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JAPAN INTERNATIONAL COOPERATION AGENCY
THE MINISTRY OF INDUSTRY AND TRADE
THE REPUBLIC OF INDONESIA

**THE STUDY
ON
THE DEVELOPMENT OF SUPPORTING INDUSTRIES
IN
THE REPUBLIC OF INDONESIA**

MAIN REPORT

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February 1997

**THE JAPAN RESEARCH INSTITUTE, LIMITED
YACHIYO ENGINEERING CO., LTD**

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PREFACE

In response to a request from the Government of the Republic of Indonesia, the Government of Japan decided to conduct the Study on Industrial Sector Development - Supporting Industries - in the Republic of Indonesia, and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent a study team, led by Mr. Takashi Nobehara of the Japan Research Institute, Limited and constituted by members of the Japan Research Institute, Limited and Yachiyo Engineering Co., Ltd., to the Republic of Indonesia five times from January 1996 to December 1996.

The team held discussions with the officials concerned of the Government of the Republic of Indonesia, and conducted related field surveys. After returning to Japan, the team conducted further studies and compiled the final results in this report.

I hope this report will contribute to the development of supporting industries in the Republic of Indonesia and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Indonesia for their close cooperation throughout the study.

February 1997



Kimio Fujita
President
Japan International Cooperation Agency



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List of Acronyms and Abbreviations

<u>Acronym/ Abbreviation</u>	<u>Spelling</u>
ABI	: Association of Indonesian Internal Combustion Engine Manufacturers
ABS	: Acrylonitrile Butadiene Styrene
AC	: Air Conditioner
ADB	: Asian Development Bank
AFTA	: ASEAN Free Trade Area
AICO	: ASEAN Industrial Cooperation
APII	: Indonesian Science Association
AIPSI	: Association of Indonesian Pumps Industry
ALSINTANI	: Association of Indonesia Agricultural Machinery
APEC	: Asia Pacific Economic Cooperation Conference
ASIMPI	: Association of Indonesia Machine Tools
ASPEP	: Association of Indonesian Metalwork and Machinery
AV	: Audio Visual
B4T	: Institute for Research & Development of Material & Technical Product Industries (IRDMTP)
BAPIK	: Agency for Development of Small Scale Industry
BAPPENAS	: National Planning Agency
BBC	: Brand-to-Brand Complementation
BBPIP	: Agency for Industrial and Trade Research and Development
BIPIK	: Small Scale Industry Guidance and Development Program
BIS	: Bank for International Settlement
BKPM	: Investment Coordinating Board
BOD	: Biochemical Oxygen Demand
BPEN	: National Agency for Export Development
BPPI	: Agency for Industrial and Trade Research and Development
BPPT	: Agency for the Assessment and Application of Technology
BPS	: Central Statistics Bureau
BS	: Broadcasting Satellite
CAD	: Computer-Aided Design
CAM	: Computer-Aided Manufacturing
CBU	: Completely Built-Up
CD	: Compact Disc
CEPT	: Common Effective Preferential Tariffs
CIF	: Cost, Insurance and Freight
CKD	: Completely Knockdown
CNC	: Computerized Numerical Control
COD	: Chemical Oxygen Demand
CPU	: Central Processing Unit
CR Coil	: Cold Rolled Coil
CRT	: Cathode-Ray Tube
DAPATI	: Industrial Technology Services Matching Grant Program
DD Motor	: Direct Drive Motor
DSN	: National Standardization Council

EDM	: Electric Discharge Machine
EPKE	: Special Electronic Components Warehouse
EPTE	: Export Oriented Production Entrepots
EPZ	: Export Processing Zone
ESCAP	: United Nations Economic and Social Commission for Asia and the Pacific
F/D	: Floppy Disc
F/S	: Feasibility Study
FDD	: Floppy Disc Drive
GAIKINDO	: Association of Indonesian Car Manufacturers
GAMMA	: Federation of Indonesian Metalworks and Machinery Industries
GATT	: General Agreement on Tariffs and Trade
GEI	: Association of Electronic and Electrical Home Appliances Industries of Indonesia
GIAMM	: Association of Indonesian Automotive Parts Manufacturers
GOI	: Government of Indonesia
GVW	: Gross Vehicle Weight
H/D	: Hard Disc
HF Furnace	: High-Frequency Furnace
HF-SSB	: High Frequency Single-Sideband
HR Coil	: Hot Rolled Coil
HS	: Harmonized Commodity Description and Coding System
IC	: Integrated Circuit
IMF	: International Monetary Fund
IRDMMI	: Institute for Research and Development of Metal and Machinery Industries (BBLM/MIDC)
IRDMTP	: Institute for Research & Development of Material & Technical Product Industries (B4T)
ISC	: Industrial Service Center
ISO	: International Organization for Standardization
ITB	: Bandung Institute of Technology
ITS	: Surabaya Institute of Technology
JIS	: Japanese Industrial Standard
JMSA	: Japan Metal Stamping Association
JODC	: Japan Overseas Development Corporation
KD	: Knockdown
KIK	: Small Investment Credit
KMKP	: Permanent Working Capital Credit
KUK	: Small Scale Business Credit
LC	: Liquid Crystal
LCD	: Liquid Crystal Display
LED	: Light Emitting Diode
LF Furnace	: Low-Frequency Furnace
LIK	: Mini Industrial Estates
LIPI	: Indonesian Institute of Science
LSI	: Large-Scale Integration
MIDC	: Institute for Research and Development of Metal and Machinery Industries (IRDMMI)
MOIT	: Ministry of Industry and Trade
MSE	: Medium Scale Enterprise
NAFED	: National Agency for Export Development

NC	: Numerical Control
NIEs	: Newly Industrializing Economies
OA	: Office Automation
OECD	: Organization for Economic Cooperation and Development
OEM	: Original Equipment Manufacturer
OJT	: On-the-Job Training
PABX	: Private Automatic Branch Exchange
PASMI	: Association of Motorcycles Sole Agents-Assemblers-Manufacturers
Indonesia	
PC	: Personal Computer
PCB	: Printed Circuit Board
PCM	: Pulse Code Modulation
PE	: Polyethylene
PHBK	: Linking Bank and Self-help Group Project
PMA	: Foreign Investment Company
PMDN	: Domestic Investment Company
PP	: Polypropylene
PPMBPK	: Center for Testing and Quality Control of Products and Consumer
Protection	
PUK	: Small Enterprise Development Project
PS	: Polystyrene
PUSBINLAT	: Center for Industry Vocational Training Development
PUSLIT	: Industrial Standardization Center
PVC	: Polyvinyl Chloride
QC	: Quality Control
QCD	: Quality, Cost, and Delivery
REM	: Replacement Equipment Manufacturer
REPELITA	: 5-Year Development Plan
SD	: Elementary School
SGS	: Societe Generale de Surveillance
SII	: Indonesian Industrial Standard
SITC	: Standard International Trade Classification
SKD	: Semi-Knockdown
SME	: Small and Medium Scale Enterprise
SMI	: Small and Medium Scale Industry
SNI	: Indonesian National Standard
SPCC	: Cold-rolled Steel Product
SQC	: Statistical Quality Control
SSE	: Small Scale Enterprise
SSN	: National Standardization System
TA	: Technical Assistance
TOR	: Terms of Reference
TPM	: Total Productive Maintenance
TQC	: Total Quality Control
UHF	: Ultra High Frequency
UNCTAD	: United Nations Conference on Trade and Development
UNIDO	: United Nations Industrial Development Organization
UPT	: Technology Service Units
VAT	: Value Added Tax
VCR	: Videocassette Recorder

VHF : Very High Frequency
VTR : Video Tape Recorder
WHO : World Health Organization

Exchange Rates

Period average of market exchange rates

Year	Rupiah per US Dollar
1991	1,950.3
1992	2,029.9
1993	2,087.1
1994	2,160.8
1995	2,248.6
1996*	2,344.0

Note*: October, 1996

Source: IFS, December, 1996, IMF



CHAPTER I. OUTLINE OF THE STUDY

1. BACKGROUND AND OBJECTIVE

1.1 BACKGROUND OF THE STUDY

Since REPELITA IV, the Indonesian government has positioned the industrial sector as the driving force of economic development, aiming at the economic structural change which had previously been heavily dependent on the petroleum sector. At the beginning stage of industrial development, the major stress of industrial development strategy was placed on the invitation of major overseas assemblers to Indonesia, making use of the abundant labor force as an invitation tool. In recent years, however, higher strategic emphasis came to be placed on the establishment of stronger linkages of all of the industrial sectors.

In line with the above understanding, in August 1994, the Indonesian government requested the Japanese government to undertake a master plan study which aims at the development of the supporting industry in Indonesia focusing on the establishment of the essential industrial base for the Indonesian automotive, electrical and electronics, and machinery industries.

In response to the above request, the Japan International Cooperation Agency (JICA) sent a mission team to Indonesia in October 1995, and the team agreed with the Ministry of Industry and Trade of Indonesia on the "Scope of Work for a Study on the Development of Supporting Industries in Indonesia."

1.2 OBJECTIVE OF THE STUDY

The objective of the Study is to formulate a master plan for the development of the supporting industries in Indonesia, which would contribute to the strengthening of the industrial structure of Indonesia by increasing the capability of parts and components manufacturers. The master plan is also expected to include practical suggestions for measures to solve the current

technological problems as well as governmental action plans.

1.3 DEFINITION OF THE SUPPORTING INDUSTRY

The supporting industry is defined as a group of industries which supply parts, components or engineering services for those assembly industries in the automotive, electrical and electronics or machinery fields. In this study, the target industries covered not only those industries which currently supply parts, components and services, directly or indirectly, to the assembly industries, but also the small scale local companies which have the potential to supply those goods and services to the target industries, or the overseas manufactures which might invest in Indonesia and supply those goods and services in the near future.

2. SCOPE OF WORK

The Study shall be conducted in the following two phases.

Phase I: Selection of Priority Products Group and Essential Technologies

Based on the studies of the present development policies for the supporting industries and the current status and existing problems of the industry in Indonesia, a priority products group and essential technologies to be developed will be selected.

Phase II: In-depth Study of Priority Products Group and Essential Technologies and Formulation of a Master Plan

Based on the results of the in-depth study of the selected priority products group and essential technologies, the current institutional problems for development will be identified, and a master plan for the subject supporting industries will be formulated.

The items to be covered by the whole study were as follows, based on the Scope of Work agreed to on October 20, 1995.

