEs, transformed from old cooperatives. There is almost no competition between non-SOEs and SOEs in this industry. Most SOEs are trading companies of ceramics.

2) Problems

The most serious problem of this industry is unstable production due to obsolete facility and lack of effort to expand export market. The industry has additional problems such as shortage of skilled labor supply, since current workers are aging, such as shortage of funds to buy machines, and as intensified price competition. Potters use materials of clay, glazes and coloring matters, and so the workplaces are rather dirty. The gathered kilns fueled by wood or coal create air pollution.

(5) The Wood Processing & Handicrafts Industry

1) Position of SMEs

In this industry, small scale non-SOEs engage occupy mostly in manufacturing, while SOEs mainly engage in trading businesses. However, furniture of daily-use made of rubber-trees and pine-trees is processed by machinery. This requirement of machinery makes furniture of daily-use to be mainly manufactured by SOEs which are capable of financing the purchase of many machines.

The wood processing & handicrafts industry is much widely located in rural areas than ceramics industry throughout Viet Nam. The geographical spread of this industry offers employment opportunity particularly in rural areas, and therefore, contributes to narrowing income gap between urban and rural households, and curb influx of rural population into urban cities.

2) Problems

The most important problem for non-SOEs is insufficient marketing ability to develop stable foreign markets. It is imperative to train workers, and introduce foreign capital with better technology. Most of enterprises are of small scale, and generally behind in adoption of corporate accounting and book keeping, and also lack knowledge to draft and use business plan.

For precise handwork, workplaces are poorly lit without air-conditioning. In such poor working conditions, workers may harm their health eventually.

(6) The Plastics Industry

1) Position of SMEs

Plastics industry is the most capital intensive among four ‘other priority sub-sectors’. It is currently growing at 25 ~ 30 % per year, and one of the promising industries in Viet Nam. Wage level of this industry is the highest in the four sub-sectors. On the other hand, increasing number of market entry is intensifying competition.

SOEs mainly manufacture PVC pipe and sheet for general use, as well as construction materials etc. on a mass-production method.

Non-SOEs are generally short of funds, and so employ used-machinery and used-metal mold to produce household plastic articles, parts for simple equipment and for electrical appliances on a small scale. In terms of money, non-SOEs produce 30 ~ 40 % of total domestic production. Thanks to intensified competition in this business, the production techniques has been improving fast.

2) Problems

Metal molds manufacturing technique, the key tool in plastic industry, is behind that of other ASEAN countries. SMEs produce mainly household plastics articles, and so protection of utility model rights for those articles is not fully covered by the Patent Office. As a result, a new plastic model, when developed with wide market acceptance, is soon copied and appears in the market to cause undue price cutting competition.

Working conditions are best among four 'other priority sub-sectors'.

4.1.2 Policy Suggestions for Promoting Small and Medium Scale Industrial Enterprises (SMEs)

(1) Policy Suggestions for Promoting SMEs

In order to formulate the policy to promote SMEs, the differences of SOEs and non-State Owned Enterprises (non-SOEs) should be taken into account to determine direction, requirement and methodology. For SOEs, fundamental reformation including privatization in accordance with government program is often required. For non-SOEs, the governmental assistance program should be given to secure 'level-playing-fields' with SOEs among others. Naturally such program should be drafted not only from point of view of self-help and self-responsibility, but also from activation of Vietnamese economy to supplement the absolutely insufficient management resources of non-SOEs.

(2) The Food Processing Industry

Development Strategy	1. Develop new processed foods for export.
	2. Develop high quality products with high value added aiming to domestic markets. Advertize discriminatively.
Policy Suggestions	1. Disseminate technologies stored in SOEs, and establish technology-exchange market between SOEs and non-SOEs at a reasonable cost.
	2. Promotion of divestiture and separation of SOEs, business consignment to SMEs, and business and financial affiliation with SMEs.
	3. Fair treatment between SOEs and non-SOEs to introduce an affiliation with foreign companies by government.
	4. Governmental approval and assistance to certifying system of quality standards and hygiene standards by trade associations.
	5. Tax incentives and subsidies for capital investment especially aiming for environmental protection, food hygiene and information systems.

(3) The Ceramics Industry

Development Strategy	1. Shift from manual production to industrial production method by promoting introduction of gas kiln.
	2. Add artistic taste to gain more value.
Policy Suggestions	1. Promote a subsidy system for cooperative associations to purchase needed equipment such as gas kilns collectively.
	2. Governmental approval and assistance to establishing trade associations.
	3. Aggressive use of programs to receive technical guidance, to exchange skilled engineers, and to attend engineer training courses with advanced countries.
	4. Preferential treatment of public projects for SMEs as a contractor.
	5. Establish a program to give tax relief or subsidy based on records of employment in rural regions and of SOEs' employees.

(4) The Wood Processing & Handicrafts Industry

Development Strategy	1. Seek new foreign markets by strenuous marketing activities.
	2. Develop high value-added products by improving skills and design.
Policy Suggestions	1. Establish network of overseas Vietnamese to develop foreign market under governmental assistance.
	2. Promote a tie-up with foreign makers with high reputation to develop high value products.
	3. Establish small vocational schools of traditional craft in rural areas. Provide a subsidy to enterprises employing high-school graduates to promote employment and skills.
	4. Leasing SOEs' idle land to non-SOEs at a reasonable price. Allocation of export quota preferential to manufacturing enterprises. Promotion of other equal treatments between SOEs and non-SOEs in export finance and taxation.
	5. Governmental promotion to manage and conserve forest under a forestry program.

(5) The Plastics Industry

Development Strategy	1. Governmental promotion policy for long-term technical improvement to develop home made metal molds.
	2. Develop the plastics industry for industrial use by fostering supporting industries through foreign capital tie-ups.
Policy Suggestions	1. Promote import of used machines and metal molds, and establish their purchase and resale system of government at a reasonable price.
	2. Establish public industrial quality testing institutions at designated urban areas.
	3. Invite engineers from advanced countries to seminars to improve the level of domestic engineers.
	4. Disseminate technologies stored in SOEs, and establish technology-exchange market between SOEs and non-SOEs at a reasonable cost.

4.2 Outline on Industries and Enterprises of 'Other Priority Sub-Sectors'

4.2.1 Industries

(1) Characteristics of Industries

Among four 'Other Priority Sub-Sectors', characteristics of the industries of 'food processing and plastics' and 'ceramics and wood processing & handicrafts ' are generally categorized as below:

Table 4-1 Characteristics of Industries

Sub-Sectors	Products	Types of Production	Types of Enterprises	Location	Main Market
Food processing, Plastics	Daily articles	Capital-intensive	SOEs	Mostly urban area (Food is located nation-widely)	Domestic market
Ceramics, Wood processing & handicrafts	Traditional works	Labor-intensive	SMEs	Rural area	Export market

Source: JICA Study Team

Needless to say, the food processing industry turns out necessities of life, and for this very reason, SOEs had been solely in charge of food processing in large-scale until 'Doi Moi' started. Since then, non-SOEs have entered into this industry, and such numbers are on the increase. However, mainly due to the shortage of fund and technological lag, non-SOEs rely on cheap labor force employing labor intensive methods. As a result SOEs still dominate the food processing industry. The plastics industry has grown rapidly after 'Doi Moi'. Currently plastic materials such as PVC pipes and sheets are main products at joint-venture plants of SOEs and foreign capital in large-scale production. On the other hand, household articles for domestic market are manufactured mostly by non-SOEs using imported materials, metal molds and machinery.

The ceramics and wood processing & handicrafts industries are located mostly in rural areas which require skill but not much equipment. Being in rural areas, these industries contribute to offering job opportunity to young rural population (by 1998 statistics, 80 % of Vietnamese population live in rural areas, and 13 million people, equivalent to 41% of total workable population of 32 million there, are out of work). These industries are based on tradition, and they used to be run by cooperatives and households until 'Doi Moi' started. After 'Doi Moi', many cooperatives were re-organized into private enterprises or limited enterprises. However, due to the nature of business, these products are made at non-SOEs in a grass-root type. Value-added

ratio is generally high, and most of products are sold in export markets, so contribute to earning foreign currency. Some SOEs produce daily wooden furniture using many machines, but most of SOEs run trading businesses.

(2) Analyses of Industrial Statistics

1) Number of Manufacturing Enterprises by Industry

Each sub-sectors' number of manufacturing enterprises by scale is shown as a table below:

Table 4-2 Number of Manufacturing Enterprises by Industry and Scale

(as of Jul. 1, 1995)

Industry	Number	%	No. of Employees(%)		Capital(%)	
			<200	200<	<5bd	5bd<
Food processing	3,200	37.3	94.4	5.6	92.7	7.3
Non metallic	1,162	13.5	91.6	8.4	91.9	8.1
Wood processing	656	7.6	93.0	7.0	90.2	9.8
Furniture	441	5.1	95.7	4.3	89.1	10.9
Rubber & plastics	226	2.6	94.7	5.3	79.6	20.4
Total 4 sub-sectors	5,685	66.3	-	-	-	-
Total enterprises	8,577	100.0	89.6	10.4	86.0	14.0

Sources: Ket Qua, Kinh Te Hanh Chinh Su Nghiep, Nam 95 etc.

Notes: 1. The number includes all types of enterprises.

