

JAPAN INTERNATIONAL COOPERATION AGENCY
ECONOMIC PLANNING UNIT
PRIME MINISTER'S DEPARTMENT
MALAYSIA

**A STUDY
ON
THE DEVELOPMENT AND PROMOTION PLAN
FOR
THE SUPPORTING INDUSTRY IN MALAYSIA**

SUMMARY REPORT

August 1995

**THE JAPAN RESEARCH INSTITUTE, LIMITED
JAPAN ASIA INVESTMENT CO., LTD.**

MPI
JR
95-141

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INTRODUCTION

This is the Final Report (Summary – Proposal of Development Plan) of "A Study on the Development and Promotion Plan for the Supporting Industry in Malaysia." The report consists of the following three volumes:

Summary	:	Proposal of Development Plan
Main Report – Volume I	:	Overview of the Industry
Main Report – Volume II	:	Analysis and Recommendation

In response to the request of the Government of Malaysia, the Japan International Cooperation Agency (JICA) agreed with the Economic Planning Unit of Malaysia to undertake "A Study on the Development and Promotion Plan for the Supporting Industry in Malaysia" on December 22, 1993. The major objective of the Study is to formulate a development plan for supporting industry in Malaysia, focusing on the automotive parts and components industry.

In order to implement the Study, the JICA Study Team was formed. The team mainly consists of the staff members of the Japan Research Institute, Limited (formerly the Sumitomo Business Consulting Co., Ltd.) and Japan Asia Investment Co., Ltd.

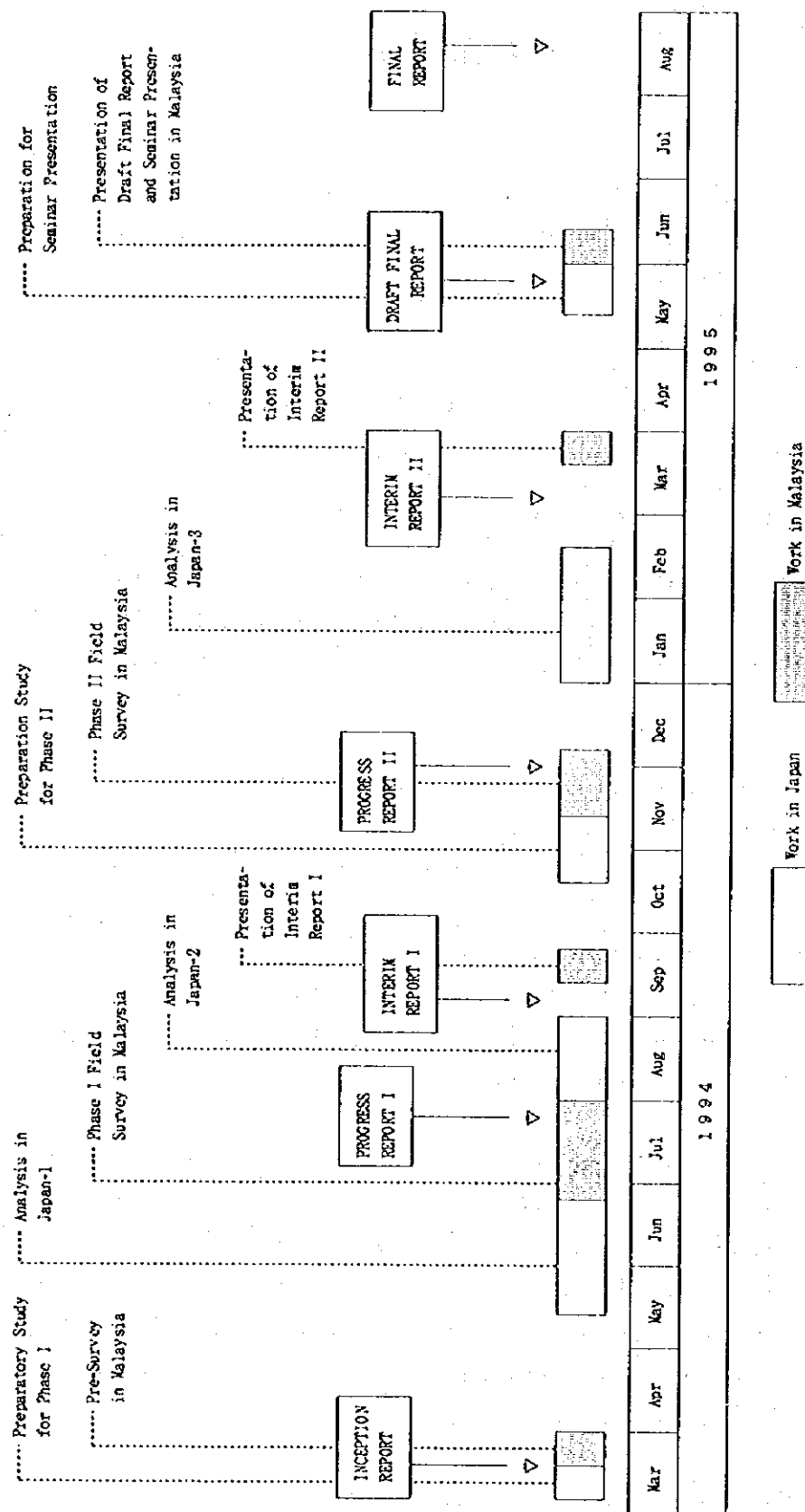
The study period for the project is from March 1994 to August 1995, and was divided into two phases. The study period of the 1st phase was between March 1994 and September 1994 and that of the 2nd phase was between October 1994 and August 1995. The major objective of the study in each phase was as follows.

Phase I : Based on the present policies and regulations for the development of the automotive parts and components industry and the understanding of the current status of the target industry in Malaysia, priority areas and products for future development were selected.

Phase II : Based on the results of an in-depth study of the selected priority areas and products, a sectoral master plan for the development of the automotive parts and components industry was proposed.

The results of the phase I survey are basically summarized in the Main Report – Volume I and those of phase II, in Volume II.

Fig. I - 1. Work Schedule



I. ENVIRONMENTAL FACTOR ANALYSIS

1. AUTOMOTIVE INDUSTRY IN MALAYSIA

(1) Market Size and Growth

The automotive industry in Malaysia consists of passenger vehicles, commercial vehicles, motorcycles, and parts and components industries. According to the Monthly Manufacturing Statistics, the total market size of the industry in terms of shipment value was RM 4.9 billion in 1993. As the shipment value of parts and components manufacturers is underestimated because not all of the companies are included in the statistics, the actual figure would be a little higher.

Table 1-1. Shipment of the Automotive Industry in Malaysia

(Unit : RM million)

Year	Manufacture and Assembly of Motor Vehicles	Manufacture of Motor Vehicle Parts and Accessories	Manufacture of Motorcycles	Total Industry Production
1989	1,481.6	279.9	474.3	2,235.8
1990	1,966.6	418.7	690.4	3,075.7
1991	2,422.9	608.8	821.0	3,852.7
1992	2,380.4	529.9	907.4	3,817.8
1993	3,030.1	828.1	1,025.1	4,883.3
(share)	(62%)	(17%)	(21%)	(100%)

Source : Monthly Manufacturing Statistics, Department of Statistics, Malaysia

After the stagnation in the first half of the 1980s, the automotive industry has recorded rapid growth. During the period between 1986 and 1993, the average annual growth rate of the total output of the automotive industry reached 20.9%, while that of the total manufacturing sector was 14.0%. However, the growth rate of the industry has slightly deteriorated in terms of production indices in the 1990s.

Table 1-2. Growth Rate of the Automotive Industry in Malaysia

Year	Automotive Industry		Total Manufacturing Sector	
	Production Index	Annual Growth	Production Index	Annual Growth
1985	75.3	-	68.6	-
1986	55.2	-26.7%	75.0	9.4%
1987	57.1	3.4%	84.8	13.0%
1988	100.0	75.2%	100.0	18.0%
1989	138.6	38.6%	114.2	14.2%
1990	183.7	32.5%	132.1	15.7%
1991	215.0	17.0%	150.4	13.9%
1992	201.7	-6.2%	166.2	10.5%
1993	208.5	3.4%	187.6	12.9%
1994*	219.3	8.7%	207.1	10.4%

Note : * From January to July

Source : Economic Report 1994/95, Ministry of Finance

In spite of the recent rapid expansion, the weight of the automotive industry in Malaysia in the total manufacturing sector is still small compared with other automobile manufacturing countries.

Table 1-3. Weight of the Automotive Industry in the Total Manufacturing Sector

Country (Year)	Ratio of the Automotive Industry to the Total Output of the Manufacturing Sector	Ratio of the Automotive Industry to the Total Employment in the Manufacturing Sector
Malaysia (1992)	2.9%	2.1%
Japan (1992)	13.5%	7.3%
US (1992)	8.1%	-
Korea (1990)	8.1%	-
Taiwan (1990)	10.0%	4.0%

Source : MITI, Jidosha Shimbunsha (Daily Automobile News), FORIN, US Dept. of Commerce, and National Statistical Office of Republic of Korea

(2) Motor Vehicle Market

1) Domestic Production, Export and Import

The domestic demand of motor vehicles in Malaysia was 188,000 units in 1993, 76% of which were passenger vehicles. The high ratio of passenger vehicles is one of the most characteristic points of Malaysia's motor vehicle market.

Imports account for approximately 10% of the domestic market for passenger vehicles and 22% for commercial vehicles. In 1993, 11% of vehicles produced were exported. These were PROTON models and a small number of commercial vehicles.

Table 1-4 Size of Domestic Motor Vehicle Market in 1993

(Unit : '000 units)

	Passenger Vehicles	Commercial Vehicles	Total Motor Vehicles
Domestic Production	149.7	35.6	185.3
Exports	19.5	0.7	20.2
Imports	12.6	10.3	22.9
Domestic Demand	142.8	45.2	188.0

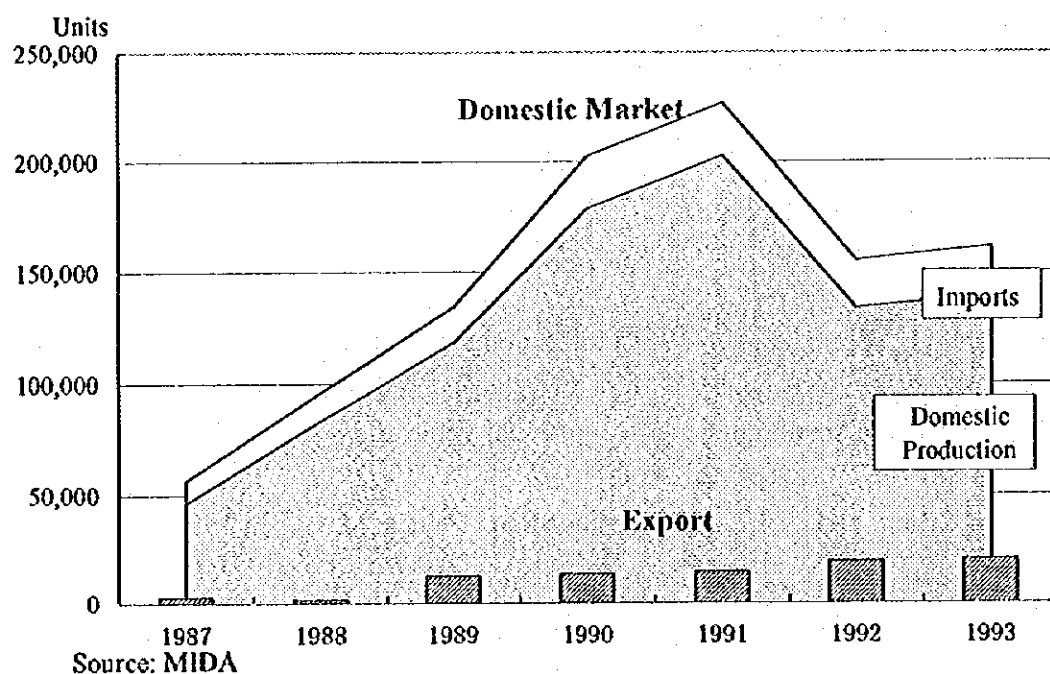
Note : Domestic production volume was estimated by adding the domestic sales volume and export volume of domestically assembled vehicles.

Source : MIDA and MMTA

The domestic production volume of motor vehicles dropped to 173,495 in 1992 after recording a peak of 208,629 units in 1991. In 1993, the volume was 185,387 units with a slight recovery from the previous year. The drop in motor vehicle production mainly reflected a sharp drop in the demand for commercial vehicles.

Exports of motor vehicles has been steadily increasing since 1989 when exports exceeded 10,000 units. The average annual growth rate during the period 1989 - 1993 was 13%.

Fig. 1-1 Trend of Motor Vehicle Market in Malaysia



Among motor vehicle imports, used cars occupy a significant share: 47% in terms of value and 79% in terms of numbers.

Table 1-5 Import Licenses Approved for Motor Vehicles

Types		1992		1993	
		Units	Amount (RM million)	Units	Amount (RM million)
Dual Purpose Vehicle	New	466	24.8	1,152	23.9
	Used	1,224	55.8	1,461	9.0
Personal Vehicle	New	247	27.0	297	27.1
	Used	1,112	17.3	1,148	23.8
Passenger Vehicle	New	1,403	50.0	2,290	43.9
	Used	7,351	41.9	9,176	63.2
Commercial Vehicle	New	100	23.9	104	40.9
	Used	1,655	67.3	2,330	26.4
Total		13,558	307.9	17,958	258.2

Source : MITI

2) Players in the Market

In Malaysia, 22 franchise holders are approved to assemble motor vehicles and most of them contract with assemblers for production of the motor vehicles approved. Besides the franchise holders, PROTON and PERODUA, the 2 national car projects, manufacture their own brands of vehicles. These companies sell their products by themselves or through sales companies.

There are 8 assemblers and 2 national car manufacturers which are engaged in motor vehicle production in Malaysia. One assembler assembles commercial vehicles only while the rest of the assemblers assemble both passenger vehicles and commercial vehicles. Among the two national car manufacturers, PROTON produces passenger vehicles only, while PERODUA produces passenger vehicles and also is engaged in assembly of commercial vehicles.

The characteristics of participants in Malaysia's motor vehicle market are as follows:

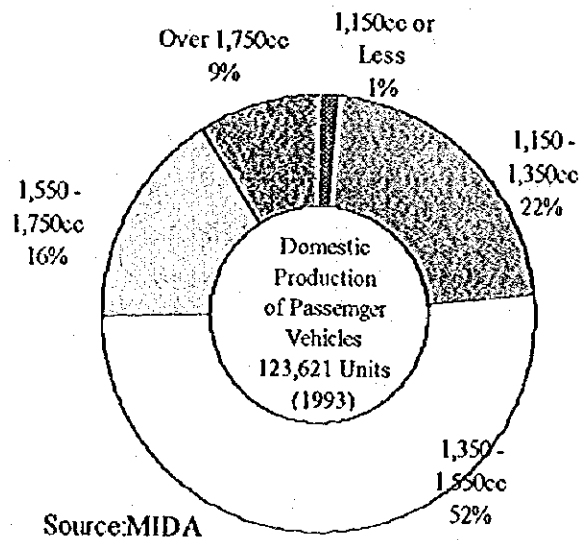
- PROTON holds an overwhelming share of approximately 75% of the passenger vehicle market. Franchise holders of Japanese, U.S. and European brands share the rest of the market.
- Japanese brand vehicles have taken the majority of the market for commercial vehicles and for non-PROTON passenger vehicles.
- PROTON is under the strong influence of a Japanese car maker. The Mitsubishi Motor Corporation participates in PROTON in the form of equity. Product development is carried out in PROTON with the technical collaboration with the Mitsubishi Motor Corporation.

3) Competition in the Passenger Car Market

Product

Passenger vehicles with 1,151 - 1,750 cc engines account for approximately 90% of the total market. PROTON merchandises their products only in this category and holds an overwhelming share. In 1993, PROTON enjoyed a share of 85% of the market for new passenger cars with 1,151 - 1,600 cc engines. The market weight of both smaller-size cars and larger-size cars will expand due to the market entry of PERODUA with 660 cc cars in the summer of 1994 and PROTON's new 2,000 cc model in the beginning of 1995.

Fig. 1-2 Passenger Vehicle Production by Size of Engine



Price

Franchise holders decide their selling prices by adding up costs according to the government price supervision guideline policy. As the industry still depends substantially on imported parts and materials, changes in import prices have a large influence on the selling prices of passenger vehicles. Passenger vehicle prices have been rising along with the appreciation of the yen in the past several years.

PROTON enjoys a 30 - 40% price advantage over other brands on account of approved deductions from import duty on CKD imports and excise duty.

Fig. 1-3 Price Zone of Major Passenger Vehicles

Brand	Model	Engine Size	On-the-Road Prices (RM Thousand)					
			30	40	50	60	70	80
PROTON	PROTON SAGA	1,300/1,500						
	PROTON WIRA	1,500/1,600						
NISSAN	SUNNY	1,300						
	SENTRA	1,600						
TOYOTA	COROLLA	1,300/1,600						
HONDA	CIVIC	1,500/1,600						
FORD	LASER	1,300/1,500/1,600						
PERODUA	KANCIL	660						
DAIHATSU	CHARADE	1,000/1,300						

Source: PROTON

Level of Competition

The competitive position in Malaysia is characterised by PROTON enjoying an overwhelming market share with its high cost advantage and a wide sales network, and other brands trying to survive in the niche markets. PROTON attracts price-conscious customers in Malaysia and maintains an impregnable position in the middle-class category. Other brands avoid direct competition with PROTON in this category. They try to attract customers who are not satisfied with PROTON by differentiating themselves in terms of bigger engine size, superior functions and technology, styling, etc., or by introducing different types of models.

The competitive situation mentioned above is entering a new phase due to the introduction of the second National Car, KANCIL, in 1994, the diversification of PROTON's product line, and new National Car projects. National Cars are permeating through a wider range of passenger vehicles. Foreign brands which compete directly with new National Cars will face severer competition.

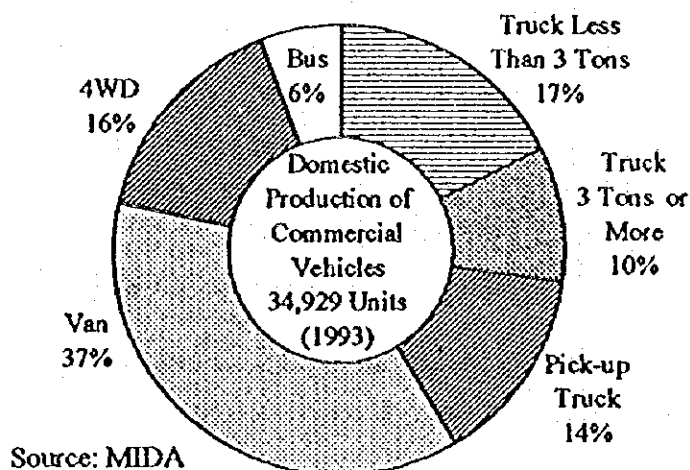
4) Competition in the Commercial Vehicle Market

Product

Major types of commercial vehicles are vans, light trucks, pick-ups and four-wheel drive vehicles. These types account for more than 80% of total domestic production of commercial vehicles. Vans and pick-ups account for approximately half of commercial vehicle production. This reflects customers' strong needs for goods and passenger-carrying vehicles. Among trucks, light trucks of less than 2.5 tonnes GVW enjoy popularity because the registration of commercial vehicles over 2.5 tonnes GVW requires an official approval.

Imports occupy one fourth of the domestic market due to the import duty on CBU of 35%, far lower than that for passenger vehicles, and a more flexible import quota system. (CBU imports of four-wheel-drive vehicles are subject to an import duty of 50%.)

Fig. 1-4. Commercial Vehicle Production by Category



Price

The selling prices of vans and four-wheel-drive vehicles were relatively attractive compared with passenger vehicles. This largely contributed to the diffusion of these vehicles in the late 1980s and the beginning of the 1990s. However, the rise in excise duties on dual purpose vans and four-wheel-drive vehicles in 1992 widened the difference in price between passenger vehicles and such commercial vehicles as vans and four-wheel-drive vehicles. This caused a sharp drop in commercial vehicle sales.

Level of Competition

The top 5 brands account for three fourths of commercial vehicle production. As a result, the commercial vehicle market is rather oligopolistic. Some brands compete in each category. The leading brands differ according to category.

(3) Motorcycle Market

1) Domestic Production

Though the production of motorcycles bottomed out during the recession period between 1985 and 1987, it has recovered remarkably since 1988 and sustained a rapid growth of 13.98% to a record of 276,139 units in 1993.

Table 1-4 Motorcycle Production by Assembler in Malaysia

(Unit : '000 units)

	1988	1989	1990	1991	1992	1993
Yamaha	33.1	53.4	77.0	102.0	112.8	113.0
Honda	37.9	56.9	75.9	67.4	72.0	82.3
Suzuki	27.7	37.9	58.4	51.1	46.9	60.2
Kawasaki	0.3	2.8	8.4	9.3	10.5	20.7
Total	99.0	151.1	219.6	229.7	242.3	276.1
Growth %	(26.5)	(52.7)	(45.3)	(4.6)	(5.5)	(14.0)

Source : Motorcycles and Scooters Assemblers Association of Malaysia (MASAAM), 1994

At present, about 18 to 20 models ranging from 70 to 150 cc are manufactured in Malaysia and more than 70% of the products are 2-stroke models.

Sales of motorcycles in Malaysia have grown rapidly since 1988 when sales were 96,751 units, reaching 273,344 units in 1993. Peninsular Malaysia accounted for more than 90% of the nation's total sales. The number of registered motorcycles in Malaysia at the end of 1993 (the number in Sabah was calculated as of the end of March, 1993) was 3,703,838 units. The motorcycle possession rate at the end of 1993 was one unit per 5.16 people which is almost as high as those in Taiwan and Japan. Judging from these, the motorcycle market in Malaysia can be said to be saturated.

2) Industrial Development Policy for the Motorcycle Industry

Malaysia's industrial development policy for the motorcycle industry has been developed together with that for the automotive industry.

The first step started in the late 1960s and early 1970s with the initial purpose of encouraging local assembly to reduce dependence on CBU imports. As the second step, local content policy mainly aiming at the development of the domestic motorcycle industry was implemented by reducing dependence on imported parts and components and developing the local parts and components manufacturing industry. In 1981, a local content programme was introduced in the form of a mandatory deletion programme. The policy used preferential import duties and tax treatments to encourage local assembly.

The purpose of the localization policy was mainly aimed at the following two points:

- i. Increase in the local content ratio of parts and components used for the domestic assembly of motorcycles
- ii. Development of Malaysian parts and components manufacturers with the following two goals:
 - Improvement of technology and engineering ability to produce precise, refined and high-quality products; and
 - Enabling export of products by developing competitiveness in the international market.

3) Progress in Localization of Parts and Components for the Motorcycle Industry

The domestic production of OEM parts and components used for the assembly of motorcycles in Malaysia has been increasing steadily.

Production of not only REM (after sales) but also OEM parts and components is necessary for the development of the parts and components manufacturing industry for motorcycles in Malaysia. Many manufacturers that originally produced REM parts and components have gradually been gaining enough technology to produce OEM ones through technical cooperation with overseas manufacturers.