Phase I: Selection of Priority Products Group and Essential Technologies

1. Review of general background of the Study
 - 1-1 Economic situation and trends
 - 1-2 Industrial situation and trends
 - 1-3 Status of automotive, electrical/electronic, and selected machinery industries in the manufacturing sector
2. Review of policies and implementation system relevant to supporting industries development
 - 2-1 General policies for national economic and social development (with focus on supporting industries development)
 - 2-2 Technological development
 - 2-3 Financing
 - 2-4 Taxation and tariff system
 - 2-5 Investment promotion

- 2-6 Export promotion
 - 2-7 Human resources development
 - 2-8 Infrastructure
3. Analysis of the present situation of the selected supporting industries
- 3-1 Business structure and performance
 - 3-1-1 Number of enterprises by scale
 - 3-1-2 Production volume (quantity and value)
 - 3-1-3 Export and import volume (quantity and value)
 - 3-1-4 Profiles of the leading enterprises
 - 3-1-5 Others
 - 3-2 Demand for products
 - 3-3 Level of production technologies (with a focus on essential technologies)
 - 3-4 Business linkages with the major assembling and parts manufacturing industries (hereinafter jointly referred to as "assemblers")
 - 3-5 Relative position and competitiveness of Indonesian products (with a focus on Asian products)
 - 3-6 Situation of raw materials procurement
4. Identification of priority products group and essential technologies

Phase II: In-depth Study of Priority Products Group and Essential Technologies and Formulation of a Master Plan

- 1. Review of the present institutional and development policies for priority products and essential technologies
- 2. Analysis of the present situation and problems hampering the supply of the priority products and essential technical services to the assemblers
 - 2-1 Management
 - 2-2 Manufacturing processes
 - 2-3 Procurement of raw materials
 - 2-4 Factory management and quality control
 - 2-5 Product development and design
 - 2-6 Cost analysis
 - 2-7 Marketing
 - 2-8 Future demand forecast by the assemblers

3. Analysis of the present level of priority technologies
4. Establishment of improvement targets for priority product groups and essential technologies
5. Formulation of a master plan with specific and implementable action programs

3. FRAMEWORK OF THE STUDY

The two phases of the Study shall be comprised of the steps set forth below:

Phase I: Selection of Priority Products Group and Essential Technologies

- Step 1: Preparation of the Study
- Step 2: Study of the Present Situation of the Selected Supporting Industries and the Existing Development Policies and Supporting Institutions for their Development
- Step 3: Analysis and Evaluation of the Supporting Industries
- Step 4: Selection of Priority Products Group and Essential Technologies

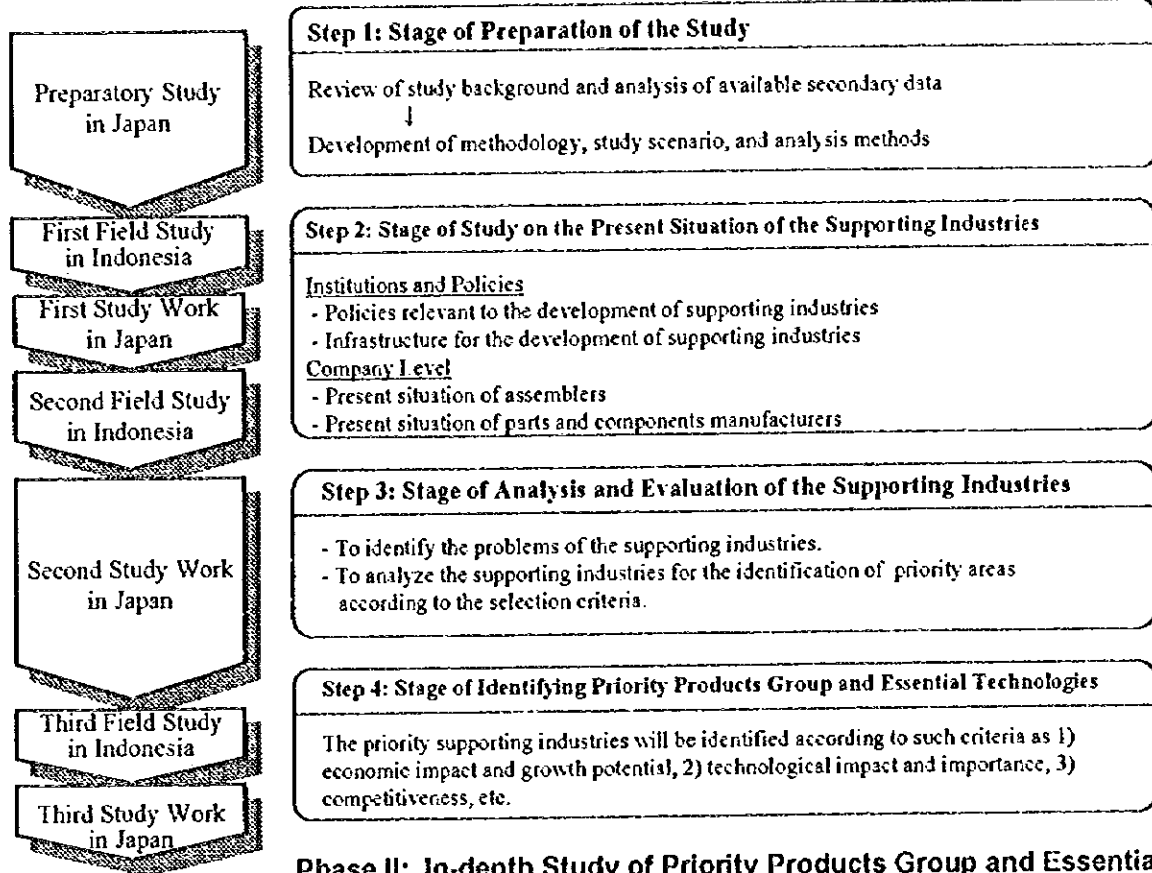
Phase II: In-depth Study of Priority Products Group and Essential Technologies and Formulation of a Master Plan

- Step 5: In-depth Study of the Priority Products Group and Essential Technologies
- Step 6: Formulation of Strategy for the Development of the Supporting Industries
- Step 7: Preparation of the Final Report

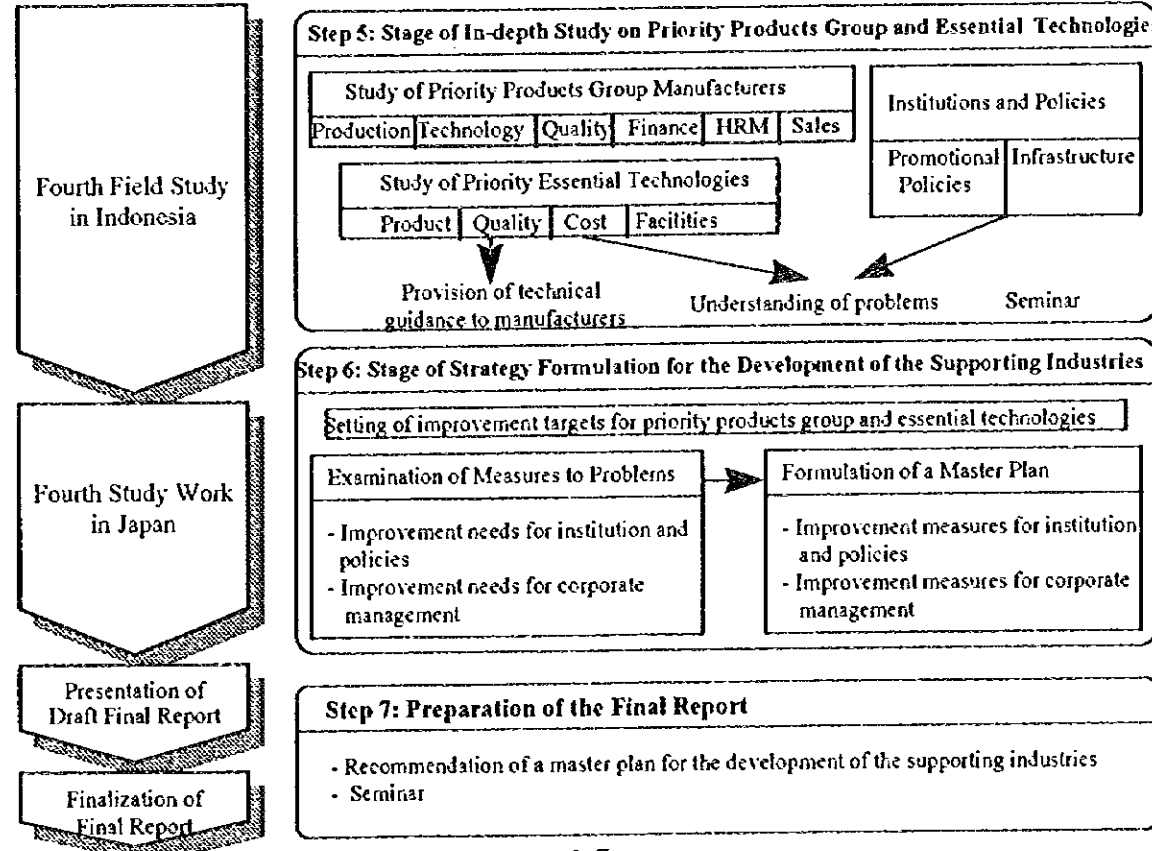
The overall framework of the Study, the framework of the Phase I Study and that of the Phase II Study are illustrated in Fig. 1-3-1 through Fig. 1-3-3.

Fig. 1-3-1 Overall Framework of the Study

Phase I: Selection of Priority Products Group and Essential Technologies



Phase II: In-depth Study of Priority Products Group and Essential Technologies and Formulation of a Master Plan