2. Capital(%)shows data of end of Dec.1994.

3. Non metallic is mainly composed of ceramics and glass products.

4. bd: billion Vietnam dong, US$1 14,000 dong

The table shows followings:

1. Food processing enterprises are overwhelmingly many in number (37.3%). This reflects the fact that the industry produces necessities of life, and that there is good business opportunities.
2. Total number of four industries, food processing, non metallic, wood processing and furniture, and rubber & plastics amounts to 5,685, and accounts for 66.3% of total number of enterprises (8,577). This shows that a vast spread and social importance of those four industries to Vietnam.
3. Ratio of SMEs (number of employees is 200 or less, or capital is 5 billion dong or less) of four industries accounts for over 90%. It is higher than that of total enterprises (89.6%, 86.0% respectively) except for capital size of the rubber & plastics industry.

4. Size of capital employed by the rubber & plastics industry is substantially small. This indicates that, in rubber & plastics industry, there are a few large enterprises using capital-intensive production.

2) Production

Product amount of each Sub-Sectors is shown as a table below:

Table 4-3 Products Amount of 4 Sub-Sectors

(in 1 billion dong)

Industry	1996	1997		
	Production	Production	Increase(%)	Structure(%)
Food processing	38,101	44,004	15.5	30.3
Non metallic	11,616	14,579	25.5	10.0
Wood processing	4,547	4,713	3.7	3.2
Furniture	3,092	3,547	14.7	2.4
Rubber & plastics	3,587	4,661	29.9	3.2
Total 4 sub-sectors	60,943	71,504	17.3	48.2
Total enterprises	119,438	145,300	21.7	100.0

Source: Statistical Yearbook (General Statistical Office) 1998

The table shows followings:

1. The production of total four sub-sectors amounts to 48.2% of total Vietnamese manufacturing enterprises. Especially the food processing industry alone occupies 30.3%. The ceramics (included in non metallic) and wood processing industries (including furniture) also large ones which occupy 10.0% and 5.6% (=3.2% + 2.4%) respectively.
2. Growth rates of ceramics and rubber & plastics exceed that of total enterprises. Especially growth rate of the rubber & plastics industry is high by around 30%. This shows that the plastics industry is still young and there are many business opportunities in this industry.
3. On the other hand, growth rate of the food processing industry is comparatively low. This reflects that industrial structure of Vietnam is gradually changing. But the increase in terms of money of the food processing industry in 1997 (5,903 billion dong (= 44,004 - 38,101)) exceeds far more that of the rubber & plastics industry of 1997 (4,661 billion dong). It shows that the business opportunity of food processing industry still remains sizable.
4. The growth rate of the wood processing industry (3.7%) is low, which may be the result of official prohibition of deforestation to limit supply of lumber.

3) Exports

Exports of products belonged to four sub-sectors are shown as the tables below:

Table 4-4 Exports by Products

(in US$ 1 million)

Products	1995		1996		1997	
	mUS$	%	mUS$	%	mUS$	%
Rice	549	10.1	855	11.8	870	9.5
Marine products	621	11.4	697	9.6	782	8.5
Coffee	495	9.1	337	4.6	491	5.3
Cashew nut	130	2.4	130	1.8	133	1.4
Vegetable & fruit	56	1.0	90	1.2	71	0.8
Pepper	-	-	-	-	63	0.7
Tea	33	0.6	29	0.4	48	0.5
Processed meat	12	0.2	10	0.1	29	0.3
(Total food processing)	(1,896)	(34.8)	(2,148)	(29.6)	(2,487)	(27.1)
(Total ceramics)	(22)	(0.4)	(31)	(0.4)	(54)	(0.6)
Wood & wood products	115	2.1	160	2.2	187	2.0
Fine art products	19	0.3	21	0.3	43	0.5
Rattan & bamboo products	27	0.5	45	0.6	38	0.4
Embroidery products	20	0.4	11	0.2	14	0.2
Rush products	4	0.1	17	0.2	11	0.1
(Total wood/handicrafts)	(185)	(3.4)	(254)	(3.5)	(293)	(3.2)
(Total 4 sub-sectors)	(2,103)	(38.6)	(2,433)	(33.5)	(2,834)	(30.9)
(Total exports)	(5,449)	(100)	(7,256)	(100)	(9,185)	(100)

Source: Statistical Yearbook(General Statistical Office) 1998, World Bank

Notes: 1. When amounts differ between ‘Yearbook’ and ‘World Bank’, ‘Yearbook’ is adopted.

2. ‘Vegetable & fruit’ includes prepared products.

3. ‘Ceramics’ includes glassware.

Table 4-5 Main Export Market

(in US$ 1 million)

Rank	Destination	1995	1996	1997	
1	Japan	1,461	1,546	1,675	18.2%
2	Singapore	690	1,290	1,216	13.2%
3	Taiwan	439	540	815	8.9%
4	China	362	340	474	5.2%
5	Hong Kong	257	311	431	4.7%
6	Korea	235	558	417	4.5%
7	Germany(EU)	218 (983)	228 (1,172)	411 (2,208)	4.5% (24.0%)
	Others	1,787	2,443	3,746	40.8%
	Total exports	5,449	7,256	9,185	100.0%

Source: Statistical Yearbook(General Statistical Office) 1998

The table shows followings:

1. Exports of products relating to 'other priority sub-sectors' increased by 34.8% during three years from 1995 to 1997, in which food processing by 31.2%, ceramics by 145.5%, wood / handicraft by 58.4%. Especially the ceramics and wood / handicraft industries, in which ratio of SMEs / non-SOEs is high, recorded a remarkable increase. It is noteworthy that those industries continued to register increase of export in 1997 when Asian economic crisis occurred.
2. The export of total four sub-sectors amounts to 30.9% in 1997. This shows that 'other priority sub-sectors' contribute substantially to Vietnam's exports.
3. Growth rate of total exports was as high as 68.6% in three years, and so the share of total four sub-sectors slightly declined. Especially share of food processing went down by 7.7 points, from 34.8% to 27.1%. However, volume of export in US dollars of all products except the vegetable & fruit registered increase respectively.
4. Plastic products are not listed in the statistics of exports. It is assumed that exports are negligible due to the fact that SMEs produce household goods for domestic market.
5. The largest export market for Vietnam is Japan. Export to Japan, Singapore and EU countries accounts for 55.5% of total exports. The top 3 exporting items to Japan are petroleum, marine products (mainly shrimps) and coffee in this order.

4) Non-SOEs' Production, Enterprises, Employees, and Productivity

Non-SOEs' production, number of enterprises, of employees, and productivity in the category of 'other important sub-sectors' are shown in a table below.

Table 4-6 Non-SOEs' Production, Enterprises, Employees and Productivity

(as of Dec. 31, 1996)

Industry	Product Amounts (bD)	Employees	Enterprises	Productivity (mD)	Average Employees	Average Product (mD)
Food processing	8,626	49,591	3,043	174	16	2,835
Wood/Handicrafts	3,581	50,779	1,023	71	50	3,501
Rubber/plastics	1,655	7,437	260	223	29	6,367
Total	13,862	107,807	4,326	129	24.9	3,204

Source: Ministry of Trade,1998

Notes: 1. Enterprises means number of joint stock companies, limited companies, private enterprises, and cooperatives, but do not include household businesses.

2. Productivity = Product Amounts / Employees, Average Employees = Employees / Enterprises, Average Product = Product Amounts / Enterprises

The table shows followings:

1. In the food processing industry, average employees, and average product are the smallest. This indicates that there exist many small-scale enterprises in the industry.
2. In the wood/handicraft industry, average employees is the largest, on the other hand, its productivity is the lowest. This indicates that the wood/handicraft industry is the most labor-intensive among listed three industries by its nature.
3. In the rubber/plastics industry, average product and productivity are the largest. This indicates that the rubber/plastics industry is the most capital-intensive among listed three industries.

4.2.2 Enterprises

(1) Regal Forms of Enterprises Surveyed

Before 'Doi Moi' in 1986, there was no enterprise other than SOEs and cooperatives. It has been only about 10 years since non-State Owned Enterprises (non-SOEs) was allowed to start. Naturally, the size of these enterprises remains small as compared to SOEs.

However, the cooperatives of which structure is not fit for commercial activities, have been rapidly converted into limited liability enterprises or private enterprises, especially in South Vietnam. While 6 of 40 enterprises visited by the Study Team are in the structure of cooperatives, only 2 enterprises are truly structured as cooperatives. The others are de facto limited liability

enterprises or private enterprises but registered legally as cooperatives in order to enjoy governmental protection and assistance to get public project contracts and tax relief.

Many limited liability enterprises are created to attain external creditability, and are not necessarily in size of a large enterprise. Although limited liability enterprises are statistically the largest in size followed by cooperatives and private enterprises, the biggest enterprise visited by the Study Team is a private enterprise. It is engaged in the food processing business with 125 employees. The smallest enterprise is a limited liability enterprise, another food processing business with only 3 employees.

In 'other priority sub-sectors' industries, where most enterprises are small in size, the differences in legal form are not of substance. It can be said that, in this category regardless legal form registered, there are two types of enterprises i.e. SOE and non-SOEs, the latter fallen in the definition of SME in this category .

(2) Management Situation of Enterprises Surveyed

Most enterprises surveyed are non-SOEs. What is common in each sub-sector is a number of young entrepreneurs, and among them, female presidents account for about 1/3. Most directors have their own management policies of a market system. For example, the directors decide workers' salaries based on their skills and explain this to the workers. Moreover, these directors are enthusiastic in learning management skills, often attending night business classes at universities.