The present ratio of local content differs not only from assembler to assembler but also from model to model for each assembler and therefore the kind of parts and components which can already be procured in Malaysia differs from model to model, too. The following parts and components listed below are those which are currently procured in Malaysia and used for the assembly of most models.

- i. Body/pressed parts : Main frames, frame covers, fenders, leg shields, tail covers, fuel

- tanks, chain case covers, front forks, swing arms, handles, seat assemblies.
- ii. Engine : Spark plugs, exhaust system, gaskets, cylinder heads, crankcase covers, pistons, cylinder covers.
 - iii. Suspension, steering and brake system : Shock absorbers, drive chains, sprockets, brake assemblies, brake shoes, wheel rims, spokes and nipples, tyres, steering system assemblies, steering stems.
 - iv. Electrical system : Battery, ignition coils, regulator, relays, instrument panels, fuse sets, head lamps, signal lamps, tail lamps, wiring harnesses, CDI units.
 - v. General parts : Speedometer cables, tachometer cables, keys and switches, locks, kick starter levers, specialized bolts and nuts, screws, clips, studs, hoses, tubes, brackets, small rubber and plastic parts, tyres/tubes, batteries, brake and gear shifts, pedals/levers, control cables, rear view mirrors, reflectors, emblems.

Most of the parts and components procured locally are not manufactured only by the local parts and components manufacturers. In many cases, they are classified into one of the following four cases:

- i. Manufactured by motorcycle assemblers themselves
- ii. Manufactured by Malaysian affiliated companies of overseas parts and components manufacturers that are supplying their products to principals of motorcycle assemblers
- iii. Manufactured by Malaysian manufacturers having technical cooperation agreements with overseas parts and components manufacturers that are supplying their products to principals of motorcycle assemblers
- iv. Manufactured by foreign affiliated manufacturers other than the above

For example, moulded iron parts which need higher technology and precise sizing control are usually manufactured by motorcycle assemblers themselves and only a limited number of parts are manufactured by local parts and components manufacturers. Important metal press parts and components are also manufactured in-house themselves or procured from foreign affiliated parts and components manufacturers. Though such parts and components as frames, fuel tanks, mufflers and oil cushion units are regarded as localized ones, most of them are manufactured by assemblers or procured from foreign affiliated manufacturers for confidence reasons.

In the case of aluminum diecasting parts, Malaysia has only a short history of manufacturing and most of the molding dies are imported. Dies are generally lent to parts and components manufacturers by assemblers, and manufacturers do not possess them themselves.

The major parts and components which are not currently localised are as follows:

Engine : Sub-assembly of clutch and transmission system, clutch plate covers, counter shafts, drive shafts, gears, crankshafts, connecting rods, bearings, oil pumps, carburetors, engine valves, timing chains

Although the localisation in this area is the most delayed among all the parts and components, the number of engine parts items locally produced is increasing. These parts helped to increase the local content of motorcycle engines currently manufactured locally by joint venture companies between HICOM and Japanese motorcycle makers.

In total, as a result of continuous efforts taken by motorcycle assemblers and parts and components manufacturers, parts and components contributing to the local content are currently in excess of 75% for motorcycle assembly, calculated from averaging all the models of each assembler.

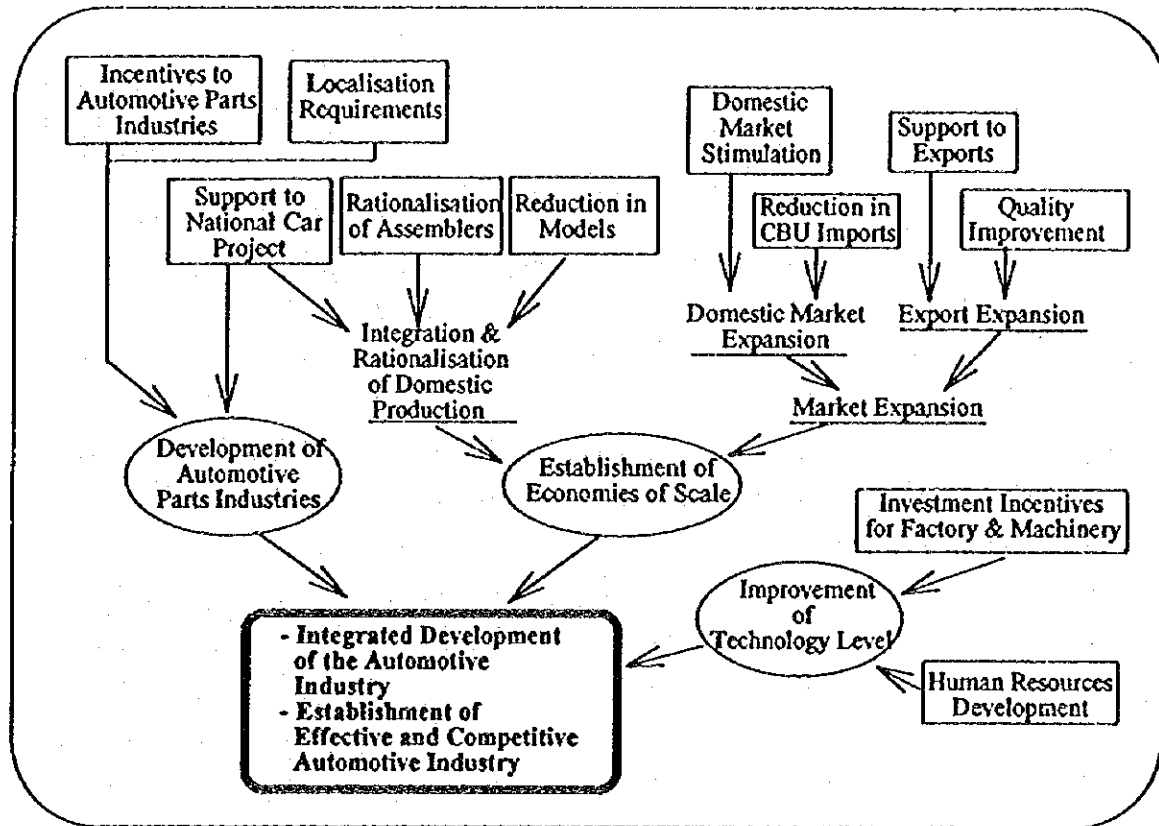
(4) Government Control of the Automotive Industry

1) Basic Policy

The basic policy for the automotive industry consists of i) the development of National Car projects as a focal point for the development of the domestic automotive industry, and ii) the development of local parts and components industries through such localisation promotion policies as the Mandatory Deletion Programme and Local Material Content Policy.

The automotive industry policy has been guided by the Industrial Master Plan (1986 - 1995) formulated in 1985.

Fig. 1-5 Framework of the IMP for the Automotive Industry



2) Protection of Local Market

The following measures are taken for the protection of the local industry and National Car projects:

- i. Restriction on Completely Built-up (CBU) Imports : The local passenger vehicle market is protected by high import duty on CBU imports and import quota.
- ii. Preference to National Car projects : National Car projects enjoy a preferential import duty on CKD parts and a partial exemption from excise duty.

3) Measures to Promote Localisation

The following measures have been introduced to promote the localisation by franchise holders:

- i. Mandatory Deletion Programme (MDP): A total of 30 components have been designated as mandatory localised items.

- ii. Local Material Content Policy (LMCP): The localisation targets up to 1996 have been set.

At the same time, the government is encouraging local automotive parts and components manufacturers through various small- and medium-size industries promotion policies including the Vendor Development Programme (VDP).

4) Related Policy Factors which have an Influence on the Automobile Market

The other policy factors related to the automobile markets are as follows:

- i. Regulations on Vehicles and Road Management Policy : Vehicles for commercial use are subject to regular inspection. Vehicle inspection was privatised. Traffic congestion has been becoming worse in the Metropolitan district in spite of the expansion of roads and parking lots. This calls for additional measures to relieve traffic congestion.
- ii. Environmental Protection Policy : Air pollution in Malaysia has been deteriorating year by year. Measures to control gas emission levels of automobiles, one of the major sources of air pollution, such as stricter emission standards and the requirement to install catalytic converters, have been introduced. Environmental protection controls tend to be strengthening.
- iii. Selling Price Control Policy : The selling price of each model of motor vehicle has to be approved by the MITI for protecting the interest of the consumers.
- iv. Financial Policy : The government tightened conditions of automobile loans as a part of measures restraining inflation in 1991, which cooled down the demand for automobiles. In 1993, loan conditions were put back to the level before 1991.

5) Impact of the Government Policy on the Industrial Structure

The automobile industry has been developed through the effort of nurturing a National Car project, PROTON, in Malaysia. This project has obtained the following results:

- The first National Car project, PROTON, has built up a mass production capability of 150 thousand units per annum.
- PROTON has established a base for exporting Malaysian automobiles.
- PROTON has brought up local vendors through various vendor development efforts.
- PROTON has acquired a certain level of production technologies and R&D technologies.

It has been 10 years since the establishment of PROTON, and the automotive industry now faces the following problems :

- The rationalisation and concentration of the automotive industry has not progressed as was expected in the IMP.
- There is less incentive to acquire international competitiveness among the automobile industry and the automotive parts and components industries because of the protection in the local market.
- There is a large extent of dependence on foreign technologies.
- The acquisition of export competitiveness and the exploration of the export market have not progressed.

(4) Growth Path of the Automobile Industry

1) Development Process of the Automobile Industry

The development process of the automobile industry can be divided into the following stages.

- | | |
|-------------------|--|
| The first stage: | CBU import stage (1957 - 1967) |
| The second stage: | Import substitution stage by CKD assembly (1967 - 1985) |
| The third stage: | Stage where PROTON established a production base (1985 - 1990) |
| The fourth stage: | Stage where PROTON enhanced its production base (1990 - 1994) |
| The fifth stage: | Stage where National Car projects will compete |

Fig. 1-7 Development Process of the Automobile Industry in Malaysia

Development Stage	CBU Import Stage	Assembly Stage	Production Stage Introduction Period	Production Stage Growth Period	Production Stage Self-dependence Period
Year	Up to the beginning of the 1960s	Up to the mid-1980s	Up to 1990	Up to 1994	Since 1995
Size of Domestic Production		1971: 31,000 1981: 112,000	1985: 105,000 1990: 192,000	1992: 177,000 1994: 199,000	1995: 215,000 2000: 330,000
Production & Market	Import of CBU	-CKD assembly of foreign brands -Import Substitution	-Setting-up of foundation of National Car production	-Setting-up of position of National Car -Opening-up of export market	-Competition by several National Car makers -Expansion of exports
Supplier	Importers	Assemblers	-PROTON -Assemblers	-PROTON -Assemblers	-Several National Car Makers -Assemblers
Government Policy	Import substitution	-Import substitution -Protection of domestic assemblers -Local vendor promotion	-Preference to the National Car maker -Local vendor promotion	-Preference to the National Car maker -Increase in local content -Export promotion	-Free competition -Increase in international competitiveness
Technology Acquisition		-Technical tie-up -Joint Venture	-Technical tie-up -Joint Venture	-Technical tie-up	-Technical tie-up -Independent R&D
Important Technology		Assembly technology	-Production management technology -Productivity improvement technology	-Style modification technology -Evaluation technology	-Original model development technology -Product design of functional parts
Parts Localisation	REM parts	MDP items	Assembly, press parts	Machining, casting parts	Forging parts

2) Hindrances to Growth

The bottlenecks which hinder the development of the automobile industry in Malaysia are as follows:

Market Constraints

- Small domestic market
- Market which does not have free competition
- High costs of parts and components due to the yen appreciation, dependence on imports for raw materials, less-competitive local vendors, high import duties, etc.
- Control of the market by the government

Supplier Constraints

- Dependence on foreign technologies
- Low levels of capital accumulation
- Limited R&D capabilities in terms of manpower and technology accumulation
- Large R&D risks

2. AUTOMOTIVE PARTS AND COMPONENTS INDUSTRY IN MALAYSIA

(1) Market Size

The total domestic market size of automotive parts and components in Malaysia is estimated at about RM 5.8 billion in 1993.

The domestic production of parts and components was RM 4,237 million in the same year, of which 70% were sold in Malaysia and the rest were exported. The domestic production for the local market was RM 2,963 million, of which RM 1,710 million was directed to the OEM market, RM 612 million to the accessories market, and RM 641 million to the REM market. Exports of car stereos, radios and the like accounted for 73% of the total parts and components exports.

Imports of automotive parts and components was RM 2,794 million on an import price basis, of which 80% were CKD imports and the rest were general parts imports.

Table 1-8 Market Size of Automotive Parts and Components (1993)
(Unit: RM Million)

Breakdown		Value
Domestic production	(A)	4,237
Exports	(B)	1,274
Imports of general parts	(C)	504
Imports of CKD parts	(D)	2,290
Domestic Market	(A)-(B)+(C)+(D)	5,757

Source : MIDA and MMTA

(2) Progress of the Localisation

PROTON have achieved high localisation of 83 points in terms of the Local Material Content Point System. However, the localisation level of other brands is low. Among them, only one model exceeds 50 points, which is the target by the end of 1994 for passenger vehicles with engines of less than 1,859 cc.

Parts whose manufacturing has been localised considerably are the following five groups:

- Direct consumable materials
- Accessories
- Wheel parts
- Body parts
- Electric system parts

For these parts groups, the localisation ratio is high for both PROTON and non-PROTON brands.

On the other hand, parts whose localisation level is low are the following groups:

- Engine parts
- Suspension and steering parts
- Brake related parts
- Power transmission parts

The localisation level of non-PROTON brands is low for the above groups compared with PROTON. The manufacture of these parts requires a high level of technology and production control. At the same time, in many cases, a large amount of capital investment is necessary for the production of these parts because specialised machine tools are required. These are the major reasons that non-PROTON brands with a limited market in Malaysia have not actively promoted the localisation of these parts.

(3) Industry Structure

1) Profile of Local Manufacturers

It is estimated that there are approximately 300 primary vendors which supply local automotive parts and components in Malaysia. The characteristics of local automotive parts and components manufacturers are as follows:

- Automotive parts and components manufacturers are concentrated in the Selangor and KL area.

- The proportion of large-size enterprises is relatively high compared with other industries. Among 109 companies which responded to the questionnaire survey conducted by the Study Team, the proportion of companies with paid-up capital of RM 2.5 million or more was 45%.
- The mode of production differs according to types of parts and components. For example, companies engaging in the production of body parts are mainly labour-intensive while companies producing transmission parts and wheel parts are mostly capital-intensive.
- Relatively new companies make up a majority of automotive parts and components manufacturers. It was around 1980 when the development of the automotive parts and components industries started to grow. The growth since 1985, especially when PROTON started production, is outstanding.
- The presence of foreign capital is large. The proportion of foreign companies is relatively high. Approximately 40% of companies which responded to the questionnaire survey have foreign capital participation. Technical collaboration with foreign capital, as well as capital participation, has significantly contributed to the development of the automotive parts and components manufacturers.

2) Characteristics of the Industrial Structure

The major characteristics of the industrial structure would briefly be summarized as follows:

- i. Limited number of suppliers : The number of suppliers is less than the number of franchise holders for individual parts. Assemblers experience difficulty in sourcing from multiple suppliers due to their small order volume.
- ii. Incomplete competition : The local automotive parts and components market is a sellers' market because of the limited number of suppliers and the government's localisation policy in the form of LMCP. The competition among suppliers is not severe.
- iii. Loose linkage with an automobile maker : Automobile assemblers can not establish a purchase management system on the basis of a stable relationship with local suppliers. The relationship between PROTON and its suppliers is loose compared with that between Japanese car makers and their suppliers.
- iv. High entry barrier : State-of-the-art technology and know-how is required for a

company to enter the market. In addition, the technical collaboration with a foreign company is often necessary at market entry. The entry requirements, such as capital investment, production know-how to absorb technologies introduced from overseas, quality control satisfying an automobile maker, etc., are hard for small-size and medium-size enterprises to achieve.

(4) Parts Procurement Policy of Assemblers and Manufacturers

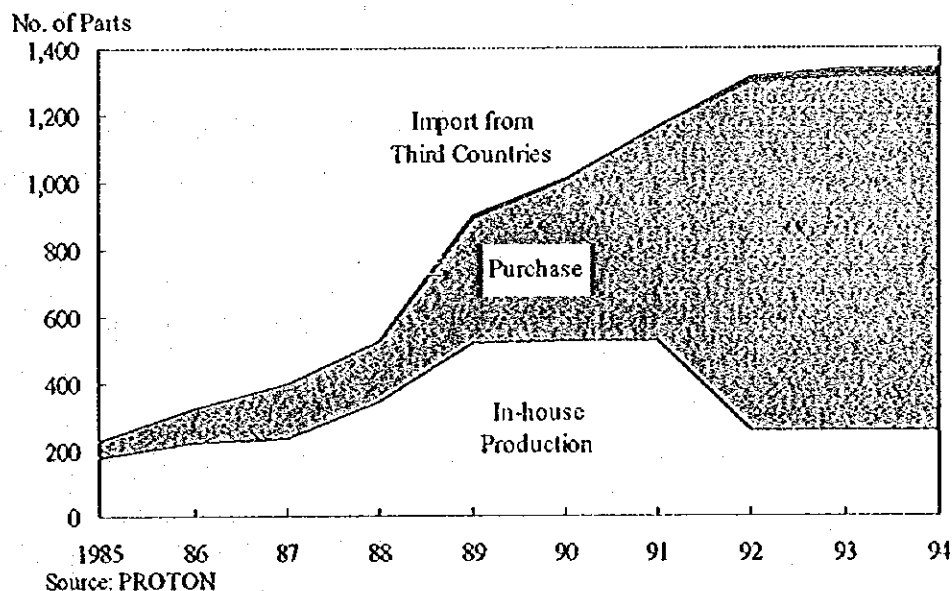
1) Procurement Policy of PROTON

In the early years of operation, the ratio of in-house production in PROTON to total localised parts and components was high because local suppliers were not developed.

PROTON has made efforts to develop local vendors since its inauguration. As a result, the number of locally purchased parts and components steadily increased. At the same time, PROTON established a policy of in-house production for such functional components as engine and transmission assembly and machining of key engine parts because the technological level of local parts manufacturers was not high enough to manufacture those parts.

In the 1990s, the ratio of purchased parts has significantly increased. PROTON has shifted from in-house production to purchase for some parts. At the same time, PROTON is showing more interest in purchase from third countries.

Table 1-7 Parts Localisation Trend of PROTON



The trend of recent parts procurement of PROTON is summarized as follows:

- i. Shift to multi-sourcing : PROTON used to adopt a single sourcing policy in which one vendor was designated for each part, and was nurtured through procurement of parts. However, PROTON has changed its procurement policy to multi-sourcing, where multiple vendors supply the same parts for critical parts in order to avoid risks of quality and delivery problems.
- ii. Rationalisation of procurement cost : PROTON has been placing more importance on the reduction in parts and components cost in order to secure its price competitiveness. PROTON now tends to look at the prices offered by vendors more strictly.
- iii. More interest in overseas sourcing : To cope with the increase in imported materials and parts cost due to the yen appreciation, PROTON is examining the shift of procurement sources from Japan to third countries. It is expected that the procurement from third countries will increase.

2) Procurement Policy of Non-PROTON Franchise Holders

Non-PROTON franchise holders' basic procurement policy is to promote localisation according to the targets guided by LMCP. They have to purchase high priced local parts because their market is very limited and they can not enjoy the scale of economies for procurement.

The criteria for non-PROTON franchise holders to select parts and components to be localised are as follows:

- i. Parts and components which are already produced in Malaysia by PROTON vendors.
- ii. Parts and components which require small amount of investment in jigs, tooling, moulds and dies, etc.
- iii. Parts and components which can obtain high LMCP points.
- iv. Parts and components the cost of which is low compared with equivalent imported parts.

(5) Hindrances for Growth

The bottlenecks hindering the growth of the automotive parts and components industries are summarized as follows:

- i. **Limitation of market size :** Local automotive parts and components manufacturers can not enjoy economies of scale due to the small local automobile market. There is a significant difference in the possible size of business between vendors of National Car projects, especially PROTON, and other vendors. As for foreign brands of non-PROTON franchise holders, the production volume per model is very small and the frequency of model change is high.
- ii. **Raw material procurement :** Local automotive parts and components manufacturers largely rely on imported materials.
- iii. **Technologies :** Local automotive parts and components manufacturers depend on technical collaboration with foreign companies for advanced technologies. They have not accumulated sufficient technologies which enable independent R&D activities.
- iv. **Manpower resources :** Local automotive parts and components manufacturers have difficulty in maintaining international price competitiveness due to the increasing labour cost.

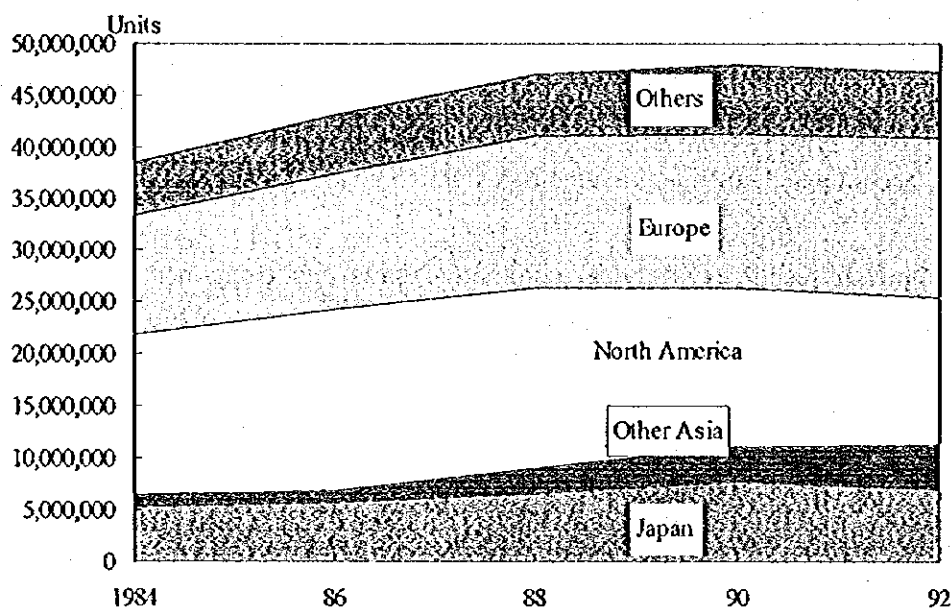
3. CHANGES IN THE INTERNATIONAL MARKET

(1) World Car Market

1) Market Size by Region

The size of the world car market was 47,153,000 units in 1993 on a new registration basis, of which 71% were passenger vehicles and 29% were commercial vehicles. The Asian market was 11,343,000 units in the same year and accounted for 24% of the total. The Asian market excluding Japan is expanding at a rapid pace. The market in Asian countries excluding Japan increased from 1,035,000 units in 1984 to 4,385,000 units in 1992.

Fig. 1-7 World Automobile Market (New Registration Basis)



Source: *Jidosha Handbook* (Automobile Handbook), Nikkan Jishosha Shinbunsha

2) Production

Major automobile producing countries are Japan, the U.S.A., and EC countries. The automotive production, excluding assembly, in these countries in 1992 is as shown in Table 1-10. These countries accounted for 77% of the total automobile production in the world.

