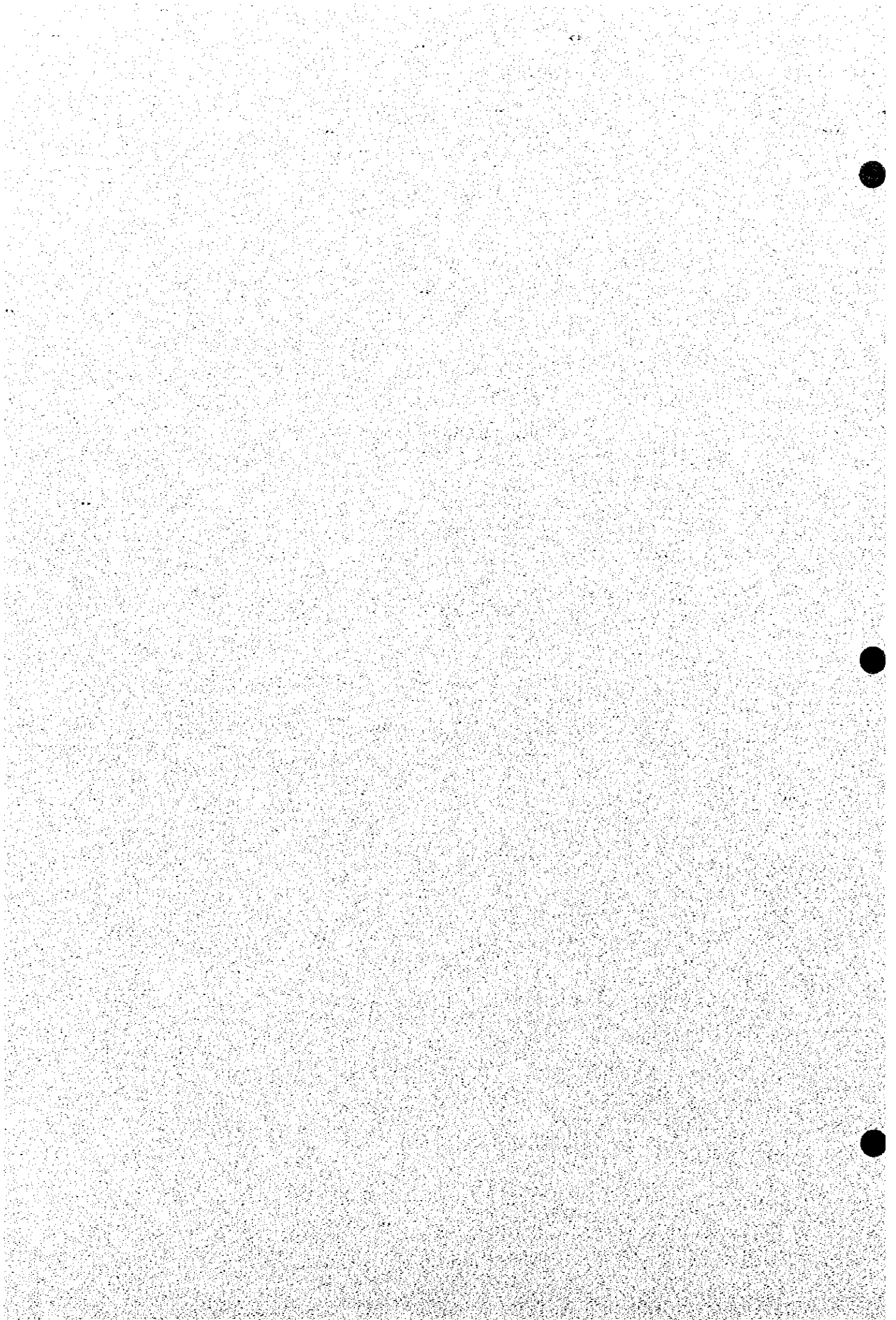
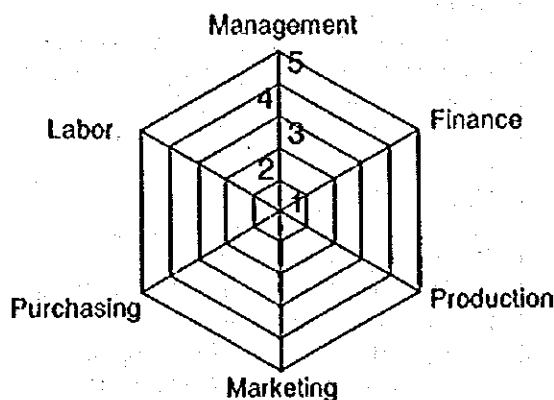


**Chapter 3 Industry Promotion Plan for Each Sector
(Highlighting Supporting Industries)**



Chapter 3 Industry Promotion Plan for Each Sector

The survey included simple business diagnoses made during the Team's visit to each company. In the diagnoses, six aspects of corporate management were evaluated, on a scale of 1 (lowest score) to 5 (highest score). The evaluation results are analyzed in the appropriate sections of the text. The basis of evaluation was as follows.



RATING OF COMPETITIVE LEVEL

Scope	Level
5	Internationally competitive and competent.
4	Close to international standard. Needs specific and professional support to reach the standard.
3	Acceptable for current market requirements. Need improvements in wide areas of operation to reach international standards.
2	At the brink of collapse but still left with possibilities of moving up to currently acceptable level.
1	No possibilities whatsoever to improve to be internationally acceptable level.

Note: Even though a diagnostic element is evaluated extremely low for a company, that company might survive as a whole depending upon the nature of her business. For example, production on consignment does not necessarily need marketing and purchasing activities as its nature.

MAJOR ITEMS EVALUATED BY DIAGNOSTICS

Field	Component Items Reviewed
Management	Capability of president and directors. Business policy and strategy. Plan-Do-Check-Action execution. Organization structure. Control of departments.
Finance	Profit planning. Control of budget and expense. Sales and break-even point. Raising capital, and investment in facilities.
Production	Production planning. Industrial engineering. Job procedure and documentation. Quality, cost and delivery management. Maintenance of mechanical equipment. Design and development engineering. Safety and health management.
Marketing	Market survey such as competitors & products. Product development policy. Pricing policy. Sales channel management. Sales promotion and public relations. Customer relation.
Purchasing	Out-sourcing policy. Parts and material purchasing plan. Control of subcontractors. Survey of quality, cost and delivery level.
Labor	Personnel management. Salary and bonus. Welfare program. Moral, discipline and skill of workers. Training-Education program. Recruiting. Turnover of workers.

3.1 Automotive Industry, and Auto Parts Industry

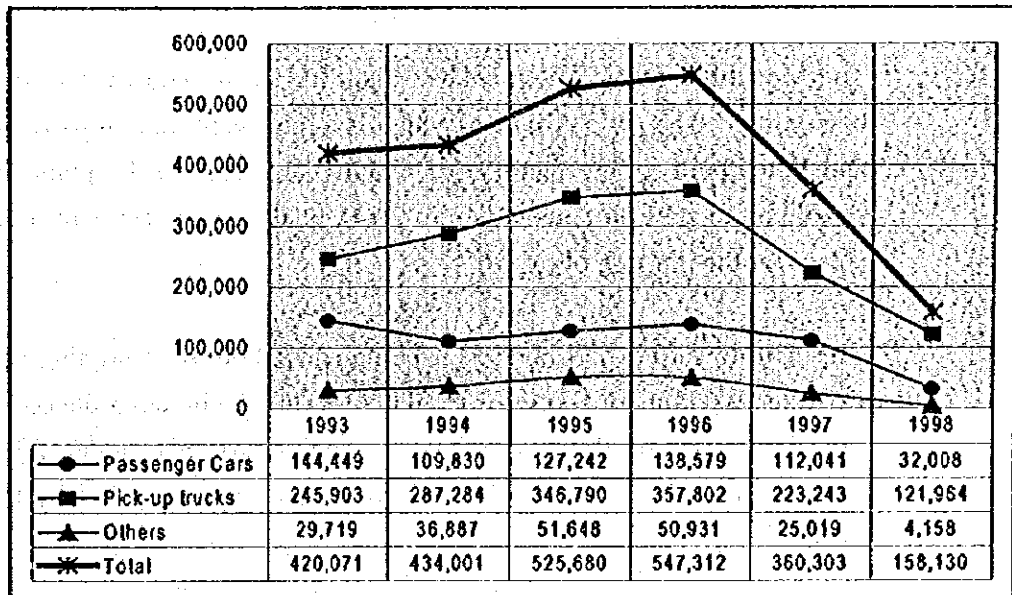
In this section, we clarify problems of the automotive and auto parts industries in the wake of the economic crisis and propose measures to deal with them. The contents of this section are based on the results of an automotive expert's hearings at related companies. Team members visited a total of 27 companies, comprising four assemblers of four-wheeled vehicles, two assemblers of two-wheeled vehicles, and 21 automotive parts makers (13 Japanese-owned companies and eight Thai-owned companies).

3.1.1 Impact of the Economic Crisis

(1) Automotive Production

The automotive industry, which sold 95% of its finished cars in the domestic market, received enormous damage from the domestic market stagnation caused by the crisis. As shown in Figure 3.1-1, production in 1998 declined to 158,000 vehicles which is 29% off of its peak, in 1996 (547,000). According to the industry sources, production in 1999 will be 180,000. The pace of recovery is slow, and it may take another five years to return to the level of 1996.

Figure 3.1-1. Automotive Production (1993-1998)



When the annual production exceeded 500,000, the Thai auto assembly companies became aggressive investors in expansion. They sought to make Thailand a strategic foothold of production for Asia with the goal of making one million cars in the year 2000. Industrial observers estimate that Thai's auto industry had the capacity to produce one million cars even in 1998, which means the same year's capacity utilization was only 18%.

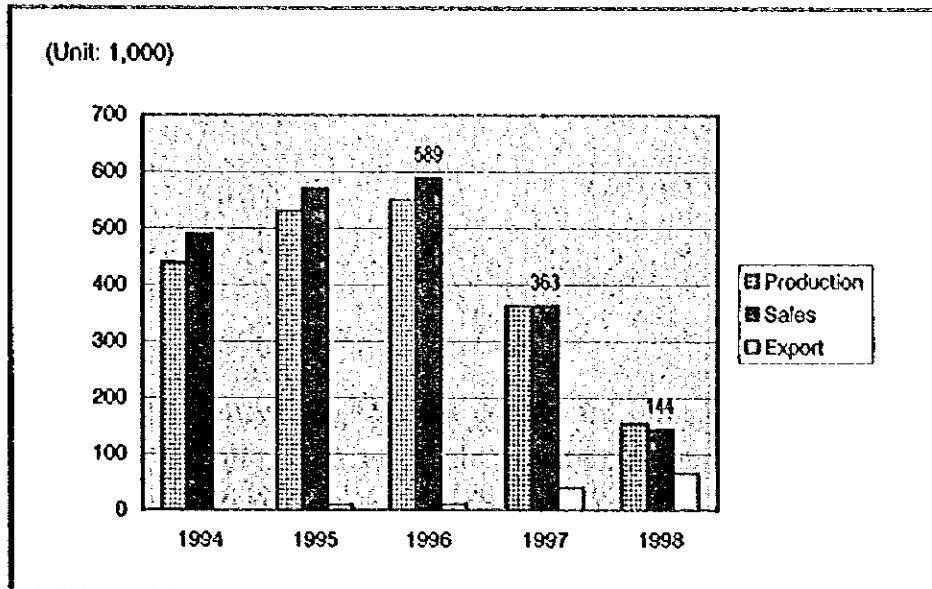
(2) Assigning of Greater Importance to Exports

Despite the drastic decline of the domestic market, Japanese-affiliated assemblers have not changed their plan to make Thailand a strategic production base. Rather, it is other assemblers who used to produce solely for the domestic market who are actively shifting their emphasis toward exports. Honda, which used to be domestic market oriented, started to export small passenger cars, and Toyota is increasing its exports centered on Australia. According to the *Nikkei Sangyo* newspaper of June 1, 1999, Isuzu will transfer its entire one-ton pickup truck production (1998 production was about 110,000 units) by 2001 from the Fujisawa Plant to Thailand. The trucks will then be exported to Australia and New Zealand at first.