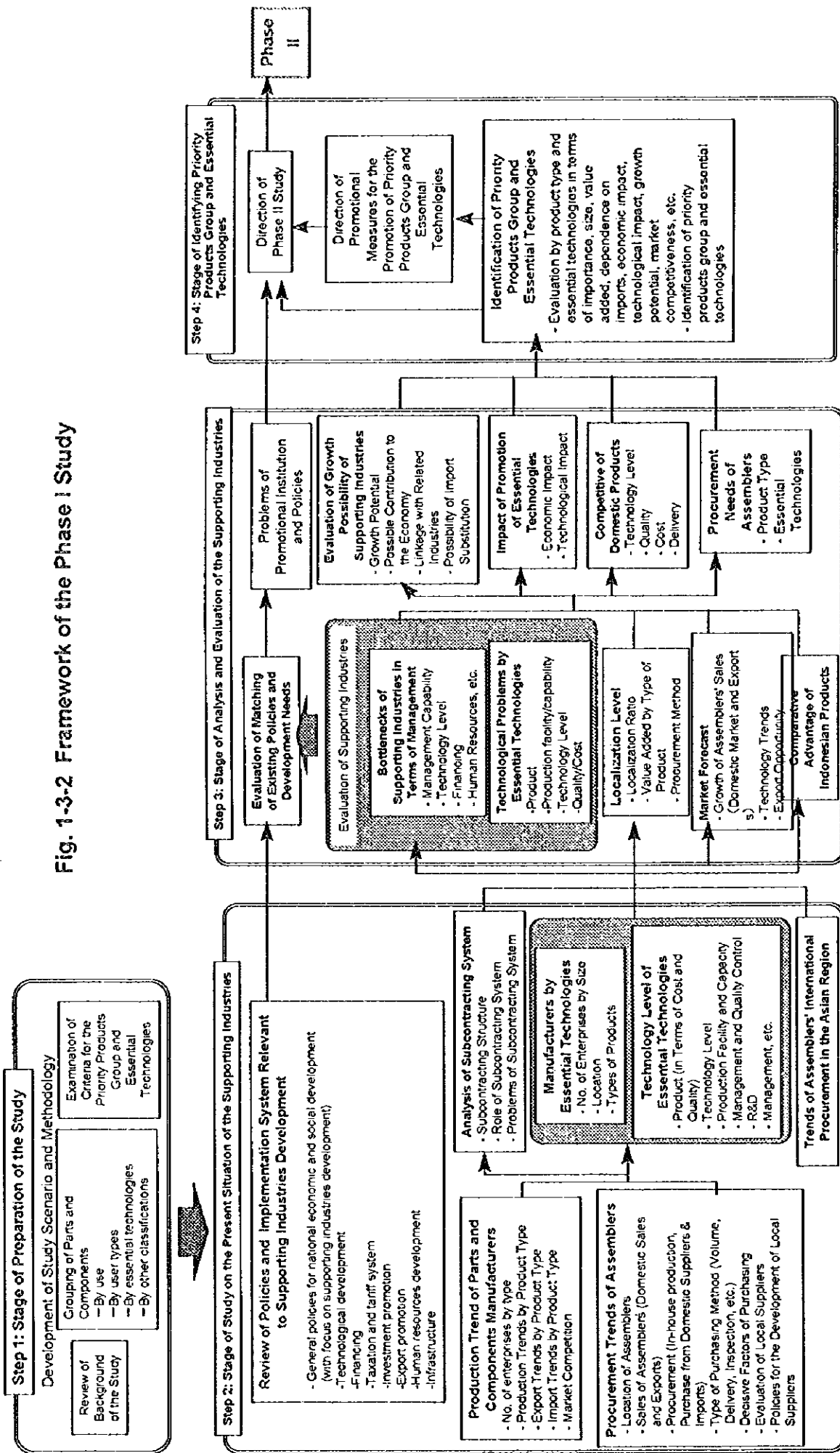
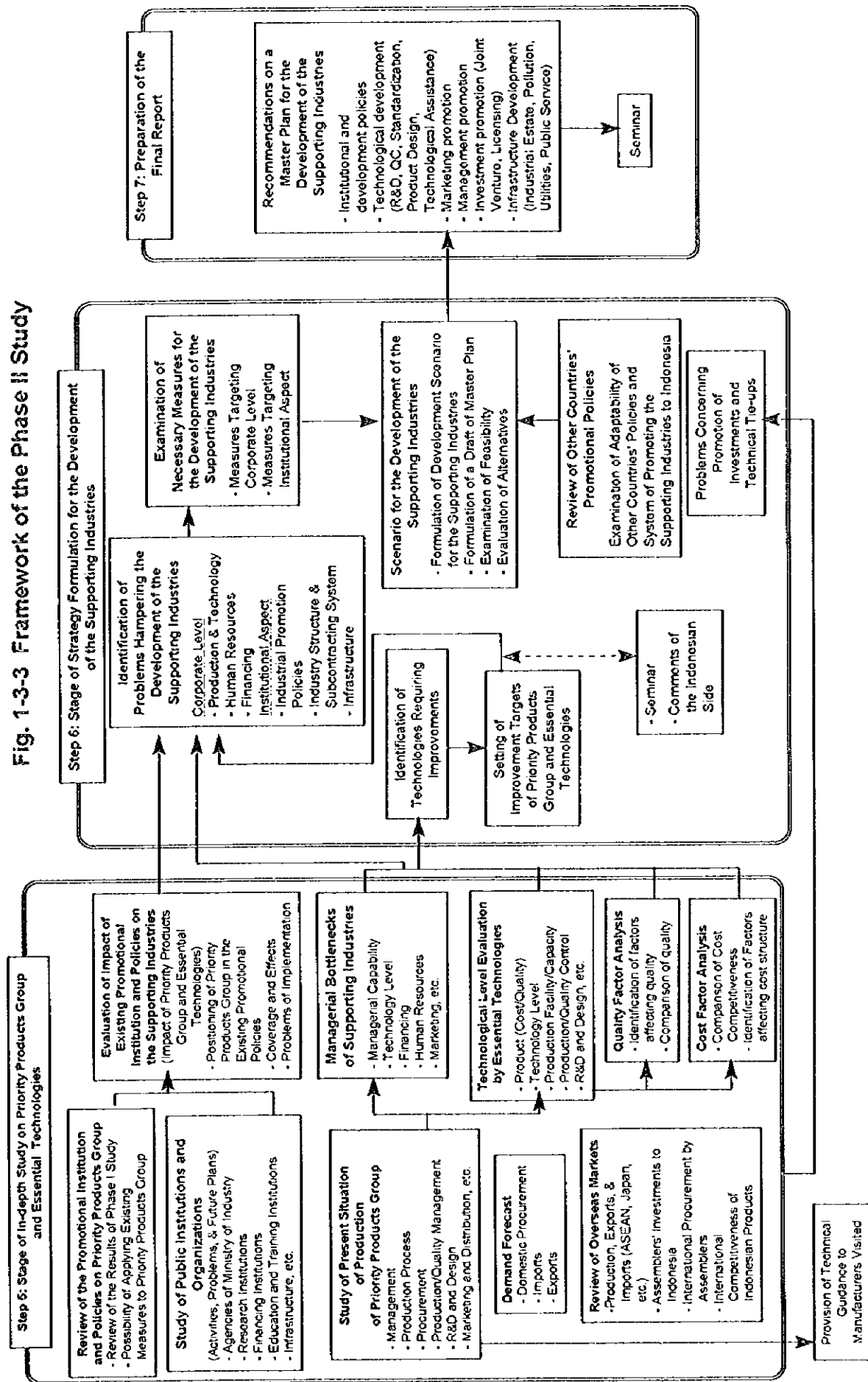


Fig. 1-3-2 Framework of the Phase I Study

Fig. 1-3-3 Framework of the Phase II Study



4. METHODOLOGY

In January 1996, the JICA Study Team, mainly consisting of researchers and consultants of the Japan Research Institute, Ltd. and Yachiyo Engineering Co., Ltd., was formed for the implementation of the Study (For the list of Study Team members, refer to Appendix 1.).

The study was conducted in two phases. The major research methods adapted in each phase and the results are summarized briefly below.

4.1 FIELD INTERVIEW SURVEY

In the field work in Indonesia, the field interview survey by direct visit was used as the principal method of the study. In order to cover a large number of target industries and related organizations from a wider range of areas, the survey was conducted dividing the Team members into small sub-groups.

In the Phase I study, the team members were largely divided into two; a policy related organization visit group and a company visit group. Further, the company visit group was sub-divided into the following small sub-groups:

- 1) Group in charge of the automotive parts industry ;
- 2) Group in charge of the electrical and electronics industry ; and
- 3) Group in charge of the machinery parts industry

The number of companies and organizations visited in the Phase I survey period was as follows.

Table 1-4-1 Number of Companies Visited in the Phase I Period

(Unit : No.)

Location of Companies	No. of Companies
1. JABOTABEK Area	43
2. Bandung Area	6
3. Surabaya Area	11
4. Medan Area	7
5. Batam Area	7
Total	74

Table 1-4-2 Number of Organizations Visited in the Phase I Period

(Unit : No.)

Types of Organization	No. of Organizations
1. Governmental organizations	7
2. Other related organizations	9
Total	16

In the Phase II study, the team members were again largely divided into the policy related organization visit group and the company visit group. Further, the company visit group was sub-divided into the following small sub-groups based on the major elementary manufacturing technologies:

- 1) Group in charge of the casting and forging industries ;
- 2) Group in charge of the presswork, heat treatment and surface treatment industries ;
- 3) Group in charge of the machining industry ; and
- 4) Group in charge of the electronics parts and plastic molding industry.

The company visit group conducted diagnostic studies of the factories making use of both a Plant Management Check Sheet (refer to Appendix 3) and a Plant Technology Level Evaluation Sheet (refer to Appendix 4) prepared for each type of essential technology. The group also visited automotive, electrical and electronics and machinery assemblers with the aim of collecting information on the general conditions of the industry.

The policy group visited various policy related organizations, as well public supporting service organizations, and discussed the role of each organization for supporting industry development based on the concept paper of action programs tentatively prepared by the Study Team.

The number of companies and organizations visited in the Phase II survey period was as follows.

Table 1-4-3 Number of Companies Visited in the Phase II Period

(Unit : No.)

Types of Companies	No. of Companies
1. Casting and forging industries	19
2. Presswork and heat treatment industries	13
3. Plastic molding and mold making industries	8
4. Machining industries	5
5. Automotive assemblers	9
6. Electrical and electronics product assemblers	11
7. Machinery assemblers	6
Total	71

Table 1-4-4 Number of Organizations Visited in the Phase II Period

(Unit : No.)

Types of Organization	No. of Organizations
1. Governmental organizations	7
2. Other related organizations	9
Total	16

4.2 QUESTIONNAIRE SURVEY IN INDONESIA

Because the number of companies that could be covered by direct visit is limited out of the large number of companies belonging to the target supporting industry, a questionnaire survey making use of a local Indonesian consulting company was conducted as a supplementary measure.

Making use of various kinds of company lists supplied from each of the related directorates of the Ministry of Industry and Trade, around 800 target companies were identified as questionnaire survey target companies. A questionnaire designed by the Study Team was further examined by the Indonesian counterparts, the local consultant translated it into the Indonesian language and a necessary number of questionnaire sets were printed. (The questionnaire used for the survey is shown in Appendix 2.) Together with a letter requesting cooperation in the survey issued by the Ministry of Industry and Trade, a questionnaire set was mailed to each company, and the local consultants collected the filled-in questionnaires.

Table 1-4-5 Results of the Questionnaire Survey in Indonesia

(Unit : No. of answers)

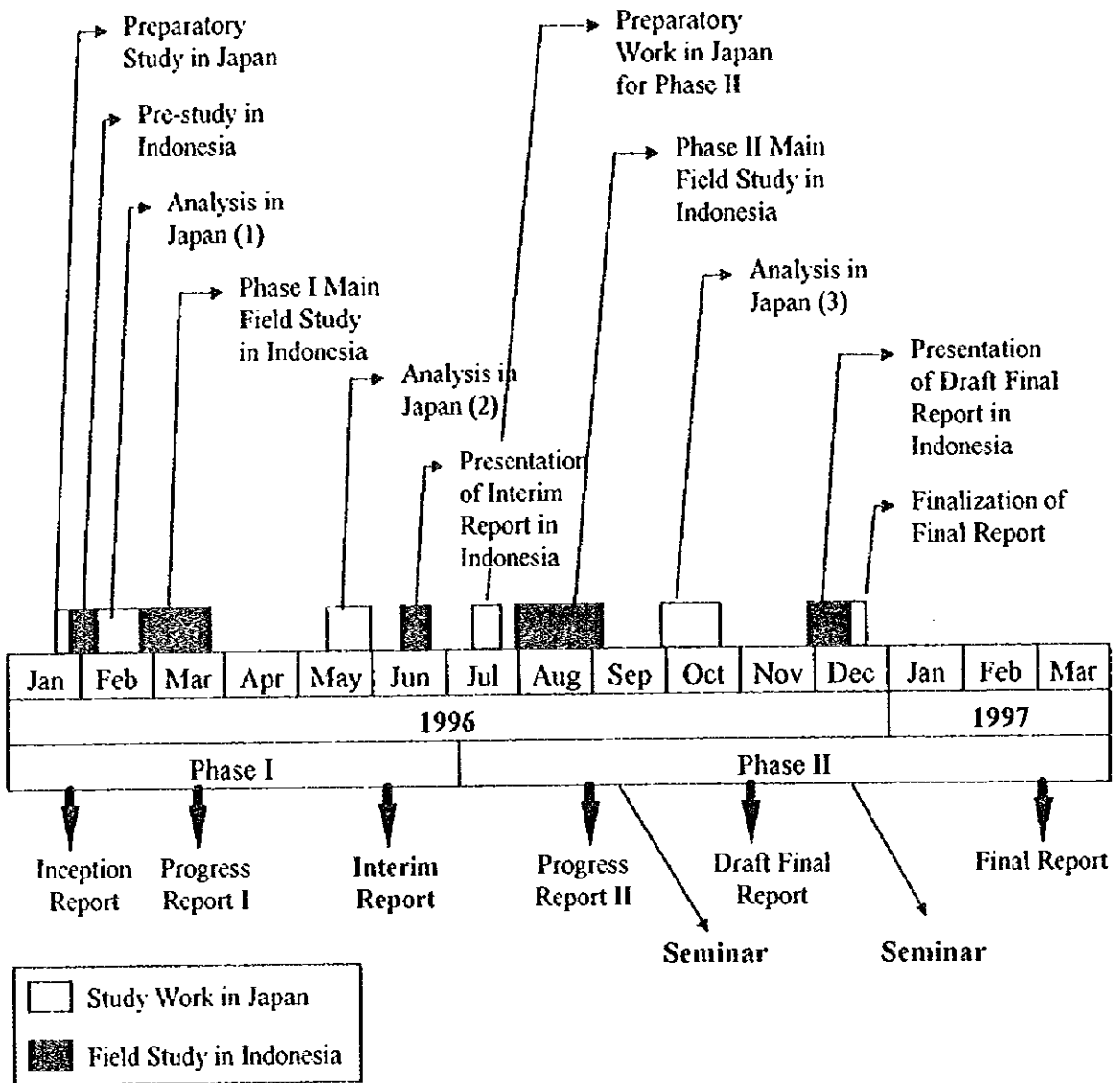
Types of Industry	Scale of Company		Total
	Large and Medium	Small	
1. Automotive parts	53	45	98
2. Electrical & Electronics parts	47	45	92
3. Machinery parts	40	87	127
Total	140	177	317