Because Vietnamese employment market is a 'buyers' market', salary differentiation and firing (refusal of renewing employment contract) based on ability evaluation are more strictly executed than Japanese employers. It should be better for market oriented management. But such drastic payment system based on ability might keep students away from applying to non-SOEs, comparing with stable pay and welfare system of SOEs (e.g. by the research for undergraduates done by the International Finance Corporation (IFC) in August 1999, 55% of the students look for SOEs, 37% for foreign-affiliated companies, and only 8% for non-SOEs).

The biggest problem is that there is little government support to non-SOEs. Worse, the government is hindering non-SOEs development through discriminative treatment in favor of SOEs. As a result, non-SOEs can not depend on the government assistance and are financed by the savings of friends and relatives of the directors, and seek direct trading channels with foreign customers. There is a deep-set distrust against banks by directors of non-SOEs as the financing sources, and even when they could borrow, they would not accept such prevailing high interest of 1.2% monthly for short term of 3 to 6 months as the rate and term to endanger their business sustainable. Most successful directors are self financed by reserved funds saved from their own

business earnings. Of course, their business development is limited within their own financing ability, and thus international competitiveness is not expected to be attainable quickly.

(3) Opinions of non-State Owned Enterprises (non-SOEs)' Management

Many directors of non-State Owned Enterprises (non-SOEs) have appealed to remove government discrimination in expanding business opportunity (quotas, foreign affiliation etc.), financing, land utilization, taxes, and the corruption prevailing through all governmental organizations. They contended that they could not rely on the government, and so were forced to be financed by their own savings or asking help from friends and relatives (on this point, Vietnamese enterprises are much more independent from the government than Japanese SMEs). These businessmen expect little of the change of government's attitude by the past experience, though they have made their appeals to be helped financially. These businessmen are afraid of being harassed by the official if they keep continue such an appeal.

Commercial banks, also governmental organizations, are not trusted to deposit savings and their financing to non-SOEs is very rare. These commercial banks receive non-SOEs coldly, too. Loans can be legally secured by land-use right for both SOEs and non-SOEs. However, non-SOEs tend not to ask such loans to commercial banks for the reason that the borrowing procedure is too complicated, the price of the right is too expensive and even informal commissions might be asked by bankers. On the other hand, collateral is not virtually required for loans to SOEs. After acceptance of submitted SOEs' business plans, the government orders banks to lend necessary funds to the SOEs. L/C negotiation for export (secured loan by L/C before shipment which is practiced for SOEs) is not effective in fact, and so exports credit can only be achieved by such specific enterprises affordable to make an advance payment sales.

The distrust against banks has resulted in mountains of cash hoarding at home to finance non-SOEs, supplementing private-sector finance. In Viet Nam, family and friendship ties are very strong, and so the savings at home is the most reliable sources for non-SOEs. As mentioned before, such financing available to non-SOEs is insufficient especially for daily working capital, therefore some improvements of financial mechanism is a pressing necessity.

(4) State-Owned Enterprises (SOEs)

It seems that the work ethics and vitality is lower among the management and employees in SOEs than those of non-SOEs. Despite the fact that majority of non-SOEs' directors are ex-SOE directors , criticism on SOEs has been often expressed.

This multi-layer decision-making process could hamper to develop management skills, and eventually lead to decay the management responsibility to run SOEs business efficiently.

A SOE president expressed the following opinion on differences between SOEs and non-SOEs. It could show the difficulty to restructure SOEs.

1) SOEs in deficit are severely examined by government, while non-SOEs could sell their product with a discount.
2) SOE's sales promotion cost is budgeted less than 5% of sales, while non-SOEs, having no such a ceiling, could make much aggressive advertisement and sales promotion.
3) SOE's capital investment over 10 billion dong requires a permission of the jurisdictional ministry. From the application to the delivery of equipment, in general it takes a year and a half. Due to this time consuming process, SOEs often lose business chance.
4) SOEs, unlike non-SOEs, are not given a free hand to introduce flexible pay system based on employees' capability. Employees of SOEs cannot be discharged unless they commit a crime under the criminal law, which is a part of reason why SOEs have redundant workers.
5) Non-SOEs could conceal their income, easily when they intend to evade tax but SOEs could not.

Needless to say, privatization of SOEs is the right policy to be further carried out as Vietnam will be obligated by the AFTA in the near future; however, the success of this privatization could not be attained if the management of SOEs are entitled to receive unjustifiable profit at the time of structural changes, and/or stay as the management of a new privatized company to run it as before. But such corrupt-like cases were heard from some non-SOEs' directors.

If reform of SOEs makes progress and SOEs grow steadily, social problems should be small. But the State-owned industrial sector grew by only 3.6% in the first half of 1999 compared with 10.2% and 10.7% in the same period of 1998 and 1997. The private industrial sector grew by 6.6% compared with 6.7% and 9.5% in the same period of 1998 and 1997 respectively (quoted from Vietnam State News, VNS of July 3, 1999). This shows that SOEs would not have enough power to pull Vietnamese economy for the present.

Not all SOEs surveyed suffer from inefficient decision-making and loss of profit. More than a few run their business successfully with autonomous management style. Such management described their management style 'like non-SOEs'. Undeniably those management are capable of doing good business, and moreover, they can enjoy various legal and practical privileges which non-SOEs cannot attain. As a result, such successful SOEs may present a difficult question of fair competition being in the privileged corporate status. From the viewpoint of 'level-playing-fields', privatization should be rather started first with those successfully running SOEs.

It should be noted that the management of SOEs are the public officials subject to regular re-staffing and re-assignment by government. At the time of replacement of the management, in

many cases, management policies of the SOEs have changed considerably. Those changes of fundamental management policy sometimes affect the morale of employees, and especially disappoint foreign joint-venture partners. This problem is interpreted as one of management risks particular to SOEs.

4.3 Industries in Other Priority Sub-Sectors

4.3.1 The Food Processing Industry

(1) Position of Small and Medium Scale Industrial Enterprises (SMEs)

The food processing industry is an old industry which had developed before 'Doi Moi', and fulfiled nation-wide demand. Therefore almost all main food processing industries are dominated by the State sectors. The processed foods include not only Vietnam's main farm and marine products such as rice, soybean, vegetable, shrimp, meat, coffee, sugar and fruit, but also many food processing industries using those products as material for frozen food, dehydrated food, bottled food, canned food, ham, sausage, confectionery and juice etc.. Besides, until April 1998 license for direct transaction with foreign countries had been given solely to SOEs, so that foreign trading business should be conducted exclusively by SOEs. As a result, business opportunities of non-SOEs is limited to very small sphere. For example, a leading SOE processing marine products is obliged to supply a certain quantity of products. For a compensation of this compulsive supply, the government granted the privilege of interest-free loan for this SOE. Non-SOEs, of course, cannot enter such business.

Types of food businesses of non-SOEs are categorised on as follows:
1) Niche industries such as soybean milk and local beer which can be started with small capital
2) New products in Vietnam such as mineral water and western alcoholic drinks
3) Low price products for local markets such as cheep sweets
4) Subcontracting industries for SOEs such as instant noodle
Therefore the non-SOEs' products are mainly for domestic market, with small portion of exports.

For example, in the confectionery industry, a SOE which used to be the biggest has been outperformed by another SOE which affiliated with a foreign enterprise. The tie-up with foreign capital is one of keys for company to develop, but the problem here is that most of the information on possible tie-ups is received first by the governmental institutions, and is provided to SOEs. Many foreign capitals also tend to select SOEs as a partner, expecting governmental assistance. As a result, there are few cases for non-SOEs to tie-up with foreign capitals.

(2) Current Status and Problems of Businesses and Requests to Government

Based on field survey, the general conditions of the food processing industry can be described as follows:

Important Points for Management

SOEs' established brands, or foreign brands like Coca-Cola, are well penetrated on most merchandises. SMEs have a policy to develop new products which SOEs do not deal with. However newcomers are increasing, and competition is getting tight.

SMEs try to sell a large volumes with a narrow profit margin, relying on low wage labors, but generally make thin capital reserve for the present. It is considerably difficult for non-SOEs to expand their businesses under the current circumstances without public soft loan programs.

Production and Technology

Because of shortage of funds as well as technology, SMEs try to cut manufactory costs by producing limited kinds of products. They use minimum numbers of machinery, and employ many cheap young labors. Many processes, which can be replaced by machine, are by manpower, e.g. cutting of dried cuttlefish, bottling and stopping up of juice, wash of bottle, packaging of candy, dishing up of instant noodle.

A director of a processed meat company designs, fixes and maintains necessary machines by herself, and thus is successful in saving costs.

Sales and Marketing

SMEs try to expand their market share by adopting marketing policies of either 'average quality & average price' or 'low quality & low price'. In any case, especially non-SOEs, make an effort to educate consumers by advertisement; a soybean milk company advertises that it is good for health, and targets specially schools and hospitals to secure high profit margin. In case of 'low quality & low price' products, they try to develop rural market where SOEs' have taken a dominant position.

'High quality & high price' market is the most profitable market, which is currently occupied by a few joint enterprises with foreign capital. Such cases are particularly found in confectionery, mineral water, instant noodle and dried cuttlefish for export etc.

A director of non-SOEs retrieves foreign market information through internet to make use of it for development of new products.