The Mitsubishi (MMC) Remchaban Plant has been export oriented since its beginning. The Auto Alliance, which is a joint venture company of Mazda and Ford, built a new factory for export vehicles. GM's plant, which is scheduled to start producing cars in 2000, is also an investment in Thailand solely for the purpose of export.

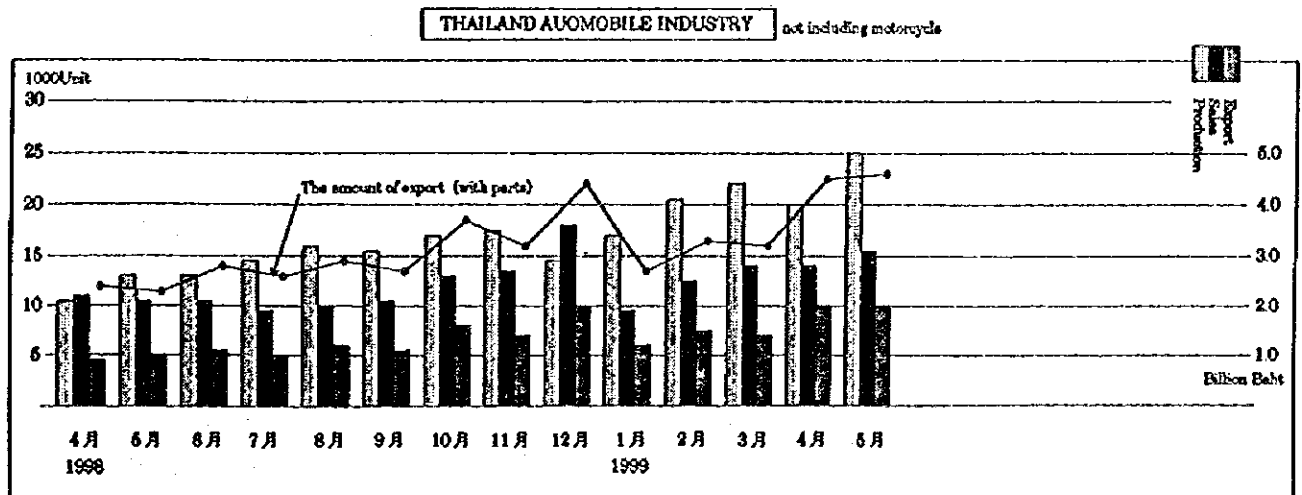
This shift toward export markets is being carried out by assigning part of the existing exporting market to Thailand. This is in accordance with the global strategy of the respective companies, so that under the present conditions Thai companies cannot develop the export market by their own efforts.

Figure 3.1-2. (a) Production, Sales and Export of Automobiles



Source: FTI, Automotive Industry Club

Figure 3.1-2. (b) Production, Sales and Export of Automobiles, Monthly 1998/4 - 1999/5



Source : FTI Automotive Industry Club

Table 3.1-1. Export by Make in 1998

	(Unit: vehicle)
MMC	60,861
Honda	5,335
Toyota	1,819
Mazda	1,207
Nissan Diesel	24
Isuzu	22
Hino	18
Total	69,286

Source: MMC Sittipol Co. Ltd.

As shown in Figure 3.1-2 and the Table 3.1-1, exports are growing, and are now equal to almost 50% of domestic sales. Industry observers are projecting the number of exporting units to be 120,000.

(3) Other Strategies of Assemblers

Each assembler has various strategies other than shifting to exports. As a short term measure, funds are allocated to the dealers to support their marketing effort, and parts suppliers are paid in advance. Toyota is said to have made capital increase by 7 times, of which 50% was for financing the car purchase, 25% was for the suppliers support and the remaining 25% was for dealer support.

Assemblers set Asian strategy from a long term and global viewpoint, so that we did not hear any discussion of withdrawing from Thailand because of the economic crisis. They rather view Thailand as a strategic base in Asia for production and development. They hold 100% or close to 100% of equity in the Thai companies and intend to continue to improve the competitiveness in the export market.

As events supporting this observations, note that: Honda has increased its R&D in Thailand, and has started exporting small passenger cars, while Isuzu has transferred production of a pick-up truck from Japan to Thailand.

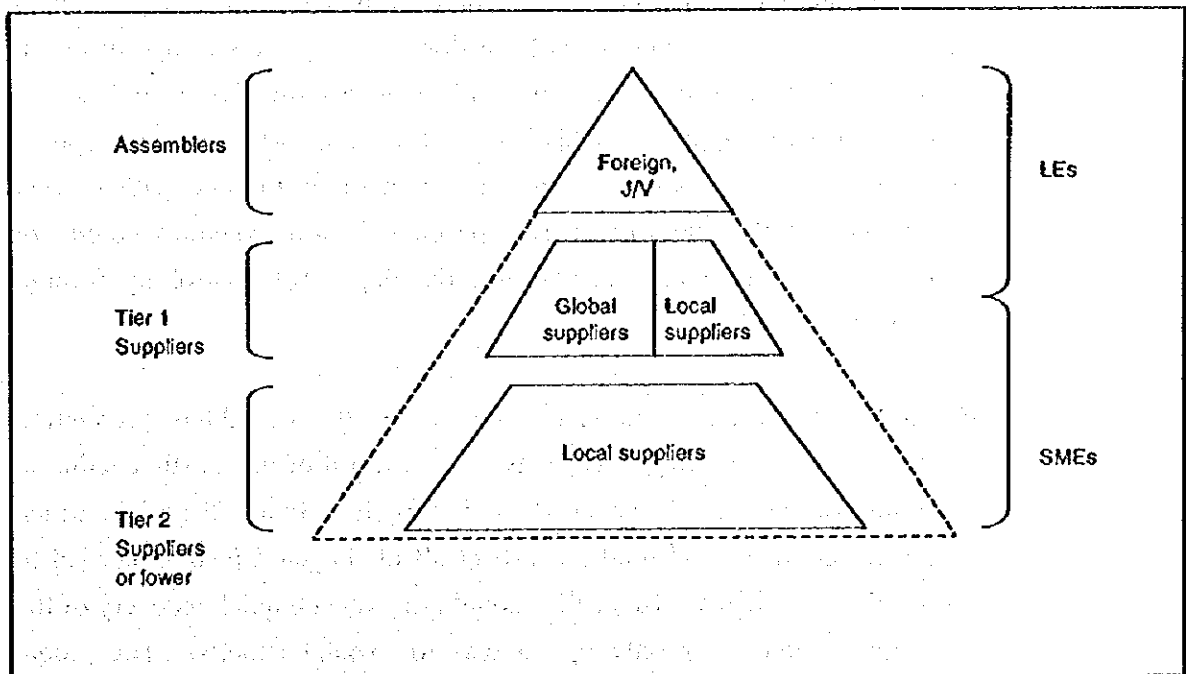
US and European affiliated assemblers, which are behind the Japanese affiliated assemblers in system formation, have announced that they want to use Thailand as a base to export to nearby countries. They face the tasks of establishing marketing strategies and sales networks and of improving

supplier networks, to improve competitiveness, and to establish product development and support systems effectively and quickly.

3.1.2 Impact on the Auto Parts Industry

The decline in the production of fully assembled vehicles damaged all the auto parts companies. Their measures to deal with the crisis, however, vary depending on their capital structure, scale of the company and the identity of the company for which they are a subcontractor. As dependency on exports increases, winners and losers will be divided more sharply. Whether they are foreign capital affiliated companies or entirely Thai owned makes a difference. Figure 3.1-3 shows one conceptualization of the structure. The fragmentation (solid line components) of the auto parts industry into several patterns signifies that the structure of the industry in Thailand does not form a complete pyramid.

Figure 3.1-3. Conceptual Structure of the Automotive Industry



Even though there are exceptions to the above chart, this classification helps clarify the problems in the industry. Each component of the structure is explained below.

(1) Tier 1 Suppliers

Tier 1 suppliers are classified into global suppliers and local suppliers. Global suppliers are either 100% foreign owned subsidiaries, or joint ventures with foreign investors. They not only deliver parts directly to the assemblers, but also are deeply involved in the work of parts development. Most of them work closely with assemblers. In the midst of the current global reorganization of the auto industry, the Tier 1 suppliers have to be global if they want to survive. The total number of suppliers of this level, worldwide, has been getting smaller in the recent years.

In Thailand, the Tier 1 suppliers have the ability to improve quality, processes and cost. Also they can raise funds either by themselves or with help from the parent companies. In order for major global suppliers to survive, they must help their parts suppliers at Tier 2 or lower levels to make improvements. As a practical matter, however, they can provide suitable support or guidance to only a few of their parts suppliers. They want to raise the percentage of purchases from domestic suppliers as a way to cut costs, but they need to enhance their mechanisms for giving guidance to those lower level suppliers. This is their dilemma. Most global suppliers have increased their capital by two to seven times to cope with current conditions, but the majority of Thai partners in joint ventures could not contribute more capital. As a result, the degree of control by foreign investors increased.

Before the crisis, Tier 1 suppliers responded to the assemblers' production increase plan by investing in capacity. As a result of the drastic decline in the domestic market, however, Tier 1 suppliers found they had much excessive facilities and could not expect all of the sales income needed to service the huge loans. Since they could not expect a quick recovery of the domestic market, their only option was to expand exports. The global suppliers thus began to increase exports to make up for the loss of domestic sales. Unfortunately, the economic situation of the export target countries, which include Japan, has not been bright. Up to now, just as in the case of the assemblers, the global suppliers are not by genuinely expanding exports their own competitiveness; it is more a matter of trying to get a larger

portion of Japan's market such as Asia, Middle East and Japan itself, or as if dividing a smaller pie. They have expectations for real export expansion led by the initiative of the assemblers, and are following the assemblers' strategy of attaching more importance to Thailand.

There are local suppliers other than global suppliers among the Tier 1 suppliers in Thailand (in case of Toyota, 40 out of 117 companies). The majority of them are larger than SMEs size, but not quite global. How to help them grow will be one of the key issues for Thai industrial policy. There are some companies, among genuine Thai-owned Tier 1 suppliers, who judged that it was going to be too difficult to raise all the capital they needed and secure technological independence, and decided to withdraw from the auto industry. These moves wherein some cases influenced by business conditions external to the automotive industry. Thus, the Siam Cement Group transferred its equity to auto related partners. The KPN Group sold the majority of its stock to Yamaha, and decided to sell the parts makers in the group. These are two examples of such a case of withdrawal.

US- and Europe-affiliated Tier 1 suppliers group have been either purchasing the stock of Thai companies to secure majority shares, or have been establishing their own subsidiary companies. Their target is not just the Thai market. While they support US- and Europe-affiliated assemblers who want to expand to Asia from Thailand, and they also regard their Thai operations as a key factor in Asia for the global network. We see differences between the US and European business approach and that of the Japanese. Unlike the Japanese way of teaching "from A to Z," the Western way is to provide manuals based on a management system, such as QS 9000 to build a business system. They try to accomplish the localization of the company in a brief time, by means including hiring Thai people for executive posts.

(2) Tier-2 Suppliers and Lower

With the exception of a few parts suppliers, all local suppliers of parts to the global suppliers are of Tier 2 or lower. They are literally SMEs, barring a few suppliers of raw materials. Except for major raw material suppliers, they are all local SMEs suppliers. Assemblers' support reaches only to the

Tier 1 suppliers, so that any provision of support for Tier 2 part makers and lower has to be provided by the Tier 1 suppliers. In reality, however, in most cases even the Tier 1 suppliers do not have much by way of available resources to help lower-level suppliers.