4.3 STUDIES IN JAPAN

In Japan, the following work was conducted;

- Design of the study framework
- Collection and analysis of the secondary data and information available in Japan
- Analysis of the data and information collected through the field work in Indonesia

Fig. 1-4-1 Implementation Schedule of the Study



CHAPTER II. PRESENT SITUATION OF THE INDONESIAN ECONOMY AND RELEVANT ASSEMBLING INDUSTRIES

1. OVERVIEW OF THE INDONESIAN ECONOMY

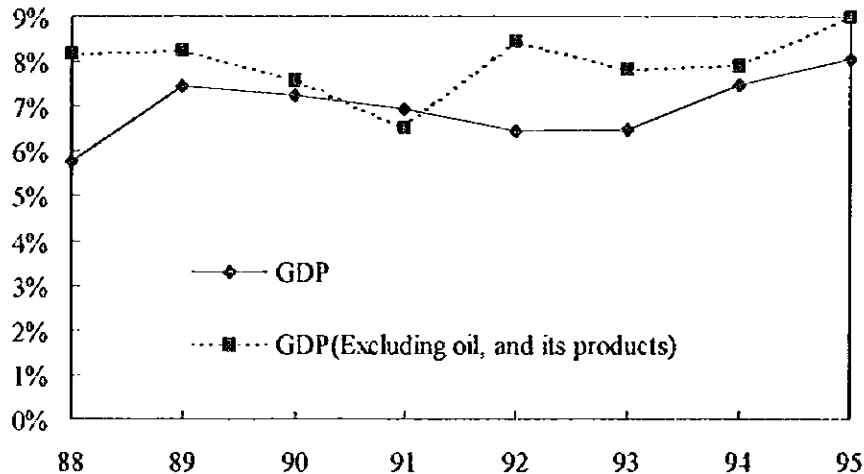
1.1 PRESENT SITUATION OF THE INDONESIAN ECONOMY

In Indonesia, economic development was pursued mainly through the promotion of import substitution during the period from the late 1960s through the 1970s. However, the Indonesian economy was faced with such difficulties as drops in international prices of petroleum and other commodities, stagnant domestic demand, curtailment of currency, and so on, in the early 1980s. The Indonesian government started a structural adjustment policy to overcome economic difficulties and get rid of its petroleum-dependent economic structure. Since 1983, the government successively introduced a series of structural adjustment and deregulation measures in the areas of international trade, investment, and financing, such as adjustments in currency exchange rate, tax reform, drastic improvement in investment climate, and relaxation of restrictions on imports. The government has been making efforts to realize economic growth by positioning industrialization as the driving force for an economic structure free from dependence on petroleum and for the economic take-off since the Fourth 5-year Development Plan (Repelita IV, 1984 - 88).

As a result of the above measures, the structural change to the non-petroleum & gas sector has progressed favorably and the Indonesian economy has shown recovery since 1987.

After recording GDP growth of 5.8% in 1988, it continues to grow at around 7% every year.

Fig. 2-1-1 GDP Growth Ratios of Indonesia



Note: At 1983 constant market prices

Source: *Indikator Ekonomi and Statistik Indonesia 1994*, Biro Pusat Statistik

The Indonesian government, in the 1990s, has successively gone ahead with its deregulation policy, introducing such measures as a drastic reduction in industries closed to foreign investments, permission of 100% foreign equity investments, and import duty reduction. The Indonesian economy has maintained a growth of around 7% a year during the period 1993 to 1995, reflecting the expansion of domestic demand and increased investments, both overseas and domestic. On the other hand, the recent economic boom has created such issues as high inflation and expanding balance of payments deficits.

Indonesia's GDP in 1993 was Rp. 302 trillion and per capita GDP was Rp. 1,597 thousand or US\$ 765 (US\$1= Rp.2,087.1). The manufacturing sector, occupying 22% of GDP, is

the largest industrial sector in Indonesia. The proportions of the agriculture and petroleum & gas sectors have significantly decreased compared to the rapid growth of the manufacturing sector which was 12 - 13% in the early 1980s.

Exports in 1993 were US\$36,823 million, equivalent to 25% of GDP. On the other hand, imports were US\$28,328 million in the same year. In 1994, the growth rate of exports decreased due to the continuous decrease in petroleum & gas exports and stagnant textile and plywood exports, major exporting items of Indonesia, and imports increased for capital goods, intermediate goods, and consumer goods, reflecting a favorable trend of capital investments and private consumption. As a result, Indonesia's trade surplus has tended to decrease.

Table 2-1-1 Trend of GDP by Sector in Indonesia

(Unit: Rp. Billion)

	1993	1994 ^{*2}	1995 ^{*3}	
				%
1. Agriculture, Livestock, Forestry and Fisheries	55,746	65,992	76,557	17.2%
2. Mining and Quarrying	30,750	33,507	37,631	8.4%
3. Manufacturing Industries	67,441	88,992	108,164	24.3%
4. Electricity, Gas and Water Supply	2,714	3,913	4,809	1.1%
5. Construction	18,140	28,017	34,339	7.7%
6. Trade, Hotel and Restaurant	49,789	62,207	73,126	16.4%
7. Transportation and Communication	20,728	26,989	30,202	6.8%
8. Banking and Other Financial Intermediaries	15,257	17,818	21,233	4.8%
9. Ownership and Dwelling	7,611	16,688	18,658	4.2%
10. Public Administration and Defence	22,458	22,755	26,555	6.0%
11. Services	11,384	12,335	14,127	3.2%
Gross Domestic Product	302,018	379,212	445,401	100.0%
Gross Domestic Product without Petroleum and Gas	269,385	345,952	410,438	

Note: ^{*1} At Current Market Prices

^{*2} Preliminary figures

^{*3} Very preliminary figures

Source: *Indikator Ekonomi*, July, 1996

2. OVERVIEW OF INDONESIAN INDUSTRIALIZATION

2.1 PRESENT SITUATION OF INDUSTRIALIZATION IN INDONESIA

2.1.1 Characteristics of Industrialization in Indonesia

The economic growth since 1987 has been driven by the manufacturing sector, especially, by the progress of industrialization, based on export promotion of non-petroleum products. Exports of manufactured goods have been rapidly expanding since the latter half of the 1980s, when the investments from Asian countries increased as they sought their export bases. Indonesia's export-oriented industrialization policy is obtaining good results.

In Repelita VI, announced in April, 1994, Indonesia's industrial development will continue to be led by the export-driven industrialization. The plan will lay such targets as promotion of export-oriented industries, development of small and medium industries, and linkage among industries, and the government is implementing measures necessary to accomplish these targets.

As one of the most important industrial development measures, Indonesia has been inviting foreign investment, especially export-oriented assemblers. However, the development of local supporting industries is becoming an immediate task from the viewpoints of strengthening the foundation for industrialization and inter-industry linkage.

2.1.2 Structure of Indonesia's Manufacturing Sector

The outstanding features of Indonesia's manufacturing sector are a large gap between large to medium industries and small to household industries, and the concentration of enterprises in Java.

According to the industrial census in 1991, there are 2.49 million establishments producing Rp. 7.2 trillion on a value added basis, with 7.76 million employees, in the manufacturing sector in Indonesia excluding petroleum and gas businesses. Large to medium industries hold 38.6% of the total employment in this sector in spite of the fact that the number of establishments accounts for only 0.7% of the total. Small scale industries account for 4.9% of

establishments and 12.6% of employees, and household industries, 94.4% and 48.8%, respectively.

2.1.3 Position of Industries Relevant to the Study in the Manufacturing Sector

Table 2-1-2 shows the position of the industries relevant to the Study, i.e., automotive, electric & electronic, and machinery industries, in the manufacturing sector for larger to medium industries holding 20 employees or more. The automotive industry has grown to occupy 7.4% of the total on a value added basis. The weight of the electric and electronic industry is still low even though its exports have been expanding in recent years. The weight of the machinery industry is also small because it is still undeveloped.

Table 2-1-2 Positions of Relevant Industries in the Manufacturing Sector

	Value Added at Market Price (Million Rp.)		Number of Establishments		Persons Engaged	
Motor vehicles assembly and manufacturing	1,372,973	2.8%	14	0.1%	10,038	0.3%
Motor cycles and three-wheeled motor vehicles assembly and manufacturing	896,777	1.8%	3	0.0%	3,024	0.1%
Manufacture of motor vehicle bodies, component and apparatus	697,448	1.4%	221	1.2%	33,877	1.1%
Manufacture of motor cycle, motorized tricycle component and apparatus	706,614	1.4%	32	0.2%	5,915	0.2%
Automotive Industry Total	3,673,811	7.4%	270	1.5%	52,854	1.6%
Manufacture of radio, TV, cassette, and other communication equipment and apparatus	811,946	1.6%	118	0.6%	57,239	1.8%
Manufacture of electric apparatus and supplies	89,211	0.2%	19	0.1%	5,999	0.2%
Electric and Electronic Industry Total	901,158	1.8%	137	0.8%	63,238	2.0%
Machinery Industry	525,207	1.1%	266	1.5%	36,338	1.1%
Manufacturing Total	49,821,473	100.0%	18,163	100.0%	3,206,228	100.0%

Note: The figures cover large and medium enterprises with 20 employees or more.

Source: *Statistik Industri Besar dan Sedang 1993*, Biro Pusat Statistik

2. PRESENT SITUATION OF THE AUTOMOTIVE INDUSTRY IN INDONESIA

2.1 INDUSTRIAL DEVELOPMENT

Assembly of motor cars was started in Indonesia after the Indonesian government introduced the automotive industry policy which banned imports of CBU in 1974. In addition, the government introduced an automotive local content policy which aimed at the complete localization of commercial cars in the future, and designated automotive parts and components for localization and preferred import duties. According to this policy, certain parts and components were scheduled to be procured locally item by item. Especially in the case of small commercial cars weighing less than 2.5 tons, not only localization of all the press parts but also assembling and machining of main parts and components for engines, transmissions and axles was scheduled. As a result, the local content ratio of many main components such as cylinder blocks, cylinder heads and engine blocks has been increasing mainly by the efforts of assemblers' in-house production.