Table 1-10 Automobile Production in Major Countries and Areas (1992)

(Unit: '000 units)

Country	Passenger cars	Trucks and buses	Total
Japan	9,379	3,121	12,499
U.S.A.	5,663	4,064	9,727
E.C.	13,082	1,634	14,717

Source : The Japan Automobile Manufacturers Association

Japan and the EC are major automobile exporting countries as well as major producing countries. Japan exports to a wide range of countries while the U.S. and EC are its major market. As for EC countries, most of their exports are directed to other EC countries. Exports from the U.S. are small compared with production volume.

Table 1-11 Automobile Exports of Major Exporting Countries and Regions

Passenger Vehicles

(Unit: '000 units)

Exporting Country/Area	Importing Country/Area				
	Asia	North America	EC	Others	Total
Japan	384.2	1,827.5	1,045.6	1,151.6	4,408.9
Korea	50.7	154.2	97.5	125.2	427.5
U.S.	149.1	459.9	98.7	143.4	851.1
Canada	1.4	1,213.8	8.9	3.1	1,227.2
EC*	233.8	218.1	4,402.4	931.0	5,785.3

Commercial Vehicles

Exporting Country/Area	Importing Country/Area				
	Asia	North America	EC	Others	Total
Japan	248.6	221.2	139.6	649.4	1,258.8
Korea	2.3	—	0.8	25.6	28.6
U.S.	3.5	113.1	2.1	42.7	161.4
Canada	0.3	555.3	1.3	2.1	559.0
EC*	21.4	2.3	514.7	107.9	646.3

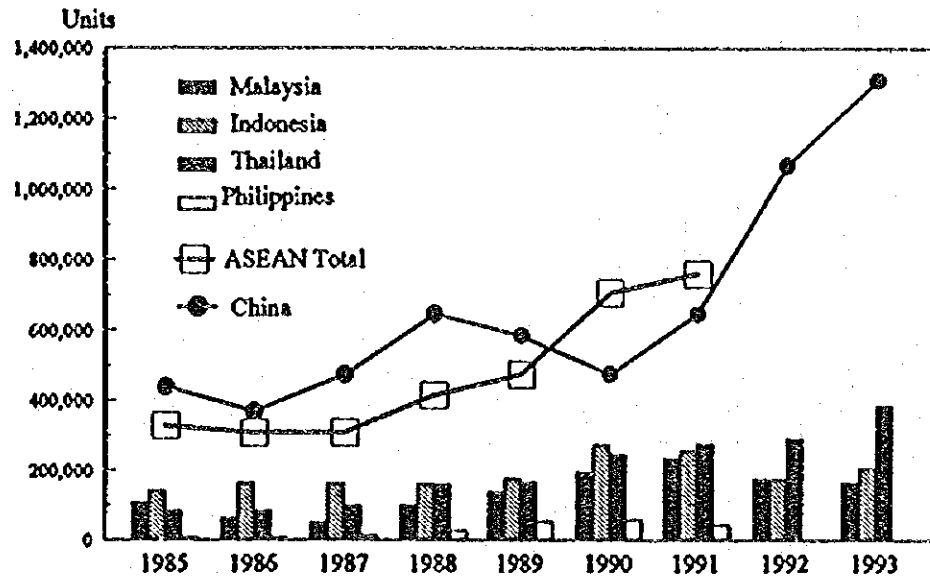
Note: * Exporting countries included in EC are the U.K., Germany, France and Italy.

Source: *Shuyo Koku Jidosha Tokei* (Automobile Statistics of Major Countries),

Japan Automobile Manufacturers Association, Inc.

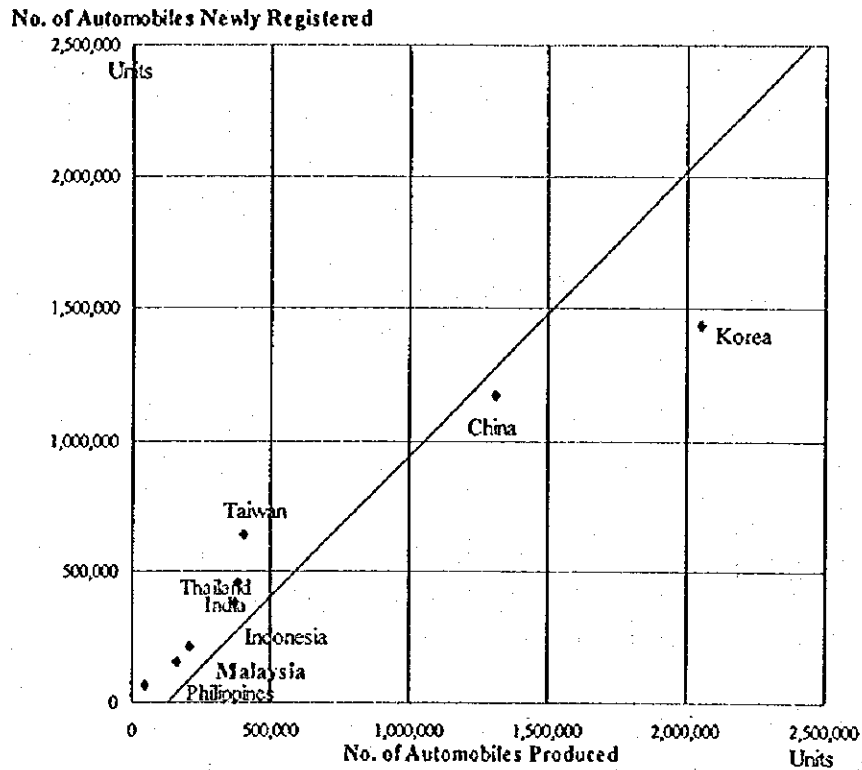
Among Asian countries excluding Japan, Korea and China are major automobile producing countries. Among ASEAN countries, Thailand is the largest automobile producing country followed by Indonesia and Malaysia.

Fig. 1-8 Automobile Production of ASEAN and China



Source : Jidosha Sangyo Handbook, Nikkan Jidosha Shimbunsha

Fig. 1-9 Size of Automobile Markets in Asia



Source : Jidosha Sangyo Handbook, Nikkan Jidosha Shimbunsha

3) Major Automobile Manufacturers

The world automobile industries are dominated by U.S., Japanese, and European automobile manufacturers. In 1992, the top 10 manufacturers in the world produced 59% of the automobiles newly registered in the world. There exists a close linkage among major automobile manufacturers in the world through capital relationships and business collaboration. Major types of business collaboration are: i) reduction in R&D expenses through joint R&D and joint production, ii) cost reduction by using common parts and components, and iii) mutual complementation through the specialisation in advantageous fields and OEM procurement for other fields.

Table 1-12 Major World Automobile Manufacturers

<u>Company</u>	<u>Country</u>	<u>Total Production</u>	<u>Passenger Vehicle Production</u>
1. General Motors	US	4,076,447	2,460,187
2. Toyota Motor	Japan	3,561,750	2,822,698
3. Ford Motor	US	3,349,179	1,489,699
4. Volkswagen	Germany	2,491,815	1,504,001
5. Nissan Motor	Japan	1,811,591	1,524,541
6. Peugeot	France	1,668,736	1,571,652
7. Renault	France	1,486,596	1,264,628
8. Chrysler	US	1,427,402	494,453
9. Mitsubishi Motors	Japan	1,362,447	944,247
10. Fiat	Italy	1,249,611	1,113,268

Source: Jidosha Sangyo Handbook (Automobile Industry Handbook),
Nikkan Jidosha Shimbunsha

4) Business Operations by the Major World Automobile Manufacturers

The importance of the Asian market is increasing among the world automobile manufacturers as the Asian market expands. Major automobile manufacturers pursue the following approaches to the Asian market:

i. Active entry into such potential markets as China and Vietnam

Major automobile manufacturers are making active approaches to the Asian market, especially to China and Vietnam.

ii. Establishment of a mutual complementation system in the Asian area

Automobile manufacturers which have set up production bases in the Asian area have started to produce automobiles by supplying parts and components among production bases in this area instead of manufacturing all parts and components within an individual country. Brand-to-Brand Complementation initiated by the ASEAN is one of the factors promoting this mutual complementation among automobile manufacturers.

iii. Manufacture of an Asian Car

Automobile manufacturers consider that the introduction of a low-priced and practical car into the Asian market is necessary in order to survive in the expanding Asian market. Japanese automobile manufacturers plan to introduce the so-called Asian car, which would be developed specifically for the Asian market and produced at production bases in the Asian area.

iv. Reduction of production cost through the enlargement of procurement from the Asian area

Automobile manufacturers face the necessity of reducing production cost in order to maintain their competitiveness. They are increasing procurement from lower production cost countries, including Asian countries. As for Japanese manufacturers, pressures to reduce trade surplus work as a factor promoting overseas procurement.

(2) Automobile Industry Policies of ASEAN Countries

In ASEAN countries, automotive manufacturers were obliged to choose CKD production due to the ban and/or high import tariffs on CBU imports. They have been required to increase their local content in line with the local content regulations of these countries.

The direction of the automobile industry in ASEAN countries has tended toward the liberalisation of the market. The necessity of market liberalisation as a condition for participation in GATT and the realisation of the ASEAN Free Trade Area (AFTA) is the background of this trend.

ASEAN introduced Brand-to-Brand Complementation in order to improve the competitiveness of automotive parts and components production in this region by achieving the division of production among member countries for concentrated production and promoting mutual complementation among countries.

ASEAN countries have been relaxing regulations on the automotive industry through such measures as the lifting of the ban on CBU imports, reduction on import tariffs on CBU and CKD kits imports, and relaxation of regulations on local content. ASEAN plans to reduce tariffs on trade among member countries step by step under the Agreement on Common Effective Preferential Tariff for the actualisation of AFTA.

In these countries, the basic policy for the development of the automotive industry has been shifted from import substitution to export promotion. Instead of conventional all-around localisation promotion measures, which have resulted in the localisation of assembly and simple processing of parts and components manufacture, these countries have tended to focus on high value-added parts and components as they attempt to place a priority on the localisation of specific parts and components..

4. FACTORS WHICH INFLUENCE THE DEVELOPMENT OF THE AUTOMOTIVE PARTS AND COMPONENTS INDUSTRY IN MALAYSIA

Internal Economic Factors

1) Growth Rate of the Domestic Market

The stable growth of domestic demand for automobiles is crucial for the growth of the automobile industry. Malaysia's automobile market is responsive to economic fluctuations. Major factors which determine the future growth of demand are i) economic growth ratio, ii) growth of disposable income, and iii) the progress of motorisation.

External Economic Factors

2) Trend of the International Economy

Malaysia, to a large extent, depends upon imports for materials, parts, and production equipment. Malaysia currently compensates for the deficit of its current balance with the surplus of its capital balance, which is created by an inflow of foreign investments.

An important external economic factor which has an influence on the future automobile industry in Malaysia is the foreign exchange rate. The fluctuation of foreign exchange rates, especially that of the yen, will have a strong impact on Malaysia's automotive industry. The establishment of an international procurement structure which would not be largely affected by the exchange rate fluctuations of a certain currency would be important.

3) Automobile Industry Policies in Asian Countries and Business Strategies of Major World Automobile Manufacturers

Asian countries emphasise the development of the automotive industry as a key industry and have introduced various promotional measures. Such countries as China, Vietnam and India attach an increasing importance to the development of their automotive industries and have been attracting the interest of major automobile manufacturers in the world for their huge market potential.

Major automobile manufacturers are pushing forward with the setting-up of business networks in the Asian region. How to secure a position of Malaysia in this business network will decide the future of Malaysia's automotive industry.

To nurture the industry as a supplying source of parts and components for the automotive industry not only in the ASEAN region but also in the Asian region is a key to survival for Malaysia's automotive parts and components industry as it is constrained by its small domestic market.

External Policy Factors

4) AFTA

Free trade in the ASEAN region will proceed in the coming 10 - 20 years with the progress of the AFTA. Automotive manufacturers with export competitiveness will enjoy an advantage of CEPT. On the other hand, Malaysia will face the inflow of cheap products manufactured in lower labour cost countries. Less competitive companies will have to cope with hard competition with those imported products.

It may be necessary to enforce specific regulations such as those for quality standards in order to control the inflow of cheap products from other ASEAN countries. However, excess control should be avoided because it will be a non-tariff barrier. It is necessary to promote cooperation among ASEAN countries to avoid the situation where CEPT is stripped of all its content by non-tariff barriers of other ASEAN countries.

Internal Policy Factors

5) Market Liberalisation in Malaysia

Malaysia should advance its liberalisation of the domestic market according to the requirements of AFTA and GATT. The existing restrictions on CBU imports and localisation policy should be re-examined in the future. How to advance the liberalisation process and what schedule to choose have an enormous influence on the future of Malaysia's automotive parts and components industry. The liberalisation should be carried out examining its impact and the readiness of the domestic industry.

6) Malaysia's Automotive Industry Policy

Some new National Car projects are now being planned following PROTON and PERODUA. The policy on National Car projects should be made clear to the industry. In this aspect, the government should indicate its vision of the automotive industry development policy which is formulated from the viewpoints of i) how to promote the concentration and rationalisation of local automotive manufacturers and assemblers, ii) how to establish technological independence including R&D, and iii) how to attain export competitiveness.

7) Malaysia's Policy Related to Automobiles

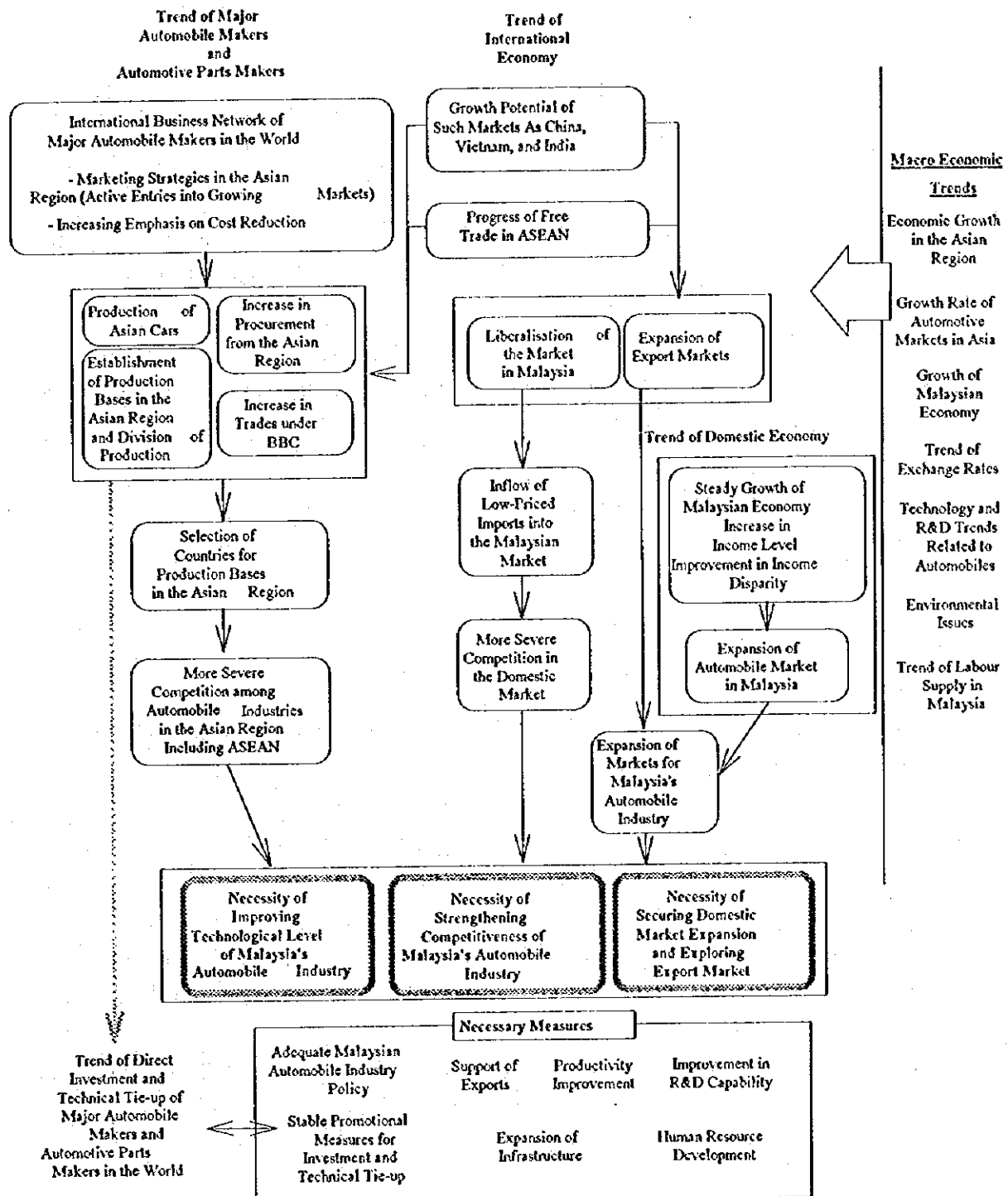
The air pollution in Malaysia has been getting worse year by year although the situation is better than in other ASEAN countries. There is a necessity of taking measures to control gas emissions such as stricter control on diesel vehicles, stricter emission standards, and the replacement of old vehicles with low-pollution types of new vehicles.

As for road traffic, there are problems of traffic congestion which have been becoming serious in large cities. Also, there is a large number of traffic accidents causing deaths. One of the characteristics of automobile possession in Malaysia is the high weight of vehicles more than ten years old. A new policy or measure related to traffic accident control or old vehicles would have an influence on the demand for automobiles.

8) Direct Investment of and Technical Collaborations with Overseas Manufacturers

It is obvious that foreign investments and technical collaborations work as key forces to upgrade Malaysia's automotive and automotive parts and components industry to a higher level. The government should maintain a stable investment environment to attract foreign investments as well as domestic investments.

Fig 1-10 Factors Which Influence the Development of Automobile Industry and Automotive Parts and Components Industry



II. OVERALL DEVELOPMENT STRATEGIES

1. PLAN PERIOD AND OBJECTIVES

(1) Plan Period

In Malaysia, the 1st Industrial Master Plan (1st IMP) was established covering the plan period between 1986 and 1995, in which the sector plan for the Transport Equipment Industry was also included.

In this report, the Study Team sets the following 10 years after the 1st IMP, from 1996 to 2005, as the development plan period.

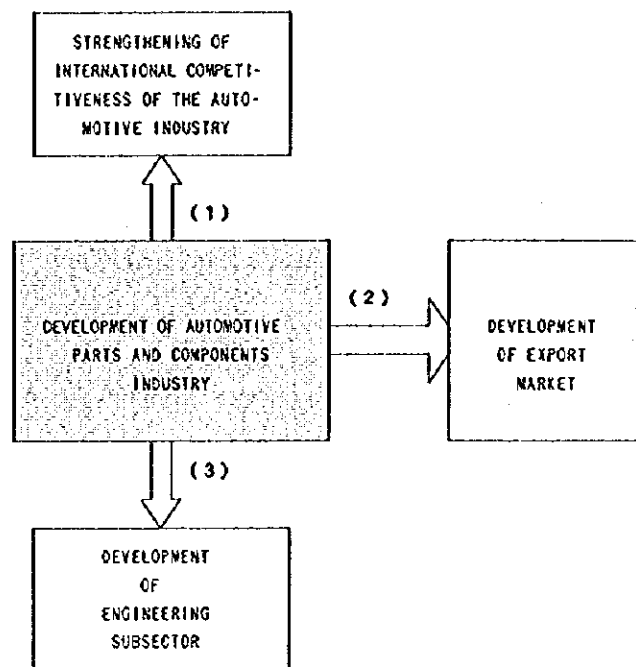
In spite of this long-term plan period setting, the start of the implementation of various development strategies and measures is recommended to be started as soon as possible.

(2) Objectives

The major development objectives of the Malaysian automotive parts and components industry during the coming plan period were set as follows:

- (1) To accelerate the sound development of the automotive parts and components industry as a base for the development of the automotive industry which should be a key sector for Malaysian industrial development, following the electric and electronics industry;
- (2) To expand the exports of both automobiles and automotive parts and components, by developing the automotive parts and components industry into an internationally efficient and competitive industry; and
- (3) To develop various kinds of engineering subsectors, so that the automotive parts and components industry could acquire the capability to manufacture products with precision, sophistication and quality.

Fig. 2-1 Development Objectives of the Automotive Parts and Components Industry



(3) Development Phases

The development stages could be divided into the following two phases:

- Phase I (1996-2000) : Competitiveness Strengthening Stage
 In line with the progress of economic unity among ASEAN nations, the target in this stage would be set for Malaysia to become the leader in the regional market, so that it could supply high quality and internationally cost-competitive automotive parts and components.
- Phase II (2001-2005) : Development Capability Strengthening Stage
 The target in this stage would be set for the automotive parts and components industry to fully support the automotive manufacturers in attaining the status of world leading manufacturers having sufficient R&D capabilities.

2. DEVELOPMENT STRATEGIES

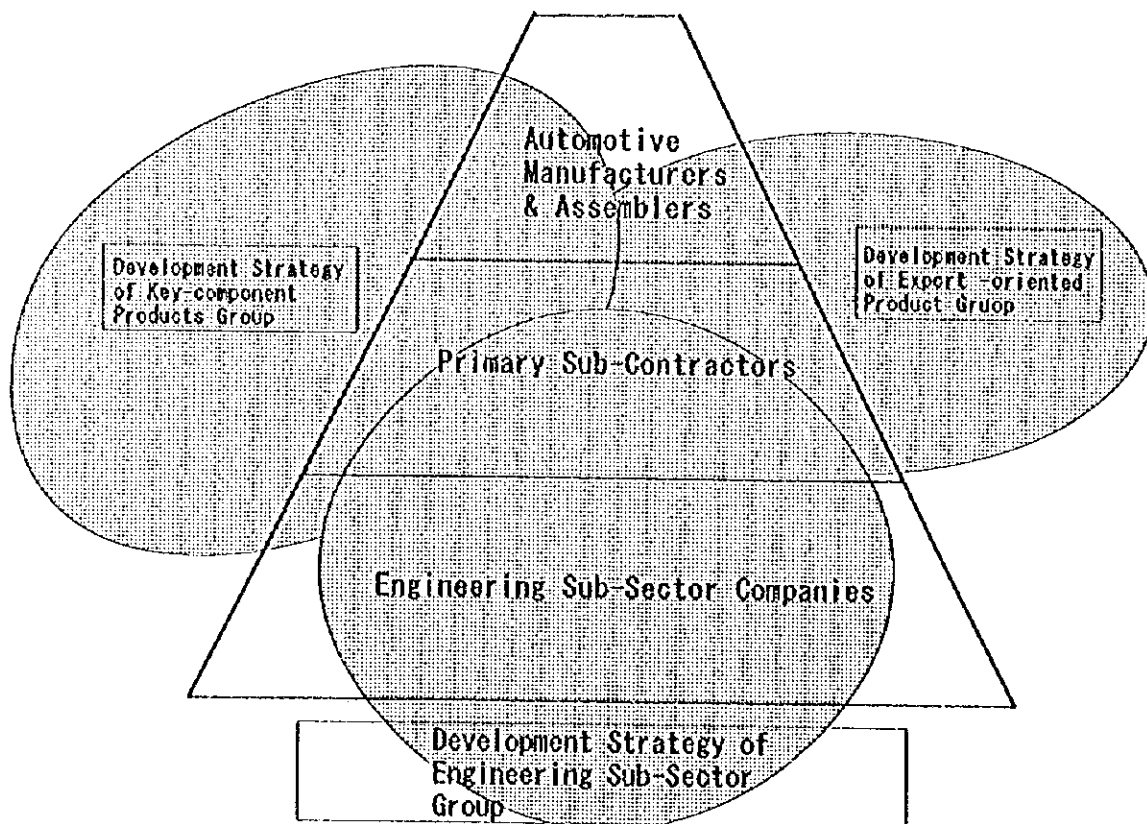
(1) Integration of the Development Strategies

1) Positioning of Development Strategies by Sector

In this report, from the results of the phase I survey, the development strategies were investigated dividing the automotive parts and components, as well as their production processes, into 3 groups: 1) key components group, 2) export-oriented product group and 3) engineering subsector group.