As the local suppliers are mostly SMEs financed by Thai capital, unlike joint venture companies, they cannot receive funding aid from parent companies abroad. They have difficulty in securing loans from local financial institutions, and cannot help depending on their clients for backup. The only place they can turn to for support is the company they deliver parts to. They are doing everything possible to survive such as reducing the number of their workers, cutting wages, reducing labor hours and cutting expenditure, and delaying payments, but it is going to be very difficult for them to overcome the situation by their own efforts.

Because of the rapid increase in exports, they are also being requested to improve product quality, reduce costs and shorten delivery times in order to be competitive in the world marketplace. However, most of them cannot afford to hire experts to help make such improvements, so they do not know how to cope with such demands from their customers. They feel insecure about the survival of their companies if they cannot meet the new requirements for competitive products.

3.1.3 Relationship Between Assemblers and Suppliers

(1) Financial Support as an Immediate Issue

The urgent issue for the suppliers right now is financial support. Needless to say, the decline in the production of complete cars directly damaged the financial situation of the subcontract parts makers. Assemblers are increasing their capital to support their activities as well as those of some local suppliers, as much as they can. Japanese affiliated assemblers are trying to provide support to their suppliers. The methods used are, in general, the following:

- Increase the price paid for parts
- Purchasing parts with advance payment (low interest financing)

- Purchasing molds in advance
- Supplying money for material purchase (low interest financing)
- Purchasing inventory parts

However, the suppliers that they support are limited to Tier 1. The assemblers purchase directly from them. Even among such Tier 1 suppliers, usually support is limited to the supplier who had the largest volume of business transaction with the assembler. Assemblers are saying that their ability to offer financial support is approaching its limit. They want and request the public financial institutions to support the SMEs financially. They say they need such help by the end of this year.

(2) Effect of Abolition of the Local Content Regulation for Export Cars

At the recommendation of the WTO, the local contents regulation will be abolished in the year 2000. In Thailand, it is said that the regulation will be abolished even before that. Export cars must have high quality parts. Our comparison of the local content of Thailand-made vehicles for export and domestic markets, and of the Japanese affiliated assemblers, is as follows.

Table 3.1-2. Comparison of Local Content for Export and Domestic Market

Assembler	1-ton pick-up truck	
	for Domestic Market	for Export Market
A	70%	50%~60%
B	80%	36%
C (Export oriented)	80%	50%~60%
D (Export oriented)	70%	70%
E	75%	75%

Source: Interview survey by the Team

The local content of exported cars is declining, except at two companies, D and E, which have focused on export markets from the beginning. As exports grow, the ratio of local content tends to decline, which means that we may not expect the same increase of the market for products from local parts makers as the ratio of the export increase.

(3) What is Desired of Local Suppliers

All of what the assemblers and global suppliers desire of the local suppliers in connection with export expansion comes down to only one concern: to provide parts that can meet global standards. In many cases, the global standard is expressed in terms of quality, cost, delivery, and development. The assemblers and global suppliers may adopt a local standard for the domestic market, but it is not probably wise to have separate production lines (one for domestic market and the other for the overseas market). This would pose an inconvenience in supplying parts and managing inventory. Therefore, it is expected that it will be a matter of time before all parts are made to meet global standards. The improvement of quality, cost delivery and development has become an urgent task for the local suppliers.

3.1.4 Expectations Regarding the Thai Automotive Institute, and Request to Thai Government

As of June 1999, the Thai Automotive Institute (TAI), which was separated from TISI in 1998, was still at the stage of preparing to start activities. The Team asked in the interview survey about what is desired of TAI and its functions. Questions were also asked about what was desired of the Thai Government in general. The following outlines the survey result.

(1) Expectations of the Automotive Institute

Respondents said:

Have some kind of expectations to TAI	87.5% (14 companies)
Have no expectations to TAI	12.5% (2 companies)

Companies who did not answer are excluded from the above result.

Among the 12 companies who have expectations toward the TAI, two attached comments that they are content with the basic principles but they feel TAI's function and method of policy implementation are still vague. One of the two companies who said it did not have any expectation from TAI was a company that did not have any particular dissatisfaction for the overall current situation. The other company said that no institute so far

has gone well. In conclusion, nevertheless, the automotive industry as a whole has a great expectation of the TAI.

Functions TAI should have were said to be as follows (multiple answers).

	<u>No. of companies</u>
Technology transfer (technology/skill)	7
Support product development (R&D)	7
Analysis, inspection, authentication, and correction	5
Education, training (including ISO, QS)	5
Be a contact point between government and private companies	2
High speed round test course	2
Others (wages, software development)	2

The following are further details on the more important points.

Regarding technology transfer, Aside from general workers education, they want TAI to help transfer basic technology and skill to employees through OJT. Instead of training at the TAI facility, they want real experts to come to the plant to teach. Four Japanese-affiliated companies said they could utilize some of their retired engineers to help teach the suppliers.

In order to improve competitiveness necessary for growth of export sales, Thai companies would like to have R&D functions in place inside their own companies, so that they can make their production system more complete.

Analysis, inspection, authentication, and correction: Beyond TAI's inheriting TISI's facilities, it should get support regarding manufacturing of export grade products.

Education, training (including ISO, QS): What is desired is basic education for manufacturing, education and training for ISO9000 and QS9000, and also English language education.

(2) What is Desired of the Government

Concerning institutional change, parts makers want to see correction of the unreasonable import tariff (three companies), and expressed a concern for the too-rapid trade liberalization (two companies). Also, the need for a joint effort by the government and private sectors to prepare a long-term vision for export expansion, incentives for R&D investment, improvement of technology education centers, and reexamination of AICO have been expressed.

Some dissatisfactions toward the government are: it is very slow to respond to the changing situation, procedural processes take too much time (3 companies), and sometimes the opinions of MOI and MOC differ, which create difficulties to cope with (one company).

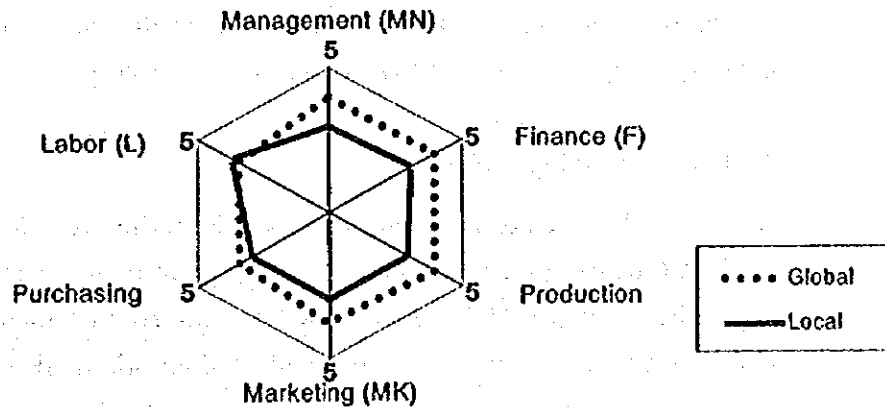
3.1.5 Analysis of Results of Business Diagnosis

(1) Outline and Results of Business Diagnosis

Of the 27 companies the Team visited, 21 were parts suppliers. It was possible to implement a business diagnosis at 13 of those parts suppliers. Results at the suppliers were aggregated into two groups—global suppliers and local suppliers—to clarify the difference in business capabilities between the two groups and determine what has caused the difference. The study results shall be used as a reference in considering promotional measures. There were seven global suppliers and six local suppliers. Their major characteristics and ratings are shown in Table 3.1-3.

Table 3.1-3. Automotive / Auto Parts Company Diagnostic Ratings

Company	Thai share of equity (%)	Export (%)	Employee nt (persons)	Score*					
				(MN)	(F)	(PR)	(MK)	(PU)	(L)
(Global suppliers)									
A	54	0	180	3	3	4	3	3	3
B	38	40	220	4	4	4	4	3	3
C	4	20	952	4	4	4	4	3	3
D	70	25	913	5	4	4	4	4	4
E	56	23	1,112	4	5	4	4	5	4
F	51	10	n.a.	4	4	4	4	3	4
G	40	20	2,150	4	4	4	4	3	4
Global average (Total = 3.81)				4.0	4.0	4.0	3.9	3.4	3.6
(Local suppliers)									
H	42	54	602	3	4	3	4	3	3
I	100	3	280	3	3	3	3	3	4
J	40	0	618	4	3	3	3	3	4
K	100	1	529	3	4	3	2	3	4
L	100	1	700	3	3	3	3	3	4
M	100	10	329	2	2	3	3	3	3
Local average (Total = 3.14)				3.0	3.2	3.0	3.0	3.0	3.7



(2) Analysis and Evaluation

The average score was 3.81 for the global suppliers and 3.14 for the local suppliers, the difference being as large as 0.67. In the evaluation items "Management," "Finance," "Promotion," and "Marketing," the difference ranges from 0.8 to 1.0. In "Purchasing," the difference is 0.4. Only in "Labor" did the local suppliers score 0.1 higher than the global suppliers (by 0.1). The root reason why the global suppliers have a lower score for Labor

(labor management) is that the global suppliers are mostly foreign-based companies, and are less adept in management of Thai workers than are the local suppliers. They maintain comparatively high management efficiency by limiting the transfer of authority and implementing tighter labor management.

The important problems identified from the business diagnosis results are described below.

1) Competitiveness Gap between the local and the global suppliers

A competitiveness gap between local and global suppliers exists and will most likely widen in the near future, since the global suppliers know what the requirements in world markets are, and have the experience and resources to raise the qualitative levels of their products in a relatively short time.

On the other hand, most of the Thai local suppliers feel the pressure from the assemblers to improve their quality, lower their costs, and improve the reliability of deliveries. But the Team judged that the Thai suppliers are not desperate as they are yet to recognize that their very survival is at stake.

2) Technical capability problems

Even though the auto parts industry has been trying very hard to make its product (quality, production cost, delivery performance and development) capability reach world level, it must be admitted that there still exists a tendency to stick with the less-demanding domestic-market standards and requirements. The expansion of exports automatically requires more local development and engineering, to shorten lead times and reduce costs. The local suppliers are not adequately prepared either technically or in terms of communication with global customers.

One of the global suppliers had the foresight of nurturing engineering capability during the past ten years. The company has equipped itself with 50 employees for development work, capable of engineering tasks from tooling through manufacturing, so that they can work together with

assemblers' personnel on development (design-in). The local Tier 1 suppliers we have visited know the needs of development function, but so far actual steps toward that direction have not yet been taken.

3) Managerial problems

A certain number of Thai entrepreneurs and corporate managements in the automotive industry seem to have lost some of their interest and zeal to continue manufacturing their existing products. The major reasons may be that manufacturing is requiring too much effort, compared to that needed to earn profits by other means for one thing, and the loss of confidence to develop technical expertise required to continue to keep leading position in the industry for another.

Overall economic and industrial prospects, however, suggest that such divestment is unwise. The industry is believed to have sufficient potential and promise for these companies to confront and vigorously deal with the problems at hand, and should nurture the determination to attain world-class levels and survive in global competition.

(3) Observations and Conclusions

- 1) The assemblers, who focussed on the domestic market before the crisis, have been shifting to exports with 1-ton pick-up trucks as the main product. There are plans for assemblers to strengthen the real export oriented operation, and/or the production increase plan.
- 2) The Thai automotive parts industry is now obliged to supply global standard parts including the parts for domestic use (particularly for 1-ton pick-up trucks). The abolition of the local contents regulation will accelerate this trend.
- 3) Assemblers and global suppliers recognize that parts made in Thailand are cost competitive compared to imported parts, and the environment for the automotive industry development is being improves. Because of this, willing to increase the ratio of parts bought from Thai companies. But they are not satisfied yet with the parts provided by local suppliers in terms of quality, delivery, and development capability.

