THE STUDY ON SELECTED INDUSTRIAL PRODUCT DEVELOPMENT IN MALAYSIA

FIRST YEAR FINAL REPORT

SEPTEMBER 1988

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In response to the request of the Government of Malaysia, the Government of Japan has decided to conduct a study on selected industrial product development in Malaysia, and entrusted the study to the Japan International Cooperation Agency (JICA). JICA has sent to Malaysia a study team headed by Mr. Heihachiro Aoki, Japan External Trade Organization, from January 31 to March 30, and from May 22 to June 5, 1988.

The team had discussions on the study with the officials concerned of the Government of Malaysia and conducted field surveys in the study-related areas. After the team returned to Japan, further studies were made and the present report has been prepared.

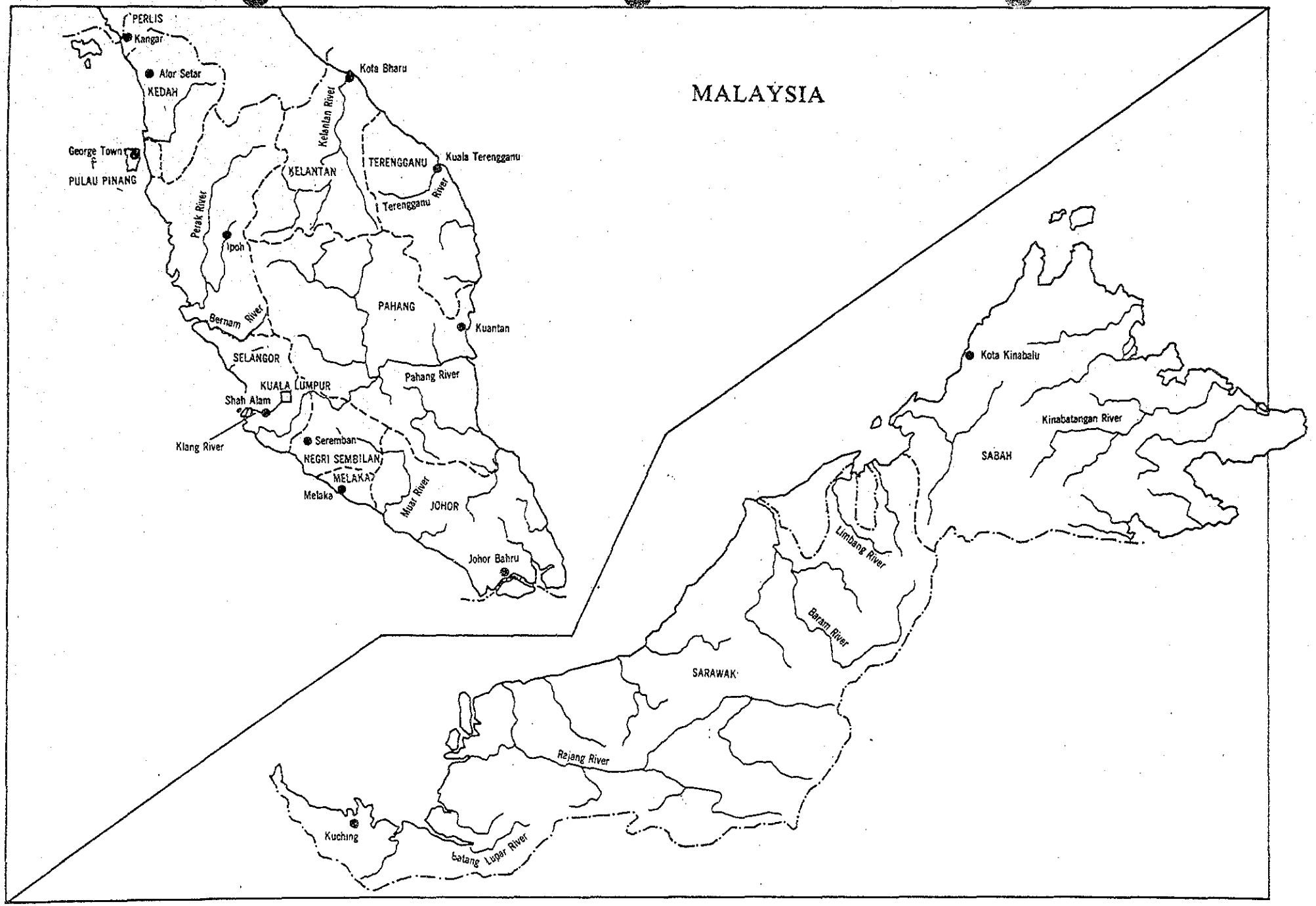
I hope that this report will serve for the development of the selected industrial products and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of Malaysia for their close cooperation extended to the team.

September 1988

Kensuke Yanagiya

Kensuke Yanagiya
President
JAPAN INTERNATIONAL
COOPERATION AGENCY


MALAYSIA
PERLIS
Kangar
Alor Setar
KEDAH
George Town
PULAU PINANG
Kota Bharu
Kelantan River
KELANTAN
TERENGGANU
Kuala Terengganu
Terengganu River
Perak River
Ipoh
Bernam River
PAHANG
Kuantan
SELANGOR
KUALA LUMPUR
Shah Alam
Klang River
Pahang River
Seremban
NEGRI SEMBILAN
MELAKA
Melaka
Muar River
JOHOR
Johor Bahru
Kota Kinabalu
Kinabatangan River
SABAH
Limbang River
Baram River
SARAWAK
Rajang River
Kuching
Batang Lupar River

CONTENTS

ANNEX

LIST OF TABLES AND FIGURES

VI. CHINAWARE

VII. GLASSWARE

ABBREVIATIONS

MIDA	Malaysian Industrial Development Authority
MTI	Ministry of Trade and Industry
EPU	Economic Planning Unit
NEP	New Economic Policy
IMP	Industrial Master Plan
MEXPO	Malaysian Export Trade Centre
CGC	Credit Guarantee Corporation
MIDF	Malaysian Industrial Development Fund
NVTC	National Vocational Training Council
MIDEC	Metal Industry Development Center
SIRIM	Standard and Industrial Research Institute of Malaysia
HRD	Human Resources Development
NIF	New Investment Fund
ECR	Export Credit Refinancing
EPC	Export Promotion Council
FMM	Federation of Malaysian Manufacturers
MECIB	Malaysian Credit Insurance Berhad
MACPMA	Malaysian Automotive Component Parts Manufacturers Association
ICA	Industrial Coordination Act
SEDC	State Economic Development Corporation
SMI	Small and Medium-scale Industry
HICOM	Heavy Industry Corporation of Malaysia
CIAST	Centre for Instructor and Advanced Skill Training
NPC	National Productivity Centre
LMW	Licensed Manufacturing Warehouse
FTZ	Free Trade Zone
MARA	Majlis Amanah Rakyat
ITI	Industrial Training Institute
USM	Universiti Sains Malaysia
ISIS	Institute of Strategic and International Studies

I. INTRODUCTION

I. INTRODUCTION

This is the Final Report of the Study on Selected Industrial Product Development in Malaysia.

This study is based on the Scope of Work for the Study on Selected Industrial Product Development in Malaysia agreed between the government of Malaysia and the Japan International Cooperation Agency on August 1, 1987.

The study was made from the latter half of January 1988 to August of the same year. The field survey was run from January 31 to March 30 and further part from May 22 to June 5.

The study attempted to obtain the current state of the later mentioned four industries, analyze the same, and formulate a comprehensive program for the development of those industries and export promotion.

1. Background and Objective of Study

Many of the Asian countries are still facing severe economic conditions due to the slump in prices of primary products, etc. in recent years, with the attendant decrease in foreign exchange earnings, the burgeoning cumulative debts, etc. For this reason, these countries are striving to build up local companies so as to strengthen their economic structures and to push forward with aggressive programs for incorporation of foreign investment in order to build-up rapidly export-oriented industries contributing to acquisition of foreign currency instead of promoting import-substitution type industries. Japan, in response to requests from these Asian nations, must extend comprehensive and concentrated economic cooperation in all areas to help the development of the export oriented industries of these countries.

Malaysia is currently pushing forward with the promotion of 12 sectors, primarily export-oriented industries of the type using existing resources, in line with the "Industrial Master Plan (IMP) 1986-1995", which was officially announced in January 1986. The Malaysia Export Trade Centre (MEXPO) selected certain key products for export promotion and the IMP is envisaged as the pillar of the economic plan and aims at an annual 8.9% increase in exports of manufactured goods from 1986 to 1995.

Since the G5 conference of the financial heads of 5 advanced nations in September 1985, the yen has been appreciating in value and the U.S. dollar has been depreciating. The currencies of the Asian NIES also are under pressure for reevaluation upward against the U.S. dollar. This has led to a rapid change in the international environment for exports. In particular, in the highly labor-intensive manufacturing fields, Japanese and

NIES companies have been increasingly investing in the ASEAN region in export-oriented industries. Under the Fifth Malaysia Plan, which began in 1986, Malaysia has been striving to enlarge the role of the private sector, achieve greater efficiency in the management of its economy, and promote industrial development. In line with this, it has relaxed its restrictions on foreign investment for export-oriented manufacturing industries and has come out aggressively to promote foreign investment.

The present study on selected industrial product development in Malaysia aims at comprehensive cooperation for the development of strategic export industries. The objective of this study is to survey and analyze the state of selected industries in the Malaysian industrial sector and to formulate a comprehensive program for development of the same for promotion of exports. Further, it seeks to organize information on Japanese firms wishing investments and joint ventures in these industries so as to promote joint ventures and technical tie-ups between Japan and Malaysia.

2. Implementation of Study

In April 1986, the Malaysian government submitted a request to the Japanese government for a "Technical Cooperation Project on Industrial Sector Development." Receiving this, the Japan International Cooperation Agency (JICA) sent a contact mission in September 1986 to deliberate with the Economic Planning Unit, Prime Minister's Department (EPU), the Ministry of Trade and Industry and the Malaysian Industrial Development Authority (MIDA) and reached agreement with them on the basic objectives and content of the technical cooperation in industrial sector development between Japan and Malaysia. Based on this, the JICA sent a short-term expert to MIDA from February to August 1987 to select the target industries, resulting in the selection of the later mentioned industries. JICA then sent the Preliminary Survey Team in August 1987 and signed the Scope of Work including the selected industries with the Malaysian side. Domestic preparatory work for this study began in the latter half of January 1988 and was followed by a field study from January 31 to March 30 and partly from May 22 to June 5. After the field survey, a questionnaire survey and interviews were conducted on related domestic companies and third-country studies were run on the competing countries and export markets for the industries concerned. A comprehensive analysis was then made and this report prepared.