Employment

Employment is for buyers due to high unemployment. Such unemployment rate in 1998 is 9.09% in Hanoi, and 6.76% in HCMC. The length of employment is from 1 year to 3 years. Average monthly payroll of surveyed companies is 400 ~ 500 thousand Vietnamese dong, which is the lowest level in the four other priority sub-sectors. Most enterprises have employee evaluation system, pay drastically differential wages based on performance (around treble), and inform the results to employees. A company evaluates them by three grades: when a third-graded employee is evaluated at the some grade repeatedly, the company dismisses such employee.

Finance

Initial capital including operational funds are generally provided by directors' own savings and also loans from directors' friends and relatives. Non-SOEs are always short of operational funds and additional capital in general. Not only bank loan procedures are so complicated, but also a company is declared that a bank will not lend money to non-SOEs.

Directors attend the night class of universities to study business management etc., make 6 months to 1 year business plans, and run their companies with the plans.

Business Problems

Non-SOEs have sales opportunities, but are in general short of funds, and their factory sizes are small. That makes them difficult for them to expand production. Their products also meet certain limits of quality improvement because of delay of introducing equipment.

For example, even they improve quality by using natural materials replacing artificial sweetener for soybean milk, many consumers rather choose cheaper inferior products. Or even cheaper priced mineral water of which quality is the same, a foreign brands is chosen by consumers.

A company has voluntarily established a trade association of processed foods, and is going to set up sanitary control standards, thogh which are not yet authorized by government.

Visited plants are darkly lit, without flooring, and environment of workplaces is maintained poor except SOEs and a few non-SOEs. At most plants, workers do not wear masks, gloves and caps, and not clean. Some companies use tap water for beverages, though of course treated, and name brands similar to a big-name brand, or evade tax by concealing some sales.

Requests to Government

1) Reduction of land-use fee, and further simplified procedures for land-use rights for business
2) Simplified bank loan procedures
3) Borrowing long-term soft loans

4) Legislation of preferential corporate income tax rate for SMEs
5) Establishment of quality authorization system
6) Subsidy to overseas or domestic training for SME employees
7) Tax incentives, subsidies and long-term soft loan programs for capital investment (especially for environmental protection and food sanitation)
8) Introduction of possible affiliation with foreign companies
9) Dissemination and trade system of SOE-owned technology at reasonable cost
10) Equal treatment to SOEs

In case of SOEs, if their business plans are acceptable to government, necessary land and funds can be provided without collateral. On the other hand, non-SOEs must pay expensive land-use fee out of their pockets, after lengthy negotiation with local government and complicated procedures to acquire land-use right for business. non-SOEs need to provide the land-use right as collateral to banks in order to get a loan with, sometimes, paying informal commissions.

(3) Policy Suggestions for Promoting SMEs

1) Development Strategy

Viet Nam has long sea-shore line, rich with marine resources, and has comparative advantage in cultivation of crops in tropical climate.

The export business of processed marine products of a SOE accounts for 10% of the SOE's total sales in quantity, but for 40% in value, and occupies the most of profit. Some foreign-affiliated companies produce liquor by sugarcane, raise eggplants and process them for restaurants' use, and process squid into dried cuttlefish. Those are for exports and make profits. SMEs (non-SOEs) also could make promising businesses by developing export products from abundant farm crops and marine resources.

For example, frozen ground fish meat (Surimi) is exported to Korea, and a Korean company processes Surimi into tubular rolls of fish paste (Chikuwa) and/or boiled fish sausage (Kamaboko), and then exports to Japan. If Vietnam's SMEs could export Surimi to Japan directly, or produce the final products, Chikuwa and Kamaboko, to export to Japan, they would obtain higher value-added. In the case of shrimps, they are exported to Japan in big blocks of ice after removing shell and cleaned, and in Japan they are displayed at supermarkets after thawing and re-frozen one by one. Vietnamese SMEs are suggested to process to the step of one-by-one freeze (individual freeze), or produce retort-packed foods like fried shrimps to upgrade final products.

It should be considered that bottling, canning and/or juicing of vegetables like bamboo shoots and mushrooms, fruits like mango, coconut, dragon-fruit, melon and palm, and drying them for materials of confectionery. It is very important for restaurants' business in advanced countries to

save the high labour cost and time of cooking, so that Vietnam's export can be increased as foods are processed more in Viet Nam.

Potential business opportunity of Vietnam's food processing industry is large. However, it is essential to cultivate crops under proper planning, catch fish constantly by modern fishing method, conserve marine resources, improve technologies of processing, preservation and hygiene, and research markets of aimed countries, especially each national tastes preference.

For domestic markets, it is important to find and develop new products in foreign countries, not currently existing in Viet Nam, such as soybean milk, mineral water, gum, snack-cracker which are successfully sold in Viet Nam. When developing new products, it should be noted that healthy, high-grade and high-quality goods are going to be chosen as Vietnamese income standard grows. More quality-oriented and higher value-added products should be developed with a change in Vietnamese tastes. At the same time, it is important to advertise those merchandises' strong points to domestic consumers in order to let them know as widely as possible, and secure stable distribution channels.

2) Policy Suggestions

Disseminate SOE-owned technology, and establish a technology-exchange market between SOEs and non-SOEs at reasonable cost

In the food processing industry, market share of large-scale SOEs is overwhelmingly large, and many kinds of technologies of processed meat etc. are also accumulated within SOEs. In fact, these technologies and know-how should be the common property of the nation. Therefore it should be effective to open technology-exchange market, and facilitate trading between SOEs and non-SOEs at reasonable price. By such a exchange, technology development of non-SOEs could be accelerated, and at the same time, technical level of a whole country should be improved.

Promotion of divestiture and separation of SOEs, business consignment to non-SOEs, and business and financial affiliation with non-SOEs

It is recommended that SOEs separate some divisions except goods with public supply obligation, and entrust its operation to capable non-SOEs, or establish joint ventures with non-SOEs. For example, SOEs provide the joint ventures with technology, land and fund for processing foods for export, and non-SOEs provide with market (customers), marketing know-how and efficient management skills. By doing this, both enterprises could expand their business opportunity synergistically.

Fair treatment to non-SOEs on introduction of possible affiliation with foreign companies by government

Foreign capital investment brings not only funds, export channel, production technology and management skills as well, but also famous foreign brands into domestic market. So, some foreign-affiliated companies have achieved sizeable share of the domestic market of soft drink, confectionery and instant noodle etc.. The information of possible tie-up with foreign capital should be circulated among also non-SOEs through e.g. trade associations from government as an information system to secure equal treatment between SOEs.

Prior to implementing the measure, current regulations and practices of discriminative treatments must be abolished. Otherwise, foreign capital itself would continue to select SOEs as a partner, which can expect to receive governmental protection. Unless such steps are taken at the earliest opportunity, non-SOEs may remain as status-quo permanently of which market is dominated by SOEs tied with foreign brands, only with a few niche market etc. of low value.

Governmental approval and assistance to certifying system of quality standards and hygiene standards by trade associations

Soft drink market is becoming overwhelmed by foreign brands like Coca Cola. National brand-oriented industry like the beverage industry such as mineral water, soybean milk, juice etc. could be more successful to expand its market share by showing those authorized quality on labels, which read as good as international quality and hygiene standard as well. At the same time, such indication of quality could help consumers distinguish poor-quality goods which are possibly bad for health.

If setting of those standards with authorization are entrusted to trade association, it could be expected to lessen government burden, and strengthen domestic food industry through accelerating its autonomous growth.

Low interest loan, tax incentives and subsidies for capital investment especially aiming at environmental protection, food hygiene and information systems (use of internet for overseas information retrieval and business talks, etc.)

Industrial waste from marine products and meat processing industries etc. often produce environmental problems. Most SMEs are well aware of this problem, but they cannot afford to take effective measures. Protection of the country's environment could be quickly improved by offering partial subsidy or tax privileges to such environmental investments. Information on foreign market trends should bring useful ideas for development of new products and export markets. Especially, use of internet is effective for marketing. So, it is desired to grant some assisting programs in installing personal computer etc. as marketing tools.

4.3.2 The Ceramics Industry

(1) Position of Small and Medium Scale Industrial Enterprises (SMEs)

Bat Trang in the North, and Song Be in the South have been famous for ceramics and porcelain for several hundred years, and hundreds of enterprises and households are located in these areas. Each enterprise not only produces by itself, but also subcontracts work to the rural households in the neighborhood, thus creating many jobs in rural areas. Competitive advantages of its low-wage and skilled labor force drive exports to Taiwan, Korea, EU countries, Australia and the USA, and its export ratio is high. Most of the SMEs are non-SOEs, transformed from old cooperatives. There is almost no competition with SOEs in the industry. Most SOEs are trading companies.

License for exports and imports were opened from only for SOEs (foreign trade companies) to also non-SOEs in May 1998, and earning power of non-SOEs is getting improved. But real effects on marketing are of little, because direct negotiation with foreign customers has been carried out by non-SOEs themselves before, and foreign trade companies had conducted only trading procedures. As a result, business results of trade companies (SOEs) have got worse, suffered from losing their large source of revenue.

(2) Current Status and Problems of Businesses and Requests to Government

Based on field survey , the general conditions of the ceramics industry can be described as follows:

<u>Important Points for Management</u>

Main products are handmade and unsophisticated daily products such as flowerpot and vase, and replicas of ancient Vietnamese ceramics, and artistic works are not so many.
Therefore, how to produce low-priced products is an important point for management, challenged by competition from China in export market.