- 4) Whether the Thai automotive industry will become an export oriented industry supported by competitive parts suppliers, or just remain to be an export base for assemblers who rely on the global suppliers and imported parts, will be decided within five years.
- 5) From the above observation, we conclude that the desirable direction for promotion of the Thai automotive industry is to improve the competitiveness (quality, cost, delivery performance, and development capability) of the local suppliers.

3.1.6 Propositions for Automotive Parts Industry Promotion

The promotion plans for the automotive parts and electric/electronics parts were summarized in "Study Report on Industrial Sector Development in the Kingdom of Thailand," in March 1995 before the economic crisis. This report was made by Unico International, Corp., working under contract to JICA, and many of the proposals have been implemented. Even after the crisis, we see no reason to change its basic policies.

There are, however, some urgent issues that became more tangible after the crisis, as well as environmental change that has become a factor. Including these points, the Team outlines its proposals in the following section.

(1) Target for Promotion

To promote the automotive parts industry as a whole in the form of a network, we should include as the objective of promotion all of the global suppliers, local suppliers, and large, medium and small companies. But from the standpoint of the degree of urgency, and necessity, the SMEs local suppliers become the main promotion target.

(2) Purpose and Goal of Promotion

There is a sign that Thailand can be an export base to Asia especially for 1-ton pick-up trucks. We should therefore seek to develop the Thai SMEs automotive parts industry group to meet the global standard for this product, so that the parts for it can be produced delivered by the local suppliers.

(3) Key Points in Realizing Promotion Plans

1) Give maximum consideration to the buyers' opinion

Assemblers buy from Tier 1 suppliers, and Tier 1 suppliers buy from Tier 2 suppliers. Buyers have a right to choose whether they should purchase the parts made in Thailand or not. It is against free market principles to impose the supplier's viewpoint on buyers, and force buyers to increase domestic content regardless of product competitiveness. Therefore, the promotion plan needs to reflect the view of the buyers.

Practically speaking, the first task at hand is to support the subcontractor improvement plan that each buyer has been trying to develop. We have to accelerate the advance of the local suppliers in improving quality, cost, delivery and development aspects so as to satisfy global standards, but buyers are often too busy to focus on such tasks. For those buyers who are making an effort to elevate the level of the lower tier suppliers, an incentive policy should be discussed as a means to help reduce their cost.

2) Making selected model companies, and ripple effect

We need to first prove that the SMEs that are local suppliers can meet global standards by promoting the development of selected "model companies." Then we should apply that experience to other companies, such as by forming a uniquely a Thail system for fostering development of the parts industry. Right now, assemblers and global suppliers are losing interest in supporting the lower suppliers, and some began to think that it may be too much to expect the local suppliers to clear the global standard.

As a practical measure, first we can provide management education; we can use experts who conduct OJT on behalf of sustainable management, production technology and managerial guidance and training. Seminars and lectures alone cannot transfer the necessary technology in time. We need to have as our starting point basic technology and skills needed on the factory floor. It will be appropriate to implement this method as a model company promotion program.

3) Improve product development ability

Even assemblers and global suppliers in Thailand have not been much interested in R&D. However, it is becoming necessary to raise the level of R&D in order to provide products to the export markets. Local suppliers are also required to have engineering skills to understand the basic concepts of the products, tooling after the completion of the design, and preparation for production. In other words, for the promotion and nurturing of the local suppliers, it is important to have the viewpoint of not only improving the production technology, but also supporting R&D.

(4) Utilization of the Thai Automotive Institute

The TAI should have the above mentioned viewpoint as the basis for its concept of mission. The Team gives a detailed statement of purpose and content of activities in the Appendix. The basic concepts of the Action Plan propositions for the TAI are as follows:

- 1) TAI is to fulfill its role of promoting mutual understanding between the government and the private sectors, and serve as a contact point for cooperation, negotiation and mediation.
- 2) TAI should become a forum for assemblers, global suppliers and local suppliers to strengthen their linkage in business.
- 3) TAI should have the central function of being a core to develop the SME local suppliers with the cooperation of the government, assemblers and global suppliers.
- 4) TAI should become an effective source of input for the model company development program as well as any other practical and effective programs.

3.2 Electrical and Electronics Industry and Electrical and Electronics Parts Industry

This section examines problems of the electrical and electronic industries since the economic crisis, and proposes corrective measures. This section is described based on hearings relevant enterprises by experts in the electrical and electronics industry. The industry configuration of the electrical and electronics industry in Thailand is not standardized. We consider that the characteristics of this industry becomes clear when it is analyzed as comprising three types of enterprise, i.e., export oriented (100% foreign capital), domestic market oriented (joint ventures), and local (local capital).

The enterprises visited were 11 export oriented enterprises, 8 domestic market oriented joint venture enterprises, 13 local enterprises, for 32 enterprises in total. Table 3.2-1 gives export and domestic destination shares of sales for all.

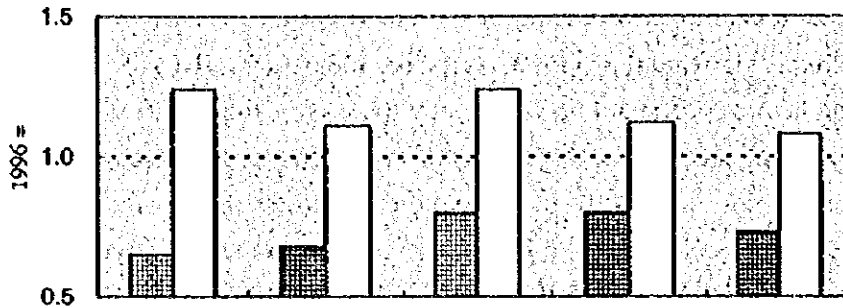
3.2.1 Impact of economic crisis



(1) Change of domestic and export demand

For five items, i.e., color TV sets, refrigerators, air conditioners, microwave ovens and electric fans, Table 3.2-2 indicates domestic demand and exports from 1994 to 1998. From 1994 to 1996, that is, before economic crisis occurred, the domestic demand grew favorably. Exports also grew except for electric fans. But when 1996 and 1998 are compared, the domestic demand dropped is found to have 65% - 80% of the earlier level. Exports, on the other hand, grew to 1.08 - 1.24 times the quantities of 1996. Figure 3.2-1 depicts this comparison graphically.

Figure 3.2-1. Impact of the Economic Crisis on Domestic Demand and Exports

Unit: Ratio of 1998 when 1996 = 1.0



	Color TVs	Refrigerators	Air Conditioners	Microwave Ovens	Electric Fans
 Domestic Demand	0.65	0.68	0.80	0.80	0.73
 Export	1.24	1.11	1.24	1.12	1.08

Source: Table 3.2-1

Table 3.2-1. Electric and Electronics Enterprises Export Shares in Total Production (1996-1999)

(Unit: %)

Group and Code Name of Enterprise		1996		1997		1998		1999E	
		Export	Domestic	Export	Domestic	Export	Domestic	Export	Domestic
Export enterprise									
Foreign Investment 100%	A	95	5	95	5	95	5	95	5
	B	80	20	80	20	90	10	90	10
	C	90	10	90	10	90	10	90	10
	D	80	20	80	20	80	20	80	20
	E	none	none	none	none	none	none	100	0
	F	90	10	90	10	90	10	90	10
	G	90	10	90	10	90	10	90	10
	H	80	20	80	20	80	20	80	20
	I	none	none	100	0	100	0	100	0
	J	90	10	90	10	90	10	90	10
	K	100	0	100	0	100	0	100	0
Domestic Market									
Joint Venture	L	20	80	20	80	48	52	55	45
	M	20	80	20	80	30	70	50	50
	N	30	70	30	70	40	60	50	50
	O	none	none	20	80	20	80	20	80
	P	10	90	20	80	40	60	50	50
	Q	10	90	20	80	40	60	50	50
	R	none	none	none	none	60	40	80	20
	S	10	90	10	90	20	80	20	80
Local enterprise									
Local Capital 100%	T	10	90	20	80	30	70	40	60
	U	10	90	10	90	10	90	10	90
	V	80	20	80	20	60	40	40	60
	W	5	95	5	95	20	95	40	95
	X	20	80	20	80	20	80	20	80
	Y	5	95	5	95	5	95	5	95
	Z	0	100	0	100	5	95	3	97
	AA	10	90	20	80	30	70	40	60
	BB	40	60	60	40	80	20	80	20
	CC	40	60	40	60	50	60	60	40
	DD	60	40	60	40	80	20	90	10
	EE	100	0	100	0	100	0	100	0
	FF	90	10	90	10	90	10	90	10

Table 3.2-2. Domestic Demand and Export of Major Electrical and Electronics Products

(Unit: 1,000)

	Color TVs		Refrigerators		Air conditioners		Microwave ovens		Electric fans	
	Domestic	Export	Domestic	Export	Domestic	Export	Export	Domestic	Domestic	Export
1994	1,058	5,614	973	721	320	919	61	2,160	2,743	5,365
1995	1,116	5,659	1,129	1,102	368	1,221	68	2,210	3,002	3,811
1996	1,225	5,861	1,174	840	415	1,363	87	2,757	2,757	3,620
1997	1,061	6,664	1,006	821	439	1,502	84	2,565	2,550	3,408
1998	800	7,241	800	933	330	1,685	70	3,099	2,000	3,902
Ratios										
1996/1994	1.16	1.04	1.21	1.17	1.30	1.48	1.43	1.28	1.01	0.67
1998/1996	0.65	1.24	0.68	1.11	0.80	1.24	0.80	1.12	0.73	1.08

Source: Thai Keizai Gaikyo (Domestic Demand: industry estimates; Exports: customs)

Note: Domestic Demand for 1998 is a preliminary figure and the exports for 1998 has been annualized using data for January to July.

The quantities of exports are overwhelmingly larger than those of domestic demand except for refrigerators (Table 3.2-2). This means that the drop in the domestic demand was covered by exports, and it appears that production as a whole did not change very much after the crisis. What requires attention here, however, is the pattern wherein domestic demand is met by domestic market oriented joint ventures set up in and after the 1960s and local large size enterprises, and export demand is met by dedicated, export oriented 100% foreign owned companies, which entered Thailand since the latter half of the 1980s. Therefore, it is necessary to analyze the impact of the economic crisis by enterprise type.

(2) Sales by enterprise type

Table 3.2-3 indicates the total sales in 1996 - 1999 obtained from enterprises at which hearings were conducted this time. The impact of the crisis varies by the enterprise type. For domestic oriented joint ventures, the demand for home electric appliances such as TV sets, refrigerators and washing machines drastically decreased to 50% of that during the peak period, i.e., 1990-1993. At export-oriented enterprises, however, the sales are increasing year after year starting from before the devaluation. Figure 3.2-2 indicates changes in total sales by the enterprise type using 1996 = 100. Figure 3.2-3 shows the export ratios to total production by enterprise type.