3. Industries Surveyed

The industries to be studied are as follows:

(First Year)

Subsector	Product
Engineering	(a) Moulds and dies
	(b) Automotive metal parts
Non-Metallic products	(c) Chinaware (tableware and decorative ware)
	(d) Glassware (except sheet glass)

The industries surveyed were selected based on the list proposed from the Malaysian side.

As mentioned earlier, the Malaysian government has selected the following 12 industries for priority development in its Industrial Master Plan 1986 - 1995.

(A) Resource-based industries
- [1] Rubber Processing Industry
- [2] Palm Oil Products Industry
- [3] Food Processing Industry
- [4] Wood-based Industries
- [5] Chemicals and Petrochemical Industries
- [6] Nonferrous Metal Products Industry
- [7] Non-Metallic Mineral Products Industry

(B) Non-resource-based Industries
- [1] Electronics and Electrical Industry
- [2] Transport Equipment Industry
- [3] Machinery and Engineering Products Industry
- [4] Ferrous Metal (Iron and Steel) Industry
- [5] Textiles/Apparel Industry

Further, the Malaysian Export Trade Centre (MEXPO) has designated the following as important items for export:

Foodstuffs (including cocoa, seasonings, fruits, and seafood), feed, beverages, tobacco, cement, precious stones, ceramics, glass, furniture, wood products, rattan products, chemical products, fertilizers, pharmaceuticals, oils and fats, textiles, apparel, weaving thread, weaving cloth, carpets, handicrafts, jewelry, electronic and electric

products and parts, musical instruments, machinery, metal products, sports goods, toys, cut flowers, rubber products, plastic products, footwear, leather goods, stationery, and auto accessories.

The Malaysian government, while concentrating on the priority industries and key export items selected by the IMP, MEXPO, etc., has also been considering industries and items covered by a development study in view of trends in actual corporate investment from Japan, the NIES, etc. The 6 sub-sectors and products proposed after the study were as follows:

List of Products Selected for Study under the Development Survey Program

(A) Engineering Sector

1. Precision castings
2. Precision moulds and dies
3. Metal furniture
4. Auto parts
5. Non-motorized two-three wheelers

(B) Non-Metallic Products Sector

1. Ceramic artware and articles of adornment and display
   (e.g. Porcelain figurine and picture frame)
2. Lamps and shades and articles of adornment
3. Glassware

(C) Food Processing Sector

1. Canning of fruits and fruit juices
2. Oleochemicals

(D) Electronics Sector

1. Computers and computer peripherals
   (i) Microcomputer
   (ii) Monitors/Video display unit
   (iii) Printer
   (iv) Keyboard

2. Office Electronic Equipment
   (i) Word processor
   (ii) Photocopying machine
   (iii) Facsimile machine
   (iv) Telex machine
3. Components and supporting services/activities
   (i) Cathode ray tube
   (ii) Stamping and plating of leadframes
   (iii) Manufacture of ceramic packages/substrates
   (iv) Drawing of gold and aluminium bonding wires
4. Telecommunication equipment and parts

(E) Rubber Products Sector
1. Rubber footwear
2. Automotive parts

(F) Timber Products Sector
1. Furniture and fixture (Wooden knockdown furniture and rubberwood furniture)

After further review, the above-mentioned industries were selected for the first year study.

4. Scope of Study

This study surveys the selected industries and formulates a comprehensive program for selected industrial development and for export promotion.

The detailed items surveyed by this study are as follows, based on the Scope of Work agreed on August 1, 1987:

(1) To overview the present situation of the selected industrial products:
   a) Production items and their production, trade and manufacturers; and
   b) Investment, technological partnership, finance, taxation, introduction of foreign capital, etc.

(2) To study the existing status of manufacturing establishments in Malaysia for the selected industrial products. These studies are to cover the following areas:
   a) Manufacturing processes and specifications

b) Technical level (quality control, etc)
c) Product development (designs, etc)
d) Business administration (business management, fund-raising, etc)
e) Sales strategies (market research, marketing, etc)
f) Relation with periphery industries (raw materials equipment, etc).

(3) To study the export markets of the selected industrial products:
a) Supply and demand, and import situations in major importing countries; and
b) Marketability of the selected industrial products in major importing countries.

(4) To recommend policies and measures for the development, technical upgrading and export promotion strategies for the selected industrial products. The areas to be covered are as follows:
a) Systems and policies
b) Technical improvement
c) Product improvement
d) Sales strategies
e) Business administration
f) Manpower development
g) Improvement of infrastructure relating to the selected products.

(5) To undertake cost-analysis studies for the selected industrial products which are to include cost-comparison studies for the production of similar products in Japan.

(6) To undertake a study and survey to ascertain and identify Japanese enterprises for the selected industrial products which are keen to undertake direct investment and/or technical collaboration in Malaysia. The study/survey is to cover the following:
a) Survey on enterprises intending direct investment and technical collaboration
b) List of enterprises.

5. Methodology of Study

This study comprises the field surveys both in Malaysia and in Japan. It was conducted with the aim of formulating a comprehensive program for industrial development and export promotion based on the survey and analysis of the present status of the selected industries. For the surveys in Malaysia, interviews done through direct visits to the companies in selected industries were used as the principal method. In order

to get the maximum results from the short-time visits, a written interview guide and factory visit check lists were prepared (See ANNEX-7 and 8). However, for performing the survey, the in-depth interview survey method basically was adopted in which the interviewees and interviewers exchanged opinions freely.

Because the companies which were covered by direct visits are limited in number, a mailed questionnaire survey and telephone interviews were conducted in Malaysia. Because of the necessity for tabulation, mailed questionnaires were also sent to the companies visited for interviews. The questionnaire which was used is attached in ANNEX-3, and the results are tabulated and shown in ANNEX-5. Telephone interview surveys were conducted for the purpose of checking the level of knowledge concerning existing incentive systems for each industry in Malaysia and the incentive usage. These results are tabulated and shown in ANNEX-6.

Table I.5-1 Breakdown of Firms Surveyed in Malaysia

	No. of firms estimated	No. of firms interviewed	No. of firms which received questionnaires	No. of firms covered by telephone interview
Moulds & Dies	60	26	44 (9)	3
Automotive Metal Parts	57	19	25 (10)	9
Chinaware	50	12	7 (1)	3
Glassware	8	5	4 (2)	3

Note: Figures in parentheses indicate the number of respondents.

For the domestic survey, a questionnaire survey in addition to a written survey, etc., was used for the purpose of exploring the possibility of technical cooperation particularly with Japanese enterprises.

A questionnaire was sent to each of 1,097 Japanese companies in four industrial groups and replies from 217 companies were received. The industrial classification of the target companies is as shown in Table I.5-2. Moreover, additional information was collected concerning necessary items by the direct interviews and by telephone interviews.

Table I.5-2 Breakdown of Firms Surveyed in Japan

	Questionnaires sent	Respondents	Response ratio (%)
Moulds & Dies	671	95	14.2
Automotive Metal Parts	206	78	37.9
Chinaware	175	38	21.7
Glassware	45	6	13.3
TOTAL	1,097	217	19.8

For the purpose of identifying the targeted industrial export market for Malaysia and the present status in competing countries, a survey plan was drawn up for the third countries survey in addition to a survey in Japan, and it was carried out by using the services of specialized research agencies in the related countries. The name of countries and regions in which the survey was taken through the overseas specialized research agencies are as shown in Table I.5-3.

Table I.5-3 Countries and Regions Covered by the Market Analysis in the Third Countries

Moulds & Dies	Automotive Metal Parts	Chinaware	Glassware
Korea	U.S.A.	U.S.A.	Thailand
Hong Kong	Korea	Thailand	
Singapore		Indonesia	

By compiling the information thus obtained, the present condition of the selected industries, the condition of the export market, the conditions in competing countries, and the existing political and institutional systems were analyzed. And, the problem areas in the industrial development and export promotion in these industries were pinpointed out and promotion programs were drawn up.

The work process is as indicated in Fig. I.5-1 and the Process of Formulation of Comprehensive Industrial Promotion Programs are as shown in Fig. I.5-2.