As to marketing, it is important to develop ability of design, quality and delivery by the fixed date, that is nearly equal to ability of production management.
As to production, introduction of gas kiln is a point of competing power.

<u>Production and Technology</u>

Bat Trang province in the North of Viet Nam is a center of traditional technologies and also of producers of ceramics. Materials are clay, glaze, pigment, coal and firewood etc.. Clay is

purchased from Quang Ninh and Vinh Phu provinces, 100 km northeast of Bat Trang by ships. At present, there is no clay in Bat Trang province. Immigrants from Than Hoa province had produced bricks and ceramics using clay beside the Red River in Bat Trang around 700 years ago. But consumers' tastes shifted to white ones around 300 years ago, so that potters changed clay which could make those. The traditional technologies have been restored recently, spending 10 years after war.

Pigments are imported from England and Japan. Around 50% of goods are produced on customers' specified designs. Gas kiln can improve productivity greatly, and preserve air environment better than wood/coal kilns. But it is much more expensive than wood/coal kilns. A potter constructed a gas kiln by himself examing German catalogues at under half costs of import price, importing only some key parts. Comparisons of two types of kilns are illustrated as follows:

Table 4-7 Comparisons of Wood/Coal Kiln and Gas Kiln

Factors	Wood/Coal Kiln	Gas Kiln
Price	US$2,000	US$20,000
Quality of Products	Can make subtle shading	Harder by high-temperature
Skill	Require skill(Fuel should be adjusted in accordance with changes of flame's colors)	Skill is needed less
Baking hours	80 hours	16 hours (5 times of productivity)
Defective rate	Around 30%	Around 5%
Fuel	Wood (Pine, Rubber), Chaff, Coal	LPG (expensive)
Pollution	Smoke pollutes air	Very little pollution

Source: JICA Study Team

Sales and Marketing

Bat Trang province is a tourist attraction region, and many foreigners visit there on business and/or for pleasure. Potters collect information of tourists from travel agencies, and ask them to circulate the catalogues to tourists and let tourists drop in the shops. On the other hand, potters ask embassy staff to introduce their products to foreign customers, and some make good use of overseas Vietnamese to export for USA and European countries.

Some potters plan to exhibit ceramics in exhibitions in Germany, Holland and Italy etc., but it needs around US$ 20,000 for participating such events.

Many companies have recently acquired foreign trade license. As a result, they saved 1% of commission, gained more credit from customers, and improved international competitiveness. The maximum product price is around US$ 40. Export prices for Korea have fallen by around 1/2 through excessive competition among the traders in 1999. A potter criticized that potters in Bat Trang province lost the pride of traditional culture, and have been involved in a excessive price competition.

Potters can sell at 20% higher price to Japanese markets than to other foreign markets, but they say, Japanese buyers demand high quality very strictly, so that the raise of product costs offsets the merit of higher price. Therefore they strongly want technology transfer from Japan.

Some potters said that Vietnam Chamber of Commerce & Industry (VCCI) and Hanoi Cooperatives Association are of little use for the essential point of customers expansion. They tried to establish ceramics trade association of Bat Trang province several times, but every plan failed because of strong rivalry among potters. Some potters are reluctant to enter the same association together with SOEs managers.

Comparisons on production factors with China are shown as follows:

Table 4-8 Comparisons on Production Factors with China

Factors	Comparisons with China
Clay	Vietnam is better in quality.
Surface Treatment	Technical level is equal. Vietnam is better in Green. China is better in White and Red.
Kiln	Equal.
Experience / Funds	China has longer history, and is more abundant of funds.
Wages	A little cheaper in Vietnam.
Price	Chinese goods are much cheaper for mass products by machinery (mold).

Source: JICA Study Team

Employment

Employment term is usually one year. Average monthly payroll of surveyed companies is 500 ~ 600 thousand Vietnamese dong. Directors of non-SOEs do not renew employment contract with low-evaluated employees. Employees have labor unions in their companies, but after discussion with leaders of labor unions, the leaders usually agree with directors.

Workers of production lines are assigned with targeted quantities per day, and paid on the job basis. Around 80% of employees are farmers, so that directors give one week holidays at busy seasons of rice planting and harvest.

Labor market is a buyer's market, but skilled workers are scarce, so that, in a non-SOE, around 40% of total employees are occupied by midcareer employees. Such midcareer employees are paid high based on ability, so that many employees of SOEs apply for the jobs. A company hires 20 midcareer employees from SOEs.

Companies train new employees for 15 days, and they are assigned to each division by their aptitudes. Companies have a training program to invite outside skilled experts for one month, and employees join the program in turns.

Some companies send employees to Hanoi Cooperatives Association, which has no technical training course but has courses on governmental policy, management, laws etc..

Finance

A director complained about bank borrowing of its complicated procedures, long wasting time and required collateral, in addition, they added that connection and informal commission are often

needed. Considering these factors, loans from friends become cheaper after all. Interest rate of loan from friends is higher than that of bank loan, but collateral is not needed and repayment term is flexible. As a result, for the present, bank loan has no merit to make a trouble to borrow from banks except borrowing of a long-term, e.g. 3~5 years, and/or at low interest.

All hard currencies earned is forced to deposit in banks, and converted into dong compulsorily, while hard currencies for imports are allocated.

Price is generally determined by adding 10% profit margin to each cost, which is calculated by each product individually. Thus, financial management ability is high in general.

Corporate income tax rate of 32% is imposed on 10% of sales revenues which is considered as profit margin by tax authority. VAT is free on export goods.

Business Problems

The primary problem of the industry is unstable production caused by insufficient export marketing. The directors have other problems such as shortage of skilled workers with age, shortage of funds for investment, and keen price competition. Working condition is poor, because workers handle clay, glaze and pigment, and suffer air pollution by burning of wood/coal kilns.

Requests to Government

1) Long-term soft loans for investments in technology and machinery etc..
2) Introduction of foreign capital for technological transfer and foreign customers.
3) Development of industrial zones for SMEs at reasonable fee.
4) Subsidy for investment in gas kiln.
5) Skilled technicians' exchange and training programs.
6) Government authorization and assistance for trade associations.
7) International competition with China is getting keen, so that some potters aim at expanding domestic market. For example, a company plans to join a reconstruction project of ancient cultural heritage such as palaces, castles and temples, in which many replicas of ancient pots, vases, ornaments etc. are placed. The company wishes government to allocate such public projects' jobs to a certain number of non-SOEs as well as SOEs.
8) Some potters expressed that the government's assistance to non-SOEs is insufficient, so that they tend to perceive the authority as a mere tax/fine collector. When a potter protested against unequal treatments to the government, a package for exports was unpacked, and products were broken into pieces without reasons. Some potters said that they want to run their businesses by themselves not attracting attention, especially of the governmental authorities.

(3) Policy Suggestions for Promoting SMEs

1) Development Strategy

Ceramics such as pots, vases, flower pots and ornaments are exported mainly to Southeast Asian countries and also European countries because of low prices. But the prices are getting further lower due to ongoing price competition, and profitability is lessening. It is recommended that the industry should shift its pottery to more high value-added products with artistic values in long perspective. However, before moving toward such ceramics with high value, what is the most required for the present is a change from the present household work to the industrial operation. Since competition is intensifying internationally, Vietnamese ceramic industry should employ first more organized methods of ceramic production to improve its profit base. And then, on this improvement, the industry should move to produce those high valued ceramics with artistic value.

For this shift, it is necessary to replace current baking by wood or coal kilns with gas kilns. Gas kilns improve not only quality of ceramics, efficiency of work and profitability of products, but also the environment of workplaces. But the main purpose of using gas kilns is for solidifying profit base only, and by all means this does not advocate total abolition of traditional wood and coal kilns. On the contrary, these traditional kilns should be preserved because they are indispensable to produce high valued ceramics to give them artistic colors, tint and glaze. At the same time, such a policy must be made to protect and cultivate artisans using traditional techniques to produce artistic ceramics in order to attain a reputation of Vietnamese ceramics in near future.

2) Policy Suggestions

<u>Subsidy system to collective purchase of gas kiln etc. through cooperative association</u>

Production using wood/ coal kilns is technically difficult in adjusting temperature, so that a certain number of products turn out incomplete shapes or cracks. Gas kilns make few losses without requiring heat adjust by long-experienced hands, and potters can improve production efficiency and reduce air pollution. But gas kiln is not domestically produced and expensive, so that only a few successful enterprises can purchase. Several potters have fallen into business crisis by purchasing gas kilns. A collective purchase of gas kiln by the potters' cooperative association with government subsidy should be one solution. As a result, each potter will be able to jointly use or lease at less expensive cost.

<u>Adoption of authorization system for establishment of trade associations, simplification of authorization procedure, and operation subsidy by the government</u>

Several thousand potters including household businesses cluster are located in a few areas. Foreign customers who visit these areas learned their reputation of the traditional products, and not

so much sales promotion is necessary. But a price competition, especially competition with China in export markets, is getting keen after Asian economic crisis occurred.

In this business situation, each pottery might not tide over such international competition individually. It is thus recommended to establish a trade association to collect domestic and foreign market information (market trends, customers' needs and prices), and share information on techniques, law and tax. The association also holds technical training courses, sets up common sales agents, makes a petition to receive government loans, and represents interests of the pottery industry to the government. By doing this, industry-wide bottoming up of international competitiveness should be strengthened.