Figure 3.2-2. Change in Total Sales (1996-1999) (1996=100)

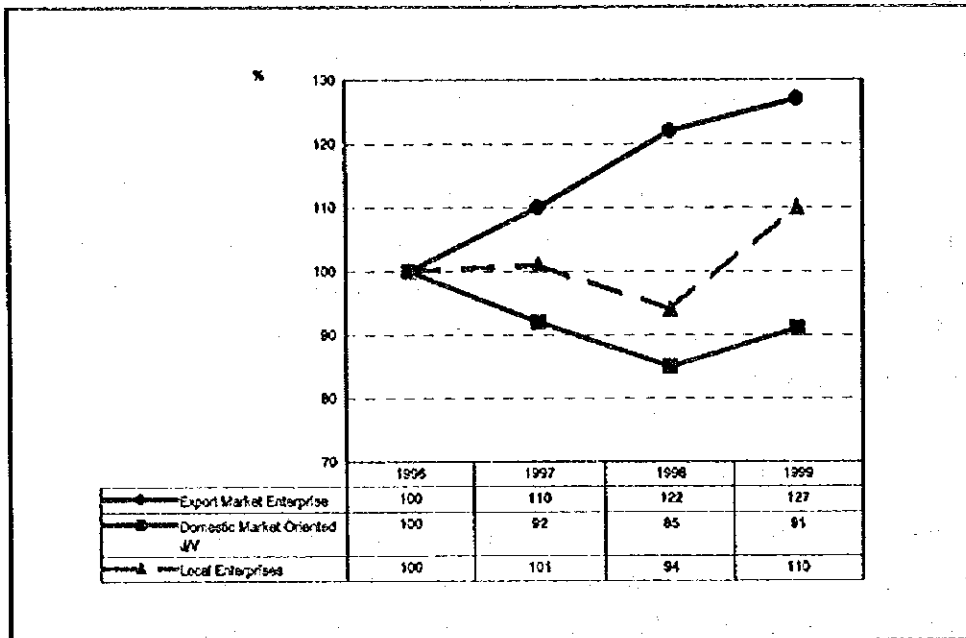
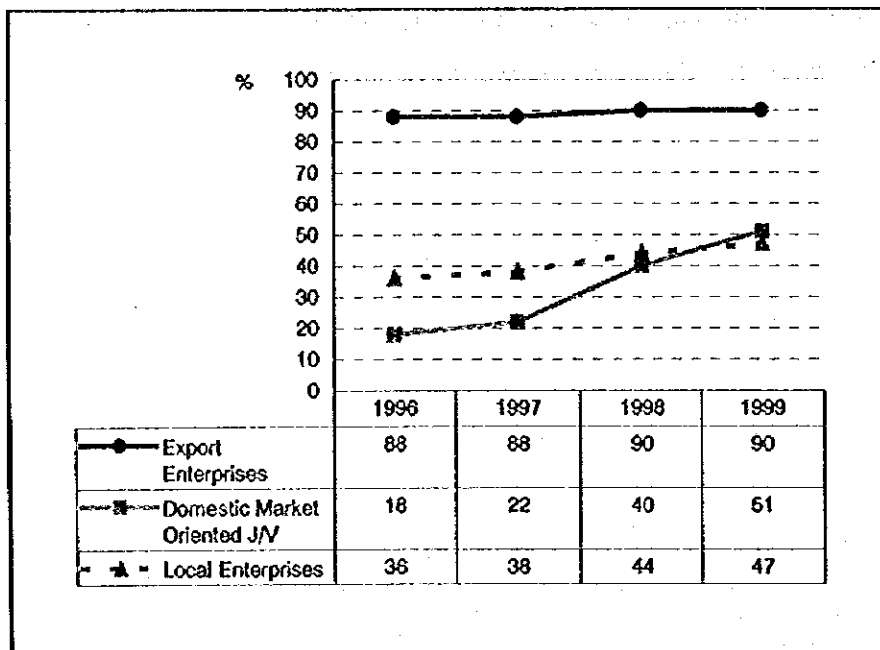


Figure 3.2-3. Export to Total Production (%)



Export oriented enterprises are increasing their sales without adverse affect of the economic crisis and are benefiting from the devaluation. Enterprises of the domestic market oriented type, whether foreign- or Thai-owned lost 15% of sales in 1998 relative to the level of sales in 1996. Those who received the largest impact of the economic crisis were local small-to-medium size parts manufacturers, the sales of which dropped to by 30% during the same period.

Table 3.2-3. Electric and Electronics Enterprises Change in Total Sales

(Unit: % year to year)

Name of Enterprise		Production	1996	1997	1998	1999E
			%	%	%	%
Export enterprise						
Foreign Investment 100%	A	Crystal oscillator	100	110	120	130
	B	TV set	100	100	110	145
	C	Video mechanism, CRT gun	100	105	140	120
	D	TV, washing machine, refrigerator, air conditioner	100	100	90	100
	E	Demodulator			none	120
	F	TV, Video, video mechanism	100	110	120	120
	G	FDD PCB assembly	100	105	110	120
	H	Fax, printer, car stereo	100	140	110	120
	I	HDD parts, motor for FDD		100	230	400
	J	Display	100	100	110	130
	K	Viewfinder (video camera)	100	130	180	130
Domestic Market						
Joint Venture	L	TV, audio parts (% of exports)	100 (20)	110	140	150 (52)
	M	TV, audio parts	100	100	75	68
	N	Compressor	100	80	60	80
	O	Refrigerator		100	200	200
	P	Consumer products	100	90	80	80
	Q	TV, audio, refrigerator, air conditioner	100	100	90	90
	R	Welding cable			100	150
	S	Battery, car battery	100	70	70	80
Local enterprise						
Local Capital 100%	T	Injection	100	150	120	130
	U	TV set, audio, washing machine, refrigerator	100	85	75	85
	V	Pot, rice cooker, iron	100	80	60	70
	W	Injection	100	88	63	75
	X	Motor control panel, lighting	100	65	75	85
	Y	Coil, transformer, DC adapter	100	110	75	100
	Z	Transformer	100	120	60	70
	AA	Transformer	100	120	80	90
	BB	Printing. (metal, paper)	100	80	70	85
	CC	CRT, DY, gun	100	110	120	130
	DD	Metal presswork, rice cooker, water pump	100	50	65	70
	EE	Winding	100	110	145	168
FF	Relay winding	100	167	230	283	

(3) Conversion to expansion of export

The domestic demand for the electrical and electronics industry, which peaked during in the 1990 - 1995 period, was reduced drastically by the effects of the economic crisis and devaluation, and for enterprises of domestic market oriented type, the managerial environment changed radically. Each company faced change so great that domestic sales of principal home electric appliances in 1997 dropped to about one half of that in 1996. The drop in the sales of domestic oriented companies greatly affected parts suppliers, and it can be said that the electrical and electronics industry and electrical and electronics parts industry have come to face a major transition period. In correspondence to the drop in the domestic market, domestic oriented joint ventures are endeavoring to increase shipments to export markets and to thereby expand both sales and production so as to recover as soon as possible to the total sales levels of before the economic crisis. Like the automotive vehicle industry, however, such efforts were made by means of parent-company decisions that a certain portion of the existing export market is allocated to Thailand. This is a matter of the global strategy of the parent company in Japan, in the case of a Japanese capital enterprise, for instance. This situation is not one in which that a Thai enterprise independently develops the export market.

3.2.2 Current Subjects by Enterprise Type

The impact of the economic crisis on manufacturers varies among export oriented enterprises, domestic oriented joint ventures, and local (domestic capital) enterprises. In addition, the current subject also varies by the enterprise type.

Since the majority of foreign-owned enterprises (including 100% foreign capital and joint ventures) in the electrical and electronics industry are Japanese, the description below focuses on the results of hearings at Japanese companies.

(1) Export oriented enterprises (100% foreign owned)

Export oriented enterprises, which are exporting 80% of production, gained export competitiveness after devaluation, and they have been increasing

production 10% a year since 1996. For these enterprises, devaluation helped improve business results.

The first current subject for these enterprises is increase of export operations as facilitated by acquisition of approval under safety standards in the destination countries. Japanese-owned companies are acquiring such approvals with the support of their parent companies in Japan. To allow Thailand to develop new markets in the future at the Thai initiative, establishment of an approval institution in Thailand which can issue approvals for safety standards through authorizations by its foreign counterparts, as well as preparing of the required technician and engineers, are required.

The second subject is such that since export oriented enterprises are depending on imports for the majority of materials, their relations with Thai-owned enterprises are extremely weak compared to domestic oriented enterprises. Although there are some parts which are produced locally, they are basically procured from Japanese capital enterprises, and both assemblers and small-to-medium size parts manufacturers are dependent on their parent companies in Japan. Therefore, export oriented assemblers, even if they are large in size, are of such a nature as a business that market development, product design and development are fully supported from Japan and production only is implemented locally. Even on important matters arising locally on a day to day basis such as need to approve new parts, improvement of quality, and design changes, decisions are made in Japan, and the independence of local capital enterprises is of extremely minor scale.

The third subject is such that the support structure of Japanese enterprises has changed, that is, there has been a major migration of engineers to information equipment areas since the first half of 1990s. Even if product strategy was conventionally determined on a regional basis, products to a great extent have now been standardized so as to be global products, and many products imported from China, Korea and Europe are now seen in the Thai market.

(2) Domestic oriented joint ventures

Assemblers focusing on the domestic market have seen domestic demand drop 50% since the economic crisis. They estimate that three to five years will be

required before it recovers. Therefore, these enterprises are facing a number of grave problems: reduction of sales to one half, an excess of employees, a shortage of operating funds, reduction of the value of owned real estate to one half and difficulties in raising funds using real estate as security. Thus, domestic market oriented enterprises have received a direct impact of the economic crisis. Moreover, corrective measures have not been promptly taken.

The collapse of domestic demand was so great that annual demand for TV sets, that had been 1.2 million in the 1990-1993 period, dropped to 60,000 in 1998. Since domestic oriented assemblers' local procurement of parts had exceeded 80%, the influence of this halving of demand on small-to-medium size parts manufacturers was enormous. But they face major constraints if they try to promote sales in order to regain even part of their lost business. Although assemblers are trying to expand exports, in the important case of Japanese-owned companies, for instance, many of the parent companies in Japan already have global production networks, and Japanese-owned enterprises in Thailand do not have freedom to expand exports based only on the economic circumstances of Thailand. In actuality they must negotiate with their parent companies in Japan for greater access to export markets, development of the market and expansion of the export quantities. Thus, the domestic oriented joint ventures confront a large-scale, complicated problem.

The second subject is that, since domestic demand has dropped (for whatever reason), the ratio of production for export has increased and this will tend to weaken the linkage between Japanese-owned enterprises and Thai-owned enterprises. For most production for export, the parts are procured from Japanese-owned parts manufacturers because Thai counterparts tend to be inferior in terms of the quality, delivery time, price and ability to deal with changes. Local parts manufacturers, on the other hand, have deepened relations with American and European assemblers since 1997 and as a result their supply of products to these assemblers has greatly increased. As a result, their relation with Japanese-owned enterprises, whose requirements are very demanding, has become weaker. The management of Thai-owned companies recognizes that the reason for such an occurrence at local subsidiaries of American and European companies, whether or not to adopt

locally produced parts is decided at the discretion of the responsible persons in Thailand, so judgment is quick and guidance given to local parts manufacturers is more suitable than that of Japanese-owned companies.

Judged from such a background as described above, an increase in business from Japanese-owned companies through an increase of the ratio of procurement of locally-produced parts and materials is a theme of major importance to Thai-owned companies. The development of local small-to-medium size parts manufacturers is required for this to take place.

(3) Local enterprises (Thai-owned)

Unlike Japanese capital enterprises, the Thai-owned enterprises are able to determine all matters of marketing, product development, safety certification, and so on by themselves. Devaluation is promoting their efforts at expansion of exports especially to the U.S.A. They are steadily expanding the market by developing differentiated designs, such as are not found in products made in many industrially advanced nations. The overall corporate constitutions of these companies, however, is weak and they are desirous of obtaining long-term technical support and guidance, such as through finance, technical guidance, marketing, industrial design, circuit design, printed circuit board design, safety standard certification, and so on. These enterprises are procuring parts from a broad range of countries -- China, Korea, Taiwan, Japan, and others. Of course their relation with local parts manufacturers is the strongest of all groups, and procurement of locally-produced parts is increasing.