Fig.I.5-1 Flow of Survey Work

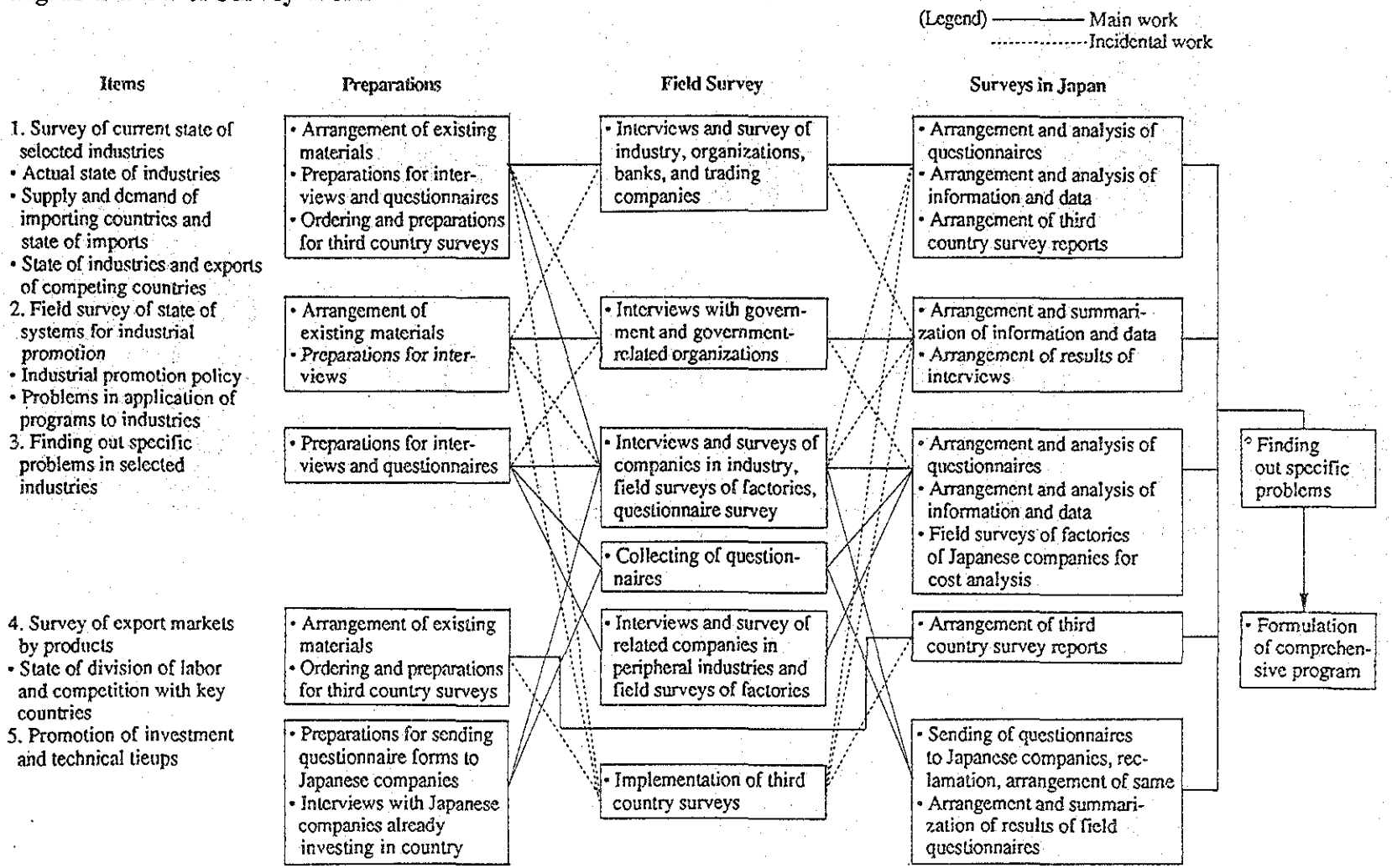
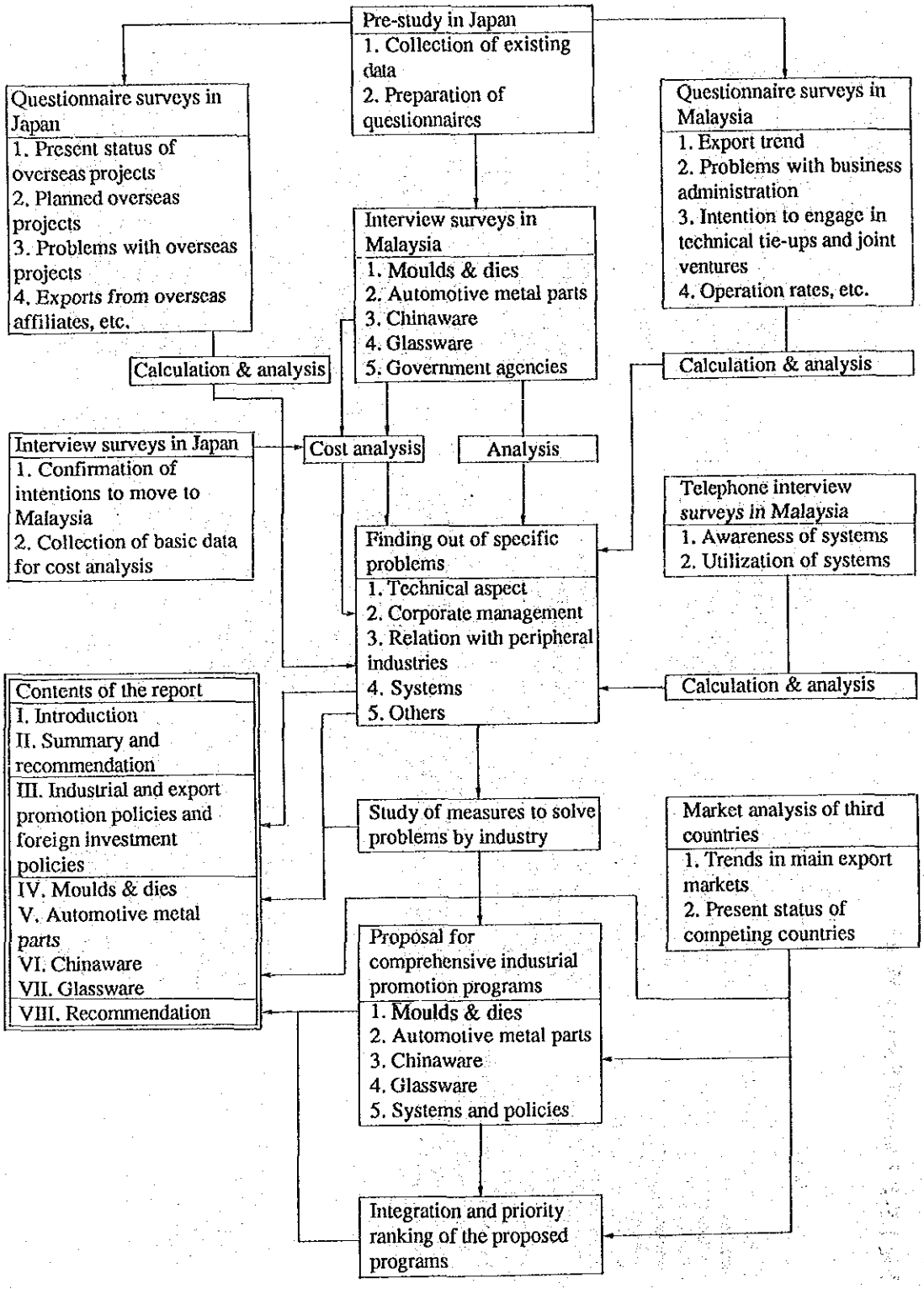


Fig. I.5-2 Process of Formulation of Comprehensive Industrial Promotion Programs



The JICA Industrial Product Development Study Team was organized by the members listed below

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	Japan External Trade Organization (JETRO)
Sumihito HIRAI	Development Economist/Industrial Policy
	Japan External Trade Organization (JETRO)
Junko SEKIGUCHI	Economist/Export Promotion
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	Japan External Trade Organization (JETRO)
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	Japan External Trade Organization (JETRO)
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	The Sumitomo Business Consulting Co., Ltd.
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	Mazda Auto Corporation
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Hiroteru HAMANO	Industrial Engineer/Glassware
	Shin Nippon Glass Co., Ltd.

II. SUMMARY AND RECOMMENDATION

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1. State of Industrialization

Malaysia established its Pioneer Investment Ordinance in 1958, soon after its independence in 1957, so as to start to build up industries to cut down on imports. This program of promotion continued through the subsequent First Malaysia Plan of 1966 to 1970, the Second, Third, and Fourth Malaysia Plans, and the current Fifth Plan. During this time, Malaysia introduced its New Economic Policy, in 1970, aimed at eradicating poverty and achieving equal distribution of income among its component racial groups. This was designated as a fundamental guideline in economic policies up to the year 1990.

In the 1970s, good performance in exports of primary products and the start of exports of crude oil, among other factors, enabled Malaysia to sustain high economic growth and led to progress in the 1970s in elimination of imports of light industrial goods, such as wood and rubber products, i.e., the "easy" or "first phase" of import-substitution industrialization.

In the 1980s, Malaysia entered the second phase of import-substitution industrialization and took up the task of industrialization in the heavy machinery and chemical fields. Toward this end, it established HICOM, the Heavy Industry Corporation of Malaysia, in 1981 and pushed forward with the Proton Saga Project, etc.

In the 1980s, however, the prices of crude oil and primary products plummeted, resulting in stagnation in exports. Further, fiscal expenditures for promotion of industrialization in the heavy machinery and chemical sectors increased. On top of this, cumulative foreign debts rose.

To deal with this situation, the Malaysian government came out with an aggressive export promotion policy and, in October 1986, announced a new foreign investment policy under which it showed a positive stance toward new foreign investment. Further, in February 1986, it released its Industrial Master Plan setting forth the direction for industrialization policies from 1986 to 1995 and announced policies for industrialization in export-oriented sectors and development plans for strategic industries. The IMP is an "indicative plan" by nature, but holds the important position of a "pillar" of the industrial policies of the Malaysian government, and indicates the future directions Malaysia will take. The IMP is a special type of industrialization plan calling for the public and private sectors to support each other in the industrialization process. Revisions are being made in it along with the state of progress. In March 1988, the Malaysian government released an Sectoral Task Force Annual Report (1986 to 1987) detailing the progress made in the IMP.

The basic industrialization strategies under the IMP are as follows:

(1) Outward looking industrialization
(2) Promotion of heavy industry
(3) Support to manufacturing operations of small- and medium-scale industries (SMIs) and promotion of ancillary industries

The Malaysian economy is structurally weak in that it lacks linkages between the large corporations, which are primarily foreign capital operations, and the local SMIs. Therefore, the government has felt the need for promotion of local SMIs and promotion of supporting industries to back up the large corporations. It is currently searching for specific promotional measures toward this end.

Industrialization Policies of Malaysia

	Industrial policies	Trends in industrial related policies	Foreign investment policies	National economic plans
1958	• Diversification of primary products • Import substitution industrialization (primary light industries	Enforcement of Pioneer Industries Ordinance		
1965		Amendment of Pioneer Industries Ordinance		1st Malaysia Plan (1966 to 1970)
1967		Establishment of FIDA	Positive introduction	
1968	Introdution of export-oriented industrialization	Investment Incentive Act (enforced 1971)		
1969				
1970	Stress on fiscal guidance type industrialization	Increase of Non Financial Public Enterprises	Limitation on foreign equity ratio (to ensure ratio of Bumi capital) and, simultaneously, separate treatment for expon-oriented investment (due to pressing need for industrialization)	2nd Malaysia Plan (1971 to 1975)
1972	Creation of FTZ	"New Economic Policy" (NEP, 1971 to 1990)		
1975		"Industrial Coordination Act"		
1976				3rd Malaysia Plan *(1976 to 1980)*
1981	• Heavy industrialization (secondary import substitution), medium level technology, capital intensive	Establishment of HICOM, start of heavy industrialization project for steelmaking, petrochamicals, and automobiles	Indication of clear rates of local content in auto parts	4th Malaysia Plan (1981 to 1985)
1982	• Resource processed export type industrialization	Start of debt management Privatization of Non Financial Public Enterprises		
1983	Emphasis on consumer life			
1985		Amendment of "Industrial Coordination Act"	Loosening of obligation to obtain manufacturing license	
1986	Stronger export orientation	"Promotion of Investment Act 86"	Positive introduction, loosening of restrictions	5th Malaysia Plan (1986 to 1990) Announcement of Industrial Master Plan (1986 to 1995)

Source: JETRO Sensor, November 1987

2. State of Industrial Promotion Policies

(1) Export Promotion

At the present time, Malaysia is basing its industrial policy on its IMP. The current Fifth Malaysia Plan was also formulated along the lines of the IMP. The IMP stresses most of all promotion of exports, and it is in this area that the Malaysian government is expending much of its effort. The Ministry of Trade and Industry, the Malaysian Export Trade Centre, and other organizations have been engaged in diverse activities including the dissemination of information on overseas markets, participation in exhibitions, registration of exporters, and sponsoring of seminars. Incentives are also being provided for export promotion and preferential measures established for exports.