The government should support positively to establish this trade association and its activity by recognizing the employment effect of ceramics business in rural areas. Incidentally, in attempt to prevent the specific conflict of interest with SOEs in Vietnam, it may be considered to authorize a trade association composed of only non-SOEs' staff. In addition, it may be necessary for the government to prepare middle and long-term scenarios of Vietnam's foreign exchange policies to possible change of exchange rate of Chinese currency in perspective.

Activation of engineer-exchange, dispatch, and training programs with advanced countries

Ceramics industry is Vietnam's traditional culture with history of several hundreds years, and substantial numbers of people are engaging. But it has a problem of discontinuance of tradition by the wars, and another is aging of skilled workers. It is necessary to improve production technologies promptly under currently intensified export competition.

It is also recommended that engineer-exchange programs are promoted further with advanced countries under ODA. In such programs, technologies for not only production of ceramics but also production and maintenance of machines such as gas kiln should be transferred to Vietnamese potters in order to help potters manufacture productive facilities by themselves.

Preferential treatment of public projects for SMEs as a contractor

It is recommended that the government allocates such public projects such as reconstruction project of ancient cultural heritage directly to a certain number of non-SOEs. By doing this, non-SOEs will be able to expand their own domestic business opportunity substantially.

Introduction of tax reduction and subsidy programs for actual employment record in rural regions and of SOEs' employees

The ceramics industry is located in rural areas, and brings the source of valuable cash income to rural population. Implementation of tax reduction and/or subsidy based on employment record will help the industry to grow further, and expand employment opportunities in rural areas. It is

recommended that similar program is applied to employment of SOEs' employees by non-SOEs in order to assist to lighten redundancy problem of SOEs.

It is important to implement such new system as simple as possible in order to prevent delay and unfairness caused by complicated procedures and uneven official interpretations.

4.3.3. The Wood Processing & Handicrafts Industry

(1) Position of Small and Medium Scale Industrial Enterprises (SMEs)

The structure of the wood processing & handicrafts industry is similar to the ceramics industry. A great part of production is occupied by non-SOEs in small size, and majority of traders are state-owned enterprises (SOEs). But household products made of rubber/pine trees are manufactured by fund rich SOEs, because this business requires many machinery.

The export ratio is high (exported to Taiwan, Korea, European countries etc.), and it is one of Viet Nam's most important exporting industries. Materials are of Vietnam such as wood, bamboo, rattan, rush, sedge, lacquer etc., and the products are highly competitive in export market supported by low wage workers in rural districts and craft by skilful hands peculiar to Vietnamese.

The industry is widely distributed in rural areas throughout Viet Nam more than the ceramics industry. It contributes to creating job opportunities in farming areas, adding cash incomes, and thus narrowing income differentials between urban and rural people.

(Wooden Quality Furniture)

Many makers of traditional quality wooden furniture are located in Dong Ky province in the Hanoi suburbs. Export ratio is particularly high, employing many rural workers. Using imported wood like rosewood, makers, after completing the initial stage of processing, give the semi-finished goods to subcontracted farmers in neighborhood, and finish as fine furniture at makers' workplace. For high-class wood, they depend on imports because domestic deforestation made supply scarce and export of material wood have been banned since 1995. In this industry, there are not many SOEs. Several interviewed directors stated that it is rather difficult for SOEs to maintain precise quality control required for these quality furniture. Comparison of competitiveness with SOEs on the quality wooden furniture industry are shown in the table below:

Table 4-9 Comparison of Competitiveness on the Quality Wooden Furniture Industry between non-SOEs and SOEs

Enterprise Form	Characteristics of Competitiveness
Non-SOEs	High quality. Low cost. Minute production control abilities.
SOEs	Abundant financing capacity. Prioritized and huge amount allocation of export quotas.

Source: JICA Study Team

Export products subject to the quota system and the export tax are as follows:

Table 4-10 Export Quota System and Export Tax

Export Products	Quota System	Export Tax
Exports made of local wood materials	Applied	0% (10% for industrial-use board)
Exports made of imported wood materials	Not applied	20% at maximum

Source: JICA Study Team

(Other Wooden Furniture)

Wooden furniture in common use is made mainly of home-grown rubber and pine trees which are permitted to deforest, and are exported to Taiwan and EU countries. Manufacturers of this type furniture are dominated by SOEs which can afford to buy necessary equipment to produce in quantity. Thus, the wooden furniture industry can be segregated by type of products, that is the artistic quality furniture industry, employing low wage farmers dominated by non-SOEs and the furniture for daily use industry by SOEs.

(Handicrafts)

The handicrafts industry is a highly labor-intensive, producing table, chair, bag, hat, tableware and artistic works etc. made of native bamboo, rattan, rush, sedge, lacquer etc. grown throughout Viet Nam. Handicraft goods are made by manual piecework at farmhouses using few equipment. These products are mostly exported, and contribute to earnings of foreign currency.

Its social contribution is especially large in supporting employment of rural regions. When a director once planned to close a factory because of her old age, subcontracted farmers made a

petition to her to keep the factory open. She was touched and continued to run her business. Later, the farmers donated land for expansion of factory site to repay for her decision.

(2) Current Status and Problems of Businesses and Requests to Government

The general conditions of the wood processing & handicrafts industry can be described here based on field survey:

Important Points for Management

Enterprises of this industry are generally not short of funds, because they use handwork with few machines required, and pay by the jobs completed. In the case of the quality wooden furniture industry, its work requires cutting and sharpening machines, and wood seasoning rooms as well. On the other hand, the wooden furniture for daily use industry needs considerable investment in machinery and equipment.

The important point of management is to obtain stable foreign customers. But Vietnamese furniture makers generally lack in satisfactory designing and marketing ability.

Production and Technology

(Wooden quality furniture)

Home trees are banned to cut down in principle to prevent from deforesting except for a part of artistic works for export purpose. Lumber import is encouraged, instead, so that once existed wood import quota was abolished in early 1998 and such import is free of tax. Rosewood and ebony are imported from Laos and Myanmar. Sandalwood is abundantly stocked by previous purchase of domestic trees, but of course, now free to import from Laos too (Cambodia banned export of raw lumber and other countries are following suit). Lumber import is contracted for five years, though it is uncertain at present such terms of contract are still possible on the expiration of present contract. Seasoned process oak is currently imported from France.

Furniture for export starts to be manufactured on and after receiving customer's order specifying a type of wood and detailed design of furniture. Until five years ago, furniture makers received complaints about a warp in delivered furniture from overseas customers, but since makers seasoned lumbers completely such complaints are now unheard. Generally makers produce furniture more than the ordered quantity. Out of these furniture, successful products are exported, and those of lower quality are stored for domestic sale. As a result, makers say they produce no defective works. As a spot export, these furniture was sold to Japan, and the maker was confident in its quality.

One non-SOEs has leased a factory site (10,000 m2) and a store space from a SOE at expensive fees (16 million dong/month). Its director has experienced many troubles for last 10 years to attain official land-use right (Red Book), and the situation looks better at last (the red book is necessary as collateral when borrowing loan from banks). On the other hand, SOEs can acquire large lands and good infrastructures easily. SOEs can also borrow necessary funds from banks easily, and its interest rates are lower than the loans from his friends.

(Handicrafts)

Companies usually do business with foreign customers at shops in the city, exhibiting handicrafts made in the suburban factory. Many companies also subcontract to neighbor farmers, supplying materials to them. The factories are generally small and damp, and so they can not stock much materials like bamboo and rattan to prevent deterioration of quality. Workers use simple machines like cutting, grinder and lathe machines, and have well for compounding dyes. The price of land-use right at factory site in cities is too high, that is 4 billion dong for 1,000 m2. Furthermore, makers are required to buy existing buildings on the site in order to acquire the land-use right, so that the directors of small non-SOEs cannot afford to pay. On the other hand, SOEs hold large vacant space.

The directors explained that the quality of bamboo and rattan products is not so good even though those prices are low. The quality of handicrafts depends on the quality of materials, but not many customers can tell the difference of quality of materials. Makers wish to export Vietnam handicrafts also to Japan, but they believe quality demanded by Japanese buyers to be too high for them. Even when they successfully upgrade the quality of products to meet the demand, such export would be unprofitable for them unless taking enough volume of sales order.

Sales and Marketing

Tourists and foreign customers (mostly Taiwanese) visit craft shops. Makers constantly provide airports, hotels and interpreters with catalogues for marketing. Sometimes makers place an advertisement in local newspapers for domestic markets. As to sales promotion for foreign market, makers are totally uninterested and have little knowledge how to make an access.

Costs of materials and prices of products are widely set depending on the timing of trade, and types of dealers and vendors. For example, the same chair is priced at US$ 2 at one shop, while priced at US$ 8 at another shop. By such the different pricing on the same merchandise, Vietnamese makers would lose credit with their customers.

SOEs in this business have an access to export market, and often use non-SOEs to fill order received from overseas rather than make by themselves. According to non-SOEs, this practice is taken to secure profit by SOEs not being able to make handicrafts to meet customers' specification

of quality. However, SOEs don't introduce their foreign customers to non-SOEs. Besides, export quota is preferentially allocated more to such trading companies as SOEs which have much export results than to non-SOEs.

Employment

Most workers are from farming families. The length of employment contracts are different among the companies or emplyees. Labor costs account for around 50% of total costs. There are 3-year public vocational schools of wood processing for high-school graduates, but its educational level lacks in professionalism and cannot satisfy the requirments of practical work. As a result, the current education system almost results in waste of time and public funds.