Fig. 2-2 shows the relationship between the development strategies of these 3 groups and the industries composing the whole automotive industry.

Fig. 2-2 Automotive Industrial Structure and Development Strategies

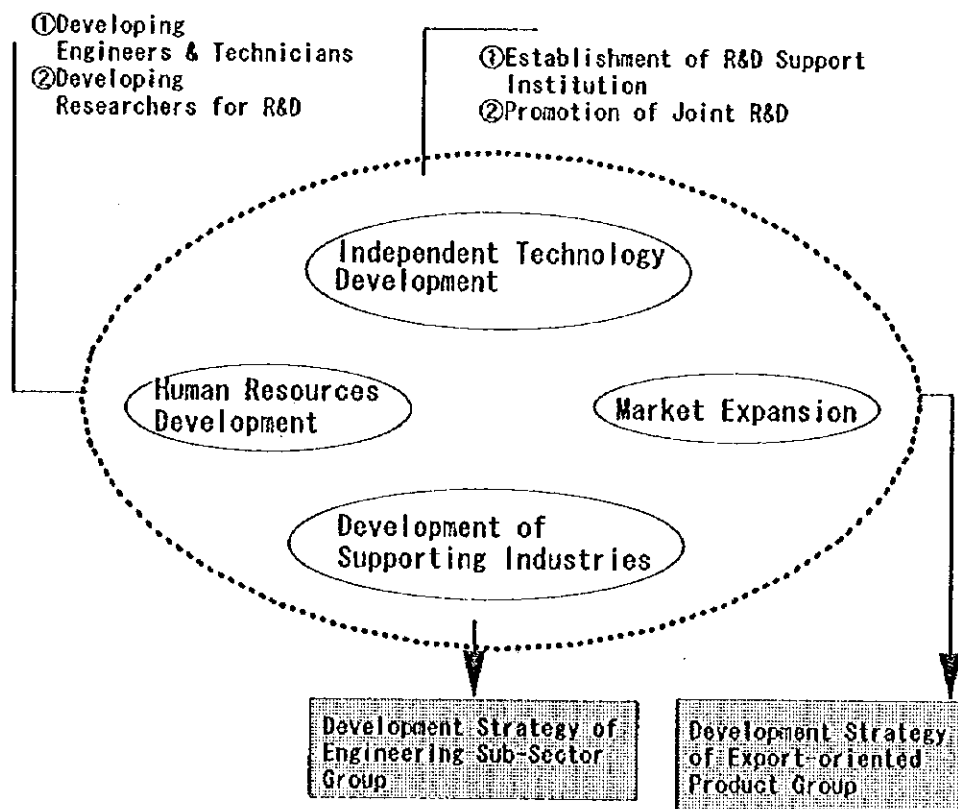


As is illustrated, the automotive industry is composed of 1) automotive manufacturers and assemblers, 2) primary subcontractors and 3) secondary and tertiary subcontractors called the engineering subsector. From the view of automotive parts development, all of the above three groups are players since the automotive manufacturers and assemblers are undertaking in-house parts production and the engineering subsector companies are also undertaking a part of the production processes. From the view of the supporting industries, 2) and 3) of above are the supporting industries of the complete automobile industry, and the engineering subsector group are the major supporting industries of the primary subcontractor group. Further, from the view of exports, most of the automotive parts and components are exported directly as parts, and also exported indirectly as parts of complete automobiles.

From the above linkages among industry groups and product groups, the development strategies proposed for the key components group, the export-oriented group and engineering subsector group, separately, are mutually closely inter-related.

Fig. 2-3 briefly illustrates the relationship between the development strategies proposed from the key components group and those proposed from other groups. As is obvious, the strategies

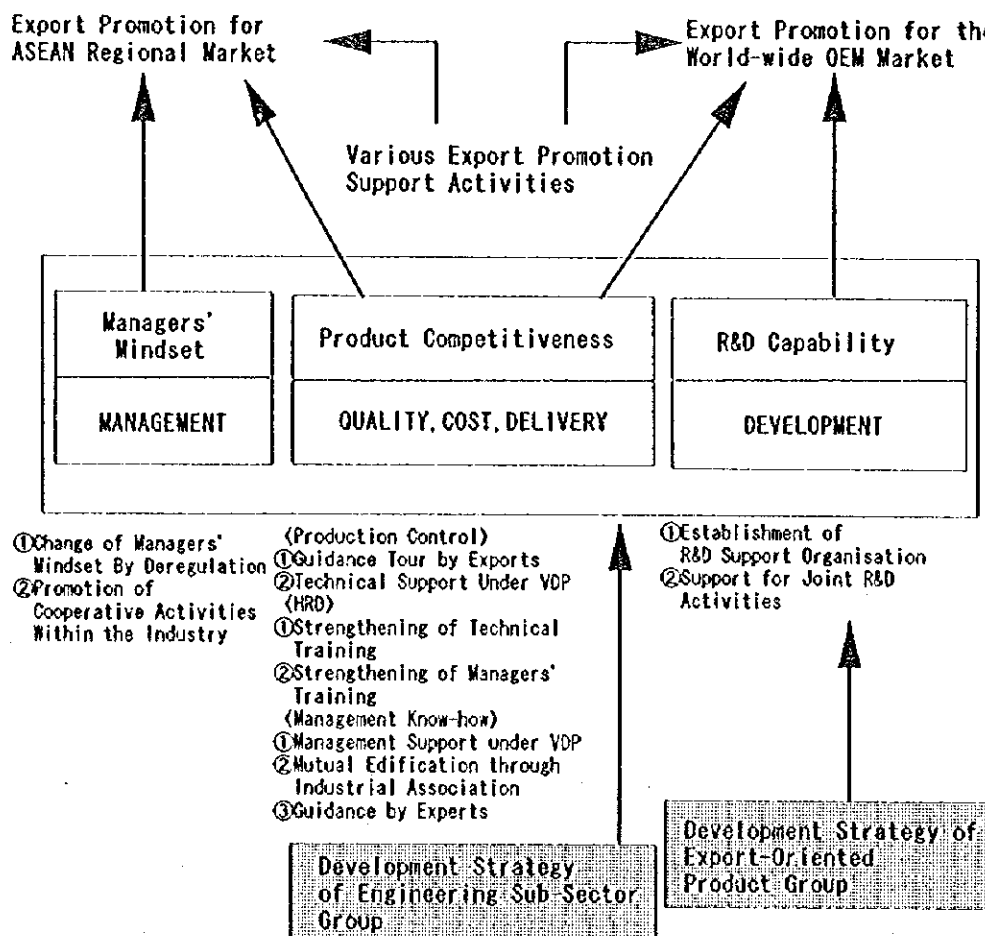
Fig. 2-3 Positioning of Development Strategies of Key Components Group



proposed from the key components group put higher emphasis on the development of independent technologies and human resources development in the area of higher levels of engineers and technicians who are capable of carrying out R & D activities, but the majority of them are in line with those proposed for the development of the other groups.

The relationship of the development strategies of the export-oriented product group and those of other groups is also shown in Fig. 2-4. Although some of the development measures specific for export promotion, such as the expansion of the support activities of export promotion activities of the industry, are proposed, the key factors for the success of export expansion are identified as the increase of product competitiveness (Quality, Cost and Delivery) and new product development capabilities (Development), as well as the management capability of each company (Management). One of the major measures for this upgrading of product competitiveness is the development of engineering sub-sector companies, and the measures for the development of R & D capabilities are similar to those for the key components group.

Fig. 2-4 Positioning of Development Strategies of Export-oriented Product Group



2) Integration of Development Strategies

The development strategies proposed from the three different groups were integrated into the overall development strategies of the automotive parts and components industry, which mainly consists of the following 11 items:

- (1) The change of managers' mindset by promoting deregulation
- (2) Establishment of key manufacturing technologies for the development of automotive key components
- (3) Promotion of exports to the ASEAN regional market
- (4) Upgrading of each parts manufacturers' productivity and quality control capability
- (5) Establishment of human resource development facilities
- (6) Promotion of direct investment of and technical tie-ups with overseas manufacturers having high technological capabilities
- (7) Securing stable domestic automotive demand growth
- (8) Development of an engineering subsector for the integration of the industry
- (9) Upgrading of new product development capabilities
- (10) Expansion of sales to OEM markets in the developed countries
- (11) Development of engineers with advanced technology

(2) Outline of the Overall Development Strategies

Phase I (1996-2000)

The major development strategies to be taken for achieving the phase I stage development targets would be briefly summarized as follows:

1) The change of managers' mindset by promoting deregulation

The mindset of managers of the Malaysian automotive parts and components industry should be changed by having them clearly understand the direction of gradual elimination of various kinds of protective measures taken by the government up to the present. This would be the first step for each Malaysian automotive parts manufacturer to become an established company in the Asian region, as well as in the world, encouraging them to make intensive efforts to increase the international competitiveness of their products and to expand their target from domestic to international markets.

2) Establishment of key manufacturing technologies for the development of automotive key components

The local production of those automotive key components, that are essential for the sound development of the automotive industry in Malaysia and that are not yet produced locally, should further be carried out. Efforts should also be directed to the invitation of overseas manufacturers having high technical capabilities in these fields or in the promotion of technical tie-ups between these overseas manufacturers and Malaysian manufacturers.

3) Promotion of exports to the ASEAN regional market

Those trends in the ASEAN regional market such as 1) rapidly expanding automotive demand, 2) the start of Asia car production by major world leading manufacturers, and 3) the strengthening economic unity are expected to inevitably expand the automotive parts demand in the region. Meanwhile in Malaysia, a fairly large number of automotive parts, which are not yet manufactured in other nations, have already been localised from the experience of supplying these parts to a national car manufacturer. Based on these experiences, the Malaysian automotive parts and components manufacturers should make

further intensive efforts to expand exports to the ASEAN regional market.

4) Upgrading of each parts manufacturer's productivity and quality control capability

There are still many automotive parts and components manufacturers in Malaysia that are producing goods under the various governmental protective measures, and do not have enough international competitiveness. In line with the promotion of deregulation, the international competitiveness of the whole automotive parts industry has to be increased by enhancing each manufacturer's productivity and their capabilities of product quality control.

5) Establishment of human resource development facilities

Partly due to its short historical background, the delay of the human resources development in the industry is still significant at all levels, from general workers to technicians and engineers. In the small and medium scale industries, the managerial skills of managers are also lacking. Because it takes a very long time for the development of human resources, the early establishment of the necessary number and quality of educational and training facilities should be achieved.

6) Promotion of direct investment of and technical tie-ups with overseas manufacturers

In line with the shift of assembly plants of major automotive assemblers to the Asian nations, the interests of many foreign parts manufacturers having high technical skills for overseas operations are increasing. To attract the direct investments of these companies in Malaysia or promote the technical tie-ups between Malaysian manufacturers and these companies would be one of the most important development strategies of the industry in the Phase I period.

7) Securing stable domestic automotive demand growth

For the sound development of the automotive parts industry in Malaysia, the growth of domestic automotive demand without wide fluctuations is highly desired. In Malaysia, the potential demand for new cars is considered very high. This is mainly because the new car ratio in Malaysia is currently low due to loose control on the use of old cars, which causes a big problem relative to driving safety and protecting the environment. The introduction of a stricter control of the use of old cars would create a large new car

demand, but it could also work as a factor to induce a wide fluctuation of domestic demand. By strategically adjusting the timing of the introduction of demand stipulating measures, a stable demand expansion for automobiles should be achieved.

8) Development of an engineering subsector for the integration of the industry

The automotive industry is characterized not only by the existence of a large number of primary subcontractors supplying their products directly to automotive assemblers, but also by a further larger number of secondary and tertiary subcontractors. The group of these secondary and tertiary subcontractors is called the engineering subsector by the Study Team, because a majority of these companies are small scale but rather high-tech companies. In Malaysia, a fairly large number of primary subcontractors was developed, but the growth of engineering subsector companies is largely behind. To increase the international competitiveness of the automotive industry as a whole, the early development of an engineering subsector is essential.

Phase II (1996-20005)

In addition to above strategies, the following measures would have to be taken for achieving the Phase II development targets. As for the initiation of the measures to be taken for each strategy, however, they should also be started at the early stage of the phase I period.

9) Upgrading of new product development capabilities

In order for Malaysia to become an independent automotive producing country, the development of an automotive parts industry which has sufficient capability to develop new products in line with the new model car development of automotive assemblers becomes essential. The intensive supporting measures to upgrade the R&D capabilities of each automotive parts manufacturer and engineering subsector company would have to be introduced in this stage.

10) Expansion of sales to OEM markets in the developed countries

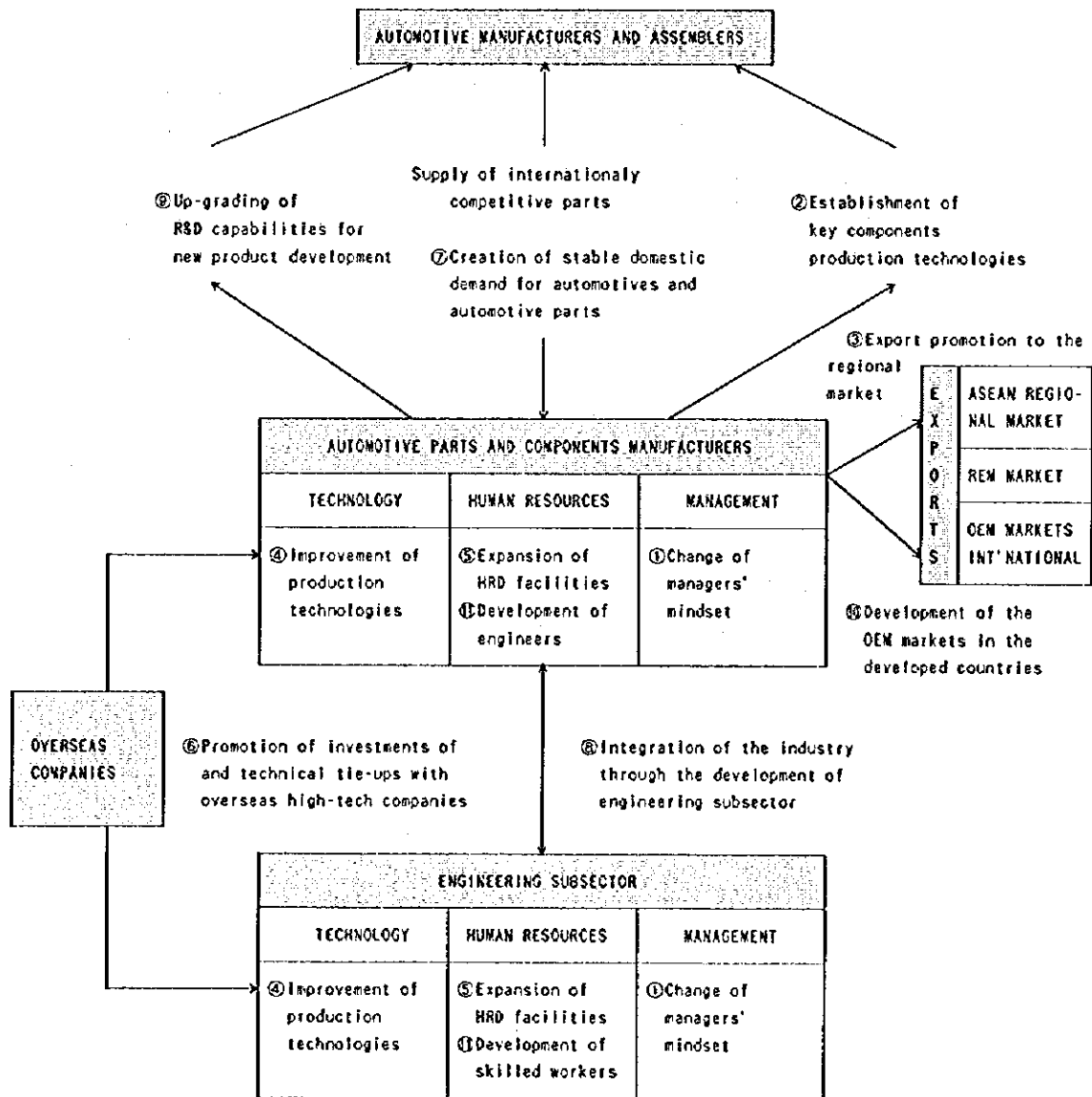
Because the domestic market size in Malaysia is limited, the Malaysian automotive parts industry should not only support the export expansion of complete automobiles, but also should increase the exports of their products as parts. By increasing international product competitiveness, in the Phase II period, the Malaysian automotive parts industry

would be better able to make efforts to penetrate into the OEM markets of developed nations, where the potential demand for automotive parts is huge.

11) Development of engineers with advanced technology

The success of the sophistication of the Malaysian automotive industry depends largely on the creation of a sufficient number of engineers having enough R&D capability to develop new products which are competitive in the world market. Following the measures to establish a sufficient number of educational and training facilities in the Phase I period, higher emphasis of the human resource development in Phase II should be put on the development of engineers.

Fig. 2-2 Illustration of the Overall Development Strategies of the Automotive Parts and Components Industry



III. DEVELOPMENT STRATEGIES BY PRODUCT GROUP

1. SCENARIO FOR THE DEVELOPMENT OF THE KEY COMPONENTS GROUP

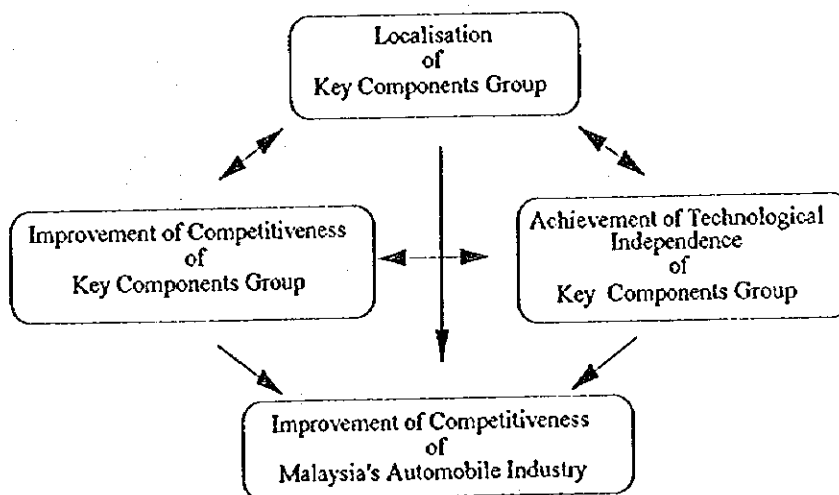
(1) Development Targets and Basic Strategies

1) Development Targets

The development targets of the key components group can be summarised as follows:

- i. To attain the localisation of key components .
- ii. To raise the competitiveness of key components.
- iii. To attain the technological independence of key components.
- iv. To increase the competitiveness of Malaysia's automobile industry through the attainment of the above targets.

Fig.3-1 Development Target of Key components Group

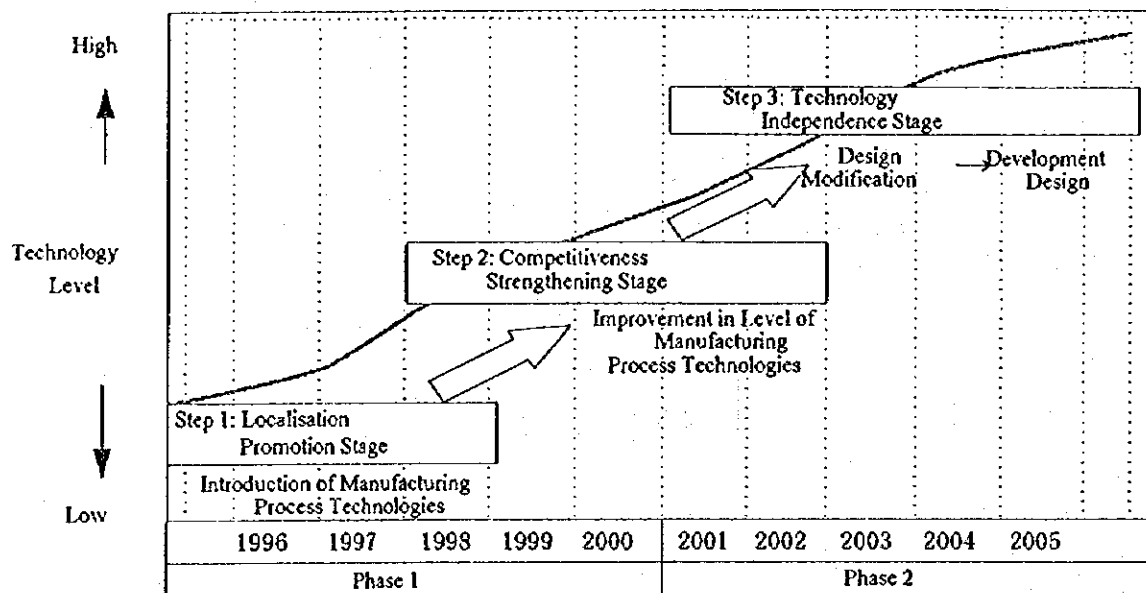


2) Basic Strategy

The basic strategy for the fulfillment of the development target is as follows:

- i. To set the initiative for localisation of key components, whether through outsourcing or in-house production, taken by National Car projects as the driving force for the industrial development of the key components group.
- ii. To make use of technologies and know-how of foreign companies through direct investments and technical collaborations in the area of key components not yet localised.
- iii. To expand the industry's production foundation by developing sub-contractors with the purpose of increasing the international competitiveness, value-added, and localisation ratio of key components.
- iv. To develop the marketing capability and R&D capability of key components manufacturers by strengthening the linkage with automotive manufacturers.
- v. To secure the production volume of key components through the expansion of exports.
- vi. To promote technical transfer and technology accumulation in order that key components manufacturers will advance to the stage of R&D technologies which will enable them to develop new products by themselves. To establish an institutional setting facilitating their R&D activities for the realisation of this stage.
- v. To develop engineers who will contribute to the advancement of technologies.