Further, Malaysia established the Export Promotion Council, headed by the Secretary-General of the Ministry of Trade and Industry, in 1985. This council plays an important role as a forum for the exchange of opinions on and study of recommendations on export promotion among government officials.

(2) Promotion of Direct Foreign Investment

Since the Investment Incentive Act was established in 1968, Malaysia has welcomed investment in export industries. Particularly in recent years, it has found a rising need for export-oriented industrialization and thus has more relaxed restrictions on investment and offered new incentives. The new foreign investment incentives announced in October of 1986 ease the application of restrictions on foreign investment in accordance with the export ratio of the products and the number of workers employed, enlarge the framework of employment of foreign nationals in accordance with the paid-up capital, and extend the period of the exemption on income tax for pioneer industries from the old 5 years to a maximum 10 years. Further, the licensing obligations under the Industrial Coordination Act were eased in December 1985 and further eased in October 1986 in order to make acquisition of licenses unnecessary for companies with capitals of less than M$2.5 million and fewer than 75 permanent employees.

Due in part to the easing of these restrictions, the value of approved foreign investment projects soared in 1987. In particular, the investment from Japan shot up, supported by the yen appreciation.

The Malaysian Industrial Development Authority (MIDA) plays an important role as the organization for promoting investment in Malaysia.

Looking at the state of the infrastructure, Malaysia has 101 industrial estates throughout the country. These industrial estates are managed by the State Economic Development Corporation (SEDC).

Further, Malaysia has 8 free trade zones (FTZs) for promotion of exports and has licensed manufacturing warehouses throughout the country.

(3) SMI Promotion Policies

The Malaysian economy suffers from the problem of weak supporting industries. The issue at hand is how to promote their development in the future. The Malaysian government has shown a positive stance toward the promotion of supporting industries and the promotion of SMIs enterprises, which form the backbone of these supporting industries. There are now some 9 ministries and 30 organizations involved in some way in the promotion of small and medium enterprises in Malaysia. From the standpoint of administrative efficiency, Malaysia should study the establishment of a central body corresponding to Japan's Small and Medium Enterprise Agency and more focused, one-dimensional measures.

The current incentives (investment incentives, export incentives, etc.) do not differentiate according to the the size of companies and apply equally to large and small firms alike. In financing, however, the SMIs naturally have less financial ability compared with the large corporations, so that in practice, the majority of the financial incentives are used by the large firms. It may be necessary to study some form of special incentives limited to just SMIs.

(4) Human Resource Development

Economic development is supported by human resources. This development of the same is being performed by the Ministry of Labor, Majlis Amanah Rakyat (MARA), the Ministry of Education, and the Ministry of Youth and Sports, among others. The Government has approved the establishment of a National Vocational Training Council (NVTC) based on the recommendation of the IMP so as to coordinate the labor training activities previously handled diversely by various organizations. Vocational training is also considered necessary to raise the quality of workers to meet with the needs of industry. For example, in moulds and dies, the industry has been seeking the establishment of a system to supply skilled engineers with higher level abilities. In response, MARA and the Industrial Training Institute of the Ministry of Labor are considering the start of a higher level mould and die training course.

Further, the Ministry of Labor introduced a system for double income deductions for costs of training, starting 1987, to promote in-house training programs.

Managerial training is being offered by the National Productivity Center through seminars and the like to raise levels of awareness.

(5) Scientific and Technical Promotion Policies

At the foundation of industrial promotion may be said to be strengthened abilities to absorb technology and promotion of technical transfers. The importance of scientific and technical promotion was recognized in the IMP. In particular, emphasis was placed upon the role of the government, taking cue from the experiences of Japan and South Korea. The government has established an internal Coordinating Council for Industrial Technology Transfer (CCITT) to move toward implementation of the IMP recommendations. In October 1987, the CCITT established under it a special committee for formulating a comprehensive and technical promotion policy. This committee is to complete its final report by March 1989 and submit the same to the Malaysian government.

The Standard and Industrial Research Institute of Malaysia (SIRIM) plays an important role as the government's implementing organization for promotion of science and technology. In SIRIM is MIDEC for molds and dies and the Ceramic Department for ceramics.

(6) Financial System

In terms of financial incentives, Malaysia offers institutional financing through its development banks (Malaysian Industrial Development Finance, Development Bank of Malaysia, and two other main banks) and a loan guarantee system for SMIs under the Credit Guarantee Corporation. However, the recent business slump and high interest rates and the insufficient collateral of the SMIs have resulted in slow use of the CGC. The New Investment Fund, which was started in 1985 to provide low interest loans to fund capital investment in industry will be terminated upon full utilization of its allocated funds totalling M$1.7 billion. This was done at a time when the rate of use by private manufacturing enterprises was rising. This fact alone has led to calls from the private sector for the restoration of this type of system. The Bank Negara, however, came out with a statement at the end of March 1988 asserting that it was not considering resurrection of the NIF.

One of the measures taken by Japan to divest itself of its trade surplus was the establishment of the ASEAN Japan Development Fund (AJDF), worth a total US$2 billion. The portion earmarked for Malaysia is reportedly to be administered to private businesses through the MIDF and 3 other development banks.

3. State of Export Promotion Policies

Malaysia began promoting exports with the establishment of the 1968 Investment Incentive Act. Under the act, pioneer status given to import-substitution type industries under the 1958 Pioneer Industries Ordinance was extended to cover export-oriented industries and preferential tax treatment was given without distinction as to whether the industries were founded by foreign or domestic capital.

In 1970, the Free Trade Zone (FTZ) Act was established. Based on this act, Malaysia set up FTZs in different parts of the country starting in 1972. Companies which export 80% of their production are allowed to locate in the FTZs. In these zones, no duties are assessed on the raw materials, intermediate goods, and machinery used for production. Further, the introduction of the licensed manufacturing warehouse (LMW) system enabled companies approved as LMWs to receive the same benefits as companies in the FTZs even in non-FTZ areas.

After the introduction of this system, there was active investment in Malaysia by foreign capital, primarily in textiles and electronics. Simultaneously, there was a surge in exports of Malaysian goods.

A comparison of 1970 with 1975 shows that the share of manufactured goods in total exports rose considerably from 10.5% to 21.3%. Further, the share of textiles in the exports of manufactured goods rose from 6.5% to 11.0%, and the share of electrical and electronic equipment from 2.8% to 15.4%.

However, since the FTZs and LMWs depend on imports from parent companies for the major part of their materials and intermediates, there was a decisive lack of linkage with the indigenous economy. This problem remains today.

In the mid-term review of the Fourth Malaysia Plan announced in 1984, greater stress than ever was placed on promotion of increased exports of manufactured goods. At the same time, mention was made, in regard to the manufacturing industries, of (1) infusion of maximum private sector activity, (2) stronger linkage between the FTZ industries and the indigenous economy, and (3) stimulation of resource-based industries. The directions laid down there were further clarified through the Fifth Malaysia Plan (1986 to 1990) and the IMP (1986 to 1995).

In the IMP, stress was placed on more "outward-oriented" industrialization and on stronger export competition. Reforms of the export-promotion policies were proposed, such as introduction of competition and increased access to input goods on a free trade basis.

Since 1986, Malaysia has been making improvements on its export-promotion policies. Many of the privileges actually offered were originally proposed by the IMP.

The current export incentives may be classified into 1. financial (tax) measures, 2. export financing, and 3. measures for acquisition of raw materials.

(1) Financial (tax) measures: There is the system of abatement of adjusted income for exports which allows for companies to reduce their adjusted income by 50% of their export sales, the export deductions for traders which allows deductions of 5% of export income, and the double deductions of export credit insurance premiums and specific expenses incurred for developing export markets.

(2) Export financing: There is the system of export credit refinancing (ECR) for supplying funds, at preferential interest rates, to export companies (current 4% a year). The system has been revised several times since 1985 to extend the scope of coverage of loans from just the direct exporters to indirect exporters, to increase of ceiling on financing, etc. so as to promote its use.

The system is still under review. To ease the severity of the loan conditions (overemphasis on collateral) of the commercial bank, one of the reasons for the lack of active use of the system, consideration is being made of using the Malaysian Export Credit Insurance Berhad (MECIB).

(3) Measures for acquisition of raw materials: There is the system for drawback of customs duties, whereby the entire amount of the tariffs which are applied to raw materials and intermediate goods used for production of export goods is subject to rebate. Complaints have been leveled against the system that [1] it takes too much time from application to drawback and [2] the application procedures are too difficult, but effort is being made to improve the situation. With current procedures, payment is made within 21 days of the application.

Further, companies exporting over 80% of their production may locate in the FTZs or receive designation as LMWs in order to receive comparatively easily exemption from tariffs.

Malaysia established the Malaysian Export Trade Center (MEXPO) as a unit of the International Trade Division of the Ministry of Trade and Industry.

MEXPO [1] handles trade inquiries, [2] participates in exhibitions and dispatches and assists mission, [3] offers consulting services, [4] supplies information, and [5]

holds seminars, through which services it facilitates access by Malaysian companies to overseas markets, improves products, trains domestic entrepreneurs, etc.

Along with the rise in exports by Malaysia, the Export Promotion Council was established in 1985. This provides assistance in drafting policies on export promotion. It has members drawn from government agencies and organizations and serves as a forum for positive dialogues between the public and private sector. Opinions here are fed back in some form or another and have gained a favorable reputation inside the MTI as well.

The MTI has further sponsored an export achievement award system since 1987. These MTI sponsored awards are presented once a year to companies that have demonstrated outstanding export successes.

4. State of Foreign Investment Policies

Since Malaysia's independence, the government has shown a consistent stance of welcoming foreign investment. In particular, since the establishment of the 1968 Investment Incentive Act, the government has offered various incentives to export-oriented companies in an attempt to promote such investment.

The basic framework of the foreign investment policy is given by the New Economic Policy (NEP, 1971 to 1990), which aims at uniting the various racial groups of Malaysia into a single nation and at eliminating the economic gap among the racial groups and eradicating poverty. The NEP has as its goal the reconstruction of domestic capital to a ratio of 30% Bumiputra, 40% non-Bumiputra, and 30% foreign investment by 1990. This has become a basic guideline for equity ratios in foreign investments. However, the government has adopted a considerably flexible stance in regulating equity ratios, taking into consideration the export ratios, technical levels, and scale of investments. In particular, it allows up to 100% foreign ownership for companies with export ratios over 80%.