Small-to-medium size manufacturers of parts, which mainly are owned by Thai interests, received the greatest damage caused by the economic crisis, in the form of drastic reduction of the market. The clients of these manufacturers are domestic oriented joint ventures (assemblers) and local, large companies (assemblers including primary subcontractors), and the parts manufactured by them have been for the domestic market. Before the economic crisis, about 80% of production of these assemblers was for the domestic market. Figure 3.2-3 indicates that the export ratio in 1996 was 18%, meaning that 82% of output went to the domestic market. These figures support the above description. After the crisis, however, because

these assemblers made efforts to expand exports, production and sales for the domestic market dropped, to an estimated level of around 40%. Figure 3.2-3 also indicates that production and sales for the domestic market dropped to 60% in 1998. In summary, it can be said that production and sales for the domestic market dropped to 40% to 60% of the pre-crisis levels. Total production, on the other hand, dropped to 85% in 1998 (Figure 3.2-2). The extent of the drop in the market for small-to-medium size Thai-owned companies in 1996 and 1998 was calculated using the numeric values in Figure 3.2-3. The result of calculation is indicated below.

$$\frac{85}{100} \text{ (production)} \times \frac{60}{82} \text{ (domestic market)} = 0.62$$

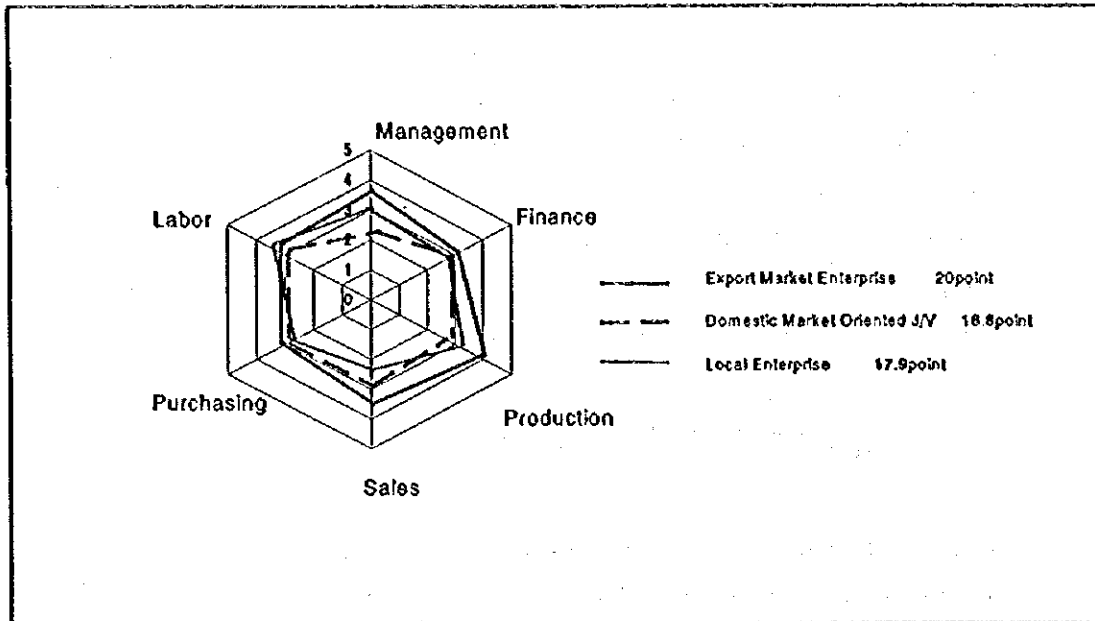
That is, the market for local small-to-medium size enterprises dropped to 62% due to the economic crisis. This result supports the generalization, "reduced to one half."

The subject for local small-to-medium size parts manufacturers is to enhance the competitiveness in a way that allows them to increase delivery of parts for export products. It is believed that to solve this subject is the sine qua non for survival and growth in the future.

(4) Management diagnosis

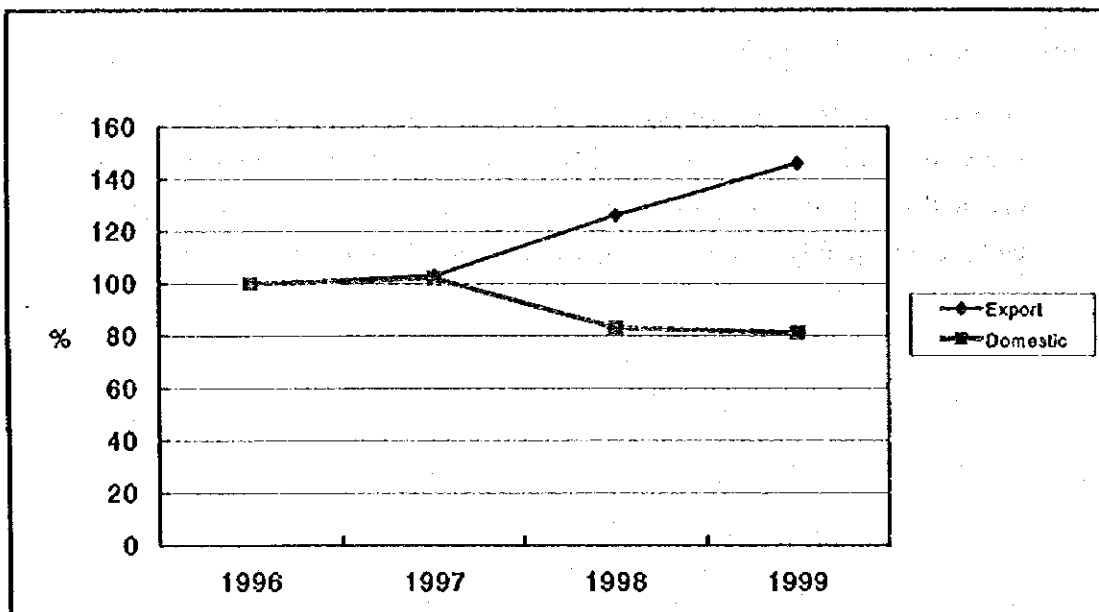
Analyzing the management of each company using the radar chart technique shows that joint ventures and local companies are generally inferior to export-oriented companies. In particular, the difference in production (productivity and product quality) and marketing (promotional activity) is noticeable.

Figure 3.2-4. Radar Chart of Electric & Electronics Industry



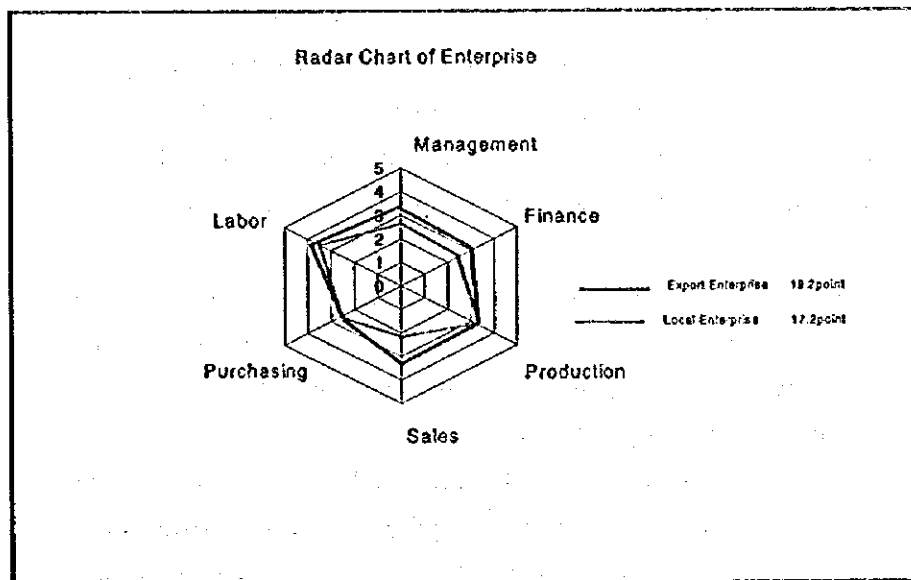
A detailed analysis of the local companies reveals that there is a marked difference in management between companies which supply to export enterprises in Thailand and those which supply to domestic customers.

Figure 3.2-5. Change in Total Sales of Local Enterprises



By dividing the local companies into two groups by export ratio (demarcation line: 50%), a significant difference in sales for 1998 and 1999 between the two groups becomes evident. Namely, the companies with the higher export ratio enjoyed a higher rates of sales growth and have been more active in expanding their exports and adapting their management to the new business environment, through the development of new export markets.

Figure 3.2-6. Radar Chart of Local Enterprises



Radar chart analysis of local enterprises with an export ratio of 50% or higher and those with an export ratio of less than 50% shows that there is a marked difference between them in sales but that the difference in productivity and product quality is minimal. The export-oriented local enterprises surveyed are subcontractors making windings, and in their work, automation makes little difference in productivity and product quality. They respond to any fluctuation of demand by adjusting factory hours through use of the shift system. In terms of sales, the difference in marketing at home makes a significant difference in financial condition between those enterprises.

3.2.3 Requests Toward the Government

The requests indicated by enterprises during the hearings are summarized below.

(1) Financing

- 1) The interest rate on loans obtained in 1996 was 12%. But interest rose to 21% in 1997, and they are now facing the situation of being unable to make repayment.
- 2) Responding companies were successful in borrowing 3.5 million bahts, which is equivalent to 70% of collateral real estate having the assessed value of 5 million bahts, in 1996. In 1998, however, the assessed value of the real estate dropped to 30% (1.5 million bahts), and in addition, the accommodatable funds are 30% of the assessed value, that is, 0.45 million bahts.
- 3) A period of six months is required for processing loan applications. Financing, therefore, is isolated from the realities of management. Even if orders were received, the companies were unable to increase production because of lack of operating funds.
- 4) The companies can manage a loan from a bank if the interest rate is 10% or even more. But 10 months is required, at average, from opening of an L/C to receipt of cash funds, and business cannot be done if there is such a long wait. What is needed as an emergency measure is operating funds with repayment in 3 years, and an annual interest rate of 5%.

(2) Import duties

- 1) Liberalization of imports by reducing customs duty to the average rate of 5% toward 2003 will create serious problems. Enterprises engaged in small-batch production, which were established under the conventional policy of developing import-substituting industry, will lose price competitiveness. Liberalization should not be hastened.
- 2) To purchase assembled parts costs less than to import parts and to process and assemble them. Furthermore, the import duty on raw materials is higher than that of finished goods, and such a tax structure is not good for development of the processing industry. It is desired that the taxation system be corrected.

- 3) It was requested that the import duty on raw materials be reduced to zero, to allow switching to supply of parts to export oriented enterprises.

(3) Safety standards

- 1) Certification according to safety standards such as UL of U.S.A., VDE of Germany, CA of Canada, $\overline{\text{T}}$ mark of Japan and BS of England for products currently exported from Thailand is acquired from the competent institutions in the corresponding foreign nations. A charge of 50,000 to 100,000 bahts is required for each product examined. Besides, large indirect expenses such as travel expenses, expenses for corrective measures when certification is denied and expenses for re-presentation of samples are required, and a long time is required before acquisition of a certificate. A period of three to four months is required on average. Business opportunities for short-term negotiations for Christmas sales, for instance, can be lost. It is desired that institutions be established in Thailand which are authorized to issue approvals according to foreign safety standards.
- 2) Acquisition of approval under various safety standards is an important subject common to all enterprises. However, it is impossible that foreign rating agencies will approve clearing operations by a sub-agent in Thailand where legal management of safety standards is not materialized. To establish Thai safety standards first of all is extremely important.

(4) Technical support

Support for enhancement of technologies in the improvement of quality which arises in processes, improvement of products against claims which arise in the market and in design changes; method for testing and approving locally produced parts and support for enhancement of technologies for design changes are wanted.

(5) Marketing support

Support for promotion of export including provision of information on trade customs and behavior, taste of commodities and effective sales promotion activities in desired export destination nations is wanted.

3.2.4 Summary and Conclusion

- (1) The majority of the electrical and electronics industry in Thailand is composed of foreign capital enterprises, Japanese capital enterprises in particular. This industry is polarized to two groups, i.e., the group of export oriented enterprises and the group of domestic market oriented joint venture enterprises plus local large sized enterprises. The former group is composed of enterprises of relatively short history which were established as investment in Thailand as a good location for production of commodities for export.
- (2) The production of export oriented enterprises is overwhelmingly large compared to that of domestic market oriented joint venture enterprises. Procurement of parts in Thailand by export oriented enterprises is extremely minor. Many of these enterprises are of the nature of an assembly plant rather than an enterprise, as they are based on the pattern of "import of parts" -> "assembly in Thailand" -> "export".
- (3) Domestic market oriented enterprises, including both of joint venture enterprises and local capital enterprises, suffered from the economic crisis, and they are taking export expanding measures to maintain the production. It is the observation of the trade that recovery of the domestic market to the level before the economic crisis can hardly occur for two to three years.
- (4) Local parts manufacturers, which are mainly small-to-medium sized enterprises, were unable to deliver parts of export grade to buyers, who are making transition to expansion of export. The market dropped to a level of 50% to 60% of the level before the economic crisis. The direction of promotion of the electrical and electronics industry in the future should be how their products can be produced as parts of global standard like parts of automotive vehicles.