Fig. 3-2 Development Process of Key components Group



(2) Development Steps of Key components Group

The process of key components group development can be divided into the following three steps:

Step 1: Localisation Promotion Stage (up to 1998)

Main Objective

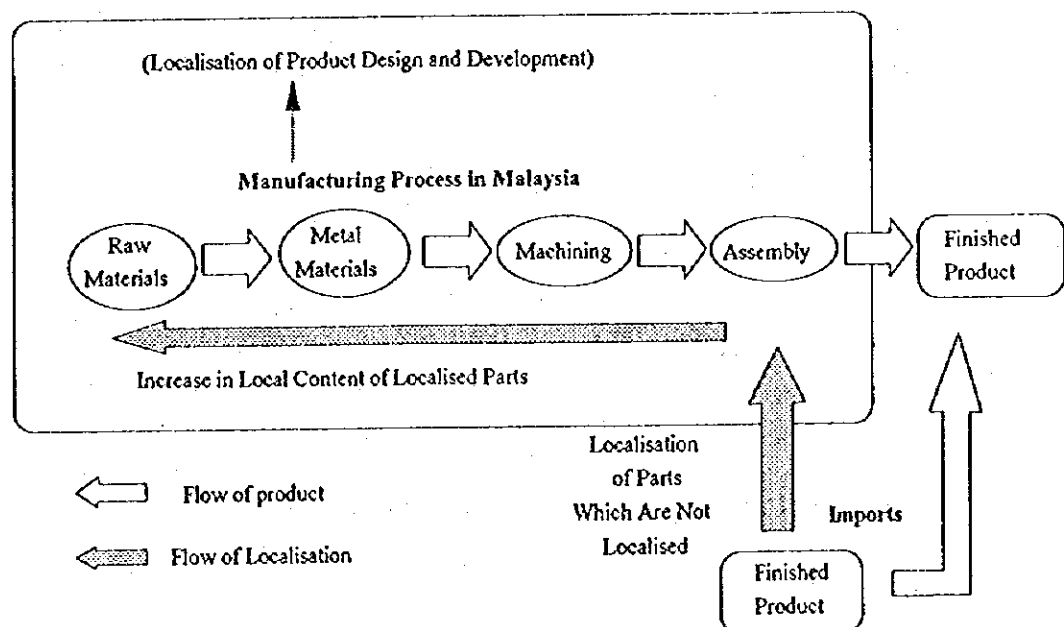
The major objectives of this stage are to promote the localisation of key components through active introduction of technological collaborations and to accumulate all the technologies of manufacturing processes required for the production of key components in Malaysia.

Approaches to Localisation of Key components

For the localisation of key components, the following two approaches will be taken:

- i. To localise key components which have not yet been localised, in other words, which are imported.
- ii. To increase the local content of key components which are localised.

Fig. 3-3 Localisation Strategy of Key Components



Priority of Localisation of Key Components not yet Localised

The following 11 items will be given localisation priority among key components not localised, and the localisation of these items will be actively promoted.

Engine Group

- 1.2.1 Cylinder Head
- 1.2.7 Intake & Exhaust Valve
- 1.3.3 Piston Ring
- 1.3.4 Timing Chain/Belt
- 1.3.6 Connecting Rod
- 1.4.1 Connecting Rod Bearing
- 1.4.6 Vibration Damper
- 1.7.1 Fuel Calibration System, Injection and Pressure Pipe
- 1.7.2 Fuel Pump
- 1.8.7 Turbo Charger Assembly
- 1.8.13 Monolite

Manufacturing Process Technologies to be Acquired

The acquisition of the following manufacturing technologies required for the manufacture of key components will be actively promoted and the development of the industries which offer these technologies will be encouraged.

- Forging
- Rolling
- Heat treatment
- Plating and surface treatment
- Machining
- Casting

Step 2: Competitiveness Strengthening Stage (up to 2000)

Major Objective

The major objectives of this stage are to strengthen the competitiveness, especially price

competitiveness, of key components, and to continue to increase further the local content of key components.

Approaches to Strengthening Competitiveness

The competitiveness of key components will be strengthened through the following approaches.

- i. To improve manufacturing technologies
- ii. To carry out activities for productivity improvement and cost reduction
- iii. To realise the further development of the production base in Malaysia

In the second step, parts manufacturers will face more severe competition from imported products as a result of the review of the existing protection policy concerning the local automotive parts industry.

Therefore, automotive parts manufacturers should be more cost conscious and carry out firmly-rooted cost reduction activities to cope with the liberalisation of the market. In this stage, important tasks also are to attain competitiveness in quality and to secure a firm foundation of production technologies as a preparation stage before going forward to the design technology stage.

For the improvement of production technology and quality maintenance, as well as to maximize the benefits of technical guidance from foreign partners in technical collaboration, it is important that a sufficient number of engineers should be available in the country.

As for production cost reduction, such measures should be taken as the introduction of VE/VA, more utilisation of subcontractors, and company-wide cost reduction activities. In line with this, the expansion of the engineering sub-sector should be continued following the first step.

Step 3: Technology Independence Stage (up to 2005)

Major Objectives

Major objectives of this stage are to realise the independence of technologies by

acquiring industry's own technologies from product modifications to product development and, at the same time, to gain further international competitiveness.

Development Process of New Models

Product development for a new model, in most cases, does not start afresh with nothing in the case of key components. A new model is, generally, developed by modifying an existing part. This is due to the following:

- i. It is important to maintain the product reliability because key components, especially engine parts, assume an important function in automobiles.
- ii. It can mean savings in excess capital investment.

For example, the development by existing model modification is adopted in the case of an improvement of a fuel system or an induction and exhaust system with the purpose of adapting to environmental regulations.

In Malaysia, the R&D technology development process to be taken is to step up gradually from the stage of modification design to that of product design.

Development Policy and Priority Products According to the Technology Development Process

In accordance with the level of R&D capabilities, the priority products to be developed in Malaysia should be identified and necessary measures should be introduced.

(i) Modification Design Stage:

In this stage, the technological level in Malaysia will be raised from production technologies to product modification technologies, which are elementary technologies leading to independent development.

Looking at the level of technology from the viewpoint of the localisation of products, the current level of technology that Malaysia's automotive industry possesses is still at the stage which is based on production technology, i.e., within the technology of manufacturing products which are developed by others. The

automotive industry can not avoid this stage in the course of technology development. The technological level of the automotive industry, on the basis of indigenous production technology, will advance successively to the localisation of testing and evaluation technology, then to the localisation of product modification technology, and then to the localisation of product development technology.

Based on the production technology, in this stage, the automotive industry will acquire product modification technology by accumulating development technology and developing R&D personnel through the reproduction of existing products and will prepare to advance to the stage of product development on the basis of indigenous technology.

The subjects of development in this stage will be key components related to improvement in fuel consumption, noise, and gas emission. In some cases, a product modification will be necessary for the improvement in durability of overall components.

The priority items subject to design modification will be as follows:

- 1.1. Cylinder Head Group
- 1.3. Cylinder Block Group
- 1.7. Fuel System Group
- 1.8. Induction System/Exhaust System Group

(ii) Development Design Stage:

In this stage, automobile manufacturers must possess in-house both production technology and design technology, which constitute automobile technologies. In this case, they should not necessarily possess the actual manufacturing technology of parts in-house. They need to have the capability to provide an order and guidance to a vendor in such technical aspects as specifications, quality requirements, price, delivery, etc.

On the other hand, a vendor, as a specialised manufacturer, should have higher technology in its specialised field than an automobile manufacturer. The vendor should realise higher value-added output through the introduction of overseas up-to-date technologies and have technological strength in comparison to the

automobile manufacturer. In addition, it is necessary for the vendor to reduce production costs through the development of new production technology and new production methods.

The priority items for the acquisition of indigenous technology in this stage will exclude standardised parts and components which can be easily procured. This is due to the following:

- As regards most of these parts, a high level of production technology has usually been already established in the REM market.
- In case an item among these parts has the possibility of being technologically developed in Malaysia, it is advisable that this part be promoted as an item of the export-oriented parts group.
- Excluding standardised parts from priority items will present no significant problem to the localisation of technologies.

(3) Supporting Measures According to the Development Stages

Action plans for the development of the key components group should change emphasis according to the development stages of the key components industries. Supporting measures to be taken in individual stages of development are as follows:

Step 1: Localisation Promotion Stage

i. To formulate a vision of the development of the automotive parts manufacturers

MITI will coordinate the opinions of governmental organizations related to the automotive industry and the industries themselves and obtain the consensus of all the parties related through the formulation of a vision of the development of automotive parts manufacturers or a guideline for the development of automotive parts manufacturers. This can be done by gathering related governmental organizations, automobile assemblers/manufacturers, franchise holders, parts and components manufacturers, and related associations under the initiative of the section responsible for the industrial policy in MITI.

ii. To carry out actively the investment promotion of major foreign key components manufacturers

- To offer more attractive investment incentives, including the import duty deduction of raw materials and equipment, for JV promotion
- To enhance investment promotion activities including activities by MIDA. For example, investment promotion toward overseas parts manufacturers which have an interest in investment in Malaysia will be made
- To provide local manufacturers with information on overseas automotive parts industries through public organizations
- To make Malaysia's investment environment, in aspects other than investment incentives, more attractive to foreign investors

iii. To promote technical collaborations in the fields of technologies necessary for the production of key components

- To expand incentives for technical collaboration such as tax deduction at the introduction of up-to-date technology from overseas and purchase of modern

machinery

- To provide assistance in financing to facilitate the introduction of modern machinery and equipment
- To strengthen matching services for technical collaboration by National Car manufacturers and MITI

iv. To make National Car manufacturers function as the driving force for the development of key components manufacturers

- To provide National Car manufacturers with incentives to increase the localisation level
- To strengthen vendor development programmes rendered by National Car manufacturers

v. To educate and train engineers

High level manpower such as engineers and technicians will be more important in the second and third stages. However, education and training in these areas should be initiated at this stage because such training takes time.

- To expand engineer education in universities
- To enlarge scholarships opportunities for studies at overseas universities and institutions
- To support advanced employee training, targeting engineers and technicians
- To expand advanced skill training at public vocational training centres, for example, by expanding facilities for post-employment training

Step 2: Competitiveness Strengthening Stage

1. To improve production technologies

- To provide assistance in terms of tax deduction and financing facilities for the purchase of modern production machinery and equipment
- To diffuse modern production technologies to the private sector
- To provide education of quality control methods and technical guidance to the

private sector

- To support employee training

ii. To expand the production base in Malaysia for the manufacture of key components

- To expand promotional measures, e.g., in terms of financing and tax incentives, to develop subcontractors
- To expand technical guidance and management consulting services toward small- and medium-size enterprises
- To continue to extend vendor development programmes by National Car manufacturers

iii. To expand export promotion measures

- To increase the involvement of Malaysian key components into the international procurement network of major world automobile manufacturers through such facilities as BBC

iv. To expand technologies and facilities of product testing and evaluation

- To expand facilities of public testing and research institutions

v. To encourage R&D activities

- To identify the priority R&D areas from the viewpoint of potentiality and expected contribution to the automotive industry
- To provide assistance to R&D activities in the priority area in the form of financial and tax incentives
- To set up a public testing and research institution specializing in the automotive industry
- To introduce a public reward system into the field of new technology development
- To rationalize and expand R&D activities by public institutions
- To promote joint R&D activities among the private sector, public institutions, and universities, e.g., through subsidies for joint R&D activities and R&D work assigned to outside institutions

- To provide small- and medium-size enterprises with assistance for R&D activities

Step 3: Technology Independence Stage

In this stage, R&D activities, initiated in the second stage, will move on to higher levels. In addition to measures introduced in the prior stage, the measures will contribute to the upgrading of R&D technologies.

i. To upgrade the level of R&D technologies

- To promote joint R&D activities by the private sector, public institutions, and universities, in the priority areas such as engine development
- To expand incentives for R&D expenditures, e.g. through tax deductions
- To expand incentives for the purchase of R&D machinery and equipment, e.g., through import duty exemptions or low-interest loans
- To set up a system to promote the exchange of technologies between R&D personnel in Malaysia and overseas sources of technologies

2. SCENARIO FOR THE DEVELOPMENT OF THE EXPORT-ORIENTED PRODUCT GROUP

(1) Background

1) Global Trend

- a. The future direction of world car makers' purchasing policies is that they will become similar to that which Japanese car makers have been long using, i.e., putting emphasis on long-term relationships with selected suppliers.
- b. The transaction system of OEM export of automotive parts, which are intermediate goods, is more complicated than the export of consumer goods such as electronics products or automotive parts for REM. Therefore, most exporters have delivery and/or production bases in the form of a parent company, joint venture partner, or technical assistance partner in an importing country. Exports under the BBC scheme are not an exception because exporting brand holders have their own delivery/production bases in importing countries.

2) Environmental Changes from the Viewpoint of Malaysia and Other ASEAN Countries

- a. The following are three levels of competition of automotive parts manufacturers.
 - Competition within domestic market
 - Competition in ASEAN and neighbouring countries
 - Competition in the global market

Parts suppliers in the ASEAN region have been able to concentrate on the competition in their own domestic market because the high import tariffs protect domestic markets from the threat of foreign competitors. However, when individual ASEAN countries reduce tariff rates according to CEPT for the creation of AFTA in the near future, parts suppliers will be exposed to competition with suppliers in other ASEAN countries. The competition level is shifting from competition within a domestic market to competition in the ASEAN region.

- b. Japanese car makers are trying to increase imports from Asian countries to reduce procurement costs due to the Yen appreciation, which, in turn, leads Japanese suppliers

to invest in Asian countries for production bases and to start exports. As a result, differences in competition level within advanced countries and within the ASEAN region are expected to lessen. Therefore, competitiveness in the world market is an essential condition to survive for parts suppliers in the ASEAN countries. In developing the export-oriented components industry, it is necessary to consider the necessity of achieving competitiveness against suppliers in advanced countries.

3) Limited Areas Where Malaysia's Suppliers Have Competitive Advantages

- a. No other components are more competitive than electric and electronics components in Malaysia. Companies which currently engage in the production of these components in Malaysia were established with the purpose of exporting to advanced countries. They have grown up to be internationally competitive exporting companies because they targeted advanced countries, the markets of which are larger than those in ASEAN countries. There are few cases of this type of success other than electric and electronics products.
- b. Some manufacturers of steering gears and shock absorbers in Malaysia export to other ASEAN countries. However, since their products are basically for non-PROTON manufacturers with a limited market, they can not grow enough to be a supplying base in the ASEAN region due to their small volume of production. As a result, Malaysia has deficits in automotive parts trades with other ASEAN countries, for example, Thailand.

4) Delay in Strengthening the International Competitiveness

- a. The Malaysian Government has been developing automotive parts manufacturers in the light of three principles. First, achieving a high localisation level; second, introducing foreign investments and the latest production technology; and third, developing local manufacturers.
- b. These measures have contributed a lot to the high localisation level achieved by Malaysian cars, especially PROTON. On the other hand, these policies are one of the reasons that there are few suppliers with high exporting capability. They, in a sense, have led to delays in improving indigenous R&D capability, developing internationally competitive automotive parts manufacturers, and raising local content to a material level.

5) Mutual Relationship between Automotive Industries in Asian Countries and Japanese Automotive Components Manufacturers

- a. Japanese automotive makers are aggressively trying to increase parts imports. The purpose of imports varies according to regions. As for the US market, the purpose of imports is to narrow the trade imbalance between Japan and the U.S. As for the Asian market, the main purpose is to reduce manufacturing cost. Parts suppliers in Japan are strongly urged by automotive makers to lower their selling prices. They are increasing imports from Asian countries in response to these requirements. The recent Yen appreciation has accelerated this movement. As a result, the division of automotive parts production in the Asian region, in which Japanese and Asian manufacturers are vertically and horizontally integrated, will be established by the year 2000.
- b. On the other hand, most governments, which consider the supporting industry development as the key of their industrial policy, place emphasis on investment promotion, especially investments by Japanese automotive parts manufacturers. Therefore, the next five years are an important period, for both Japanese automotive parts manufacturers and individual supporting industries in Asian countries, which may well determine their future.

Fig. 3-3 Mutual Relationship between Japanese Suppliers and Asian Countries

Asian countries	Japanese suppliers
Need for industrial development Need for export promotion	Need for investment in Asia
(resource) -Growing market -Political support for a leading industry -Geographically close to Japan	(resource) -Technology -Management technique and close relationships with car makers -Past experiences
(pull factors) -Technology transfer -Strengthen industry structure -Enhance cost competitiveness -Obtain advanced management -Human resource development -Increasing value added -Developing competitive local suppliers	(push factors) -Yen appreciation -Cutting trade surplus

(2) Measures to be Taken

1) Promotion of foreign investment by export-oriented manufacturers

Because of the needs both of the developed countries wanting to shift their production base overseas and of the Asian countries intending to develop the domestic automotive parts industry, the promotion of direct investments or technical tie-ups among companies are the current most highlighted issue.

Taking into consideration the current situation of Japanese potential partners, the following two promotional measures are recommended for two reasons: 1) taking away the factors which hinder foreign investments, and 2) gaining priority as an investment target country of potential partners.

a. Deregulation of foreign equity restriction

For those manufacturers who are investing overseas for the establishment of the production base of export products, one of the most important decision factors for the selection of investment target countries is whether or not they could hold 100% or the

majority share of the company newly established. Malaysia's investment incentives and investment-related laws have been highly evaluated as being one of the most attractive among neighboring countries. However, Malaysia is losing this advantage because the neighboring countries have been reviewing their investment incentives and investment-related laws. Relaxation of foreign equity restriction for investors producing export-oriented products, including indirect exports, is recommended.

b. Promotion for top companies' foreign investment

In order for the Malaysian government to boost exports, it is certainly necessary to invite large scale independent component manufacturers, most desirably top companies, from all over the world.

The priority product items for investment promotion can be selected from the following conditions; i) parts which are mainly manufactured by large-size manufacturers; ii) parts which are classified as export-oriented components; and iii) parts of which top companies have not yet invested in Malaysia.

The major parts and components which satisfy the above conditions are as follows:

tyres, bearings, clutches, lamps, gaskets, oil filters, oil seals, fuel injection equipment, turbo chargers, gear boxes, control units, relays, coil springs, wiper blades, fasteners

2) Diversification of electronics components production in Malaysia

Key words toward the 21st century in developing new cars are safety, energy saving, and protection of the environment. In line with this, existing mechanically controlled devices will be replaced by electronically controlled devices, in which Malaysia has a comparative advantage for production.

The following are major items of the control units component group, which electronically control various functions of the automobile. The Malaysian government should try to invite foreign companies in this field as export oriented manufacturers.

Engine control unit

Power steering control unit

Transmission control unit

Door mirror control unit

ABS control unit

Door lock control unit

A/C control unit

Relays

It is also recommended that the Malaysian government consider the idea of taking the initiative and becoming involved in setting up a production base for the export of these control units by its own equity participation.

3) Restructuring of industry structure and government's support for restructuring

The creation AFTA will offer an opportunity for and threat to the automotive parts industry: more export opportunity and the threat of more severe competition with imports. The balance of automotive parts trade will be, in the long run, determined by the extent to which the players in the industry can become competitive in the global marketplace. Therefore, the government's export promotion measures should be taken from the viewpoint of how to establish the industry's competitiveness for the long term. At the individual company level, efforts to strengthen management capabilities are important to gain competitiveness. However, at the same time, from the macro perspective, the restructuring of the automotive parts industry is also important for competitiveness. The government, as well as car makers, should play an important role in this area.

a. Promotion of Restructuring through Purchasing Policy of Car Makers

With the flexible application of their parts procurement policy, the car makers should try to select a limited number of parts suppliers and give full support for their development, in one time, and to diversify their supply sources for the creation of a competitive market conditions, for another time.

b. Promotion of Alliances among Parts Suppliers

In order to enhance competitiveness, alliances among local companies, as well as alliances with foreign companies, should be promoted. The types of alliance to be promoted are i) promotion of joint development, and ii) promotion of mergers and acquisitions.

The integration of local companies has the following advantages in improving the

efficiency of the automotive parts industry and promoting exports.

- i. Integration enhances competitiveness because it brings about economies of scale. They cut down the fixed cost and create a synergistic effect.
- ii. Integration stabilises the management foundation by enlarging the size of a company. This results in a management foundation which can stand the fluctuations of export markets.
- iii. The expansion of a company through integration increases the company's credibility among buyers.

c. Legal Measures to Promote Restructuring

Another government function in the restructuring process is to provide an institutional setting to facilitate the restructuring. The measures to be examined are as follows:

- i. Tax incentives for business change
- ii. Tax incentives for alliances
 - income tax reduction or exemption on liquidation income accrued by mergers and acquisitions
 - recognition of income accrued by equity participation as non-taxable income
 - registration tax reduction on the establishment of a corporation, issuing new shares, or acquisition of real estate in relation to the restructuring
- iii. Exception to taxation on real estate

In case a company sells real estate, for the above purposes, and purchases substitute real estate, this company's capital gain on the real estate sale is not deemed taxable income.

4) Support for Overseas Market Development Activities

In order to promote exports of automotive parts, strengthening of the following activities are required.

a. Collection and provision of overseas information

- Collection of basic information such as statistics (production, sales and trade), tariff schedules, other printed matters related to automotive parts, etc.

- Studying the markets and industries in order to collect detailed information specified by commodities, countries or areas and providing analyses based on the collected information.

b. Overseas dissemination

- Participation in international trade fairs
- Utilization of overseas premises for exhibition

c. Positive business exchanges with potential users and partners

- Sending missions organized only by automotive parts manufacturers for the purpose of holding business meetings with foreign manufacturers.
- Efficient utilization of matching systems for the promotion of trade and investment. Placement and on-the-spot provision of Malaysian exporters' company data utilizing overseas branches of Malaysian organizations and local organizations.
- Utilization of overseas business supporting premises.