In the case of motorcycles, imports from Japan started in the 1950's. However, localization of parts and components for motorcycles was regulated by governmental guidance in 1970. Afterwards, assembly of engines was started in 1981 and the government promoted a localization schedule of important engine parts in 1987. As a result, the local content of motorcycles has been increasing steadily.

In June, 1993, however, the Indonesian government changed its automotive industry policy completely and introduced a new policy which consisted of the complete liberalization of

CBU and a decrease in import duties and luxury taxes for parts and components. As a result, imports of CBU became possible just by paying import duties. In addition, the de-regulation movement, reflected in the above-mentioned lowered import duties, has been accelerating the entrance of foreign automotive manufacturers into the market.

2.2 INDUSTRIAL STRUCTURE

The structure of the automotive and motorcycle industries, and other peripheral industries, is briefly summarized as follows.

Indonesian automotive and motorcycle industries (assemblers) manufacture or assemble brands which are owned by principals (automotive or motorcycle manufacturers with worldwide brands) by cooperating with overseas principals in establishing a joint venture company or receiving technical assistance from them. Furthermore, for the purpose of selling assembled motor cars in the domestic market, Indonesian assemblers themselves or their related companies have been appointed as exclusive distributors for the brands. These distributors have their own regional dealer networks and distribute cars and motorcycles through these channels.

On the other hand, assemblers procure parts and components for cars or motorcycles from domestic and/or overseas parts and components manufacturers. Especially, manufacturers located in Indonesia that supply parts and components or materials to the assemblers are referred to as “supporting industries.”

2.2.1 Assemblers and Distributors

(1) Automotive Industry

There are 32 brands of cars which have received permission to be produced as of March,

1996. Of these 32 brands, 20 brands were manufactured and 22 brands including 2 imported brands were sold in Indonesia in 1995.

Table 2-2-1 shows main automotive assemblers and the brands they manufacture.

Table 2-2-1 Main Automotive Assemblers and Brands

	Assemblers	Manufactured brands
1	PT. KRAMA YUDHA RATU MOTOR	MITSUBISHI
2	PT. NATIONAL ASSEMBLERS	HINO
3	PT. KRAMA YUDHA KESUMA MOTOR	MITSUBISHI
4	PT. ALUN	CITROEN, BERLIET, FORD
5	PT. GENERAL MOTOR BUANA IND.	CHEVROLET, OPEL
6	PT. GERMAN MOTOR MFG.	MERCEDES BENZ
7	PT. INDOMOBIL SUZUKI INT.	SUZUKI
8	PT. PROSPECT MOTOR	HONDA
9	PT. PANTJA MOTOR	ISUZU, NISSAN DIESEL
10	PT. PERMORIN	MITSUBISHI
11	PT. UDATIN	HOLDEN
12	PT. TOYOTA ASTRA MOTOR ASS. PLANT	TOYOTA
13	PT. TRIJAYA UNION	MITSUBISHI
14	PT. ISMAC	VOLVO, NISSAN, AMC, MAZDA, JEEP
15	PT. GAYA MOTOR	DAIHATSU, PEUGEOT, ISUZU, MERCEDES BENZ, FORD, FIAT, BMW, UD NISSAN
16	PT. TIMOR PUTRA NUSANTARA	KIA
17	PT. STARS AUTO DINAMIKA	DAEWOO
18	PT. CITRA MOBIL NASIONAL	HYUNDAI
19	PT. CITRA LAMTORO GUNG PERSADA	PROTON

Source: MOIT, GAIKINDO

Table 2-2-2 shows the main automotive distributors and the brands they handle. Assemblers also play the role of distributors in some cases, while in other cases assemblers estab-

lished related companies and appointed them distributors.

Table 2-2-2 Main Automotive Distributors and the Brands Handled

	Distributors	Brands
1	PT. ASTRA DAIHATSU MOTOR	DAIHATSU
2	PT. KRAMA YUDHA TIGA BERLIAN MOTORS	MITSUBISHI
3	PT. INDOMOBIL SUZUKI INT.	SUZUKI
4	PT. TOYOTA ASTRA MOTOR	TOYOTA
5	PT. PROSPECT MOTOR	HONDA
6	PT. INDONESIAN REPUBLIC MOTOR COY.	FORD
7	PT. CENTRAL SOLE AGENCY	VOLVO
8	PT. TJAHJA SAKTI MOTOR CORP.	BMW
9	PT. PANTJA MOTOR	ISUZU
10	PT. UNITED MER MOTOR	UD NISSAN DIESEL
11	PT. DJAKARTA MOTOR COMPANY	JEEP
12	PT. GENERAL MOTOR BUANA IND.	CHEVROLET, OPEL
13	PT. ALUN	CITROEN, BERLIET, FORD
14	PT. FEDERAL MOBIL MUSTIKA	FIAT
15	PT. JAYA MOTOR	LANDROVER
16	PT. MULTI FRANCE MOTOR	PEUGEOT, RENAULT
17	PT. INDAUDA	HOLDEN
18	PT. WAHANA WIRAWAN	NISSAN DATSUN
19	PT. GERMAN MOTOR MFG.	MERCEDES BENZ
20	PT. NATIONAL MOTOR CO.	MAZDA, HINO
21	PT. CITRA MOBIL NASIONAL	HYUNDAI
22	PT. STARSAUTO DINAMIKA	DAEWOO

Source: MOIT, GAIKINDO

(2) Motorcycle Industry

As shown in Table 2-2-3, in the case of the motorcycle industry, five assemblers manufacture five brands. Related companies established by assemblers play the role of distribu-

tors in the case of Honda and Yamaha, while assemblers also function as distributors in the case of the other three assemblers.

Table 2-2-3 Motorcycle Assemblers, Distributors and Their Brands

Assemblers	Distributors	Brands
PT. FEDERAL MOTOR	PT. ASTRA INTERNATIONAL HONDA	HONDA
PT. YAMAHA INDONESIA	PT. YAMAHA MOTOR KENCANA INDONESIA	YAMAHA
PT. INDOMOBIL SUZUKI INTERNATIONAL		SUZUKI
PT. KAWASAKI MOTOR INDONESIA		KAWASAKI
PT. DAN MOTOR VESPA INDONESIA		VESPA

Source: MOIT

2.2.2 Supporting Industries

The supporting industries for the automotive and motorcycle industries consist of parts and components manufacturers and supporting engineering industries. Material suppliers play an important role as the upstream sector to the automotive and motorcycle industries.

Also, parts and components manufacturers can be divided into the first tier manufacturers, and other second and third tier ones. In addition, they are classified into two types: manufacturers which supply the original equipment market and those which supply the spare parts replacement market.

On the other hand, in the case of engines or large press parts, assemblers manufacture by themselves or related companies established by assemblers manufacture, process and/or assemble them in many cases.

2.2.3 Industrial Associations

There are three associations in Indonesia which are related to the automotive and motorcycle industries.

- Association of Indonesian Car Manufacturers (GAIKINDO)
- Association of Motorcycles Sole Agents-Assemblers-Manufacturers Indonesia (PASMI)
- Association of Indonesian Car and Motorcycle Component Manufacturers (GIAMM)

2.3 TREND OF DOMESTIC PRODUCTION

2.3.1 Automotive Industry

(1) Trend of Production by Category

Cars are classified into commercial and passenger cars in Indonesia. Commercial cars are further divided into the following five categories.

Classification of Commercial Cars in Indonesia

Category I: $GVW \leq 5$ tons

Category II: $5 \text{ tons} < GVW \leq 10$ tons

Category III: $10 \text{ tons} < GVW \leq 24$ tons

Category IV: General purpose 4X4 (Jeep)

Category V: $24 \text{ tons} < GVW$

Note: GVW= Gross Vehicle Weight

On the other hand, passenger cars are sometimes classified by volume of engine cylinder (cc), but they are not usually classified precisely in the statistics prepared by the MIOT.

The production volume of motor cars in Indonesia in the above-mentioned categories is shown in Table 2-2-4.

The annual production volume of cars has been increasing rapidly since 1993, though it

decreased from the level of the previous year in 1992. Annual growth rates were 59.6% in 1994 and 19.2% in 1995. Annual growth rates of commercial car production were 64.6% in 1994 and 22.8% in 1995, but those of sedan (passenger car) production were 32.4% in 1994 but dropped to -4.7% in 1995. While the production volume of commercial cars has been increasing steadily, that of passenger cars has not been increasing very much.

Table 2-2-4 Automotive Production Volume by Category

(Unit: Sets)

	1991	1992	1993	1994	1995
Category I	161,093	115,195	131,414	226,426	274,924
Category II	29,829	13,565	21,381	34,182	48,020
Category III	9,953	4,761	7,400	16,185	18,051
Category IV	6,645	9,181	11,561	5,921	6,079
Category V	243	164	250	500	628
Commercial cars	207,763	152,866	172,006	283,114	347,702
Sedans	46,974	29,368	31,582	41,807	39,839
Total	254,737	172,234	203,588	325,021	387,541

Source: GAIKINDO

The percentage of production volume for each category of cars is as follows:

Table 2-2-5 Percentage of Production Volume by Category

Commercial cars	89.7%
Category I	70.9%
Category II	12.4%
Category III	4.7%
Category IV	1.6%
Category V	0.2%
Sedan (Passenger cars)	10.3%
Total	100.0%

Source: GAIKINDO

While the percentage of commercial cars to the total production has been increasing, the percentage of passenger cars has tended to decrease. In 1995, commercial cars occupied about 90% and passenger cars occupied only about 10% of the total production. Of commercial cars, category I occupied 70% of the total production and 79.1% of the commercial car production.

(2) Production Trends by Brand

Table 2-2-6 shows the production volume of cars by brand. Of the 32 brands which have production licenses, the number of brands which were manufactured in 1995 was 20. It is one of the characteristic features that the production volume of Japanese manufacturers' brands such as Toyota, Mitsubishi, Suzuki, Daihatsu and Isuzu is very large. The total production volume of these five brands in 1995 was 349,545 units and occupied more than 90% of the total car production. However, even in the case of Toyota which manufactured the largest number of cars in Indonesia in 1995, the production volume was 101,175 units and did not reach a production level suitable enough to enjoy the merit of mass production. On the other hand, the production volume of brands other than these five brands was very small and the production volume was not more than 10 thousand units. As such, it is a characteristic of the automotive industry in Indonesia that there are many brands manufactured domestically and that the production volume of each brand is very small.