Further, companies engaged in manufacturing activities in Malaysia are obliged to obtain manufacturing licenses under the provisions of the 1975 Industrial Coordination Act (ICA), but the government currently considers companies with shareholders' capitals of less than M$2.5 million and fewer than 75 permanent employees to be exempt from this and allows them complete freedom from all restrictions, including equity ratios.

The year 1986 was an epoch-making one in terms of the foreign investment policies of Malaysia. First, the Promotion of Investment Act of 1986 was enacted to take the place of the 1968 Investment Incentive Act. The main incentives for investments were established by this law and the 1967 Income Tax Law.

The 1986 Promotion of Investment Act has as its main objectives (1) creation of employment opportunities, (2) promotion of exports, (3) regional development, (4) active use of domestic resources, and (5) development of technology and human resources. It was basically the same as the 1968 Investment Incentive Act.

However, the investment environment of Malaysia has been rapidly improved institutionally since 1986 with the relaxation of restrictions on foreign equity and employment of foreign nationals, expansion of investment incentives, and speeding-up of investment processing.

The attached table shows in brief the investment incentives of Malaysia for the manufacturing industries.

The investment-incentive system is based on various tax abatements. Companies in Malaysia are assessed a 40% corporate tax and 5% development tax. In the past, there was an additional excess profits tax of 3%, but this was abolished from the 1988 fiscal year.

The Malaysian Industrial Development Authority (MIDA) is the central organization for investment promotion. MIDA is in charge of authorization of manufacturing licenses and examination of eligibility for incentives and is therefore the organization which investors first contact.

MIDA has 9 local offices and 12 overseas offices. It holds seminars, supplies investment related information, and engages in other promotional activities for foreign investment. It also acts as overall coordinator for the promotion of domestic industrial estates.

The State Economic Development Corporations (SEDC) are engaged in actual development and management of industrial estates. Activities are slightly different in each state. Some states are working to promote indigenous small- and medium-sized industries and are participating in various projects.

Main Incentive Systems for Manufacturing Industries

General incentives	(1) Pioneer status, 5-year exemption from corporate tax with a possible 5 year extension on a case-by-case basis	
	(2) Investment Tax Allowance (ITA) in respect of qualifying capital expenditure incurred within five years from the date of approval of the project.	Export ratio, maximum 30% deduction Added value ratio, maximum 20% deduction Local content rate, maximum 20% deduction No. of employees, maximum 15% deduction Site location, maximum 15% deduction
Special income deduction system	(3) 5 percent deduction of adjusted income for companies located in regions designated for promotion	
	(4) 5 percent deduction of adjusted income for SMIs	
	(5) 5 percent deduction of adjusted income for companies complying with new economic policies	
	(6) Accelerated deceleration system, initial 20% and annual 40%	
	(7) Reinvestment deduction system, 25%	
Export incentives	(1) Export Credit Refinancing	
	(2) Abatement of adjusted income from exports	For value of export sales, 50% For usage of domestic materials, 5%
	(3) Deduction of 5 percent of exports for trading companies	
	(4) Double deduction of export credit insurance premiums	
	(5) Double deduction for export promotion	
	(6) Industrial Building Allowance system	
Incentives for R&D	(1) Deductions for research expenses	
	(2) Deductions for research buildings, initial 10% and annual 2%	
	(3) Deductions for research plants and machinery	
Incentives for training	(1) Deductions for training buildings, initial 10% and annual 2%	
	(2) Deductions for expenses for training	

5. State of Application of Industrial Promotion Policies in Selected Industries

(1) Questionnaire Survey

A questionnaire survey was run to obtain information of the state of application of the government's industrial promotion policies and the problems thereof(See ANNEX-5). The number of questionnaires sent out and the number recovered are as shown below:

Industry	No. sent out	No. recovered	Recovery rate (%)
Moulds and dies	44	9	20.5
Auto parts	25	10	40
Chinaware	7	1	14.3
Glassware	4	2	50

1) Moulds and Dies

The 9 companies which returned the questionnaire were all typical SMIs in view of the number of employees and capital. Of these, 4 are exporting, but only one company used the export credit refinancing (ECR).

Most of the companies mentioned as problems import duties for raw materials and parts and shortages of skilled labor.

Most of the companies expressed a desire for joint ventures or technical tie-ups.

2) Automotive Metal Parts

The 10 companies which returned the questionnaire included 5 which were established from 1976 to 1980 and 4 established since 1981, i.e., were mostly new ones, reflecting the process of development of the Malaysian automobile industry. Further, 6 of them had capitals of over M$2.5 million and 6 over 50 employees, i.e., most were large-scale manufacturers.

7 of the companies were exporting. Of these, 3 companies were making use of export incentives such as the abatement of adjusted income, the ECR, and the IBA (industrial building allowance).

7 of the companies were procuring raw materials from overseas. Of these, 4 responded that the import duties for the raw materials were too high. Other problems

mentioned were the stagnation of the domestic demand (7 companies), competition with other companies in the industry (5 companies), lack of experience in in-house training (4 companies), and insufficient collateral for financing (3 companies).

There were 3 companies desiring joint ventures and 4 desiring technical tie-ups.

3) Chinaware

Response was received from only 1 company. That firm was not making use of export incentives. It expressed a desire for joint ventures or technical tie-ups.

4) Glassware

There were few local companies to start with, but responses were received from the 2 of the 4 companies to which questionnaires were sent. The 2 firms belonged to large corporations and one was a Japanese-affiliate. Both of the companies were making use of export incentives.

(2) Telephone Interviews

To investigate to what degree local companies were aware of the incentive systems of the Malaysian government, telephone interviews were run in Malaysia in the middle of March 1988 covering auto parts (9 companies), moulds and dies (3 companies), glassware (3 companies), and ceramic ware (3 companies), for a total of 18 companies. (See ANNEX-6)

1) The export incentives the companies responded they knew about were the ECR (15 companies) and the double deduction of export promotion costs (12 companies), comparatively high rates. Actual use was being made of the drawback of customs duties (6 companies) and the ECR (4 companies). This indicated that there were companies which knew of the systems themselves, but were not using them, which is an entirely different matter.

2) In financing, the companies indicated that they knew of the Malaysian Industrial Development Finance (MIDF) (18 companies) and the New Investment Fund (NIF) (17 companies) and the like, indicating considerable knowledge was prevalent about the same. On the other hand, only 5 companies, very few, indicated they knew of the Malaysian Export Credit Insurance Berhad. As to usage, 6 companies indicated they were using the MIDF and 3 the NIF, also low levels. No companies were using the MECIB.

3) The institutional incentives known about were the investment tax deductions (15 companies), the tax holidays (12 companies), and the accelerated depreciation (12 companies), these thus being relatively well known. However, only about 4 to 6 firms were using each.

4) As for government institutions, the companies knew the names of SIRIM (18 companies), the State Economic Development Corporation (SEDC) (18 companies), and the National Productivity Centre (15 companies). 8 companies were using SIRIM, 7 SEDEC, and 6 MEXPO.

5) Regarding membership in industrial organizations, there were 14 firms participating in the Federation of Malaysian Manufacturers. The companies cited the acquisition of information as the reason for joining. In this respect, the FMM and other related organizations are considered to be playing an important role as media for information dissemination.

6. Moulds and Dies

(1) Production, Exports and Imports

The production volume or value of moulds and dies in Malaysia has to be estimated because there are no production statistics. The production of M$20 million in 1985 is estimated to have increased to M$40–50 million in 1987 owing to increased demand arising from the economic recovery (estimated by firms surveyed). It is expected that production will increase 30% annually in 1988 and 1989.

Malaysian exports in 1987 amounted to M$25.49 million, up 2.4 times from the previous year. The export countries are Singapore (53%), Thailand (14%), India (7%) and Japan (5%).

Malaysian imports in 1987 totaled M$105.68 million, up 31% from the previous year. The main import countries are Japan (36%), Taiwan (13%), Singapore (12%), Hong Kong (8%), the U.S. (6%) and West Germany (6%).

(2) Structure of Industry

The Malaysian mould and die manufacturers are estimated at a total of 60 firms. Almost all firms are medium- and small-scale industries having less than 20 employees, except for the large-scale foreign-affiliated firms centered in Penang.

Automobile and home electric appliance manufacturers make their own moulds and dies through in-house production.

17 mould and die manufacturers, including one plastic injection moulder, were surveyed by the first field survey, and 12 manufacturers and two moulders were surveyed by the 2nd field survey.

The First Group: American Affiliated Firms

1) Micro Machining Sdn. Bhd.

Affiliated company of National Semiconductor Corp. of America

Paid-up Capital: M$0.5 million
Number of Employees: 187
Annual Sales: M$ 8.38 million

Micro Machining is the biggest mould and die manufacturer in Southeast Asia. With first class machine tools such as Wire Cut EDM, EDM, and CNC machining centres, the firm can make moulds and dies to micron accuracy.

The firm is operated by Malaysian staff exclusively. In 16 years, some staff have established their own parts factories with their acquired technology, and they supply parts to the firm. Technical transfers are thus conducted.

2) Mattel Tools Sdn. Bhd.,

Affiliated company of Mattel Inc. of America (Toy firm)

Paid-up Capital: M$ 1 million
Number of Employees: 106
Annual Sales: M$ 4 million

Mattel Tools is also equipped with first class machines, but they are slightly less precise than Micro Machining. The firm is well managed through use of production manuals, on-the-job training, and an American-style pay scale system.

The firm is also operated by Malaysian staff exclusively, and is exporting all products to Mattel in the Free Trade Zone (FTZ), Mexico, and Italy. Mattel Inc. has closed its factories in Taiwan and the Philippines and is planning to integrate facilities in the Penang factory.

Both firms in the first group have good technology levels and systms to educate and train their workers even if they do not have foreign engineers. They are superior to other firms in these respects. These types of firms and their technology transfers are greatly appreciated by the Malaysian Government.

The Second Group: Japanese and Malaysian Joint-Venture Firms

1) Matsushita Electric (Malaysia) Sdn. Bhd. (MELCOM)

The firm makes moulds and dies in its tooling department.

Number of Employees: 40
Annual Sales: M$1.4 million (selling 40% outside)

MELCOM makes refrigerators, electric fans, irons and rice cookers. The firm makes moulds and dies through in-house production. It has started to sell these products outside of the firm, such as related firms in Malaysia and Singapore, since January 1987 to fully utilize its facilities. It uses local moulds and dies as much as possible. It dispatches engineers to give technical guidance to local firms to improve quality.

2) Topla Engineering (Malaysia) Sdn. Bhd.