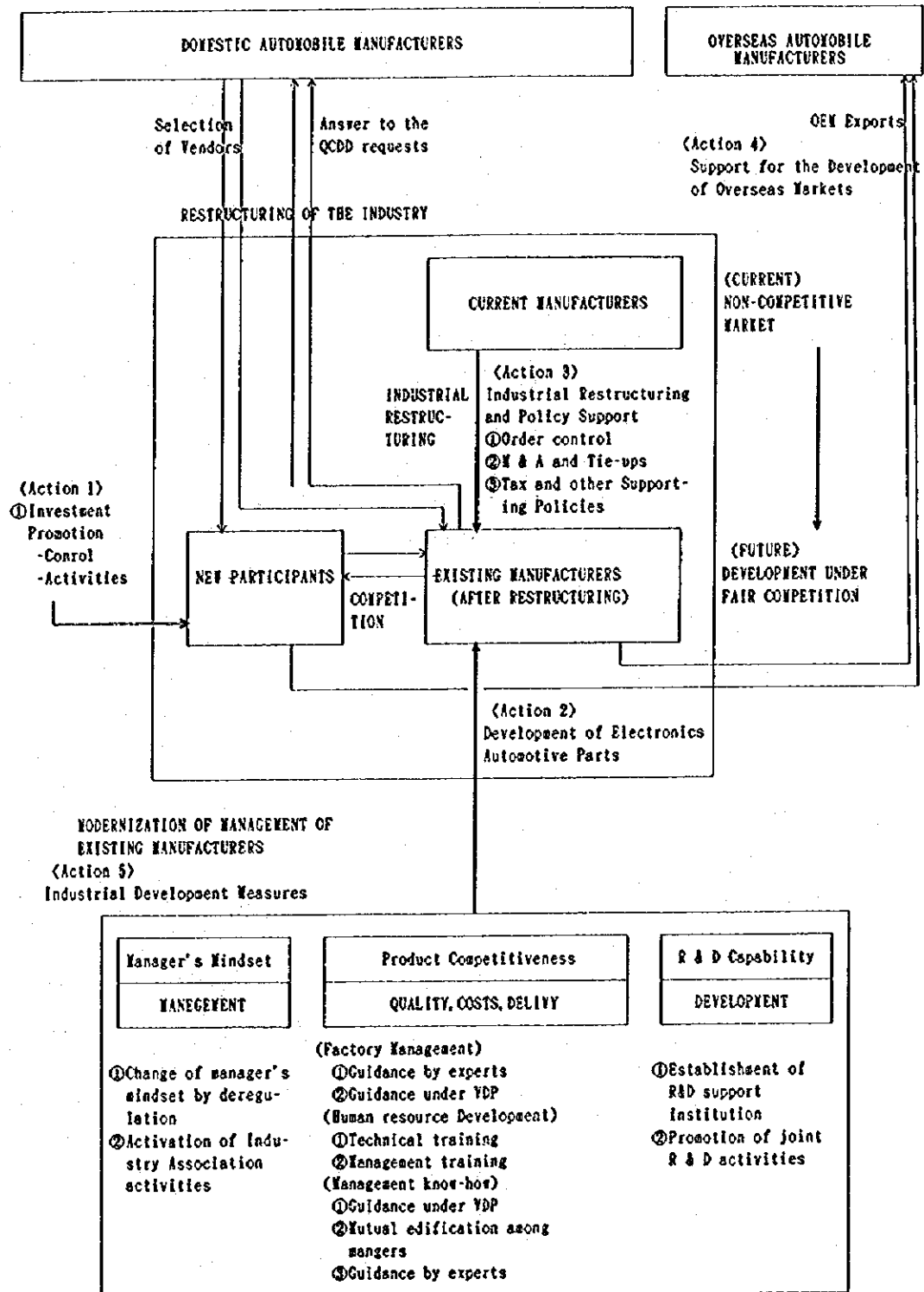
5) Measures to Enhance Management Capabilities of Export-Oriented Parts Manufacturers

In addition to the promotional measures for restructuring the industry, such measures as direct support for the improvement in management capabilities of export-oriented parts manufacturers are of importance from the aspect of management reform. It is recommended that promotional measures to enhance the management capabilities of Malaysian parts manufacturers be applied from the following three aspects:

- To change management attitudes, motivation and style
- To improve product competitiveness
- To improve new product development capability

The framework of these measures is shown in Fig. 3-4.

Fig. 3-4 Development Strategy of Export-oriented Product Group



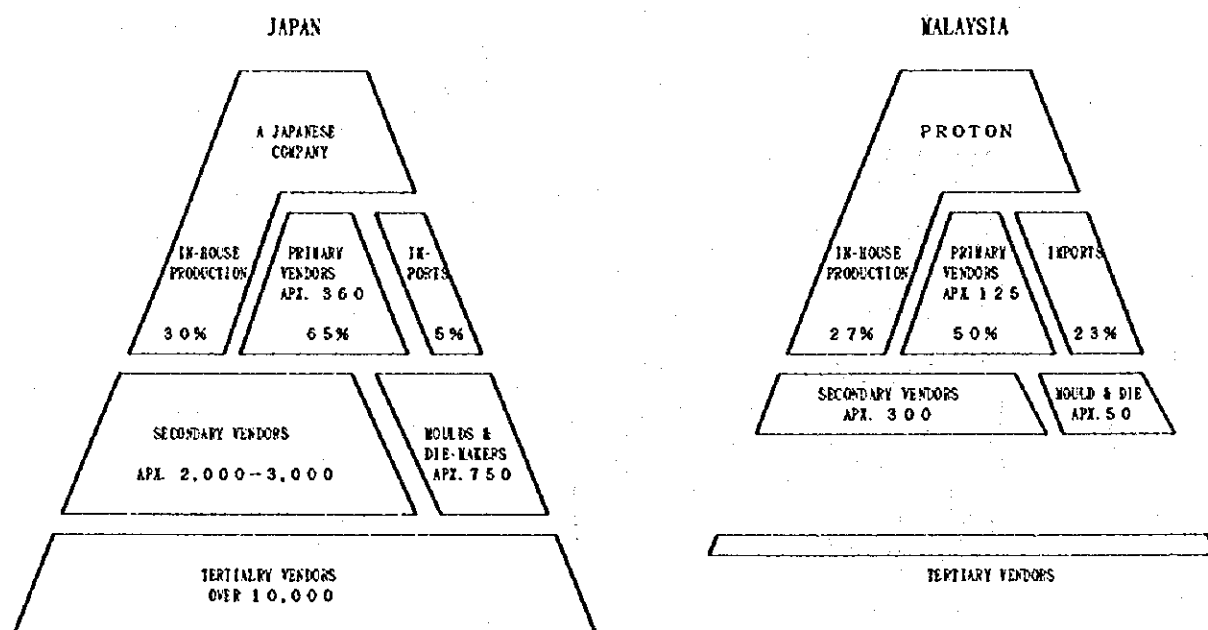
3. SCENARIO FOR THE DEVELOPMENT OF THE ENGINEERING SUBSECTORS

(1) Basic Direction

Malaysia presently is showing remarkable economic growth. Japan is said to have strengthened its economic infrastructure through the development of a wide range of industries during its high economic growth era of the 1960s, which has led to the establishment of the current integrated industrial structure.

Fig. 3-5 shows the difference of industrial structure of the automotive industry between Japan and Malaysia, taking the case of a Japanese automobile assembler and PROTON. In Japan, an automobile maker is supported not only by about 360 primary vendors but also by both over 3,000 secondary and around 10,000 tertiary subcontractors. From the nature of the manufacturing processes that they undertake, the Study Team named these secondary and tertiary subcontractor companies as an engineering subsector group. Through the past intensive efforts, PROTON has succeeded in developing over 125 primary vendors. However, the number of secondary and tertiary subcontractors is still very limited.

Fig. 3-5 Comparison the Automotive Industry Structure Between Japan and Malaysia



The development of the engineering subsector group has to be achieved not only by the development of a single industry such as an automotive industry but also by that of other various industries which need similar engineering services. Malaysia could currently be said to stand in a good position to develop the engineering subsectors .

In order to develop the engineering subsectors, which are made up primarily of small-and-medium companies, Malaysia needs to improve the performance of each company, and needs to have a framework where engineering subsectors with internationally recognized strong professionalism would exist in the next 10 years.

To achieve this target, various measures could be devised by each company, industrial association, and governmental organization. Among them, focus should be placed on continuous human resource development, which will produce the people who will be the central core of the industry in the future.

(2) Measures to be Taken

1) Strengthening of human resource development

a. Change of management attitudes and management education

Most companies in the engineering subsectors are small, and their attitudes tend to lack entrepreneurship in management style because they mainly deal with subcontract business. Strong professionalism which may be accepted all over the world cannot be grown in such a setting.

Governmental excessive industrial protection tends to spoil the industries. Once the industries pass the infant age, the Government should relax regulations to promote competition, and to try to change management interests (i) from the domestic market to the international market, and (ii) from the increase of domestic competitiveness to the increase of international competitiveness. Accordingly, the following management development programmes are considered to be necessary.

- (i) Information on overseas markets and technology in each industry would be disseminated to company executives through seminars or the public relations activities of industrial associations.**

- (ii) Each company's success cases would be gathered and compiled by organizations such as industrial associations. The case book may be easily understood by employees, and help them increase production control capability as well as management control skills. Each company may compile such a case book of its own if the cases of other companies cannot be compiled.
- (iii) Companies would be individually visited by experts, who are provided by the government or industrial associations, and receive management control know-how at the factory level in order to modernize their management style.
- (iv) Seminars would be useful for company executives to realize the importance of in-house education. In Japan, large companies provide various kinds of education to their employees at their own schools, but at small-and-medium companies, most employees learn through OJT from senior workers. Because in-house education is generally short and may be taught by those who are not professionals in such education, the main focus of the education should be placed on "sure methods" and "transfer certainly." In Japan, VTRs are used by some small-and-medium scale companies.
- (v) Seminars which are designed to explicate governmental measures and policies are necessary.

b. Education of engineers

- (i) Since leader engineers are expected to have not only theoretical knowledge but also practical experience, it is very difficult to educate a sufficient number of engineers in just a few years. The Malaysian Government has already announced that it intends to strengthen the education system. Therefore, the education of engineers which targets many students through the expansion of the present technical training centres is important.
- (ii) Not only students who have not started work but also those who have already started work should be enabled to receive education to allow them to acquire higher technical skills. Just as with the Mould School in Penang, it is necessary to consider the establishment of training courses in various fields in which workers could participate.

(iii) In order to train proper instructors, it may be significant for organizations such as industrial associations and governmental organizations to invite foreign experts to visit and provide technical support to companies. It is worthwhile considering foreign engineers who are stationed in Malaysia as individual experts, to train engineers of other companies in the engineering sub-sectors.

(iv) Setting up training programmes for the engineers of automotive parts companies to gain an extensive rather than intensive range of technical knowledge in line with the vendor development programme of large scale companies is worth considering.

c. Education of workers

One of the purposes of worker education may be to develop core people. Many first tier companies which have occasional contacts with foreign companies send their people to foreign companies to learn practical skills for some time, and this has proved to be effective.

Since few companies in the engineering subsectors undertake this sort of worker education, the establishment of training centres for workers, which would have a similar effect, is expected. It is realistic that the curriculums taught at the centres would be prepared in order of necessity. For instance, machining and hand polishing may be selected.

2) Reconstruction of supporting system

a. Construction of direct supporting system by customer companies

Each company in the engineering subsectors receives engineering specifications and various other kinds of information from automobile assemblers or first tier companies. The expansion of the present vendor development systems which successfully connect automobile assemblers and first tier companies to include those between automobile assemblers and second tier companies, or between first tier companies and second tier companies would be considered.

In order to complement the reconstruction of the supporting system, technical support

carried out by a group of experts which is mainly organized by governmental institutions is worth considering. This support by experts would not be done in several days but would be extended until the strengths and the weaknesses of a company are identified.

The support would cover not only the development of the company's own technology or the improvement of the quality of conventional technology but also would cover the increase of production efficiency or the increase of productivity. In addition, subjects such as environmental protection, which seems modest but is quite important, should be discussed.

b. Strengthening of the information support system through the strengthening of industrial associations

One of the major differences between large scale companies or companies belonging to industry groups, and small-and-medium scale companies which occupy the majority of the engineering subsectors lies in the wide gap of information gathering capability. On this point, the collection and the dissemination of information by each industrial association is considered to be important. In fact, the information provided by FMM is regarded as being very useful by some companies. This implies that the information by FMM is used as a substitute of that to be provided by industrial associations because none of the associations is able to do it.

It is also expected that such information would be disseminated by various media so that the engineering sub-sectors can easily gain access to it. In addition to holding more seminars, such media as professional books, professional magazines and industrial newspapers would be appropriate. Setting up societies in which participant companies would actively exchange opinions would be a useful measure to provide information.

c. Strengthening of support system

(i) Effective utilization of governmental schemes to develop small-and-medium scale companies

Various governmental schemes which support small-and-medium scale companies in technology and financing have been created and have become

effective. However, it is doubtful how well small-and-medium companies understand the content of these schemes. It is also suggested that the overall procedure of the application should be more simplified and flexible, and the eligibility of applicants should be clearly stated so that small-and-medium companies can utilize the schemes.

(ii) Relaxing of regulations

As was already stated, the automotive parts industry in Malaysia has been developed under the strong protection of the domestic industries by the Government. However, as internationalization proceeds, the Government is facing the necessity to increase the international competitiveness of each company by changing its policy to abolish such protective measures. It is therefore expected that the Government would have discussions concerning measures to relax regulations with industrial associations and related companies.

(iii) Stabilization of domestic demand

The stable growth of domestic demand would be an important external factor for the supporting industries to grow healthily. It is therefore suggested that the Government should give support to establish stable relations between the client companies and the supporting industries. Also, the Government is expected to take measures to enable domestic demand grow without wide fluctuations.

(iv) Development of industrial infrastructure

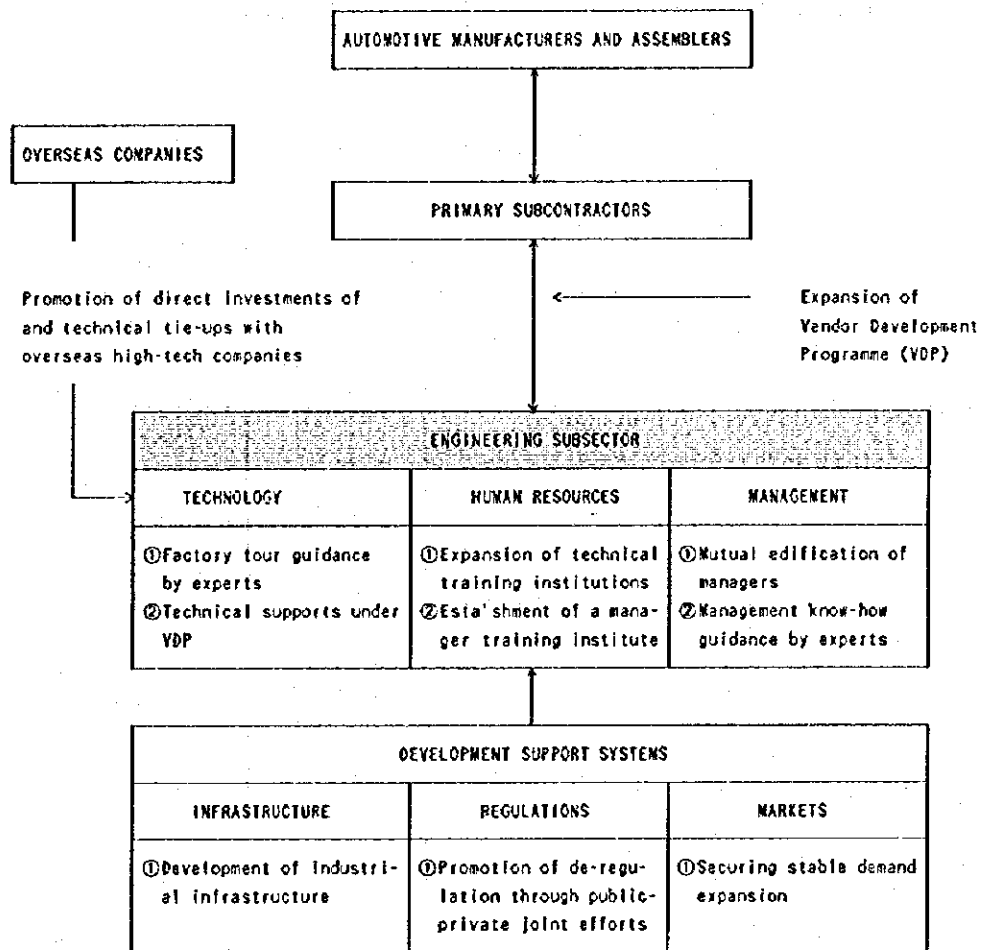
Most of the small-and-medium metal processing companies and surface treatment companies which are in the engineering subsectors are located in the vicinity of cities, and many of them realize the necessity of moving to expand their businesses and to meet environmental protection measures. In advanced countries of the automobile industry such as Japan, automobile industries have spontaneously gathered with automobile assemblers as leaders, and within the groups, close relations between client companies and subcontract companies have been built. In Malaysia, it may be useful for the Government to develop industrial infrastructure in designated sites and concentrate automobile related factories into such places to try to accumulate a broader automobile industry.

(v) Modernization through the invitation of foreign companies

In the engineering subsectors, the size of each investment from foreign countries is usually much smaller than that of the first tier companies.

At present, when many foreign companies are paying attention to the high growth of Asian countries, the invitation of foreign investments as one of the measures for the engineering subsectors to modernize would be useful. In line with this, studies by the Government on what the appropriate types of alliances would be are required. Advantages and disadvantages of various types of alliances such as capital investments and technical agreements should be discussed then. In addition, matters such as the identification of priority industries in which to invest, the setting up of the eligibility of priority industries, and the development of industrial estates should be determined.

Fig. 3-6 Development Strategy of the Engineering Subsectors



IV. DEVELOPMENT TARGET INDICES

The following development target indices were set as a guidepost to measure the progress of the development of the automotive parts and components industry.

Table 4-1 Development Target Indices

	1994	2000	2005
1. Domestic motor vehicle demand (‘000 units)	185.7	273.0	343.0
2. Domestic motor vehicle production (‘000 units)	199.3	330.3	436.1
3. Exports of motor vehicles (‘000 units)	15.5	60.0	96.5
4. Domestic production of automotive parts (RM million)	5,271.1	9,085.2	12,079.8
5. Exports of automotive parts (RM million)	1,383.8	2,340.7	3,256.6
6. Employment in the automotive parts industry (‘000 persons)	38.1	64.3	77.5
7. Production per worker in the automotive parts industry (RM ‘000)	138.4	141.2	155.8
8. Total fixed capital assets in the automotive parts industry (RM million)	1,574.2	2,811.4	3,954.4

Note : Values are all in 1994 constant prices

Source : Table 4-3 through Table 4-12

1. FORECAST OF DOMESTIC DEMAND OF MOTOR VEHICLES

In April, 1994, the Japan Automobile Manufacturers Association published the results of their analysis of the future demand for motor vehicles in major countries in Asia. That study analyzed the development stage of the automotive market, trend of automotive demand and other automotive-related indices in each country. The outline of the analysis method is as follow;

- a. Development stage of the automotive market and the estimate of the number of motor vehicles owned

Development stages of the automotive market in four of the ASEAN countries and other major countries in the world were estimated based on the four basic economic indices of a) income level, b) employment ratio, c) tertiary industries ratio and d) employment ratio in the tertiary sector. This estimation of development stage was correlated with the ratio of motor vehicle possession per 1,000 people (R/1000) in each country. Since the equation was formulated based on the average number of family members of 3.14 per household in Japan, the final estimation figures in each country were revised according to the actual figures in the country.

- b. Supply ratio of new cars

A regressive equation was formulated in order to calculate the supply ratio of new cars in Malaysia, by making use of such variables as the Log. R/1000, the ratio of fixed asset investment in the current year over the previous year and the effect of introduction of SAGA into the market as a dummy. The supply ratio of new cars is the ratio of the demand for new cars in the current year over the number of cars in possession at the end of previous year.

Based on the above, the ownership ratio of motor vehicles, demand for new cars and other related indices in Malaysia were estimated, and the results are shown in Table 4-2.

Table 4-2 Projection of Ownership Ratio and Demand for New Cars

	1990	1995	2000	2005
Population (million)	17.8	19.9	21.8	23.5
Family no. per household (person)	4.80	4.60	4.40	4.20
Per capita income (US \$)	5,147	6,780	8,863	11,550
Employment ratio (%)	-	-	-	-
Tertiary sector ratio (%)	44.7	46.0	47.0	48.5
Employment ratio of tertiary sector (%)	52.2	54.4	55.0	56.0
Car ownership ratio (R/1000)	209	239	272	316
Total no. of cars owned ('000 units)	2,430	3,250	4,240	5,560
New car supply ratio (%)	10.1	7.0	6.8	6.5
Passenger car ratio (%)	62.7	70.0	70.0	70.0
Total new car demand ('000 units)	186	215	273	342
Passenger car demand ('000 units)	117	150	191	240
Commercial car demand ('000 units)	69	64	82	103
Annual replacement demand ('000 units)	-10	50	80	80

Source : Japan Automobile Manufacturers Association, Inc.

Table 4-3 shows the estimation of domestic demand for motor vehicles in Malaysia during the period of the development plan, which was calculated based on the estimation made by the Japan Automobile Manufacturers Association for the years 2000 and 2005.

Table 4-3 Domestic Demand Projection for Motor Vehicles In Malaysia
(Unit : '000)

	Passenger cars	Commercial cars	Total
1994	146.2	39.5	185.7
1995	152.9	44.6	197.5
1996	159.8	50.4	210.2
1997	167.1	56.0	224.0
1998	174.7	64.3	239.0
1999	182.7	72.6	255.3
2000	191.0	82.0	273.0
2001	199.9	85.8	285.7
2002	209.3	89.8	299.1
2003	219.0	94.0	313.0
2004	229.3	98.4	327.7
2005	240.0	103.0	343.0

Source : Japan Automobile Manufacturers Association, Inc. and estimates made by the Study Team

2. PROJECTION OF MOTOR VEHICLE EXPORTS

It was estimated that the export of passenger cars from Malaysia in 1994 would be 15,000 units and commercial vehicles about 500 units. From 1995, exports of 3,500 units of a new model passenger car, Satria, would be started. In 1999, 30,000 units of PROTON and 12,000 units of Satria in the passenger car category and 12,000 units of a new national van plus 500 units of commercial vehicles were estimated to be exported. After the year 2000, the projection was made based on the assumption that the export of Malaysian motor vehicles, both passenger cars and commercial vehicles, would grow at a rate of 10% per annum.

Table 4-4 Projection of Motor Vehicle Exports from Malaysia

(Unit : units)

	Passenger cars	Commercial cars	Total
1994	15,500	500	15,500
1995	18,500	500	19,000
1996	22,000	500	22,500
1997	32,000	1,500	33,500
1998	32,000	6,500	38,500
1999	42,000	12,500	54,500
2000	44,000	13,000	57,000
2001	46,000	14,000	60,000
2002	48,500	14,500	63,000
2003	51,000	15,000	66,000
2004	53,500	16,000	69,500
2005	56,000	16,500	72,500

Source : Estimates by the Study Team

3. PROJECTION OF DOMESTIC PRODUCTION OF MOTOR VEHICLES

The domestic production volume of motor vehicles was calculated from the projected domestic demand plus export volume minus CBU import volume. After 1996, the CBU imports are restricted to 5% of domestic production. According to the MIDA information, however, only 20% of the CBU imports were new cars. Therefore it was estimated that 1% of domestic demand would be met by CBU imports.

Table 4-5 Projection of Domestic Production of Motor Vehicles In Malaysia

(Unit : '000 units)

	Production	Demand	Exports	Imports
Passenger cars				
1994	159.7	146.2	15.0	1.5
1995	169.9	152.9	18.5	1.5
1996	180.0	159.8	21.8	1.6
1997	191.1	167.1	25.7	1.7
1998	203.2	174.7	30.2	1.7
1999	222.9	182.7	42.0	1.8
2000	235.3	191.0	46.2	1.9
2001	248.7	199.9	50.8	2.0
2002	263.1	209.3	55.9	2.1
2003	278.3	219.0	61.5	2.2
2004	294.6	229.3	67.6	2.3
2005	312.0	240.0	74.7	2.4
Commercial cars				
1994	39.6	39.5	0.5	0.4
1995	44.7	44.6	0.5	0.4
1996	51.0	50.4	1.1	0.5
1997	58.8	56.9	2.5	0.6
1998	69.3	64.3	5.6	0.6
1999	84.4	72.6	12.5	0.7
2000	95.0	82.0	13.8	0.8
2001	100.0	85.8	15.1	0.9
2002	105.5	89.8	16.6	0.9
2003	111.4	94.0	18.3	0.9
2004	117.5	98.4	20.1	1.0
2005	124.1	103.0	22.1	1.0
TOTAL				
1994	199.3	185.7	15.5	1.9
1995	214.6	197.5	19.0	1.9
1996	231.0	210.2	22.9	2.1
1997	249.9	224.0	28.2	2.3
1998	272.5	239.0	35.8	2.3
1999	307.3	255.3	54.5	2.5
2000	330.3	273.0	60.0	2.7
2001	348.7	285.7	65.9	2.9
2002	368.6	299.1	72.5	3.0
2003	389.7	313.0	79.8	3.1
2004	412.1	327.7	87.7	3.3
2005	436.1	343.0	96.5	3.4

Source : Table 4-3 and Table 4-4.