Table 2-2-6 Production volume of Cars by Brand

(Unit: Sets)

	1991	1992	1993	1994	1995
BMW	3,111	1,550	1,474	2,858	2,893
BERLIET, RENAULT	21	2	-	-	-
CHEVROLET	1,182	866	1,131	1,671	3
CITROEN	355	38	66	-	-
DAEWOO	-	-	-	-	100
DAIHATSU	40,625	21,059	29,633	58,862	63,595
FAW	-	-	-	-	-
FIAT	392	65	88	227	-
FORD	2,657	2,067	2,264	3,210	2,675
HINO	2,253	899	2,138	4,520	4,950
HOLDEN	400	218	-	153	-
HONDA	8,590	5,667	6,240	8,640	5,100
HYUNDAI	-	-	-	-	1,175
ISUZU	17,693	20,782	23,406	30,756	41,935
JEEP	3	-	-	1,051	990
KIA	-	-	-	-	-
LANDROVER	-	-	-	-	-
MAZDA	5,169	1,029	3,289	4,440	3,450
MERCEDES BENZ	3,199	2,003	2,514	6,395	8,165
MITSUBISHI	48,012	31,123	40,999	59,567	73,940
NISSAN DATSUN	2,084	1,242	1,030	1,094	2,025
NISSAN DIESEL	1,920	906	1,305	3,864	4,000
OPEL	-	-	-	182	865
PEUGEOT	689	434	343	430	815
PROTON	-	-	-	-	-
RENAULT	4	-	1	-	-
SUZUKI	42,046	32,746	38,294	56,104	68,900
TOYOTA	76,624	51,906	54,808	80,422	101,175
VOLKSWAGEN	-	-	-	-	-
VOLVO	453	195	201	575	790
Total	257,482	174,797	209,224	325,021	387,541

Source: MOIT

2.3.2 Motorcycle Industry

The production volume of the motorcycle industry by brand in Indonesia is shown in Table 2-2-7. Three major brands, Honda, Yamaha and Suzuki, occupy 95% of the total production, and Honda occupies approximately 50% of the total. In addition, Kawasaki, which once retreated from motorcycle production in Indonesia, started production again in 1995.

Table 2-2-7 Production Volume of Motorcycle by Brand

(Unit: Sets)

	1991	1992	1993	1994	1995
HONDA	254,456	264,336	365,096	425,485	520,521
YAMAHA	101,650	122,645	162,900	211,000	261,868
SUZUKI	76,400	86,839	78,054	128,284	211,655
KAWASAKI	-	-	-	-	25,202
VESPA	12,762	14,704	15,035	16,635	23,692
TOTAL	445,268	488,524	621,085	781,404	1,042,938

Source: MOIT

The production volume of motorcycles in Indonesia has been increasing since 1988. Above all, the increase in the production volume since 1993 is remarkable and the production volume rose to over one million units in 1995, up 33.5% from the previous year.

2.4 TREND OF EXPORT AND IMPORT

2.4.1 Export Trends

Table 2-2-8 shows the export volume of cars. The export volume of cars has been increasing year by year, but the share of the export volume to the total production volume was only 1.4% in 1995.

Table 2-2-8 Export Volume of Cars

(Unit: Sets)				
1991	1992	1993	1994	1995
1,729	2,365	3,619	4,711	5,475

Source: GAIKINDO

On the other hand, Table 2-2-9 shows the export value of cars. Though the export volume of cars has been increasing for these five years, the export value has not been increasing very much for the same period, because the value is expressed in US dollars.

Table 2-2-9 Export Value of Cars

(Unit: US\$'000)				
1991	1992	1993	1994	1995
4,441.1	10,094.3	22,548.2	17,996.6	23,722.0

Source: MOIT

2.4.2 Import Trends

Table 2-2-10 shows the import value of cars. The import value decreased from the level of the previous year in 1991 and 1992, but it has tended to increase again since 1993.

Table 2-2-10 Import Value of Cars

(Unit: US\$'000)

1991	1992	1993	1994	1995
64,148.2	61,944.2	57,442.9	57,986.4	74,232.0

Source: MOIT

2.5 TREND OF DOMESTIC MARKET

2.5.1 Automotive Industry

Table 2-2-11 shows the sales volume of cars by category.

Table 2-2-11 Sales Volume of Cars by Category

(Unit: Sets)

	1991	1992	1993	1994	1995
Category I	159,525	108,758	137,592	225,695	270,313
Category II	37,689	16,194	21,582	33,802	46,826
Category III	11,847	4,432	7,416	15,970	16,714
Category IV	6,482	10,130	11,855	5,523	6,263
Category V	23	13	3	551	753
Commercial cars	215,570	139,527	178,448	281,541	340,869
Sedans	45,774	30,006	32,231	40,219	37,835
Total	261,344	169,533	210,679	321,760	378,704

Source: GAIKINDO

In 1995, commercial cars occupied 90% and category I occupied 71.4% of the total sales.

On the contrary, passenger cars occupied only 10%.

2.5.2 Motorcycle Industry

Table 2-2-12 shows the sales volume of motorcycles.

Table 2-2-12 Sales Volume of Motorcycles

(Unit: Sets)

1991	1992	1993	1994	1995
440,179	488,698	623,880	785,204	1,035,598

Source: PASMI

The sales volume of motorcycles has been increasing since 1988 and is predicted to increase in the near future.

2.6 CHARACTERISTICS OF THE AUTOMOTIVE INDUSTRY IN INDONESIA

Characteristics of the Indonesian automotive industry are as follows:

- Production and sales volume of cars and motorcycles has been increasing steadily.
Rapid expansion of the sales volume of cars and motorcycles in Indonesia resulted in a large increase in domestic production. In addition, demand for automotive parts and components has been expanding remarkably and, as a result, the production volume of parts and components has been increasing rapidly. For this reason, assemblers are expecting more and more domestic parts and components suppliers that are supporting industries for the automotive and motorcycle industries in order to achieve further localization of parts and components.
- Market size is still small.
The population of Indonesia is approximately 190 million and it can be said that potential demand for cars and motorcycles might be very large. In fact, many overseas automotive manufacturers including Japanese ones started production in Indonesia mainly at the beginning of 1970's. However, per annum GNP of Indonesia in 1993 was still US\$730 and the number of consumers who have sufficient income to be able to afford cars or motorcycles is very limited. In addition, Indonesia still has some infrastructure problems such as an insufficient road system and this is one of the indirect deterrence factors for possession of cars. As a result, the sales volume of cars in 1995 was 378,704 units. On the other hand, the possession rate of cars in 1991/1992 was 69.8 people per car and still remained at a low level.

- Japanese brands occupy a substantial market share.
Of the licensed 30 brands, 10 brands are Japanese. In addition, five major brands, Toyota, Mitsubishi, Suzuki, Daihatsu and Isuzu, occupy 90% of the total production and sales volume.
- Commercial cars are mainly manufactured and sold in the domestic market.
Commercial cars occupy approximately 90% of the total production and sales volume. As background, the fact that the localization policy targeted mainly at commercial cars had been promoted by the government for a long time has had great influence. While import duties on parts and components for commercial cars remained at relatively lower rates, those for passenger cars were generally higher. As a result, sales prices of commercial cars were relatively cheaper than those of passenger cars and sales of commercial cars have been expanding. On the other hand, the local content ratios of parts and components for commercial cars has been becoming relatively higher, while those for passenger cars has still remained at a relatively lower level.
- Because of higher rates of import duties, the share of imported CBU to the total market is still very low.
- The Indonesian automotive industry is still dependent on overseas principals for technology for manufacturing cars and the supply of important parts and components.
- The present technological level of the Indonesian automotive industry including R&D capability is still insufficient to become independent for the purpose of developing original cars by themselves.

2.7 FUTURE DEVELOPMENT OUTLOOK

Table 2-2-13 shows the prediction of automotive sales volume from 1996 to 2000.

Table 2-2-13 Sales Prediction of Cars

(Unit: Sets)

	1996	1997	1998	1999	2000
Commercial cars	320,000	365,000	400,000	435,000	470,000
Passenger cars	60,000	65,000	70,000	75,000	80,000
Total	380,000	430,000	470,000	510,000	550,000

Source: GAIKINDO

According to this prediction, the sales volume of cars is expected to increase steadily in the near future, though annual growth rates will be decreasing gradually. Also, while the share of commercial cars is more than 90% at present, the share of passenger cars is predicted to increase steadily and will reach nearly 15% in 2000.

There is no similar prediction for motorcycle sales. However, according to the prediction of the PASMI, judging from the rapid increase in sales since 1988, sales volume of motorcycles is expected to increase steadily in the near future and will reach the level of two million units before the year 2000.

3. PRESENT SITUATION OF THE ELECTRICAL AND ELECTRONIC INDUSTRY IN INDONESIA

3.1 INDUSTRIAL DEVELOPMENT

The history of the industrial development of the electrical and electronic industry in Indonesia is broadly divided into two stages: the import substitution development era until the late 1970s, and the export oriented development era after the late 1970s. The import substitution development era corresponded to the latter period of the First Five-year Development Plan era (REPELITA I: 1969/70 to 1973/74) to the Third Five-year Development Plan era (REPELITA III: 1979/80 to 1983/1984). During the period, the Indonesian government took active measures to invite foreign investments in order to replace imported products with domestic products. Then, many foreign electrical and electronic companies from Japan, Korea, the USA and Europe invested in the country. Especially, Japanese large-scale assemblers actively made investments in this era. For example, both Matsushita Electric Industrial Company and Sanyo Electric Company established joint venture companies in 1970. In this way, many joint venture companies were established in Indonesia, and they began the production of a wide range of electrical and electronic products, aiming at the Indonesian domestic market. However, the assemblers of electrical and electronic products imported almost all the parts and components which were used for the assembling of finished products. They rarely used domestic parts because domestic parts manufacturers were lacking in technology, production facilities, and capital, and could not produce reliable parts and components. Most electrical and electronic products were produced by joint venture companies between Indonesian domestic companies and foreign companies, and the development of the domestic electrical and electronic industry lagged far behind.

Thereafter, revenue from oil and gas rapidly increased in middle 1970s, and the government changed its policy from the active introduction of foreign investments to the selective introduction. Subsequently, foreign investments dropped, and only a few investments

were approved after the middle 1970s. In the early 1990s, the government took another policy, by which the export of products other than oil or gas was encouraged so that the country could break away from the heavy dependence of its economy on oil and gas. In line with the policy, various regulations concerning the electrical and electronic industry were relaxed or abolished, and, subsequently, active investments by multinational companies into Indonesia returned. The increase of wages in neighboring countries such as Singapore, Thailand, and Malaysia further encouraged foreign companies which had joint venture companies in these countries, to shift their investments to Indonesia, taking advantage of the relatively cheap labor.

In 1994, the environment surrounding foreign investments again changed substantially, in that investments with a 100% foreign share are now allowed, and, with the introduction of EPT status, qualified companies are exempted from paying import duties and the value-added tax on imported parts and components. As exemplified in these cases, Indonesia has turned to adopt a strong export oriented policy. Up to now, the new Indonesian policy has worked effectively. It has succeeded in inviting many foreign investments into the electrical and electronic industry, and the industry is also turning to a new era of development.

Electrical and electronic products manufactured in the country are gradually changing from conventional labor intensive products to high-value-added products, and the industry has grown to become one of the most important exporting industries in the country, which contributes to securing foreign currency. At the same time, an increasing number of multinational electrical and electronic manufacturers are to expand their production in Indonesia. It is evident that they have changed their policies from selling their products in the Indonesian domestic market to selling the products all over the world, considering that Indonesia is to be seen as the strategic center in which to concentrate production for worldwide sales.

In addition, as foreign electrical and electronic assemblers accelerate investments into Indonesia, foreign parts manufacturers are gradually increasing their investments in the country as well. However, the range of parts and components produced in the country is still very limited, and most major parts and components are imported from countries such as other ASEAN countries and Japan. One of the reasons behind this is that foreign electrical and electronic parts manufacturers have long avoided a large amount of investments into Indonesia because the total demand for parts and components in the country has not been sufficient.

3.2 INDUSTRIAL STRUCTURE

According to information from MOIT, the size of the electrical and electronic industry in Indonesia is small, consisting of 297 companies, including both assemblers and parts manufacturers. The breakdown of the industry is shown in Table 2-3-1. There are 234 assemblers and 63 parts manufacturers in the industry. The relatively small number of parts manufacturers indicates that the electrical and electronic industry in Indonesia heavily depends on imported parts and components.