The firm makes only plastic moulds and dies at its factory in Ipoh city, 200km north of Kuala Lumpur.

Paid-up Capital: M$1.4 million
Number of Employees: 22
Annual Sales: M$1 million

The firm plans to make moulds and dies for engineering plastic in the future. Its annual sales in 1989 are expected to be M$1.5 million. It supplies products to home electric appliance firms such as Sharp, Sony, Mattel, and local firms. It trains workers through on-the-job training especially for skilled workers.

These two Japanese joint-venture firms can meet the requirements of Japanese users who have metal working technology precise to the order of microns. They have a firm management policy to pursue localization by transferring technology and fostering local staff. They are good examples of future joint ventures and technical tie-ups.

The Third Group : Local Medium-Sized Firms

There are 4 or 5 firms that export moulds and dies overseas or provide them to exporting firms in Malaysia. The best firm is Eng Hardware Engineering Sdn. Bhd. in Penang industrial estate.

Paid-up Capital: M$1.6 million
Number of Employees: 115
Annual Sales: M$4.3 million

The firm makes high precision moulds and dies with machines such as the wire cut EDM, EDM and CNC machining centres. It supplies its products mainly to semi-conductor firms in the Penang Free Trade Zone (FTZ). The owner of the firm gives technical advice to workers in the shop to foster skilled workers.

As the chairman of the Peng State Foundry and Engineering Industries Association, the owner tries to encourage skilled workers and plans to establish a training centre named the Tooling Centre with the cooperation of the Penang Development Corporation.

The Fourth Group: Small-Sized Firms with Less than 20 Employees

The remaining 50 firms are smaller factories in the town. Some firms shifted to industrial estates away from the town and owing to brisk demand installed new machines such as the wire cut EDM and EDM. But, most firms have no skilled workers to operate them. Many firms still use older machines since they have no collateral to obtain bank loans.

(3) Overseas Market Trends

Production of Moulds and Dies in Major Nations

According to a presentation by officials in the International Special Tooling Association (ISTA), the total value of production from the 15 member nations totalled about ¥2,000 billion.

Ranked by country, the United States was 1st, with a production value of ¥940,814 million and occupying 47% of total production value. Japan was 2nd, with an output of ¥375,498 million, which was 18.9% of total production value. 3rd was West Germany with ¥208,517 million, which was a 10.5% of the total. Next in order were Italy and France. The production values of these five countries were 84.4% of the total value.

Ranked by item, the moulds and dies for metal working had the greatest production valued. Next in order was the moulds and dies for plastic and rubber forming followed by jig fixtures, standard toolings and die-cast moulds.

ISTA members as of 1986 are the United States, Japan, West Germany, Italy, France, Great Britain, Spain, Switzerland, Holland, Canada, Belgium, Finland, Portugal, Sweden, and Denmark.

The total export value for the ISTA member nations in 1986 was ¥383 billion.

Ranking each country by the value of its exports, Japan was 1st at ¥109,800 million, which was an increase of 70.1%, over its 1983 level; 2nd was West Germany at ¥68,800 million, a decrease of 3.3% from 1983; next was the United States at ¥40,600 million, a decrease of 8.3%, from 1983.

Mould and Die Industry in Asian NIES

The mould and die industry in Asian NIES made remarkable growth in recent years.

Exports of Korean moulds and dies increased sharply to US$39.6 million in 1987, an increase of 160% from the previous year.

Along with the changes which were made to the industrial structure in the 1970s and the growth of export-oriented industries the number of companies involved in the industry increased to about 350. From the period of rapid growth in the 1970s and then overcoming the slump in the first half of 1980, the number of mould and die manufacturers increased further to 800 companies.

By the period of rapid economic growth experienced in the latter half of 1985 the number of companies in the industry had reached 1,200.

As for the scale of companies specializing in mould and die manufacture, there are many which are small and 82% of the companies have a work force of less than 20 workers. By item, exports of the moulds and dies for plastic and rubber forming increased 46.8% from the previous year. The main export country is Japan.

Korean-made moulds and dies are generally poorer in quality than Japanese-made products. It is said that processing precision is up to 10% of that in Japan, and the durability of Korean-made moulds and dies is only half of that of Japanese-made products. Korean-made moulds and dies are also of a lower level than Japanese products in regard to appearance and surface treatment.

In June 1987 the government announced a greater assistance plan in relation to taxation and finance to raise the level of 7 technical areas to the standard of advanced countries by 1991. The areas which have been selected are: casting, forging, plating, heat treatment, surface welding, surface treatment, and staining.

According to the plan for basic production technology training which has been formulated by the Industry Promotion Agency, the following are to be done:

(a) System of grading factories
(b) Assistance to selected companies
(c) Creation of specialized industrial estates
(d) Taxation and financial assistance
(e) Training technicians and skilled workers
(f) Technological development
(g) Assistance with inspection equipment.

The value of mould and die production in Taiwan increased sharply from NT$5.0 billion in 1981 to NT$15.0 billion in 1986, thus showing 300% growth during the intervening 5 year period. The reason for this is the marked growth of the electronics industry which has been responsible for the accompanying growth of the mould and die industry, one of its supporting industries.

The trade of Taiwanese moulds and dies has grown remarkably over the past several years. In particular, there has been a rapid increase in exports, and exports to the American and the Japanese markets have increased. In 1987 (January-October) exports to these two markets accounted for 40% of total exports.

The Taiwan mould and die industry got off to a late start, as, although before 1951 some manufacturers made moulds and dies as well as other products, exclusive mould and die manufacturers did not appear until after 1964. It is estimated that as of 1987 there were some 2,000 mould and die manufacturers. There are 525 companies which specialize in the manufacture of molds and dies. Of this number, 200 are capitalized at less than NT$50,000, of which, 5% or only 26 companies are capitalized at over NT$10 million.

Although the mould and die industry in Hong Kong largely depends on domestic demand, exports have been increasing. Mould and die exports from Hong Kong rose 46% in 1986 to HK$469 million. The value of mould and die production for domestic use was worth HK$500 million in 1981, and this increased at an annual rate of 24.6 % so that in 1986 it was worth HK$1.5 billion.

There are 1,000 manufacturers which specialize in the production of moulds and dies. As plastic manufacturers have their own mould and die plants, the total number of mould and die factories is in excess of 2,000. Companies which employ fewer than 10 workers make up 70%, and those with more than 50 employees comprise 20% of the companies in the industry.

In the past, manufacturers of moulds and dies in Hong Kong have tended to be consecutive in respect to the introduction of new technology. Since the early 1980s, however, a change in attitude has been seen and they have gradually begun to introduce advanced technology.

Singapore exports were worth S$44.65 million in 1984. They increased by 37.0% in 1985. They increased slightly in 1986 and 1987 to S$62.71 and S$62.94 respectively.

Exports of dies for machine tools were mainly exported to Thailand, Japan, Malaysia, and the United States. Moulds used in metal casting manufacture, excluding casting moulds, were exported to Malaysia, Japan, Hong Kong, India, Thailand and the United States.

It is estimated that there are between 400 and 500 mould and die manufacturers. Although the types of machinery and equipment used by the manufacturers are on a fairly good level, experience in relation to the design and manufacture of moulds for metal foundries, and technical levels vary from firm to firm.

The government and the Economic Development Board attaches much importance to the mould and die industry and has been providing assistance to factories through basic technical training.

Although the mould and die industries have developed considerably as supporting industries in NIES, they comprise mainly small scale firms. They are still inferior in respect to experience, technology and facilities for producing moulds and dies compared to the advanced countries in the world. They also lack related technical information and information sources.

Each government has introduced an industrial promotion policy by itself to foster skilled workers and give incentives on financing and taxation to industries, especially to the mould and die industry.

(4) Cost Analysis

Comparison of Production Costs in Malaysia and Japan

Monthly Base Salary

(unit: M$)

Type of Employee	Malaysia	Japan
Junior high school graduates	250- 300	N.A.
Technical high school graduates	300- 400	2,200- 2,500
University graduates, designers	500- 800	2,700- 3,000
Workers with 1-5 years experience	500- 700	3,500- 4,000
Designers with 3-10 years experience	900- 1,500	4,500- 5,000
Factory managers of foremen with over 10 years experience	1,500- 2,800	6,000- 8,000

The estimated average monthly salaries could actually be from 1.3 to 1.6 times the monthly base salaries mentioned for each type of employee shown above.

Comparison of Hourly Charge of Major Machine Tools

(unit: M$)

Item	Malaysia	Japan
Multipurpose machine tools	10-20/h	80-90/h
EDM	30-36	100
CNC wire cutting EDM	40-45	120
CNC machining center	40-50	120

The comparison simply shows that the Malaysian cost is considerably cheap, at less than half of the Japanese cost. But these figures do not have much importance because of the difference in the types of machining equipment between Japanese and Malaysian manufacturers. Many Malaysian manufacturers use machine tools imported from Taiwan.

Sales Value Per Man

(unit: M$)

Scale of firms by number of employees		Sales value in 1987
A Co.	20 persons	1 million
B "	9 "	0.45 "
C "	9 "	0.25 "
D "	10 "	0.15 "
E "	33 "	0.80 "
F "	30 "	1.20 "
G "	17 "	1 "

Based on the field survey, the average annual sales value of selected Malaysian companies of each group in 1987 is shown above. Figures vary according to each company. The average annual sales value for the firms with an average 18.2 employees reaches M$690,000. Thus the total average annual sales value per employee is assumed to be M$38,000 (¥1.9 million) in Malaysia.

In comparison, the average annual sales value per employee in selected Japanese companies is said to be from about M$240,000 (¥12 million) to M$400,000 (¥20 million) and the break-even point is about M$200,000 (¥10 million) per annum. And it is said that, if the processing value (sales value minus cost of materials, subcontracted orders, and consumables) is under ¥6 million per person per annum, the operation of the firm is assumed to be under the break-even point. In this comparison, the sales value ratio of Malaysian companies is about one-fifth that of Japanese companies.

Comparison of Cost Composition

Item	Malaysia	Japan
Material	15-25%	15-25%
Personnel	20-55	45-50
Administration & design	10-25 (estimate)	15-20
Depreciation	5-30	10-20
Profits	10-20 (estimate)	8-10

Based on the results of the field interview survey, the structure of costs in Malaysia per one unit of mould was investigated and compared with that in Japan. Sales value is assumed as 100%.

Not much difference can been seen in the composition of costs in both countries. However, the depreciation cost of the machines on a company basis differs largely in Malaysia according to whether or not the company possesses high quality machine tools.