The companies have pay system based on evaluation of employee's achievement. In addition to regular salary and 1 month salary as bonus, not more than 2 month salary is paid as bonus to workers according to their achievements. Average monthly payroll of surveyed companies is 500 ~ 600 thousand Vietnamese dong. In general, wage spreads are much wider than those in Japan. For example, a 32 years old production manager of a wooden quality furniture company with college degree in engineering is currently paid 4 million dong monthly (about US$ 286).

A company trains local high school students for bamboo processing, and selects skillful students and employs them. The director of this company said that many of the other students whom he did not employ are now in business of bamboo processing of their own. There are no training centers which teach processing technologies of bamboo, rattan and lacquer. Around half of employees live in the dormitories close to factory.

Finance

One private company in this business obtained US$ 200 thousand loan from Taiwan's SME support funds by intermediary In Com bank, under the contractual terms of maturity of 2 years, with annual interest of 4%, with condition of purchase of Taiwan made machines. This company repaid full satisfying all terms and conditions. However, it is rumored that, unlike the case above mentioned, almost a half of total ODA loans turned into bad debts.

80% of foreign currencies earned by export must be compulsorily converted into home currency dong upon receipt, and the balance can be drawn for the payment of import by submitting proof document such as import contract, B/L, invoice, C/O and others to banks. A non-SOE has borrowed 1 year money of 6 billion dong from relatives and friends of its director to construct a plant. He has been paying 1% monthly interest and currently he is asking an extension of principal to be repaid.

Exports are mostly settled by L/C base, but banks refuse non-SOE's loan application collateralized by L/C of export. On the other hand, SOEs can obtain bank loan collateralized by L/C for financing their purchase of materials, pay to processing subcontractors and others.

The directors of non-SOEs comment that tax examination is improving a little better to be reasonable, but non-SOEs are examined much stricter than SOEs. Different interpretations of tax laws are applied on the same costs and expenses by SOEs and non-SOEs. For example, tax office does not accept advertisement and repair service for customers as costs even evidenced. Loss carryforward is not accepted for non-SOEs but accepted for SOEs. Since farmers are not eligible to register as an enterprise, they are not provided with an official receipt of Ministry of Finance. As a result, costs makers paid to farmers for bamboo, rattan and processing fees are not accepted as the costs of production because of lack of official receipt. In addition, the directors claim that deduction or refund of value added tax (VAT) disbursed to subcontracted farmers is not accepted, and what is worse, interpretations on taxable or deductible are differently judged by each tax official.

Business Problems

The most important problem for non-SOEs is insufficient marketing ability to develop stable foreign customers. Insufficient skilled workers and training opportunity are another problems. In this industry, small-sized enterprises are dominant, so that the minimum requirement of management of a business concern is considerably behind in adopting double-entry bookkeeping and corporate accounting system. Owing to these backward practices, small-sized enterprises are unable to prepare those business plans which are essential to run business efficiently.

Enterprises which record monthly sales less than 10 million dong are exempted from preparation of accounting books when pay tax of only 1 million dong monthly. One small non-SOE takes an advantage of this rule to return not more than 10 million dong sales monthly when its sales exceed 10 million dong. The director excused his wrong return because regular taxes are too much to continue his business, so that he has no choice but to hide some sales. He has treated tax officials to restaurants before, but now provides them with cash. Tax officials come to his company every month, and he confessed that this dealing with them is a real headache.

Regarding workplace conditions, factories are dimly lit, and too dark for handwork. Factories have no air conditioning in tropical heat, so that workers may harm their health unless some measures of improvement are not taken.

Requests to Government

1) Allocation of soft loans under ODA program to a fixed number of non-SOEs.

2) Preferential loan programs for enterprises repaid all ODA loans according to the contractual terms.
3) Governmental introduction of possible affiliation with foreign companies.
4) Preferential corporate income tax rate for SMEs (especially for the manufacturing industry).
5) Long-term program of afforestation by government.
6) Leasing unutilized lands of SOEs-own for non-SOEs at a reasonable price.
7) Financial tie-up between SOEs and non-SOEs.
8) Quality authorization system by government or by trade association.
9) Subsidy for establishment and operation of technical training center by government.
10) One director of a non-SOE, once worked for a SOE, accused that SOEs' loss of profit is substantially caused by corruption of the managers seeking personal interests. He contends that SOEs' managers could acquire their companies' shares at unduly low price caused by losses brought about by themselves, and later get another incomes of capital gain by sale of these shares at right price.

(3) Policy Suggestions for Promoting SMEs

1) Development Strategy

The wood processing & handicrafts industry is based on tradition of Viet Nam. With many farmers engaging in these works, this industry contribute to reducing income gap between urban people and rural people, and is particularly beneficial to curb a migration of rural people to cities. On the other hand, its processing method is conducted by cottage industry, and its sales attitude is passive marketing like waiting for visit of tourists to the shop.

The products of this Vietnamese industry are internationally competitive in terms of cost, by using autogenous plants in Viet Nam, traditional techniques in this line of business and abundant supply of labor. It is therefore recommended that a serious effort to expand export business as well as to develop products of high value-added based on collection of foreign market data.

At the same time, thoroughgoing training of fundamental techniques and designing is essential to support successful production of such high value goods.

2) Policy Suggestions

<u>Establishing network of overseas Vietnamese to develop foreign market</u>

In an attempt to develop export market, technicians should be sent to see and contact potential market in advanced countries. In respect of market research and development, networks of overseas Vietnamese businessmen could offer effective information and measures of business particularly in the USA and EU countries. The cooperation from governmental offices such as embassy could be also helpful for the suggested market research, and building overseas

Vietnamese' business networks systematically.

Tie-up with foreign makers with high reputation

Concerning on development of new products, for example, it is recommended to develop some tie-up products with foreign established brand makers. At first Vietnamese makers subcontract, second proceed to licensed manufacturers, and at final step produce high-grade original merchandises incorporated with European sophisticated designs. By doing this, Vietnamese makers could increase profits step by step.

Small-scale vocational schools for traditional goods and accounting management to be established in each rural area, and financial assist of payroll to traditional craft enterprises for employment of young workforce and technical training to them (OJT)

Makers must obtain a high level of technical skill to support marketing activity. It is recommended that many small-scale vocational schools for traditional craft which farmers can attend are to be established near nation-wide manufacturing clusters with subsidies of the government. This education should be given priority to some products which make use of each district's specialties such as wood, bamboo, rattan, rush, sedge, lacquer, embroidery etc. needing only simple machinery. Teachers are mainly those skilled craftsmen living neighboring villages of the schools. Students with excellent achievement are given a certificate of achieved skill in grade by government. Head quarter of the school system in large city may be able to collect various information from advanced countries such as design, market trend and changing tastes, which should be disseminated to the schools in rural area.

The important training in this vocational school is practical training actually using modern equipment by adopting business world's opinions.

As promotion of this schooling system, several things can be recommended.

(a) The graduates with the certificate is given a first option to be employed.
(b) Government subsidizes makers employed the high-school graduates, say, one year salary as technical education fees to promote young people's employment as well as their skills.
(c) A head quarter sends and exchanges skilled teachers who fit in each regional needs including foreigners invited, and unifies the nation-wide tests of common skill-grades certificate.
(d) Basic corporate accounting management as well as tax system is taught in the schools to acquire modern management skills and to be right taxpayers.

Leasing SOEs' idle land to non-SOEs, preferential allocation of export quota for manufacturers, and promotion of other equal treatments to non-SOEs in export financing and taxation

It is recommended that unused land of SOEs is allowed to be leased to non-SOEs at a reasonable price to support non-SOEs and accelerate effective use of national assets.

Wood products such as quality furniture made of domestic wood is subject to export quota. Export quota is allocated by government based on exported amount of previous years etc.. SOEs in this industry function mainly as trading companies, so that it is natural that SOEs receive a majority of allocations. Manufacturing non-SOEs, though each scale is small, can absorb abundant labor force to considerably contribute to society, on the other hand, require those management to take considerable effort in finding factory site, equipment investment, financing and training employees and so on. To reward and promote non-SOEs, some practical standards which preferentially allocate export quota to manufacturers should be considered.

Bank loan collateralized by L/C (at least L/C through a foreign correspondent banks) should be allowed to non-SOEs for both after and before shipping, which is accepted for SOEs. Such bank loan could contribute to Vietnam's export promotion policy.

In taxation, correction of tax evasion, needless to say, must be made and same should be made to tax examiners by education of due disciplines. The nation-wide uniformed interpretation and application to the same tax items, and equal treatment between SOEs and non-SOEs are urgently required .

Promotion of forest management and conservation by governmental leadership

With increasing international demands for protection of natural resources, exports of wooden products, unless those materials are lumbers exploited from forests which are managed properly, may not possibly be sold in the near future. Namely, when exporting, attachment of certificate of international organization (Forest Stewardship Council, FSC) is going to be obliged (the certificate verifies that the used wood was exploited from properly managed forest). Such preservation and management of forests should be executed under the government-led research, study and long term master plan. It is recommended that the government should draft programs and practice those promptly in order to preserve national resources, and also protect the wood processing & handicrafts industry of Viet Nam.

4.3.4 The Plastics Industry

(1) Position of Small and Medium Scale Industrial Enterprises (SMEs)

The plastics industry is the most capital intensive among four 'other priority sub-sectors'. Vietnamese plastic manufacturing are clustered 80% in HCMC area, 15% in Hanoi area and 5% in the middle. The total plastic production in 1996 was 4 million tons and annual consumption per capita is 3.6 kg in 1998. This 3.6 kg is substantially lower than Thai's 23 kg, Malaysia's 31 kg and Indonesia's 10 kg.