3.2.5 Proposal related to Promotion of the Electrical and Electronics Industry

Measures for promotion of the electrical and electronics industry of Thailand are proposed in "Study on Industrial Sector Development in the Kingdom of

Thailand (relevant industries)," which is a JICA report released in March 1995. The basic policy and proposals in this report are valid even today. However, because of urgent issues and changes in the environment which were actualized after the economic crisis, the proposals which deal with these issues and changes are additionally indicated below.

The group of local small-to-medium size parts manufacturers, which were most severely damaged by the economic crisis, was identified as the object of promotion.

Assemblers, which were of the the domestic market oriented type, are attempting to expand exports. This group of enterprises, which is the target of promotion measures stated above, do not yet have competitiveness in delivery of parts for export products. The objective of this promotion is to raise this group of enterprises to the global standard in all ways. To improve the environment for expansion of export of the electrical and electronics industry is another objective.

Below the Team presents its conclusions regarding the actual work of promotion.

(1) Enhancement of research and development capabilities and attachment of importance to on-the-job training

Producers of parts for export must accommodate frequent design changes orders. Unless the Thai-owned enterprises have the capability to quickly deal with frequent changes buyers will go elsewhere. To improve ability to make a swift response, R&D capabilities must be developed. This is not accomplished quickly enough by reading books and by attending seminars. It is important for buyers and independent technical experts to come to factories of manufacturers and to provide guidance through OJT.

For parts manufacturers in particular, the so-called essential technologies of molding, pressing, printing, soldering, coating and printed circuit board assembly constitute the foundation of all operations, and it is important to establish the structure of guidance through OJT, together with introduction of tooling technology.

- (2) Giving of importance to establishment of a safety standards scheme that corresponds to expansion of exports

It is first necessary to clear safety standards of the export destination nations in order to export electrical and electronics products. It is not necessarily required to have tests and inspections conducted in the destination nations to acquire safety standards. But approval can be acquired from clearing institutions in any nation, as long as such institutions satisfy certain criteria so that they are approved by foreign inspection agencies. Since there are no safety standards clearing institutions in Thailand today, Thai enterprises are acquiring approval from clearing institutions located in neighboring nations such as Singapore. Large expenses and losses in time are involved because of this reason, and such losses are leg irons which obstruct promotion of export. The importance of this matter has not yet been fully recognized in Thailand.

On the other hand, no safety standards of Thailand for checking safety of electrical and electronics products imported to Thailand have yet been established. Establishment of safety standards is a subject with high priority from the viewpoint of protecting the safety of the people and also from the viewpoint of protecting products of the nation from imports of cheap and crude products.

- (3) Promotion of exchange between buyers and suppliers

Local small-to-medium size parts manufacturers, which are the target of promotion, are mainly 100% Thai-owned, and the majority of large-scale primary subcontractors and assemblers, which are buyers, are foreign-owned enterprises. This is the general composition of the electrical and electronics industry in Thailand today. It is not visible, but lack of communication between buyers and suppliers which arises from this composition forms a bottleneck in all the aspects. To use an extreme statement, it can be said that buyers and suppliers live in two different worlds.

To bring together companies from two different societies having different cultures, business practices and histories of industrialization to develop

mutually useful, lasting business relationships the basic means that must be relied on are personal relationships and trust. For promoting the group of enterprises which is the target of promotion, and in turn, for the growth of the electrical and electronics industry in Thailand, the importance of deepening of the inter-relationship between buyers and suppliers should not be underestimated. This is one of important viewpoints which should be taken into account in the planning of concrete promotion measures.

(4) Use of Electrical and Electronics Institute

The Electrical and Electronics Institute should play an important role in the promotion of the electrical and electronics industry. See the Appendix for details of the proposed objective of establishment and activities of EEI. The concept of this proposal is based on the following line of thought.

- 1) EEI should play the role of a point of contact for mutual understanding, cooperation, negotiations and intermediation between the government and the private sector.
- 2) TAI should play an important role in the promotion of exchanges between foreign-owned enterprises, which constitute the nucleus of parts buyers, and small-to-medium size parts manufacturers, which are mainly Thai-owned, and also in the strengthening of practical business linkages between them.
- 3) EEI should become the promoting parent body for establishment of Thai safety standards. Furthermore, EEI should promote establishment of safety standards clearing institutions for principal export destination nations and should play the role as a clearing institution by using some of its own facilities and equipment.
- 4) EEI should become a supplier of concrete and effective services for transfer of technology through OJT.



3.3 Consumer Goods Manufacturing Industry

3.3.1 Results of Company Visits

The Team visited companies in nine industries other than those given above, to hear opinions and make a simple business analyses. Of the 13 priority industries that are included in the IRP, the Team excluded "iron and steel" and "petrochemicals," which contain comparatively many large companies, at the request of DIP, and treated "automotive parts" and "electrical and electronic parts" separately. The companies visited are in the following industries.

Textile & garments	4
Ceramics	5
Gems & jewelry	5
Leather	5
Wooden furniture	5
Foods	5
Rubber products	3
Plastics	5
Chemicals	3

The number of companies the Team visited is three to five for each of the nine industries. Thus, the samples are too few in number to derive any meaningful conclusions as to problems and solutions in each of the industries. Therefore, for the purpose of analysis, we treat the 40 companies in the nine industries together as consumer goods manufacturers to discriminate them from automotive parts and electrical and electronic parts manufacturers.

The salient characteristics of the 40 companies are as follows.

- 1) Most of them are domestic-capital companies.
- 2) They are mainly in labor-intensive industries.
- 3) They do not require very high technology (compared with parts manufacturing companies).
- 4) They are chiefly oriented to domestic markets for low-grade consumer goods, though there are a considerable number of export-oriented companies.

Two Team members, officially qualified in Japan as SME consultants, visited companies in different industries to hear directly what their problems were and what they wanted the government to do for them. The two members also diagnosed each business from an expert's point of view. In the diagnosis, six items were evaluated on a scale of 5 (highest) to 1 (lowest). Though the diagnosis was a simple one (made in about two hours at each company), it is deemed useful for a general picture of their problems.

3.3.2 Results of Business Diagnosis

In the face of the economic crisis and given the on-going process of trade liberalization, SMEs in Thailand can hardly continue in existence without being internationally competitive. From this viewpoint, we divide the 40 consumer goods manufacturers into export-oriented companies and domestic market-oriented companies and analyze their competitiveness.

	Export ratio
Export-oriented company	50% or more (23 companies)
Domestic market-oriented company	less than 50% (17 companies)

Actually, however, the 23 export-oriented companies are exporting 70% to 100% of their output, whereas the 17 domestic market-oriented companies are exporting not more than 10% of their products.

Table 3.3-1. Ratings of Consumer Goods Manufacturers

	Export oriented companies (a)	Domestic market companies (b)	Difference [(a)-(b)]
Number of companies	23	17	-
Management	3.87	3.41	0.39
Finance	3.52	3.06	0.46
Production	3.39	3.18	0.21
Marketing	4.17	3.18	0.90
Purchasing	3.26	3.12	0.14
Labor	3.65	3.24	0.41
Total average	3.64	3.20	0.44

Note: Full mark = 5.0

The results shown in the above table are graphically reproduced in Fig. 3.3-1. The total average score of 3.64 for the export-oriented companies is far below the international level of 5.0. Probably, this suggests the fact that their export markets are mainly those for low to medium-grade goods. The score for the domestic market-oriented companies is 3.20, which is 0.44 lower than that for the export-oriented companies. From the professional viewpoint, this difference translates into a gap of some 10 years. Looking at the diagnosis results item by item, the difference between the two company groups is widest in "Marketing" (0.9). Apparently, this indicates the difference in market development ability between them.

The second widest difference (0.46) is seen in "Finance." Though this difference cannot be expressed in terms of years, it is considered to reflect the sluggish domestic market. The next widest gap lies in "Labor," followed by "Management." These two concern human resources.

Figure 3.3-2 shows variances in "Production" and "Marketing" in the two company groups in bar graphs.

As can be seen from the figure, the domestic market-oriented companies have wider variances than the export-oriented companies. The implication is that in the Thai industrial sector, the power for horizontal development is still low, that

Figure 3.3-1. Company Diagnosis by Export Oriented vs Domestic Market Companies

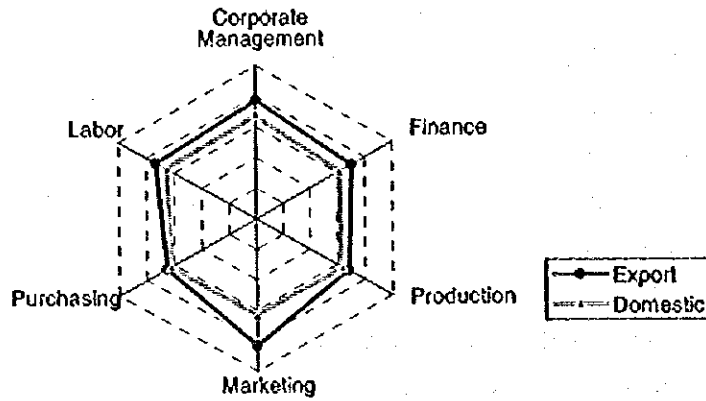
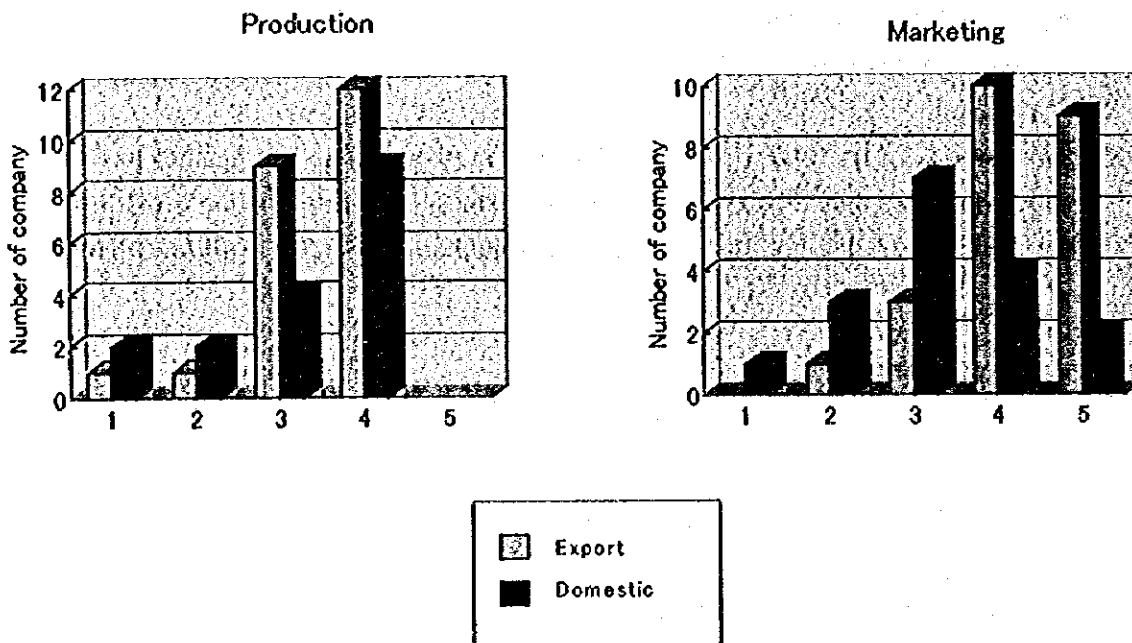


Figure 3.3-2. Distribution of Production and Marketing Level



is, a know-how sharing system for spreading any improvement at one company to another has not fully developed.