Material Costs

(unit: M$)

Material	In Malaysia	In Japan
ASSAB 760 (Equiv: JIS S50C)	4.6 - 5.5/kg	5.0 + 10%
ASSAB 718 (PD555)	8.8 - 10.8/kg	26.0 + 10%
ASSAB XW-41 (SKD11)	15.5 - 18.3/kg	12.0 + 10%
ASSAB STABAX (SUS53B)	13.3 - 16.4/kg	30.0 + 10%

In Japan the price of ASSAB materials is 15% higher than Japanese materials. However the materials of SSOC or SKDII which are popular in Japan are relatively cheap in the Japanese market.

Comparison of Production Costs of Moulds for Lens Caps

Comparison of Production Costs of Moulds

(unit: M$)

Item	2nd Group	3rd Group	Japanese Manufacturers	%
Lens caps, 58mm diam	22,800	16,800	36,000 :	0.63-0.46
Lens caps, 67mm diam	25,600	19,800	38,000 :	0.67-0.52
Lens caps, 77mm diam	29,200	18,000	40,000 :	0.73-0.45
Knobs	20,000	16,000	35,000 :	0.57-0.46

There is an average price difference of 65% in the 2nd group and 47% in the 3rd group compared to the prices of Japanese manufacturers. Because these are the quoted prices before price negotiation, actual prices might be lower than this in both countries but the estimated price differences would not be so large in actual prices.

(5) Current Problems

The major problem is the fact that most firms do not make full use of their present equipment and facilities. Even old machines are able to operate at capacity as long as they are properly maintained, while even modern and efficient machines will not produce high precision moulds and dies and even may have shortened life spans, if they are not used in a proper manner.

While these are the problems which managers should resolve, the shortage of skilled workers is the major bottleneck in this regard.

It is the government's policy to increase domestic production of moulds and dies, which depend largely on imports at present. For the production of these precision moulds and dies, primary importance should be placed on the creation of skilled workers including designers, and this will also improve the general technical levels.

The problems which the mould and die industry in Malaysia faces are summarized in the order of their importance as follows.

1) Lack of Skilled Workers

All firms suffer from a lack of skilled workers. However, since moulds and dies are produced each in ad-hoc order basis, it takes a long time for workers to accumulate experience. As a matter of fact, it is said that even Japanese workers need 10 years to become skilled workers. Much more acute is a lack of the absolute number of skilled workers in Malaysia, partly because of the considerably shorter history of the mould and die industry in the country.

No matter how considerable of an improvement the most up-to-date equipment may achieve on production efficiency, the final polishing processes such as scraping, as well as assembly and adjustment, will require skilled work by hand. This manual work determines the ultimate quality of the finished product. So the most urgent task is considered to create a sufficient number of skilled workers.

2) Lack of Designers

The majority of firms produce moulds and dies without any design drawings. As a result, the designer's instructions are not conveyed thoroughly to the workers, and this consequently causes a lack of stability in the quality of the finished product.

In order to deal properly with the production of moulds and dies, with demand growing in the coming years, it will be necessary to achieve greater accumulation of know-how than ever before.

Hence, it is indispensable to accumulate know-how and to develop new and advanced production methods through the utilization of drawings.

Furthermore, since the designing work calls for overall knowledge of such items as the mould and die production process, products, and processing accuracy, it takes even more time to foster designers than to train operators. The training of designers is of greater importance than the training of skilled mechanics.

3) Low Level of General Techniques

There are many firms which fail to observe even the basic principles of metal processing such as an incorrect order of processing steps for hexahedrons and a failure to perform polishing for lapping alternately in the horizontal and vertical directions. They use machine tools in excess of the processing capacity, or fail to use working oil for metal cutting, or neglect maintenance and inspection on machines, measuring instruments, and tools.

Although these are also problems which managers of the firms should resolve, such operating conditions will make it very difficult to meet orders placed by the domestic export industry and overseas users for moulds and dies which is estimated to grow hereafter. This is the reason that the improvement of the general technical levels is more important than the training of skilled workers.

4) Lack of Cost Consciousness

Among the small scale firms, there are some cases in which they manufacture moulds and dies only with given drawings, or in which they use machines in a poor maintenance condition without conducting any accuracy

inspections resulting in repeated demands by the users for rectifying the products; such reworking eventually causes an increase of costs.

Also, many managers are suspected of having no cost-consciousness in view of the fact that they fail to shorten the processing time because of their lack of knowledge about a new attachment to the machine or do anything when it continues to produce a large number of inferior products.

5) Outdated Business Management

Most of these enterprises are business entities operated under outdated management, without employing any cost accounting or modern accounting systems.

6) Outdated Machines and Facilities

Since many of the firms are medium- or small-sized which have difficulty in obtaining loans from banks because of their lack of collateral, many of them use outdated machines. This, together with their low technical level accounts for their production of moulds and dies that show an extreme lack of accuracy in each case.

7) Insufficient Maintenance

There are many cases in which relatively new milling machines and grinding machines are used but they suffer serious damage resulting in a reduced life span just because the work load is in excess of the machine's capacity.

8) Insufficient Incentives

For the production of precision moulds and dies for electronic and electrical component parts, apart from those to be used for the production of sundry goods for daily use, it is necessary to replace the existing machines with new and efficient machines. However, preferential financing plans for that purpose is insufficient.

9) Lack of Technical Information

Many enterprises lack knowledge of slight contrivances, such as a new centering accessory attached to a machine tool, or a vacuum apparatus mounted on a plastic mould to avoid burning by high pressure. Evidently, this indicates a lack of technical information.

It is thought that this is attributable primarily to the scarcity of the chances to exchange information with overseas mould and die industries or to inspect the overseas market by direct visit, but ordinary levels of overseas technical information and market information are also lacking.

10) Insufficient Business Tie-ups with Foreign Firms

For the production of precision moulds and dies, for which demand is increasing, it is most expedient to form a tie-up with a foreign firm. However, for the promotion of joint-ventures and technical tie-ups with foreign firms, the industry itself is lacking in active efforts, and the activities by public organizations are also insufficient.

(6) The following measures are conceived as means for coping with the various problems summarized in the preceding section. The problems are presented here in the order of their respective priority in dealing with them.

1) Train Skilled Workers and Designers

For the moment, it is necessary to provide private-sector firms with itinerant on-the-job training and technical training by technical experts who go from plant to plant on an on-going basis. Yet, it also will be important to formulate such training plans on a medium- and long-term basis.

In view of the urgency and efficiency of such programs, it will be the first priority to plan for the utilization of such existing organizations for research, development, and training, such as SIRIM, and such vocational training institutions as ITI. In consideration of the current state of affairs, efforts should be made to improve these machine and equipment facilities and also to expand and strengthen programs for training skilled workers and designers.

Along with these steps, it is desired that programs be developed in such a way as to be suitable for training, and that the government expands the incentive systems available towards this goal, since dispatching trainees to the training institutions is a heavy burden on many firms.

Furthermore, it will become necessary to develop programs also in consideration of the necessity to introduce CAD and CAM systems in the near future.

2) Expand Technical Education

It is a very serious matter for the mould and die industry, which requires high precision production, that workers have not acquired even basic cutting techniques, or have not learned how to use tools, measuring instruments, and machines properly.

The measures that should be taken at this moment are on-the-job training (OJT), itinerant technical guidance and technical training. More fundamentally, however, these basic techniques are matters to be taught in basic educational institutions, such as polytechnics (technical colleges) prior to the employment of workers by firms. In the cases of Taiwan and Korea, it can be said that the development of the mould and die industry has been realized by the expansion and repletion of basic technical education through the establishment of polytechnic schools for specializing in moulds and dies and the establishment of mould and die departments in colleges and universities. For the present, it is necessary to achieve the repletion of machines and facilities at polytechnics and to develop curriculum specifically addressed to moulds and dies. For the future, the establishment of a metal mould course or a metal mould department in such schools should additionally be considered.

Moreover, the metal mould industry in Penang is currently planning a more practical plan to establish an on-the-job training center in government-private sector cooperation through the cooperation of the state government. The plan should be carried out in such a way that it materializes at an early time.

3) Strengthen Guidance on Management

The successful solution of technical problems concerning the management of a factory owes largely to the manager's capabilities. Moreover, since it is indispensable to provide on-the-job training within a firm, it is an urgent task to

prepare work manuals (including visual materials), to introduce quality-control (QC) techniques, and to strengthen such business administration techniques as cost accounting and so on, along with thorough-going workshop guidance to be offered by outside technical experts. Also, it is important to make the managers understand that the designing of moulds and dies in anticipation of the customers' future needs will lead to an expansion of markets, including overseas markets, in the coming years. Thus, it is necessary to promote training programs for managers and exchanges with overseas organizations through such institutions as the NPC (National Productivity Center) and industrial circles.

4) Improve Mould and Die Factories

While firms of medium standing, which enjoy brisk demand, introduce up-to-date and highly efficient machines and facilities owing to their fund-raising capabilities, smaller enterprises keep using old machines and facilities because of their poor fund-procuring capabilities, and, consequently, the result is a lack of accuracy in the moulds and dies which they manufacture. For the purpose of producing precision moulds and dies, which are expected to enjoy increasing demand in the years ahead, it is indispensable to renew outdated machines, and additionally it is essential to introduce modern and efficient equipment in order to deal properly with the lack of skilled workers. In view of these requisite conditions, it is suggested that attempts be made at introducing such systems as a special financing system, at a low interest rate, and a model factory recognition system, like the recognized JIS factory system, established in Japan.

5) Strengthen Activities by Industrial Organizations

For attaining a higher technical level of the industry as a whole and improving the quality of the products, the industry's own efforts will be a prerequisite. Consistent information exchanges with the mould and die industrial groups in foreign countries will not only lead to improving technology directly, but also result in business tie-ups with foreign firms, serving as a key factor for speedily promoting technological transfers.

Efforts should be directed towards activating the industrial organization activities in order to increase management capabilities through mutual exchange

of opinions among managers, training, and to expand the activities of the industrial organizations for the collection of technical information. In addition, a government subsidy system for these programs is also requested.

6) Promote Tie-Ups with Foreign Firms

For the production of precision moulds and dies, joint-ventures and technical tie-ups with foreign enterprises are the most readily available and effective measures. However, in order to encourage such tie-ups, it is necessary to provide adequately prepared information on investments in the mould and die firms in Malaysia as desired by the potential investors of foreign countries. In addition to the efforts by industrial organizations, it will become necessary to collect investment information on such items as a list of interested firms and the latest information on industrial estates in various districts, to store such information in MIDA, and to provide it for the user's convenience.

7. Automotive Metal Parts

(1) Automobile Industry

1) Number of assemblers:

12 plants including PROTON, of which, 10 are in operation.