4. DOMESTIC PRODUCTION OF AUTOMOTIVE PARTS AND COMPONENTS

1) Estimates of Domestic Production Value of Automotive Parts and Components in 1993

The domestic production value of automotive parts and components in 1993 was estimated as shown in Table 4-6 below.

Table 4-6 Domestic Production of Automotive Parts and Components In 1993

Market Breakdown		Value (RM million)
	OEM parts for the domestic sale cars	1,495.7
	REM parts for the domestic market	641.0
	Accessories for the domestic market	611.8
Total Domestic Market		2,748.5
	OEM parts for the exported cars	214.1
	Parts for the export market	1,273.9
	(excluding car stereos/radios)	(349.9)
	(excluding car stereos/radios & tyres)	(226.4)
Total Export Market		1,488.0
Total Production of Parts and Components		4,236.5

Source : Estimates by the Study Team

Further breakdown of the total domestic market is shown in Table 4-7.

Table 4-7 Details of Total Domestic Market of Automotive Parts and Components
(Unit : RM million)

	Passenger car	Commercial car	Total
1. OEM for domestic sales cars	1,328.2	167.5	1,495.7
below 1850cc : National cars	1,016.3		1,016.3
Non-national	156.1		156.1
over 1851cc : National cars	155.8		155.8
Non-national		123.3	123.3
below 2500cc : Non-national		44.2	44.2
over 2501cc : Non-national		167.5	167.5
2. REM for domestic market	480.8	160.2	641.0
3. Accessories for the domestic market	515.7	96.1	611.8
4. Total Domestic Market	2,324.7	423.8	2,748.5

Note: 1) The ratio of REM parts to OEM parts was estimated at 3 : 7.

- 2) The sales value of standard accessories of new cars was assumed at RM5,800/set for passenger Cars and at RM3,000/set for commercial cars, and their ex-factory costs were estimated at 70% of above sales prices.

Source: Estimates by the Study Team

2) Projection of Domestic Production of Automotive Parts and Components

Firstly, based on the estimates of domestic motor vehicle production, future domestic production value of OEM parts for motor vehicles for the domestic market has been estimated, taking into consideration the increasing local content ratio until 1996.

Secondly, the total production value of automotive parts for the domestic market was projected based on the assumption that the ratio of REM parts to OEM parts was 30 to 70, and that the use of standard accessories for new cars would increase in accordance with the increase of sales of new cars.

Thirdly, the production amount of OEM parts for the overseas market was projected using the same formula as was used for the production amount of OEM parts. As for the exports of car-stereos and car-radios, relatively high growth rates were assumed until 2000 and a stable growth rate after 2001. For tyres, a moderate growth rate was forecast because the major manufacturers of tyres in the country are considered not to be very aggressive about exports. Many manufacturers of general automotive parts and components are also found not to be very aggressive, and a moderate growth rate was assumed for the time being. But after 1998, it was assumed that a faster growth rate would be achieved.

Finally, from the results of the above projections, the total domestic production target figures for automotive parts during the plan period were derived.

Table 4-8 Domestic Production Targets of Automotive Parts
(Units : RM million)

	Domestic market	Overseas markets	Total
1994	3,682.2	1,588.9	5,271.1
1995	4,170.3	1,781.4	5,951.7
1996	4,738.7	1,995.1	6,773.8
1997	5,000.7	2,210.8	7,211.5
1998	5,283.5	2,474.5	7,758.0
1999	5,583.7	2,898.5	8,482.2
2000	5,904.8	3,180.4	9,085.2
2001	6,179.3	3,417.2	9,596.5
2002	6,469.0	3,676.6	10,145.6
2003	6,770.3	3,960.1	10,730.4
2004	7,087.6	4,268.6	11,356.2
2005	7,471.7	4,608.1	12,079.8

Source : Estimates by the Study Team

5. TARGETS OF EXPORTS OF AUTOMOTIVE PARTS AND COMPONENTS

Export projections of automotive parts were made separately for a) car-stereos and car-radios, b) tyres and c) other general automotive parts.

Regarding car-stereos and car-radios, it was forecast that the investment from the industrialized countries into Malaysia would continue until 2000 but, after 2001, it would be transferred to such areas as inland parts of China, Vietnam or India where labour would be cheaper than Malaysia, especially for the production of products of medium grade or lower.

As for tyres, most of the manufacturers in principle produce the tyres near consumption places due to the high export handling costs compared to their prices in ordinary items, and are not aggressive about exports. Thus, only a moderate growth rate was assumed.

Through the field survey, it was identified that many of the manufacturers of other general automotive parts and components are reluctant to deal with exports and lack export know-how. It was predicted that it would take a rather long time for them to become positive

about exporting. Assumed growth rates were as follows:

Car-stereos/Car-radios : up to 2000 10% p.a.
after 2001 5% p.a.
Tyres : 5% p.a.
General Parts : up to 1997 5% p.a.
1998-2000 10% p.a.
after 2001 15% p.a.

Table 4-9 Export Targets of Automotive Parts and Components
(Unit : RM million)

	Car stereos/radios	Tyres	General parts	Total
1994	1,016.4	129.7	237.7	1,383.8
1995	1,118.0	136.2	249.6	1,503.8
1996	1,229.8	143.0	262.1	1,634.9
1997	1,352.8	150.1	275.2	1,778.1
1998	1,488.1	157.6	302.7	1,948.4
1999	1,636.9	165.5	333.0	2,135.4
2000	1,800.6	173.8	366.3	2,340.7
2001	1,890.6	182.5	421.2	2,494.3
2002	1,985.2	191.6	484.4	2,661.2
2003	2,084.4	201.2	557.1	2,842.7
2004	2,188.7	211.2	640.6	3,040.5
2005	2,298.1	221.8	736.7	3,256.6

Source : Estimate by the Study Team

6. PROJECTION OF THE TOTAL NUMBER OF EMPLOYMENT AND THE PRODUCTION PER EMPLOYEE

According to the results of questionnaire survey, the 108 companies which responded have an average of 188.8 employees per company, or, 20,390 employees altogether. The total production amount of these 108 enterprises in 1993 was RM 2,822.4 million, and the average production amount per employee was around RM138,400. Comparing these figures with the estimated overall production amount of the automotive parts industry in Malaysia in 1993, RM4,236.5 million, the total number of employees in the industry is

roughly estimated as 30,600.

The increase in the production amount of the automotive parts industry is considered to be proportional to the increase in the labour force until the automobile market exceeds the 300,000 per year level. To that level, it is projected that the increase of the production volume would not be directly connected with that of production amount due to both severe cost reduction requirements from car manufacturers and limited room for productivity improvement. In this stage, the production amount per employee would hardly be expected to increase. In Malaysia, this situation was assumed to continue until around 1998.

It is expected that the rationalization of investments would start, the growth speed in employment would slow, and the production amount per employee would start to increase gradually after the domestic production of automobiles exceeded 300,000 per year.

Table 4-10 Projection of Employment and Production per Employee
in the Automotive Parts Industry in Malaysia

	Domestic production (RM million)	Total employment ('000 employees)	Production per employee (RM'000)
1994	5,271.1	38.1	138.4
1995	5,951.7	43.0	138.4
1996	6,733.8	48.7	138.4
1997	7,211.5	52.1	138.4
1998	7,758.0	56.1	138.4
1999	8,482.2	60.7	139.8
2000	9,085.2	64.3	141.2
2001	9,596.5	67.3	142.6
2002	10,145.6	70.5	144.0
2003	10,730.4	73.0	146.9
2004	11,356.2	75.8	149.8
2005	12,079.8	77.5	155.8

Source : Estimates by the Study Team

7. INVESTMENT TARGETS IN THE AUTOMOTIVE PARTS INDUSTRY

1) Fixed Asset Balance of the Automotive Parts Industry at the end of 1993

According to "Industrial Surveys 1993" published by the Department of Statistics, the total fixed asset balance of 75 sampled companies in the industry at the end of 1991 was as follows :

No. of companies	: 75
Turnover	: RM 951,231 thousand
Fixed Asset Amount	: RM 283,715 thousand
No. of employees	: 9,273 persons

The turnover and fixed asset balance per employee in 1991 was about RM 102,600 and RM 30,600, respectively. The turnover per employee for the year of 1993 was estimated at RM 138,400 and the fixed asset balance per employee at the year-end of 1993 at RM 41,300. From the number of employees of 30,600, the total fixed asset balance at the end of 1993 is estimated at RM 1,263.8 million.

2) Fixed Asset Investment Projection

The fixed asset investment amount to be needed in the future was estimated based on the annual increase of the production amount of automotive parts and components. The additional investment in 1995 was projected to be 30% of the increased amount of production, and the ratio was estimated to increase by 1% each year and reach 40% in 2005.

Table 4-11 Automotive Parts Production and Fixed Asset Investment
(Unit : RM million)

	Domestic production	Production increase	Additional investment
1994	5,271.1	1,034.6	310.4
1995	5,956.7	680.6	204.2
1996	6,733.8	782.1	242.5
1997	7,211.5	477.7	152.9
1998	7,758.0	546.5	180.3
1999	8,482.2	724.2	246.2
2000	9,085.2	603.0	211.1
2001	9,596.5	511.3	184.1
2002	10,145.6	549.1	203.2
2003	10,730.4	584.8	222.2
2004	11,356.2	625.8	244.1
2005	12,079.8	723.6	289.4

Source : Estimates by the Study Team

Table 4-12 Projection of Fixed Asset Investments in the Automotive Parts Industry

	Fixed asset balance per employee (RM '000)	Total number of employees in the industry ('000)	Total fixed asset investment balance (RM million)	Net increase of fixed asset investments (RM million)
1994	41.3	38,100	1,574.2	310.4
1995	41.4	43,000	1,778.4	204.2
1996	41.5	48,700	2,020.9	242.5
1997	41.7	52,100	2,173.8	152.9
1998	42.0	56,100	2,354.1	180.3
1999	42.8	60,700	2,600.3	246.2
2000	43.7	64,300	2,811.4	211.1
2001	44.5	67,300	2,995.5	184.1
2002	45.4	70,500	8,198.7	203.2
2003	46.9	73,000	3,420.9	222.2
2004	48.4	75,800	3,665.0	244.1
2005	51.0	77,500	3,954.4	289.4

Source : Table 4-11 and estimates by the Study Team

V. ACTION PROGRAMMES

Along with the proposal of development strategies, various kinds of measures to promote the strategies were investigated and suggested for each of the 3 product groups of 1) key components, 2) export-oriented product and 3) engineering subsectors. These measures were then integrated into overall development measures. The results are very briefly summarized into a fishbone chart, and shown in Fig. 5-1.

Further, the programmes, each of which would put some proposed measures into practice in a package, were investigated. The results are summarized into the following 11 action programmes:

- (1) Establishment of a Deregulation Promotion Mechanism
- (2) Automotive Town Concept
- (3) Establishment of Research, Test and Information Centre
- (4) Expansion of Vendor Development Programme
- (5) Programmes for Intensification of Foreign Direct Investment Promotion Activities and Expansion of Plan for Promoting Corporate Tie-ups with Foreign Companies
- (6) Programmes for Strengthening the Activities of Automobile Related Industrial Organizations
- (7) Human Resource Development Programme
- (8) Technical Guidance Visit to Automotive Parts Manufacturers by Experts
- (9) Promotion of Joint R & D Activities
- (10) Automotive Demand Stabilization Programme
- (11) Programme for Assisting in the Development of Overseas Markets

Fig. 5-2 shows the comparison between the overall development programmes and action programmes proposed.

Fig. 5-1 Fishbone Chart of the Overall Development Measures

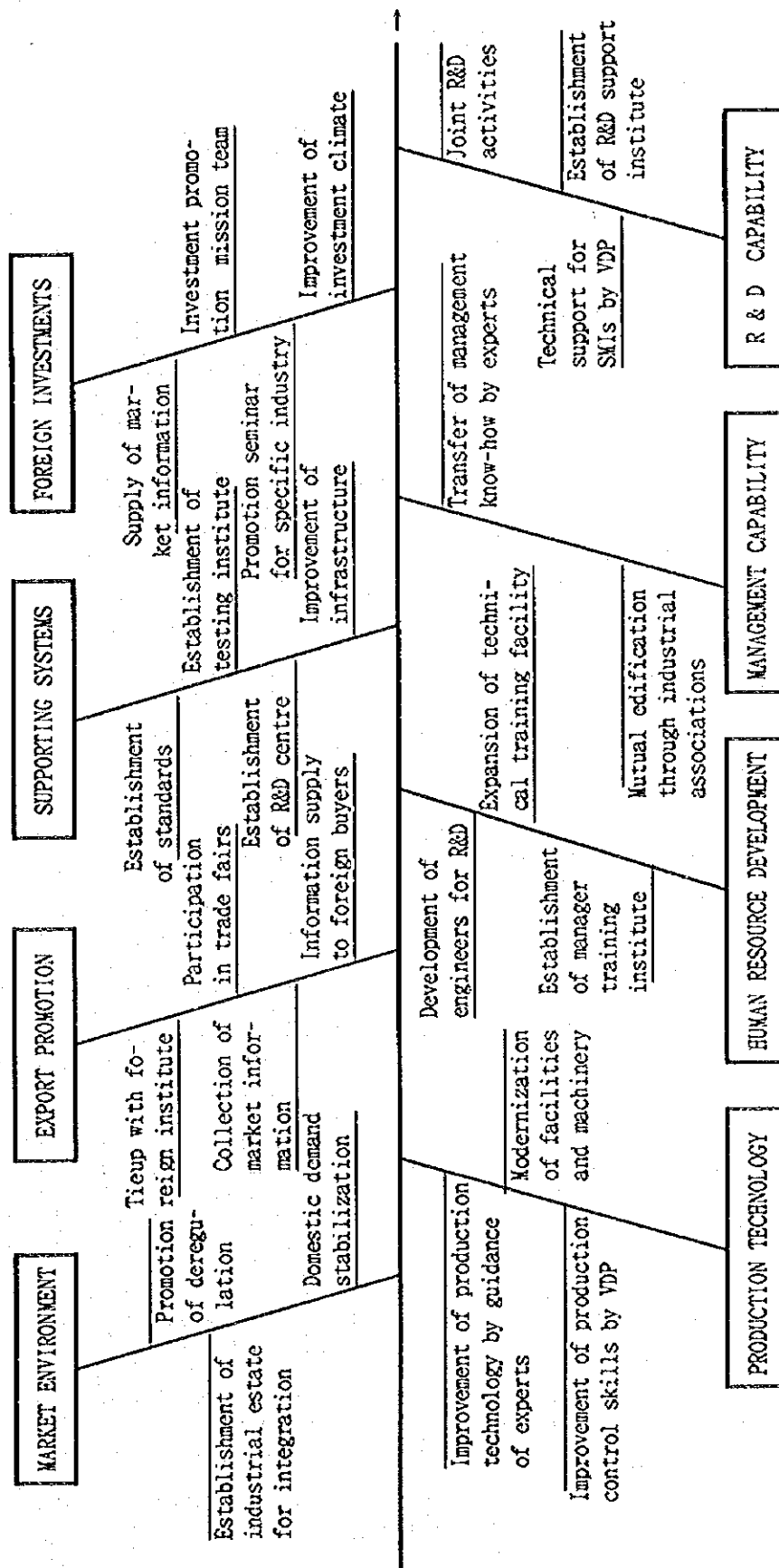
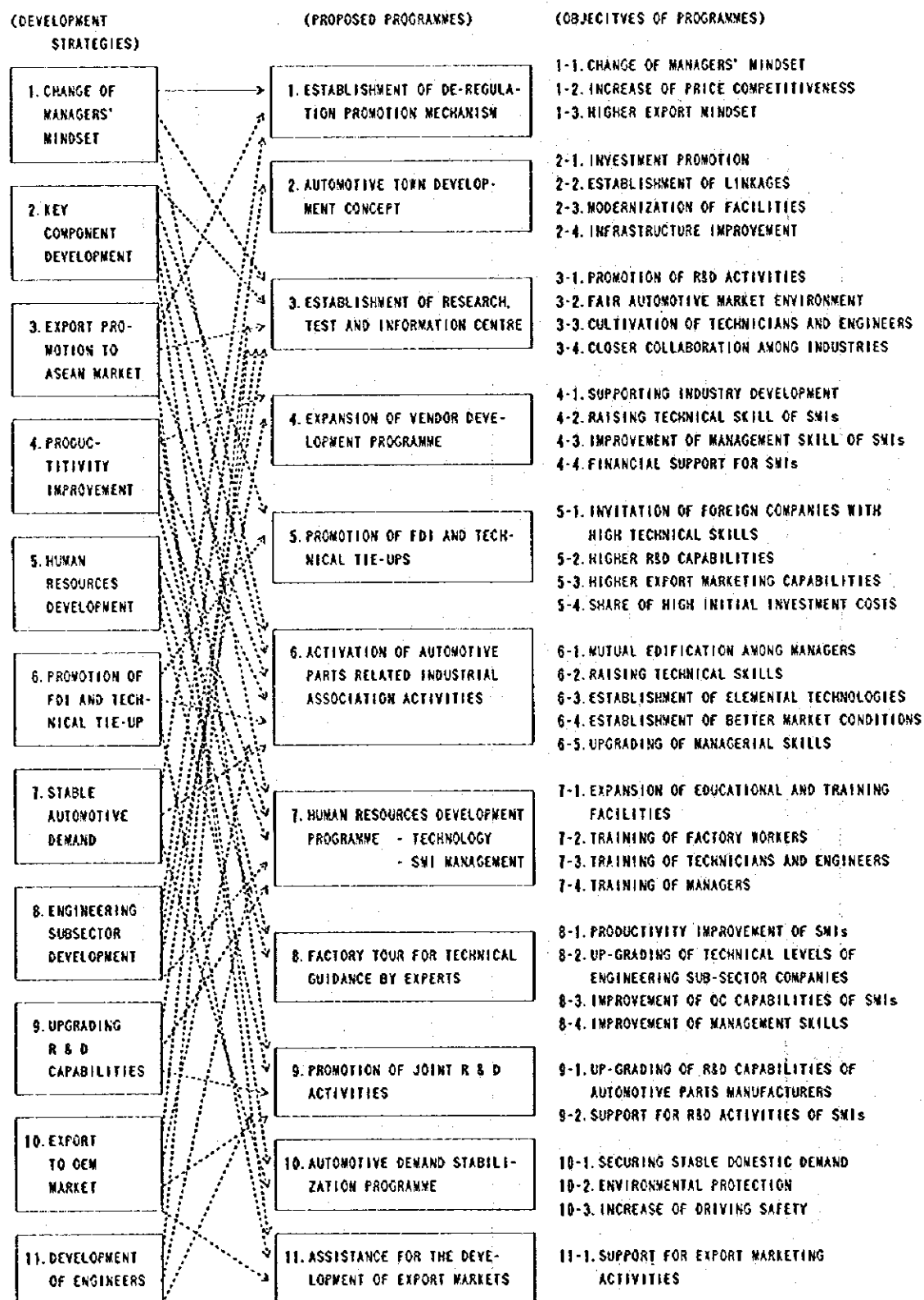


Fig. 5-2 Comparison of Overall Development Strategies and Action Programmes



1. ESTABLISHMENT OF A DEREGULATION PROMOTION MECHANISM

(1) Background

As a strategic industry, both automotive assemblers and parts manufacturers have been developed under very protective conditions in Malaysia. However, those protection measures are to be abolished by international trade agreements. Further, with the internationalization of the automotive industry advancing at high speed, the strengthening of international competitiveness of both Malaysian made automobiles and parts and components has become essential for Malaysian manufacturers of these products to survive in the world or in the Asian regional market.

However, the awareness of most Malaysian manufacturers of this risk in the near future seems to be still low due to their good sales and profits which have continued in recent years under the protective market conditions.

In order to direct the mindset of automotive manufacturers towards raising their production capabilities to an international standard, a decisive governmental policy for deregulation should be publicly announced, and clear implementation schedules should be set through a close collaboration between the government and industry.

(2) Major Protection Measures to be Deregulated

- Restriction of CBU (Completely Built-up Unit) Imports
- Approval System of Car Sales Prices
- Import Duty Reduction for Automotive Parts
- Local Parts Procurement Obligations

(3) Basic Principles for the Promotion of Deregulation

The deregulations should be carried out based on the following basic principles:

- 1) The implementation schedule of deregulations should be set not by the one-sided decision of the government but by the initiative of industries concerned.
- 2) The effects of various regulations are very closely interrelated. Thus, the deregulations should not be promoted on an individual basis, but under an overall strategy covering all regulations concerned.

- 3) The deregulations should be carried out not all at once, but on a step-by-step basis. The implementation schedules should be flexibly adjusted based on a review of the results of the effects of previous deregulation steps.

(4) Implementation Organizations

For implementation, the establishment of the following organizations is recommended:

- 1) **Automotive Industry Deregulation Promotion Committee**
The final decision making organization of the Malaysian government.
- 2) **Secretariat Office for Automotive Industry Deregulation Promotion**
A permanent secretariat office which consists of office members from MITI and MOF which are the current controlling organizations of the review target regulations.
- 3) **Working Group**
The working group studies the current status and the effects of deregulation of each regulation, and drafts the plans of deregulation.
- 4) **Public Hearings**

(5) Expected Effects of Deregulation

- 1) The loosening of local procurement obligations or the reduction of import duties of automotive parts would create changes in the business mindset of managers of domestic automotive parts manufacturing companies. They could become more conscious of international competition rather than just domestic competition, and export markets in addition to the domestic market.
- 2) The reduction of import duties of parts or availability of overseas price-competitive parts would reduce the production costs of Malaysian made cars and components using these parts. The abolishment of the control of CBU imports or the domestic sales price approval system would increase domestic car sales competition, making the cost reduction requirement of car manufacturers severe. All of these factors are expected to work to increase the cost competitiveness of Malaysian made products.

2. ESTABLISHMENT OF AUTOMOTIVE TOWN CONCEPT

(1) Background

In Malaysia, a large number of industrial estates have been developed by both governmental agencies and private developers. However, except for the Klim High-tech Industrial Estate (or those industrial estates such as the foundry park and the furniture industrial area which were mainly constructed for the relocation of SMIs), most of these industrial estates have been developed mainly with commercial objectives. The construction of industrial estates, themselves, even if they are developed on commercial bases, would contribute to the industrial development of a region. However, it would be more useful if the central government could use the industrial estate development with the objective of strategically promoting industrial development in a planned direction.

For the above, the central government does not need to be directly involved in the construction of estates. Rather, it could just support the basic concept building of a desired type of estate, and the regional government or private developers would make the concrete development plans taking into consideration the regional characteristics.