Another characteristic is that not a single company merited a 5 score in "Production." This indicates that in order to enter markets for medium- to high-grade goods in the future, it is indispensable to improve the existing production techniques, including quality control. Since there are no companies at level 5, it follows that this problem cannot be solved by reinforcing the power for horizontal development within the country. In the future, therefore, the companies will have to try absorbing advanced manufacturing know-how from industrialized countries.

3.3.3 Requests Toward the Government

Of various requests from SMEs towards the government concerning measures to promote SMEs, the following are the major ones.

- 1) Technical support in improving quality and production control
- 2) Marketing support in developing new customers, especially in overseas markets
- 3) Financial support for coping with the current condition of tight bank credit, especially to secure operating funds
- 4) Reduction of duties on imports of raw materials

3.3.4 Problems and Overall Evaluation

The greatest problem of SMEs which are oriented to domestic markets is the declining demand from domestic markets due to the effects of the economic crisis of 1997. On the other hand, the major problem of export-oriented companies is the competition with China, Indonesia, Vietnam, and other neighboring countries in overseas markets for low-grade commodities. A problem common to both company groups is the difficulty in fund procurement due to the unwillingness of financial institutions to lend money since the economic crisis. They stand in great need of operating funds for tiding over the current difficulties. These problems are reflected in the requests to the government mentioned above.

During the present survey of SMEs, they said that the textile industry and some other industries in Thailand are already declining because of bitter rivalry with China, etc. Judging from the results of the present survey alone, however, that

view seems wrong. These industries are still in an immature stage and have room for further growth. They will be able to grow further by taking appropriate approaches -- abandoning the competition in markets for low-grade goods, moving into markets for medium- to high-grade goods, strengthening capacity for development of new products of original design, and deploying marketing of original brands.

The following are Team comments on the industries surveyed. Actually, these are comments, not our proposals, since the samples are few and the survey was by nature not comprehensive.

(1) Textiles and garments

- 1) Shift from the present quality assurance system based on inspection of finished products to a process quality control system.
- 2) Enrichment of in-house education and training for development of human resources.
- 3) Shift from the present commission production system to an original brand production system with own sales channels.
- 4) Renewal of obsolescent production equipment and introduction of pollution control technology.

(2) Ceramics

- 1) Reduction of percentage defective in processes and improvement of basic technology through introduction of new techniques to impart better qualities to products.
- 2) Development of design capacity and reinforcement of marketing
- 3) Diversification of ceramic products for exports (development of new products other than ornaments).

(3) Wooden furniture

- 1) Improvement of quality, design, and technology
 - Spread of furniture durability test
 - Establishment of quality standard of export furniture and guidance in conformance to quality standard
 - Promotion of Thai designs through design registration system, etc.

2) Development of new customers

- Review of times to hold a furniture fair and reinforcement of sponsorship
- Avoidance of competition in low-grade goods markets with neighboring countries and formulation of strategy for entering medium- to high-grade goods markets
- Formulation and execution of strategy for improving the value of Thai-brand wooden furniture

(4) Gems & jewelry

- 1) For the moment, enrichment of in-house training and public training institutes.
- 2) As a medium- to long-term challenge, narrowing-down of the quality gap with Italian counterparts. Introduction of advanced equipment and fostering of capable operators to narrow the gap. Formation of a pyramid having specialized raw materials suppliers at its base.

(5) Leather

- 1) Providing model companies with concentrated technical support to present a model of modern production control to the industry and spread modern production control techniques.
- 2) Improvement of quality of domestically-tanned leather to reduce imports of foreign-tanned leather.
- 3) Reinforcement of technical training schools to supply manpower having certain levels of skill.

(6) Foods

- 1) Improvement in measurement, evaluation, and guidance for checking processes from the viewpoint of food sanitation, and establishment of an organization implementing the improvement.
- 2) Promotion of savings of resources and energy (this industry is energy-intensive). Providing food processing plants with on-site (mobile) diagnosis service and financial support for equipment improvement.

(7) Plastics

- 1) Companies which can design molds for themselves are increasing in number. They are encouraged to become able to design products too for themselves.
- 2) Shift from production of parts to production of sub-assemblies to increase value-added. This is also advantageous to the purchaser in that it simplifies the purchase procedure.
- 3) There is urgent need to foster skilled workers as higher accuracy and more sophisticated functions have been required of plastic products.

(8) Rubber products

- 1) This industry makes extensive use of inspection, testing, and research (on rubber composition, strength, pressure resistance, polishing, chemical resistance, etc.). These functions need to be improved through strengthening of public testing institutes, and
- 2) This industry consumes much energy and tends to cause the working environment to deteriorate. Therefore, it is important to promote the improvement of the factory environment and the saving of energy. Providing factories with on-site diagnosis service and financial support for equipment improvement is desirable.

(9) Chemicals

This industry is so diversified that general comments can hardly be made. The number of companies in this particular industry we visited during the present survey was only three (one pharmaceutical, one cosmetics, one dyestuffs).

3.4 Promotion of Supporting Industries, and the SIC

The Japanese Government has provided a variety of types of assistance for the development of supporting industries, through official development assistance and other means. In this section major measures of Japanese cooperation that have been provided to the Supporting Industries Center (SIC) are described and the overall aspect of the SIC is reviewed as a basis for several recommendations.

The SIC building is now under construction by the DIP/BSID of the Ministry of Industry. When operational, the SIC will be unique in the Southeast Asia region in being an overall center dedicated to supporting industries. As background to the importance of this undertaking, it is noteworthy that even during the current crisis period automobile assemblers have not cut back on investment in Thailand. To the contrary, they have increased it and it is significant that not only Japanese but also American and European assemblers have increased their investments. Each of these companies has concluded that Thailand offers advantages as an export base. What this means, as described in sections 3.1 and 3.2, is that formidable opportunities are being created for the automotive parts makers, including makers of electrical and electronic parts. Nevertheless, at the present time the number of Thailand parts sub-industries that can meet global standards are not many. It is intended that through the activities of the SIC that a major improvement in this regard can be accomplished.

3.4.1 Establishment of the Metal-Working and Machinery Industries Development Institute, with Grant Aid Cooperation from JICA

The Metal-Working and Machinery Industries Development Institute (MIDI) was established in 1985 using grant aid cooperation from JICA, and JICA has provided technical cooperation thereafter for more than five years. This support has been carried out with regard both to personal assistance of experts and provision of equipment.

What is now MIDI had been an Institute under the administrative control of DIP up to the organizational reform of the latter in 1995. The rationale for establishing MIDI, and its activities, are as follows.

Objectives

- 1) Improvement of the technical level of the Thai metal-working industry
- 2) Research and development related to metal-processing products

Activities

- 1) Technical training seminars
- 2) Technical guidance to metal-working firms as a group or individually
- 3) Tests and inspections of metallic materials
- 4) Technical and economic studies
- 5) Technical research and manufacture of prototypes
- 6) Supply of technical information

The grant aid provided by JICA has encompassed both overall and special equipment for all aspects of metals and metal-working activities of the Center, namely:

- 1) Foundry
- 2) Forging
- 3) Heat treatment
- 4) Material testing and inspection
- 5) Welding
- 6) Machinery
- 7) Metal testing
- 8) Precision measuring and inspection
- 9) Plating and waste water treatment
- 10) Training kits

3.4.2 Supporting Industry Development Planning (Technical Assistance by JICA)

A master plan for development of supporting industry was proposed in the report on a study done by JICA from September 1993 to March of 1995. Recommendations therein that are related to the SIC are as follows.

- 1) To make DIP into an organization dedicated solely to promotion of SMEs
- 2) To remove industry-specific responsibilities from the official role of DIP

- 3) To place centers and institutes under the administrative control of DIP under private-sector management
- 4) Give MIDI the role of being an institution for supporting industry in overall terms

Regarding the fourth item above, there were diverse views expressed at the time and although it was not specifically stated in the study report, the JICA team was strongly in favor of this item. The team refrained from emphasizing this because at the time DIP and MIDI were in favor of a specialization more in metal mold production than in plastics processing.

DIP undertook an organizational reform on its own, making reference to the JICA team recommendations in so doing. Creation of BSID is one aspect of that reform. The BSID became the governmental entity responsible for supporting industry and MIDI too was shifted into the new organization.

3.4.3 SIC-Total and Model Technology Development Project (JICA Project-Type Technical Assistance)

Following MIDI shift into the BSID organization, expansion of its plastics sector activities was planned and in 1997 the New Energy and Industrial Technology Development Organization (NEDO) of Japan supplied two plastic injection machines and provided technical support for acquisition and development of engineering plastics production technology.

In July 1999 JICA agreed to provide equipment for production of plastic molds (for training purposes) and the services of Japanese experts to BSID the principal materials to be supplied are as follows. The experts are to be dispatched for a five-year period starting from late 1999.

- 1) CAD/CAM system network station (1 set)
- 2) Wire-cut EDM (one)
- 3) CNC vertical machinery center (one)
- 4) Electrical discharge machine (one)
- 5) Small hole drilling machine (one set)
- 6) Polishing equipment (one)

- 7) Profile grinder (one)
- 8) Large size injection machine (one)

Details of this undertaking are provided in the description of Project S-3 in Annex III.

Through combining the equipment that MIDI had with that supplied by NEDO and JICA, a general supporting industries center for metal and plastic processing is formed. In terms of equipment, the center lacks equipment for stamping processing of metal, but this can be resolved in the future.

The new SIC building is adjacent to the former MIDI and is being constructed by the Thai Government. Completion is scheduled for January 2000. The TAI and EEI are to be relocated to the new building. In view of the plastics industry and other industrial associations having had offices in the BSID building, the automotive industry, and the electronic/electric industry assemblers and parts makers as well will be brought together in the same building.

3.4.4 Expected Problems and Recommended Countermeasures

- (1) MIDI has, in the past, problems in the form of, first, inability to hire all the persons that had been anticipated as necessary, this in part owing to limitations of government budget allocations, second, a high quit rate as employees who had acquired technological ability with MIDI tended to leave in order to seek higher income in the private sector. Consequently, once the Japanese experts that had been dispatched to MIDI returned home, the Institute was unable to perform as had been intended.
- (2) After the reform of the BSID, it has functioned well enough with regard to classroom instruction, publications and information supply, and promotion of subcontracting relationships, but it has not done well enough with regard to specific technological fields, testing and inspection, and guidance services for the private sector using its own facilities and equipment.

(3) It is thought that the same restraints to outstanding performance that are mentioned above may pertain to the SIC-Tool and Mold Technology Development Project. To prevent this the following are recommended,

- Strengthen the public information activities directed at the private sector and intended to inform it of the services that the BSID is providing to the supporting industries. Full use should be made of the TAI and EEI and well as industrial associations for this. It would be recommendable to appoint a Public Information Officer to emphasize the importance of this and ensure good results.
- By means of swift service, improve the productivity of service and set the charges for services a suitable (higher) level. There are adequate precedents for the private sector payment of higher fees for faster results.
- Improve marketing and services. For example, tests and inspections should be completed on a next-day basis; samples to be tested or inspected should be picked up from clients and results should be delivered to them; a fax service should be offered, to name only three possibilities.
- Take steps to ensure that while the Japanese experts are present that a high evaluation is received from the private sector.
- In organizational terms it is desirable that the MIDI and SIC-Tool and Mold Technology Project be combined with regard to operations. It is necessary to set up a system for sustained delivery of high-quality services.

Through the above activities, the possibilities that SIC itself may be spun off as an independent Institute may be explored. It is necessary also to include the matter of salaries of its employees on the agenda for study.