Although there are a few state owned companies such as P.T. Len Industri in the industry, almost all companies are private companies. Export of electrical and electronic products is mainly done by joint venture companies with foreign multinational companies.

In 1995, the electrical and electronic industry had approximately 100 thousand employees, with production valued at 10.7 trillion Rupiah, and exporting 2,060 billion US dollars worth of goods.

Table 2-3-1 Breakdown of the Indonesian Electrical and Electronic Industry

Category	Number of Companies
Consumer products	78
Industrial products	156
Parts manufacturers	63

Source: Ministry of Industry and Trade

According to the membership directory (1994-1995) of GEI (The Association of Electronic & Electrical Home Appliances Industries of Indonesia), there are 53 membership companies in the association. As of August, 1996, the number of membership companies

increased to 60 as determined by the interview survey by the Study Team. Both domestic companies and foreign affiliated companies participate the association. About one half of the membership companies are foreign affiliated companies. Especially, Japanese affiliated companies account for approximately one third of all foreign affiliated companies, and by far surpass joint venture companies with Korea, the U.S.A., or Germany in terms of the number of companies. In addition, most companies which export their products are foreign affiliated companies.

The geographical distribution of the 53 GEI membership companies is given in Table 2-3-2. About 80% of them are located in JABOTABEK, concentrating in Jakarta. Many membership companies of GEI are large-scale, and most of them have factories in well equipped industrial estates in Jakarta and its outskirts. Four companies are located in Jawa Barat, and 2 companies each are located in Bandung, Jawa Tengah, and Surabaya. Thus, almost all of the companies are located in Jawa island except for 1 company in Medan.

Table 2-3-2 Geographical Distribution of the Electrical and Electronic Industry

Region	Number of Companies
JABOTABEK	42
Jawa Barat (excluding JABOTABEK)	4
Bandung	2
Jawa Tengah	2
Surabaya	2
Medan	1

Source: "GEI Directory 1994 - 1995", The Association of Electronic & Electrical Home Appliances Industries of Indonesia

Corresponding to the recent governmental deregulation policy, the electrical and electronic

industry in Indonesia has kept growing with export oriented companies as leaders. However, the majority of companies which export electrical and electronic product are foreign affiliated. Domestic companies have not developed to the level where they can export products. In addition, foreign affiliated companies depend on import for most parts, because the electrical and electronic parts and components industry in the country is still underdeveloped. As a result, the growth of the electrical and electronic industry in Indonesia has rarely influenced other industries.

Compared with that in other ASEAN countries, the electrical and electronic industry in Indonesia is underdeveloped in terms of production value as well as in the ratio of production value over gross domestic production. In addition, as is different from the case of other ASEAN countries where the export of electrical and electronic products started after domestic demand was fulfilled, the industry in Indonesia has not fulfilled domestic demand.

3.3 TREND OF DOMESTIC PRODUCTION

Table 2-3-3 gives the flow of the domestic production of electrical and electronic products in Indonesia between 1989 and 1995, and is illustrated in Figure 2-3-1. The domestic production of both consumer products and industrial products, which jointly amounted to 1,473 billion Rupiah in 1989, expanded 7.3 fold to 10,686 billion Rupiah in 1995. The average annual increase rate in these 6 years recorded a substantial 39.1%.

The annual increase rate of industrial products is bigger than that of consumer products. Especially, data processing related products increased 24 times in the same period. By item, control equipment which is used by telephone companies, telephones for both commercial and household use, and parabola antennas for satellite telecommunication show very rapid increase. In addition, in line with the rapid growth of the supply of electricity throughout the country, the production of electricity watt meters has shown substantial increase.

It is worth noting that electronic products among consumer products, which include video equipment and audio equipment, showed a big 46.2% annual increase over these 6 years, while electrical products on the whole showed a rather mild 25% annual increase in the same period.

Table 2-3-3 Flow of the Production of Electrical and Electronic Products in Indonesia

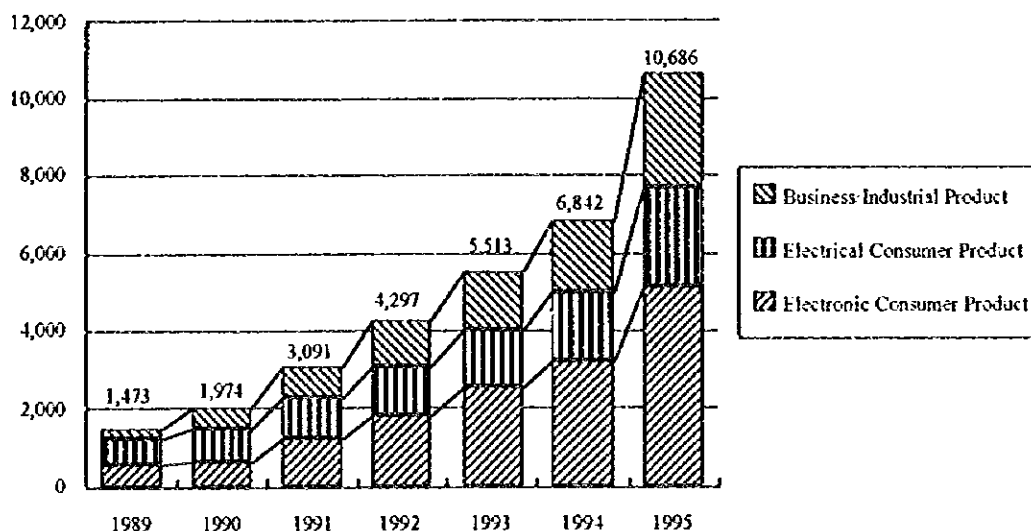
(unit: billion Rp.)

	1989	1990	1991	1992	1993	1994	1995
CONSUMER PRODUCTS	1,215	1,491	2,289	3,060	4,004	5,005	7,735
Electronic Consumer Products	522	650	1,232	1,818	2,550	3,187	5,089
1. Video Equipment	227	324	570	984	1,556	1,945	2,944
2. Audio Equipment	155	202	535	691	726	908	1,580
3. Other Consumer Electronics	139	124	127	144	267	334	566
Electrical Consumer Products	693	841	1,057	1,242	1,455	1,818	2,646
4. Home Appliance Equipment	57	67	81	120	182	227	333
5. Cooler and Heater Equipment	87	110	204	245	286	358	524
6. Lamps	139	186	239	253	264	330	478
7. Batteries & Electric Accumulators	410	478	533	623	723	904	1,310
BUSINESS/INDUSTRIAL PRODUCTS	258	483	803	1,237	1,509	1,837	2,951
1. Telecommunications	156	298	476	622	496	621	900
2. Data Processing	33	82	123	258	363	454	793
3. Office Equipment	1	1	18	37	101	155	245
4. Industrial Equipment	0	1	1	8	37	64	120
5. Medical Equipment	4	1	1	1	1	3	6
6. Optical Equipment	46	65	100	168	319	279	405
7. Other Equipment	19	36	84	143	190	261	482
T O T A L	1,473	1,974	3,091	4,297	5,513	6,842	10,686

Source: "Laporan Kegiatan Direktorat Industri Alat Listrik Elektronika dan Telekomunikasi tahun 1995", Ministry of Industry and Trade

Figure 2-3-1 Flow of the Production of Electrical and Electronic Products in Indonesia

(Unit: billion Rp.)



Source: Table 2-3-3

Table 2-3-4 shows the production flow of video equipment and audio equipment between 1989 and 1993, as compiled by a private research company. During the period, color

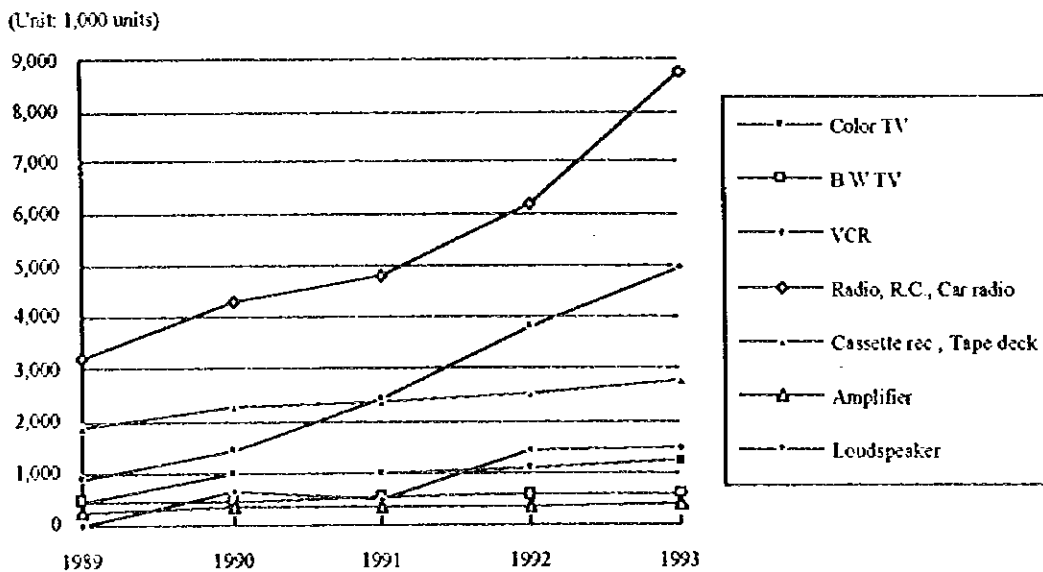
TVs increased 2.9 times to 1,218 thousand units, VCRs, 2.3 times to 1,498 thousand units, and loud speakers, 5.7 times to 4,944 thousand units. Especially, the production of high-value-added products such as color TVs and VCRs showed a high degree of growth. On the other hand, black and white TVs, of which production volume surpassed that of color TVs in 1989, had shown a stable production increase. The production volume of black and white TVs in 1993 stayed just about one half of that of color TVs.

Table 2-3-4 Production Flow of Video and Audio Equipment

	1989	1990	1991	1992	1993
Color TV	420,810	994,890	1,015,200	1,080,000	1,217,800
B/W TV	469,000	480,000	552,000	581,432	620,184
VCR	n.a.	643,800	515,000	1,426,243	1,497,619
Radio, R.C., Car radio	3,209,600	4,287,700	4,820,000	6,202,200	8,768,453
Cassette rec., Tape deck	1,898,284	2,295,000	2,409,750	2,526,620	2,785,346
Amplifier	255,640	319,800	348,580	375,700	406,495
Loudspeaker	870,830	1,453,500	2,424,000	3,824,000	4,944,000

Source: CIC Report

Figure 2-3-2 Production Flow of Video and Audio Equipment



Source: Table 2-3-4

3.4 TREND OF EXPORT AND IMPORT

3.4.1 Export Trends

The export flow of electrical and electronic products which are produced in Indonesia between 1989 and 1995 is shown in Table 2-3-5. The export of electrical and electronic products recorded a big gain, expanding 15 fold during these 7 years. In other words, the total export value of electrical and electronic products, which was 136 million US dollars in 1989, rose to 2,056 million US dollars in 1995. This means the annual increase rate is very large at 57.3%.