(2) Objective of the Proposed Automotive Town Development

It is thought that an automotive town would 1) attract overseas investors to the automotive parts and components sector in Malaysia, 2) induce new domestic investments in the automotive parts industry, and 3) promote the relocation of factories of existing domestic manufacturers. The success of the projects would depend on the joint efforts among federal government, local government and public and private developers.

(3) Basic Functions and Related Organizations

For the development of the proposed automotive towns, all of the participants such as the central government, the regional government and developers have to take active roles according to their responsibilities.

The federal government would first design the basic concept of the automotive towns, in which the basic facilities and services required for the town and a package of incentive schemes for overseas investors, for domestic manufacturers relocating their factories and for

developers is presented. The regional government could prepare basic development plans. The plans are to be developed based on both the current industrial situation of the region and the future course of regional development strategies. The development plans designed by the regional government are presented to the central government. When they are approved by the central government, the use of a package of incentives given by the central government could become available.

After the development plan of the regional government is approved by the central government, the regional government would announce the approved plan to developers, and request their participation in the plan. The developers interested in the plan would conduct detailed designing of the construction of the town. These detailed design plans are presented to the central government through the regional government. When accepted, a package of incentives needed for the construction of the approved estates is given.

(4) Basic Concept of the Proposed Automotive Town

The automotive town is not necessarily a single industrial estate, but rather an area in which a number of industrial estates, as well as other supporting facilities, are constructed. However, in the basic plan designed by the regional government the boundary of the town or the sizes should be shown.

The automotive town concept paper to be prepared by the central government should first show the necessary functions to be facilitated in the town. These functions would be: 1) infrastructure to be facilitated in the industrial areas; 2) information centres for automotive parts manufacturers and assemblers; 3) information centre for the identification of partner companies; or 4) infrastructure to induce the relocation of such factories as foundry and plating plants (they are among the engineering sub-sector companies).

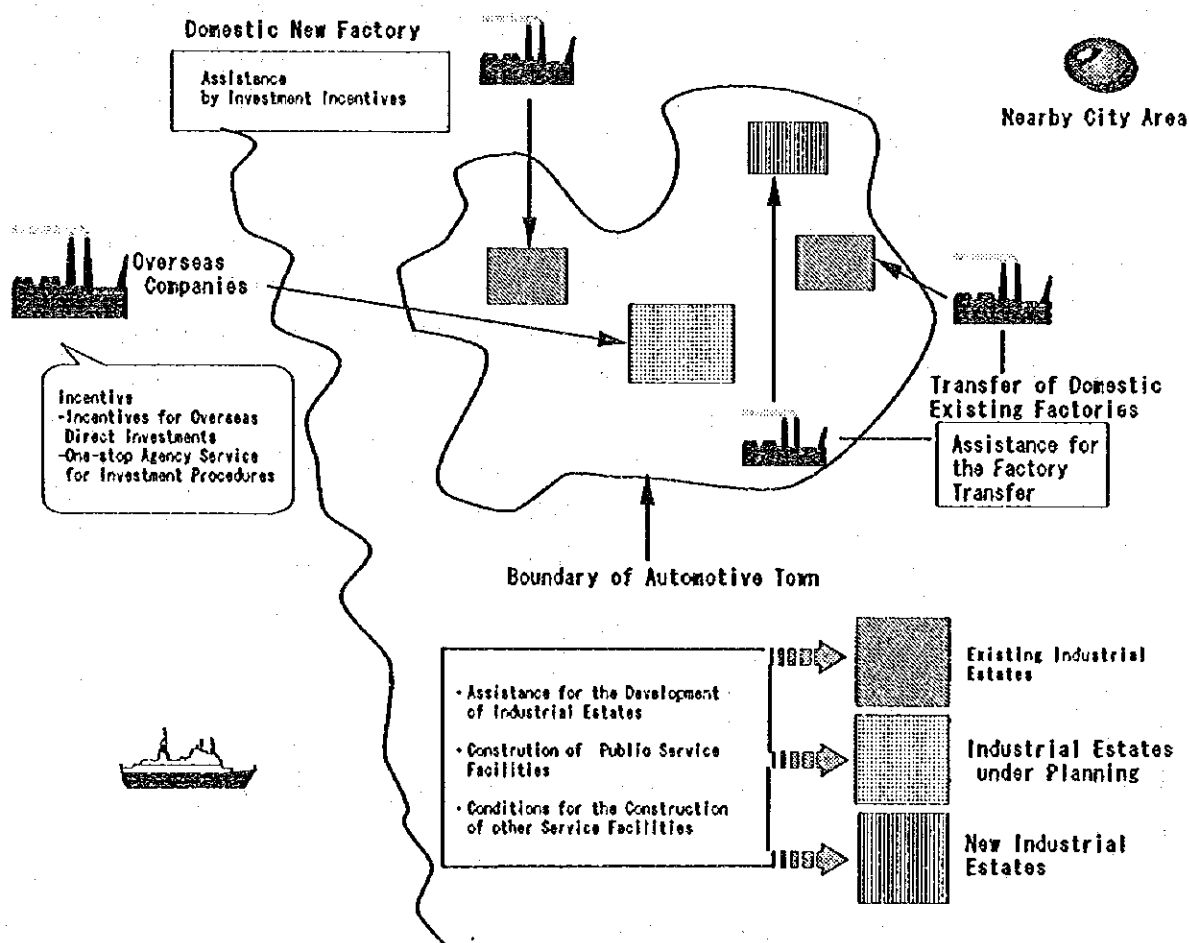
Second, the basic concept paper should show the kinds of information to be included in the development plan prepared by the regional governments, such as: 1) locations and approximate sizes ; 2) transportation conditions; 3) communication conditions; 4) population sizes in the nearby areas; 5) existing industries in the surrounding areas; 6) residential area development plans or housing conditions for workers in the town; 7) supporting facilities to be constructed in the town; and 8) a blueprint of the town.

The concept paper should further show the kinds of incentives to be given to the town. The

incentives would be given for the land developers, domestic companies relocating their factories into the town or overseas companies investing in the town.

Examples of incentives would be as follows: 1) financial support (long-term and low interest loans) for the construction of supporting facilities, as well as the facilitation of sufficient levels of public service facilities, toward land developers, 2) low interest loans or subsidies for the construction of new factories and the modernization of facilities and machinery toward domestic manufacturers relocating factories (including the sales of land at discounted prices); and 3) one-stop agency service for investment procedures or easy application for labour permits for foreign workers, in addition to the priority application of investment incentives, toward overseas investors.

Fig. 5-3 Basic Concept of an Automotive Town



3. ESTABLISHMENT OF MALAYSIA AUTOMOTIVE RESEARCH, TEST AND INFORMATION CENTRE (MARTIC)

(1) Background

Most automotive producing countries have their own independent research and test centres, where continuous product development, adaptation and innovation are undertaken. Although there are such public organizations as SIRIM or universities supporting the private sector's R & D activities in Malaysia, they are not organizations specializing in the automotive industry, and their capabilities are still very limited. Without having an independent research and test centre, the Malaysian automotive industry would have to continue to depend fully on the principal manufacturers in new product development both in complete vehicle units and key automotive parts.

With the rapid expansion of the automotive market in Malaysia, the establishment of well designed standards and regulations both to ensure safe driving and to protect the environment has become very important. For this purpose, also, the establishment of an independent research and test centre in Malaysia is needed.

Further, at present many of the world's leading automotive assemblers and automotive parts manufacturers are shifting their production bases from advanced nations to the Asian region, and the investigation of the possibilities for local procurement of parts and materials has become important for most of them. Recent movements toward the establishment of Technical Centres by leading automotive manufacturers in Asian nations would also reflect this fact. The establishment of a reliable test centre in Malaysia would contribute largely toward encouraging leading manufacturers to establish their Technical Centres in Malaysia and to increase their parts procurement from Malaysia.

(2) Functions and Related Organizations

The basic functions required for the proposed centre, and the organizations related to each of these functions, are as follows:

- 1) Automotive industry policy development
- 2) Regulation setting for securing safety

- 3) Regulation setting for protecting the environment
- 4) National standard setting
- 5) Fuel energy conservation research
- 6) Support for Research and Development for industries and related organizations
- 7) Certification, testing and training for industries, and other related organizations
- 8) Automotive parts information exchange

(3) Major Facilities at the Centre

The major facilities that the proposed Centre should have are as follows.

- 1) Test courses for vehicle performance tests
- 2) Facilities and equipment for NVH (noise, vibration and hardness) and quality assurance testing
- 3) Facilities and equipment for fuel economy and emission testing
- 4) Equipment for vehicle safety testing
- 5) Computer hardware and software systems for R & D
- 6) Training facilities
- 7) Automotive parts display room
- 8) Automotive information library

(4) Organization and Operation Funding

It is proposed that MARTIC be established as a joint organization between public and private sectors. The core members are to be SIRIM and national car assemblers, to which all of the other government related organizations and automotive and automotive parts manufacturers would join.

The operating funds would mainly be generated from the following sources:

- 1) Budgetary allocation from related government authorities for conducting regulation research and for regulation execution testing
- 2) Revenue from the private companies for certification, testing and training
- 3) Revenue from the contracted or joint R & D activities which are mainly paid by private companies but are partly supported from the government

(5) Implementation Schedule

From the experience of similar organizations in other nations such as Japan or Taiwan, it is not necessary that all of the facilities be constructed or installed from the beginning. The implementation of the project should be carried out on a step-by-step basis, starting from the integration of the existing facilities dispersed in various organizations. As a preparation stage for actual construction, a feasibility study for the project should be conducted with the assistance of overseas organizations having practical experience in similar services.

4. EXPANSION OF VENDOR DEVELOPMENT PROGRAMME

(1) Background

In Malaysia, the Vendor Development Programme was started in 1988 for the automotive sector, with the launching of the PROTON Component Scheme, and has gradually been extended to other industrial sectors. The Programme was expanded in April 1993 with the introduction of a "tripartite arrangement" involving MITI (lead agency for SMIs), anchor companies (multi national companies and large industries) and financial institutions. Under this arrangement, anchor companies would be able to identify and subsequently appoint SMIs as their subcontractors (vendors) in parts manufacturing and related industrial services. On their part, the financial institutions will provide financial assistance and related consultancy services to the vendors.

Up to the present, the major emphasis of the Vendor Development Programme in Malaysia was placed on increasing the number of participating anchor companies, and in that sense, the performance of the programme has shown significant progress. As of the end of October 1994, the number of anchor companies participating in the Programme has reached 40, that of financial institutions, 11, and the number of vendors appointed was 59.

The major constraints faced by the implementing agency in enhancing the performance of the Programme are reported as follows:

- 1) The obligation of anchor companies is very large for the initiation of any financial or technical support for potential vendors, because it is mainly based on the anchor company's commitment for the purchase of developed products.
- 2) SMIs have poor knowledge of possible anchor companies' needs and procurement requirements, thus, the identification of potential vendors has to be made mainly by the efforts of the anchor companies.
- 3) Most potential vendors have limited ability to submit relatively good business plans.
- 4) The production facilities and production processes of potential vendors, in many cases, do not satisfy the factory audit and quality control approval standards of anchor companies.

(2) Proposed Project

In order to further enhance the performance of the Vendor Development Programme by overcoming the above constraints, the JICA Study Team proposes the expansion of the programme through the following three (3) measures.

1) The establishment of the VDP Supporting Team in MITI

Currently, the Vendor Unit of the Small and Medium Scale Industry Division in MITI is operating as a secretariat office of the Vendor Development Programme. Although the Vendor Unit is supported by other sections of the SMI Division, their function is not large enough to provide some direct supporting activities for potential vendors. Either within or along with the existing Vendor Unit, the establishment of the VDP Supporting Team, which has the following functions, is proposed:

- a. To identify potential vendors for anchor companies;
- b. To initiate technical support activities for potential vendors without waiting for the commitment of anchor companies;
- c. To provide support for the potential vendors in preparing feasible business plans to be given to the anchor companies; and
- d. To evaluate the financial viability of the business plans prepared by potential vendor companies.

In order for the VDP Team to implement the above functions, staff members having the following capabilities would have to be assigned:

- a. Marketing
- b. Financing and project evaluation
- c. Production technologies such as metal work, plastic mouldings or mould/jig manufacturing
- d. Quality control

The establishment of the VDP Supporting Team would make it possible for potential vendors to approach the most appropriate anchor companies. Further, the project evaluation capability of the Team is expected to contribute to reducing the financial risks of anchor companies or financial institutions associated with future purchase

commitments.

2) Joint Anchor Companies Concept

Under the current VDP programme, the investment of potential vendors tends to be limited to an amount which could be repaid by the new product sales to one particular anchor company. In practice, however, many of the investment projects of a sub-contractor company would enable them to supply newly developed products to many assembling companies.

The Joint Anchor Companies Concept proposes the expansion of the programme in such a way that more than two anchor companies form a joint anchor companies group and provide various kinds of support for their potential common sub-contractors. The joint anchor companies groups could be formed in two ways. For one, they could be formed by anchor companies belonging to the same industry group such as assemblers of automobiles. For another, they could be formed by anchor companies which use the same products or services of a particular vendor such as the users of forging parts. In both cases, the function of the VDP Supporting Team proposed in 1) above as a coordinator between the joint anchor companies and potential vendors would be significant.

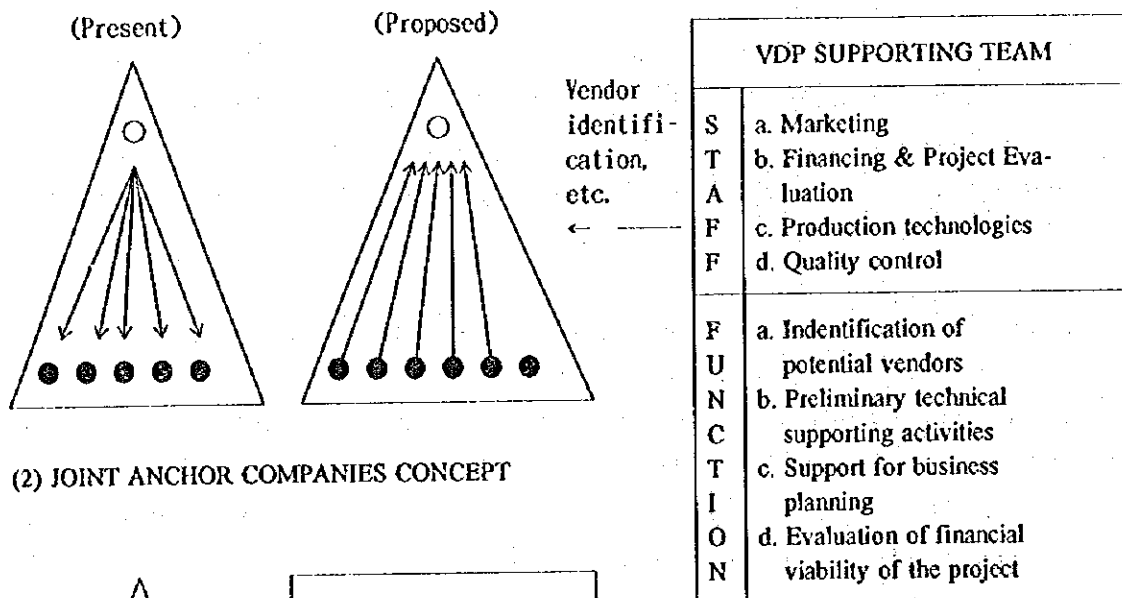
3) Secondary Sub-contractor Concept

For the development of new products by sub-contracting companies which meet the requirements of anchor companies, increasing the capabilities of secondary sub-contractors is often required. Even under the current VDP programme, such it has been reported, for example, that the development of a secondary sub-contractor was included in a project. It is proposed that the concept of the development of secondary sub-contractors should be further clearly systemized and promoted.

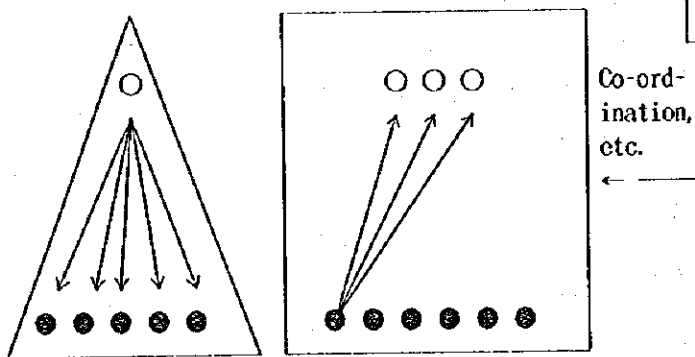
Because it is projected that the capability of anchor companies to support all of these secondary sub-contractors would be rather limited, the supporting activities of the VDP Supporting Team proposed in 1) above to secondary sub-contractor companies would also be highly expected.

Fig. 5-4. CONCEPT OF VDP EXPANSION

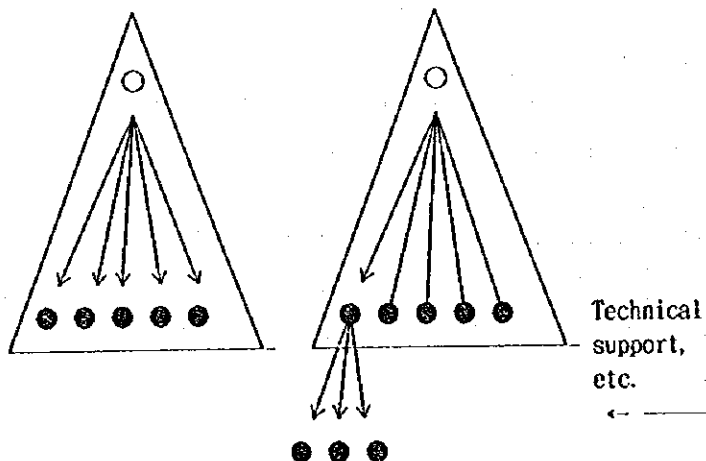
(1) VDP SUPPORTING TEAM IN MITI



(2) JOINT ANCHOR COMPANIES CONCEPT



(3) SECONDARY SUBCONTRACTOR CONCEPT



5. PROGRAMMES FOR INTENSIFICATION OF FOREIGN DIRECT INVESTMENT PROMOTION ACTIVITIES AND EXPANSION OF PLAN FOR PROMOTING CORPORATE TIE-UPS

(1) Background

Rapid changes are occurring in the economic environment of Malaysia and the other ASEAN countries, such as a) the spreading international division of labour, b) the deliberate formation of regional economies such as the ASEAN Free Trade Area (AFTA), c) the rapid development of industrial technology, and d) the increasing close interdependence in manpower, capital, and commodities.

In the auto parts industry, Japanese companies have been confronted with the problem of how to deal with the rapid rise in the value of the yen. As a result, many companies, including numerous medium and small businesses, have found it necessary to invest overseas. With the competition over attracting investment intensifying with neighbouring countries, it will be important to entice such Japanese companies to Malaysia or to encourage tie-ups between Japanese companies and Malaysian ones in order to increase the sophistication of the Malaysian auto parts industry and to strengthen its international competitiveness.

The Malaysian Industrial Development Authority (MIDA) plays a central role in activities to attract foreign investment to Malaysia. It is given high marks for its activities not only by the Malaysian government, but also by numerous foreign ventures.

The programmes proposed here are not new by any means. Rather, in view of the above background, it is desirable to further strengthen and augment programmes which MIDA, etc., have been engaged in up to now for promoting investment and encouraging business tie-ups.

(2) Intensification of Promotion of FDI and Corporate Tie-ups for Auto Parts Industry

To attract foreign automotive parts companies and encourage the establishment of tie-ups between such businesses and Malaysian firms, it is considered necessary to strengthen promotion activities as follows bearing in mind that the foreign companies targeted are not major corporations familiar with doing business overseas, but are mostly firms which have high levels of technical expertise, but are small in size.

1) Dispatch of Overseas Investment Promotion Missions for Promoting Auto Parts Industry

To increase the international competitiveness of the automotive parts produced in Malaysia, it would be desirable to dispatch investment promotion missions that focus on that sector and relevant companies. The missions would preferably be joint public/private sector missions participated in by the MACPMA and member firms of that association. In arranging the seminars and symposiums and the visits to companies, effort should be made to strengthen contacts with the industrial organizations and investment promotion organizations of the host country.

2) Strengthening of Relations With Investment Promotion Organizations

The United Nations Industrial Development Organization (UNIDO), which works to promote international investment, has offices in Japan and other major countries. Japan, on its part, has many public organizations for promoting or assisting investment such as JETRO, the Japan Small Business Corporation, the Japan Finance Corporation for Small Business, and the Japan Overseas Development Corporation (JODC). It would be desirable to maintain continued close contact with these organizations in activities for promoting investment from small businesses, which constitute the bulk of the targeted companies.

3) Augmentation of RICOM System

To promote tie-ups among companies, it is necessary first for the Malaysian side to make sufficient surveys to determine what kind of companies in what kind of fields desire what type of tie-ups. The findings of the surveys should be sufficiently reflected in the MIDA RICOM system and the MITI small business registry and effectively tied in with other investment promotion and joint venture promotion programmes.

4) Strengthening of Investment Information Service

Auto parts manufacturers in Malaysia should be periodically provided with a) information on trends in foreign companies (including Japanese) investing in ASEAN, nearby countries, China, etc., and b) information about foreign companies desiring to invest in Malaysia. (for Japanese firms, using JETRO's "Potential Investors From Japan," etc.) Further, potential foreign investors should be provided with information on Malaysian companies desiring business tie-ups with foreign companies.

To match up requests for joint ventures from Malaysian and foreign companies, it would be desirable for the numerous related governmental organizations, industrial organizations, and private companies to work together. For example, it would be possible to augment the existing MIDA- RICOM list and compare it against the lists of potential Japanese business partners compiled by JETRO and the present JICA Study Team to facilitate matching between Malaysian and Japanese firms. This would be done by the arrangement shown in the following flow chart.

```
graph TD
    JM[Japanese makers] --> JETRO[JETRO "Potential Investors From Japan"]
    JETRO --> MIDA[MIDA "RICOM List"]
    JETRO --> MACPMA_NEWS["MACPMA NEWS"]
    JETRO --> MAL_AM[Malaysian auto parts manufacturers]
    JETRO --> MIDA_MACPMA[MIDA/MACPMA]
    JAM[Japanese auto parts makers] --> JICA[JICA study team "Plans for Investment in Malaysia and Registered in RICOM System"]
    JICA --> MACPMA_NEWS
    JICA --> MAL_AM
    JICA --> MIDA_MACPMA
    MAL_AM --> MIDA_MACPMA
    MIDA_MACPMA -- "Matching requests" --> JM
    MIDA_MACPMA -- "Matching requests" --> JAM
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The flowchart illustrates the process of Japanese investment promotion in Malaysia. It starts with two parallel paths: one for Japanese makers and another for Japanese auto parts makers. The Japanese makers path flows through JETRO "Potential Investors From Japan" to MIDA "RICOM List", then to Malaysian auto parts manufacturers, and finally to MIDA/MACPMA. The Japanese auto parts makers path flows through the JICA study team "Plans for Investment in Malaysia and Registered in RICOM System" to "MACPMA NEWS", then to Malaysian auto parts manufacturers, and finally to MIDA/MACPMA. Both paths converge at MIDA/MACPMA, which then sends "Matching requests" back to the Japanese makers and Japanese auto parts makers.