This shows that the plastics industry of Viet Nam is still young and there is a good growth potential, and in fact its production in volume has been registered the annual growth of 25~30 %. Wage level of this industry is the highest in the four sub-sectors. As a result, competition in this market is getting intensified. Among the market, SOEs produce mainly PVC pipe/sheet and construction materials for industrial use in a lot with large-size chemical equipment.

Non-SOEs turn out simple plastic parts for machinery, electricity, home appliances and household goods, since these non-SOEs employ second-hand equipment and metal mold they can afford to buy. This production in monetary term accounts for 30~40% of Vietnamese total products. Vietnamese non-SOEs' technology has advanced, thanks to severe competition with neighboring countries which were once dominant in domestic market until a few years before like Thai made, so that those foreign made plastics are gradually out.

Although Vietnamese plastics are exported, the levels of technology and quality are still low from an international viewpoint. As far as exporting products are concerned, export items are limited to those low priced household products, packaging materials and miscellaneous goods like rain coats and shopping bags.

Raw materials are all imported, and in which 95 % are wide use thermoplastic resins such as PVC, LDPE, HDPE and PP. By nature of the material, the product is vulnerable to heat over 90 ℃, and the tensile strength test shows rather weak (less than 400 kg/cm2).

Extruders and injectors in use are obsolete, and so production is not efficient and quality is not stable. The number of testing equipment is still scarce, and so quality control is unsatisfactory. The situation can be described like a mass-production by house industry.

The number of companies which can produce metal mold, a very important technology for the plastics industry, is currently estimated for around 50. However only 2 companies have competitive know-how and equipment against their competitors in neighboring Thailand and Malaysia etc.. The technical level of other companies are substantially lower. Most metal molds are imported from Asian neighbors. The maintenance and repairing techniques are almost poor.

(2) Current Status and Problems of Businesses and Requests to Government

Based on field survey the general conditions of the plastics industry can be described as follows:

Important Points for Management

The situation of "sellers' market" has been the case in Vietnamese plastic products, in particular household plastics, thanks to strong demand. Since the number of suppliers has been ever increasing, price competition is getting keen. The ability of developing new products and fundamental technology is on important point for management. Being different from arts and crafts, the main products are utility goods like household articles and simple parts for electrical appliances, so quality of goods reflect directly on sales. Therefore introduction of superior machines is essential, and as far as manpower is concerned, quality matters more than quantity.

From now on, particularly important measure to secure profitability of this industry is to develop export market.

The crucial point in technology is the ability to produce metal molds. At present, though, the capable companies enough to produce metal molds are not many.

Production and Technology

Plastic pellets are imported from Thailand, Korea and the USA mainly, and chairs and household goods are produced from PP and HDPE. Metal molds used to be imported from Taiwan costing around at US$ 100 thousand each, a very expensive cost for Vietnamese. Recently plastic products makers are switching to home made metal molds priced at around US$ 40 thousand to reduce their production costs.

One company advised by government transferred its plant to suburb area, and installed there 5 molding machines of Japan-made (2 of 450 tons capacity, 3 of 650 tons capacity). The installation of Japanese machines has made rationalization of production, one worker per machine, and maintenance and repairing are relied on the local branch of the machine makers. By the rationalization, production cost is substantially reduced. The next question would be a task of education of maintenance and repairing engineers by itself to attain the long-term growth of the company.

Sales and Marketing

In Viet Nam, there is seasonal ups and downs of demand for plastics. Sales decline in rainy season of March to August and increase in dry season of September to February. Such increase in dry season is 20% more than rainy months particularly at year-end and new year. Most designers are the head of the companies collecting information of consumer taste from 200 independent

private marketing agents nation-wide. Although plastic products for household use are made on expected demand, there has been not much problems of unsold inventory.

Meanwhile, Australia, the USA and Japan have been shifting their plastic products import from countries such as Thailand, China, Taiwan and Hong Kong to Viet Nam. Vietnamese products for these export markets are priced cheaper but attain much higher profit margin than that in domestic sales (chair at US$ 2, bowl and cup at US$ 0.25, plastic container for Japanese refrigerators at US$ 0.5 per each piece).

Vietnam has a trade association of plastics manufactures called Vietnam Plastics Manufacturing Association (VPMA). However, its members not necessarily act in unison, and VPMA has not been active, partially because the members of VPMA are too competition conscious among themselves. Moreover, a member expressed that it is necessary for VPMA to draft programs on marketing, technology training and quality standards etc., but VPMA is short of funds with no government subsidy.

Employment

Average monthly payroll of surveyed companies is 850 thousand Vietnamese dong, which is the highest level in the four other priority sub-sectors. Payment is based on workers ability and performance, for example, a 29-year-old manager responsible to production site is paid 4 million dong a month.

A director stated that 3 employees were sent to Japan for training course to study management control system including visit to Japanese plastics factories for 45 days under AOTS program, and they contributed substantially to the success of operation after return.

Finance

Due to the fact that machines and tools like molding machines and metal molds are expensive in Viet Nam, and almost those functions can not be replaced by manpower, companies ordinarily have a large amount of borrowing, so that financing operation costs is very tight. Commercial banks, though, started to extend a bank loan at 1.15% / month for 6 months secured by machinery to non-SOEs whose brand names have consumers' market acceptance.

Business Problems

Manufacturing technology of metal molds, key tool in the plastics industry, is behind among ASEAN countries. Most plastic goods are for household use, so there is no protection of patent. This causes soon price cutting because many produce similar goods when a new shape and coloring become popular among consumers. Because of excessive price cutting, some companies are compelled to sell this products at the price, which is almost the same as production cost.

One brand new plant of 14 thousand m2 is brightly lit and maintained clear like the plants in Japan. The question remains how soon this plant could recover its investment in the highly competitive plastic market.

Except those new plants, industrial factories have no flooring, and workers sit on bare ground without chairs.

Requests to Government

1) Adoption of more generous incentives for foreign direct investment (FDI) than neighboring countries, and establishment of an attractive environment for business.
2) Acceleration of technology exchange system with advanced countries.
3) Low interest-bearing loan to promote import of molding machines and metal molds.
4) Tax relief for modernization investment.
5) Need to import the used machinery by government to resale to plastic products companies at low cost.
6) ODA loans are allotted preferentially to SOEs. An increase to non-SOE is expected.
7) Even large trash containers of 30 tons capacity were procured from various companies by government agencies. From the point of view of quality assurance, government and public entity should procure from a single company which developed its design by itself at least for 2 years.

(3) Policy Suggestions for Promoting SMEs

1) Development Strategy

The plastics industry has been growing fast in pace with Viet Nam's expanding economy. However especially the producing technology of metal molds, key tool in the plastics industry, is behind among ASEAN countries since Vietnam has introduced foreign direct investment in the industry much later than its neighbors.

Because of the intense competition of plastic products currently going on, improvement of metal mold technology has not been achieved satisfactorily. If this situation is left alone, producers may increase their sales but not profit eventually. For a long perspective, when Vietnamese producers step into international competition, especially after under AFTA obligations, may fail.

Acquiring metal molds techniques requires lengthy times and costs, especially sober continual series of trials and errors at production site, so that engineers tend to be not enthusiastic to learn them. However this particular technology is the most crucial for a successful products in international competitive market.

Therefore, the long-term program for promotion of production techniques of home-made metal molds should be executed as a national project.

Another important policy is to promote supporting industry to produce plastic parts for the household electronics, electric appliances, two-wheeled cars and automobiles industries. To realize this policy, it is essential to invite foreign direct investments in those industries.

2) Policy Suggestions

Introduction of assisting system for import of used machines and metal molds etc., and purchase and resale system at reasonable prices by government

Producers can learn and acquire skill by use of machinery. SMEs' import of these machinery should be given a tax relief to develop skilled workers in the industry for technical catch-up. It is advised that a collective purchase by government and resale to SMEs at a reasonable cost to make the use of machinery easier. Also such machinery can be leased again at a reasonable cost.

Establishment of public industrial quality test institutions at cities with industry promotion priority

Public industrial quality test institutions are to be engaged in following activities:

- Quality test of finished plastic products.
- Consultation of processing technology of finished plastic products.
- Consultation of designing, producing, maintenance and repair of metal molds.
- Rental of machinery and equipment (fee charged per hour basis).
- Seminar and training class.
- Supply of technical information to SMEs.

Holding of technical training courses by engineers of advanced countries

VPMA and alike association invite engineers and experts to Viet Nam to be trained in following fields:

- Techniques of use of plastics materials
- Techniques of designing of metal molds
- Techniques of mechanical processing of metal molds
- Techniques of maintenance and repair of metal molds
- Techniques of plastics molding
- Techniques of troubleshooting of metal molds and molding

Dissemination of technologies stored in SOEs, and establishment of technology-exchange market at moderate price between SOEs and non-SOEs

In Viet Nam, a wide technical gap exists between SOEs and non-SOEs. Foreign capital tends to tie up with SOEs which have technology and large land. This situation would make non-SOEs /SMEs further behind SOEs in technical up-grading and financing. This gap would be solved by establishing an information exchange market where SMEs can make access to stored technical information at reasonable cost. The information exchange market such as proposed here is particularly important to raise the level of the plastics industry of Viet Nam as a whole.