By product category, video equipment and audio equipment in consumer products, and all items in industrial products have seen substantially increased exports. By item, VCRs have emerged as the largest export product, accounting for roughly one fourth of the total export value of electrical and electronic products. The fact behind this is that P.T. Kotobuki Electronics Indonesia, which produces VCRs for RCA, GE and some other foreign companies, exports a large amount of VCRs. Other than VCRs, audio products, such as radios, TVs, CD players, microphones, speakers and amplifiers, information processing equipment, telephones, OA equipment, such as facsimile machines, and cassette and video tapes have become major export items of electrical and electronic products.

Electrical and electronic products, which are produced in Indonesia, were exported to about 100 companies throughout the world in 1994. The major importing countries of Indonesian products are the U.S.A., Singapore, Germany, Japan, and the U.K., in order of value. Among them, the U.S.A. and Singapore are by the largest, jointly accounting for 60% of total export of electrical and electronic products from Indonesia.

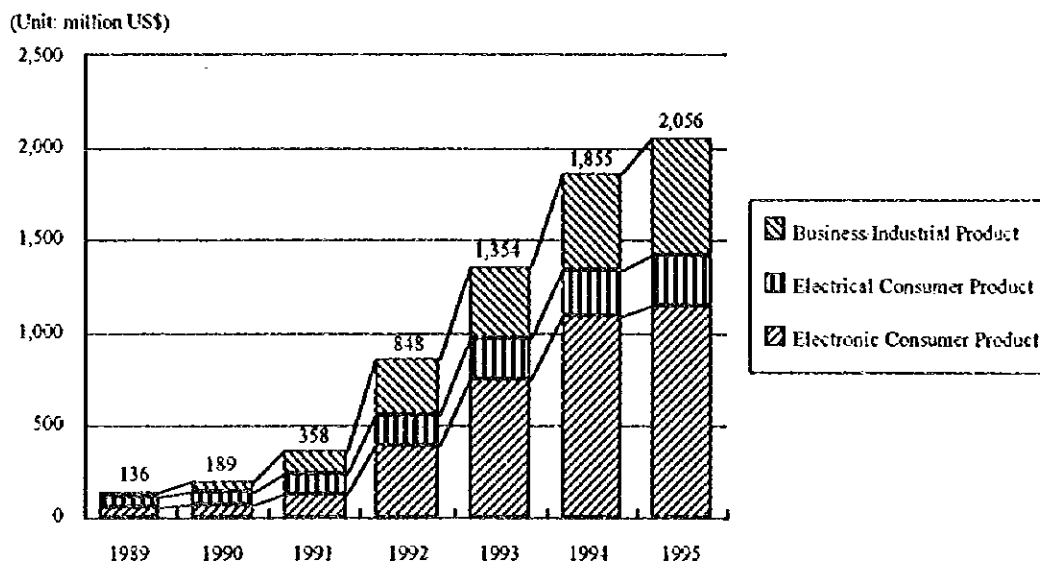
Table 2-3-5 Export Flow of Electrical and Electronic Products from Indonesia

(unit: 1,000 US\$)

	1989	1990	1991	1992	1993	1994	1995
CONSUMER PRODUCTS	108,351	138,532	232,326	544,628	955,442	1,339,658	1,412,976
Electronic Consumer Products	60,181	77,435	122,321	383,488	742,419	1,088,307	1,148,257
1. Video Equipment	792	6,970	14,025	190,151	442,386	690,717	530,750
2. Audio Equipment	20,567	39,728	81,032	163,188	262,394	353,904	544,872
3. Other Consumer Electronics	38,822	30,738	27,264	30,150	37,639	43,687	72,635
Electrical Consumer Products	48,171	61,097	110,005	161,140	213,023	251,351	264,720
1. Home Appliance Equipment	1,563	2,072	3,202	7,149	26,730	29,046	31,568
2. Cooler and Heater Equipment	531	682	2,935	5,202	15,390	17,037	15,323
3. Lamps	8,077	10,146	14,548	26,332	26,329	24,401	26,816
4. Batteries & Electric Accumulators	38,000	48,197	89,320	122,456	144,573	180,867	191,013
BUSINESS/INDUSTRIAL PRODUCTS	27,564	50,014	125,539	303,544	398,907	514,897	642,645
1. Telecommunications	2,035	6,040	31,005	54,790	63,843	85,815	79,958
2. Data Processing	167	374	22,102	105,714	101,966	127,864	219,545
3. Office Equipment	16	134	4,264	13,238	20,881	68,438	81,755
4. Industrial Equipment	32	591	231	863	2,940	26,825	16,014
5. Medical Equipment	140	357	52	32	654	1,364	2,889
6. Optical Equipment	20,058	32,980	49,597	69,299	148,539	112,708	113,776
7. Other Equipment	5,116	9,538	18,287	59,610	60,082	91,884	128,708
T O T A L	135,915	188,545	357,865	848,171	1,354,349	1,854,555	2,055,621

Source: "Laporan Kegiatan Direktorat Industri Alat Listrik Elektronika dan Telekomunikasi tahun 1995", Ministry of Industry and Trade

Figure 2-3-3 Export Flow of Electrical and Electronic Products from Indonesia



Source: Table 2-3-5

3.4.2 Import Trends

Table 2-3-6 shows the import flow of electrical and electronic products between 1989 and 1995. In these 6 years, the import of electrical and electronic products has rapidly expanded at around 13.5% annual increase rate, and reached 1,671 million US dollars in 1995. The degree of increase of electrical and electronic product import is, however, lower, compared with that of export. It is worth noting that exports have been greater than imports in value since 1993. This means that the trade of electrical and electronic products has remained in the black, and the industry contributes to gains in foreign currency for the country.

By product category, in three categories, i.e., electrical consumer products, electronic consumer products, and industrial products, imports about doubled during the 6 years. In terms of value, industrial products accounted for 87.9% of total import value in 1995, and overwhelmed consumer products. Among industrial products, telecommunication equipment, data processing equipment, and industrial equipment are the top three import items, each amounting to more than 100 million US dollars.

Major exporting countries of electrical and electronic products to Indonesia are Japan, the U.S.A., Germany, and France. These top 4 countries jointly occupy approximately 70% of total import.

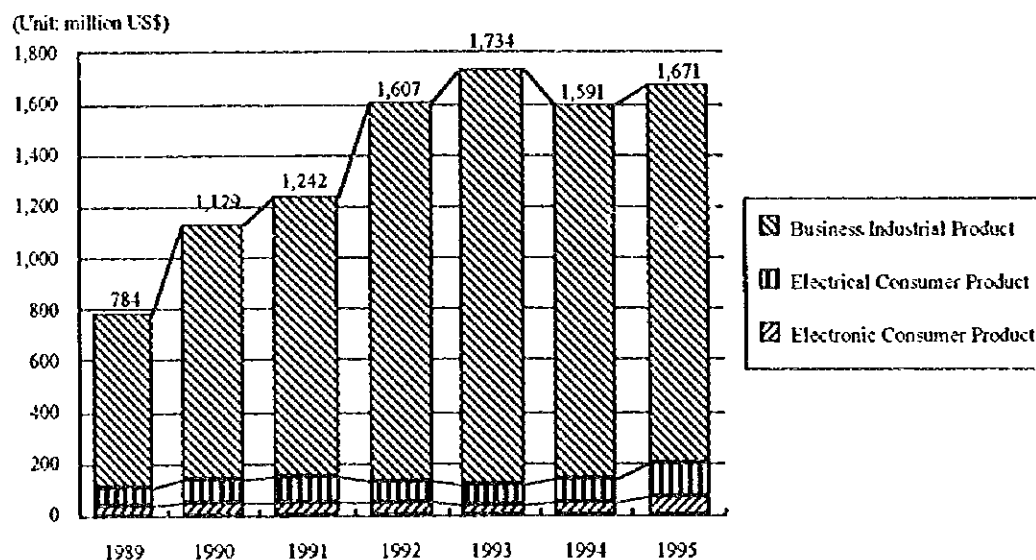
Table 2-3-6 Import Flow of Electrical and Electronic Products to Indonesia

(unit: 1,000 US\$)

	1989	1990	1991	1992	1993	1994	1995
CONSUMER PRODUCTS	107,976	141,268	152,502	132,229	122,216	143,562	202,801
Electronic Consumer Products	43,229	45,659	48,589	50,364	37,848	46,692	73,920
1. Video Equipment	7,348	19,004	13,909	15,309	8,458	13,045	10,622
2. Audio Equipment	26,262	15,303	24,490	26,263	15,109	11,977	35,466
3. Other Consumer Electronics	9,619	11,352	10,190	8,792	14,280	21,670	27,831
Electrical Consumer Products	64,747	95,609	103,913	81,865	84,368	96,871	128,881
1. Home Appliance Equipment	19,296	24,274	42,167	22,119	17,612	25,529	37,086
2. Cooler and Heater Equipment	31,210	51,592	42,319	37,100	33,055	34,290	48,096
3. Lamps	7,719	6,971	9,762	9,624	17,996	22,469	26,369
4. Batteries & Electric Accumulators	6,522	12,773	9,665	13,022	15,705	14,583	17,330
BUSINESS/INDUSTRIAL PRODUCTS	675,803	988,019	1,089,299	1,474,961	1,611,398	1,447,302	1,468,380
1. Telecommunications	170,322	302,066	317,502	502,999	571,856	442,721	492,019
2. Data Processing	108,399	157,106	129,736	108,850	131,179	100,902	113,812
3. Office Equipment	34,297	51,064	48,849	32,964	33,818	31,789	35,241
4. Industrial Equipment	149,529	157,327	192,862	218,913	232,179	240,874	257,301
5. Medical Equipment	19,987	42,408	51,528	46,480	58,378	30,302	30,211
6. Optical Equipment	17,273	30,900	20,164	18,681	26,577	25,040	72,799
7. Other Equipment	175,997	247,149	328,659	546,078	557,411	575,674	466,998
T O T A L	783,780	1,129,288	1,241,801	1,607,193	1,733,614	1,590,864	1,671,181

Source: "Laporan Kegiatan Direktorat Industri Alat Listrik Elektronika dan Telekomunikasi tahun 1995", Ministry of Industry and Trade

Figure 2-3-4 Import Flow of Electrical and Electronic Products to Indonesia



Source: Table 2-3-6

3.5 FUTURE DEVELOPMENT OUTLOOK

Investments in the electrical and electronic industry by foreign assemblers such as the establishment of joint venture companies have receded, but those by foreign parts manufacturers continue stable at a high level. Thus, the cost competitiveness of the electrical and electronic industry in Indonesia will be further reinforced, and it is considered that the export of electrical and electronic products, chiefly consumer products, will maintain an upward trend.

On the other hand, the present diffusion rates of consumer electrical and electronic products in Indonesia are very low as shown in Table 2-3-7. For instance, that of color TVs in 1994 was less than 20%, which is less than one fourth that of Japan. Therefore, domestic demand for TVs, for instance, is considered to keep expanding in the future. In the same way, demands for refrigerators and air-conditioners would keep increasing.

Table 2-3-7 Demand and Diffusion of Major Electrical Appliances

(unit: 1,000 units/year)

		1990	1991	1992	1993	1994
Color TV	Demand	750	800	780	850	1,000
	Diffusion	8%	10%	11%	13%	16%
Radio Cassette Player	Demand	850	830	790	820	850
	Diffusion	14%	15%	17%	19%	21%
Refrigerator	Demand	280	300	340	380	420
	Diffusion	7%	7%	8%	9%	10%
Air-conditioner	Demand	130	140	150	170	190
	Diffusion	1.9%	2.2%	2.5%	2.9%	3.3%

Source: Jakarta Japan Club, 1994