2) Production units:

Passenger cars ———— 33,685 (1987)
Commercial vehicles ———— 15,305 (1987)

3) Industry outline

a) The production of passenger cars and commercial vehicles has sharply decreased since production reached its peak points of around 100,000 passenger cars in 1983, and 42,000 commercial vehicles in 1985.
b) The accomplishment rate for IMP's targets was 27.1% in 1987 for passenger cars and 38.6% for commercial vehicles. It is said that confidence in the projections of IMP is decreasing.
c) In 1987, the production achievement for the national car, the PROTON Saga, which was launched in September 1985, was 24,000 units and its share of total passenger car production was 72%. There was a great gap between PROTON and Nissan, the second largest assembler, which had an annual production of 3,500 units.
d) The forecast for passenger car production in 1988 was revised upward from the 35,000-40,000 units originally expected to 50,000-60,000 units.

4) Policy

a) Development of related industries through PROTON as the core of the the automobile industry is being aimed at.
b) As an incentive aimed at PROTON, CKD (Completed Knocked Down) shipments for PROTON are exempted from import duties. The government assumes PROTON is an automobile manufacturer, while others are CKD assemblers.
c) In 1987, the manufacture of body stamping parts, engines, transmissions, etc., was approved for Tan Chong Motor Assemblies Sdn. Bhd.

(2) Automotive Metal Parts Industry

1) Number of manufacturers:

135 approved manufacturers (end of August 1987), of which,
57 are in operation.

2) Production:

M$92,550,000 (1985).

3) Production items:

(Refer to page II-41)

1. There is no clear-cut definition of "metal parts." In this survey, therefore, the following guidelines were employed.
2. Parts which use a substantial quantity of metal (e.g., finished seats) will be included in the survey.
3. Electrical equipment (e.g., generators) will not be included.

(3) Localization of Automotive Parts

1) Basic policy

a) Under the Mandatory Deletion Program (MDP), if parts can be produced domestically, then domestic automakers must purchase domestically produced parts for 80% of their vehicles.
b) A list of localization items for the national car's parts were already published in June, 1985.

2) PROTON

a) Presently, PROTON has its own expansion plan for procurement of local parts.
b) The local content ratio at PROTON is said to be 42%. However, detailed data is not yet available.

(4) Imports and Exports of Automotive Parts

1) Imports (unit: M$ million)

	1985	1986	1987
CKD (passenger cars)	531	252	262
CKD (commercial vehicles)	166	104	93
CKD (other)	199	128	91
Parts accessories	169	149	177
TOTAL	1,065	633	622

2) Exports (unit: M$ million)

	1985	1986	1987
TOTAL	9	8	16

3) Comments

Naturally enough, imports exceed exports in the balance of external trade of automotive parts. Exports remain at a level ranging from 0.72% to 2.55% of imports (including CKD parts). Automotive parts accounted for only 0.035% of Malaysia's total exports in 1987. Trade statistics for metal parts alone are not available.

List of Automotive Metal Parts in Production (Estimated)

Engine Parts	:	Air Filter	Air Filter Housing
		Cylinder Liner	Fuel Filter
		Fuel Tubing	Oil Filter
		Piston	Radiator
Transmission & Steering Parts	:	Clutch Tubing	Clutch Disc
		Clutch Cover	Rack & Pinion
		Shackle Assy	Shackle Pin
		Shackle Bolt	Steering Linkage
		Tie Rod	Tie Rod End
		Wheel	Wheel Rim
		Wheel Stud	Wheel Bolt
		Wheel Nut	Wheel Weight Balance
		Wheel Cover	
Suspension & Brake Parts	:	Air Receiver Tank	Air Receiver Housing
		Ball Joint	Brake Tubing
		Brake Disc	Brake Shoe
		Coil Spring	Leaf Spring
		Spring Pin	Spring Bush
		Shock Absorber	Suspension Shock Absorber
Body Parts	:	Bodies-Truck	Bodies-Pick Up
		Bodies-Bus	Bodies-Van
		Bus Seat	Battery Holder
		Bracket	Body-Side Moulding
		Centre-Bolt	Cross-member
		Door Washer	Exhaust Pipe
		Exhaust-clamp U-bolt	Fuel Tank
		Grease Nipple	High Tensile Bolt
		High Tensile Nut	Muffler
		Muffler Hanger	Metal Bush
		Seat Complete	Spare Wheel Clamp
		Safety Belt Metal-parts	Steel Washer
		Spring Washer	U-bolt
		Sun Visor (Metal)	Bodies Passenger Car (only for proton)
Other Parts	:	Electronic Horn	Spark Plug
		Screw Jack	

Note: The list is based on MIDA's report, "Directory of Approved Auto Component Manufacturers", (Aug. 31, 1987). Efforts were made to confirm whether listed items are actually being produced.

(5) Major Problem Areas

1) Backward production, engineering and manufacturing technology

a) Production engineering

Malaysian firms which are either established as joint ventures or have technical tie-ups with foreign firms have introduced complete production engineering from their foreign partners. For this reason, what they require is practical guidance on operations. The consequence of this is that some local firms cannot deal with design changes on parts as a result of automobile design changes without asssistance from their foreign partners. In the case of local firms which are not tied up with foreign firms, the level of their production technology is even lower.

b) Manufacturing technology

Because manufacturing technology in the area of hot forging, fine precision machining and various kinds of tests has not yet been introduced, parts requiring such manufacturing technology are not being produced. In the area of processing technology, products requiring mechanical drawings to make cup-shaped products or drills still show problems in terms of quality and precision. Generally speaking, the technical levels of local firms are quite low. In the area of die casting technology, materials for body stamping dies are at the stage of trial production. Although production of hubs for 2-wheeled vehicles or bicycles has already started based on injection technology, the technology has not been introduced in the production of automobiles from the point of view of the scale economies. While the cold forging method is being applied by use of 5-stage forming machines, dies for these machines are dependent on imports. This forging method is still not applied to production of complex shaped parts.

2) Weak price competitiveness of parts

a) The following points shall be mentioned as characteristics of the unit prices of domestically produced parts for use as original equipment as compared with imported parts.

- Parts using metals are generally more expensive than those using non-metal materials.
- Metal parts which are unit parts produced with mass production equipment are more expensive among metal parts.
- Metal parts which require large-sized and expensive dies to produce are more expensive.

- Metal parts which require a series of integrated production facilities for assembly are generally more expensive.
- Generally, quality levels are not so serious problem compared with price levels.

Specific examples of metal parts for which prices are higher than imports are: Fuel tanks (401-526%), brake pipes (194%), radiators (129-134%), shock absorbers (117-161%), coil springs (112%), exhaust systems (74-94%), mufflers (71-83%), carpets (80%), seat pads (52-55%).

b) The main causes of the expensive production costs which most of the managers stressed were the high costs of raw materials, small lot production in terms of facility utilization and higher purchasing costs of production facilities. Also, in the case of moulds and dies, high cost and small lot production are the main factors for expensive purchasing prices.

c) In the case of firms which are not affiliated with foreign firms, some waste was observed in the way of production management.

3) Small production volume

a) In order to promote healthy and fair competition in the auto part industry, the Malaysian government takes a policy of giving production licenses to a limited number of multiple parts manufacturers for a particular item. The problem herewith is the fact that automobile production volume is very small. In 1987, passenger production was only 24,182 units for PROTON, 3,429 for Nissan, 1,557 for Honda, and 1,383 for Toyota. Furthermore, many same type of components are being produced under different specifications by models. Thus, production volume becomes extremely low in the case of parts for which REM is very small.

b) When a manufacturer begins production of new items, many tools such as moulds and dies are necessary. As for production machines, existing machinery is sufficient, but additional new tools must be purchased. The tooling cost becomes very high in terms of prodution volume. As a matter of fact, it is very difficult to begin production of new items from the cost aspect. Furthermore, some managers say it is at present impossible to study the possibility of investment aimed at automation to improve efficiency. Although auto production volume is expected to increase in the wake of the recovery of the domestic market, such constraints are expected to continue if parts manufacturers only eye the domestic market.

c) In the case of firms affiliated with foreign firms via joint ventures or technical agreements, the relationship between their partners (parts makers) and automakers in

foreign countries will have some effect on their supply of parts for the models being produced by Malaysian automakers. Especially, constraint appears in the case of the supply of parts to non-affiliated assemblers as original equipment. Some Malaysian parts makers are affiliated with automobile assembly firms through their parent companies.

(6) Automotive Parts Industries in Third Countries

During the rapid motorization that occurred in Japan starting in the mid-1950s, automakers offered intensive assistance to parts subcontractors and developed vertically-affiliated production groups to ensure a stable supply of high-quality components. In addition, the automotive parts industry was singled out as a designated industry in the Law on Extraordinary Measures for the Promotion of Specified Machinery and Information Industries. The industry consists of primary subcontractors, organized in cooperative groups formed around each automaker, and secondary and tertiary subcontractors. In recent years, however, this type of affiliated production system has begun to break down, and an increasing number of parts manufacturers are supplying products to more than one automaker.

Thailand's domestic market is a small one, and development of the local automotive industry through import-substitution-based industrialization is believed to have reached its limits. As a result, the country is redoubling its efforts to develop export markets, but there is a major gap between local goods and products available on the international market in terms of both price and quality. Although government policies (witness the plans for localization of parts production) are more clearly set forth than in neighboring Malaysia , an increase in vehicle exports is, in the short term, likely to bring about a further increase in imports of automotive parts.

In the case of Korea, full-scale exports of vehicles to the North American market began in 1984, and a rapidly increasing number of firms are becoming involved in the export of automotive parts. Moreover, with the move to transfer production bases by the advanced nations, the number of joint ventures and technology provision agreements with overseas automotive parts manufacturers is on the rise. Government policies aimed at promoting the localization of parts production include financial aid programs and technological assistance via research, testing, and inspection organizations, and the overall policy is one of promotion of the vertical affiliations around automakers that characterize Japan's industry. Among efforts to promote automotive parts exports have been the establishment of permanent exhibitions in Korea and abroad and the promotion of exchanges with overseas automaker industrial associations.

Although the situations in these three nations are instructive, the case of Malaysia presents fundamental differences in industrial policy, the industry as a whole, and social structure, and the blind adoption of similar policies would not necessarily have a positive impact on the nation's automotive metal parts industry.

Currently being discussed is the possibility of exporting the PROTON SAGA to the U.S., whose formidable market makes it of critical importance in any future program to expand exports. Although high-level distribution will not be easy, efforts such as a paring down of the product line and the collection of information on distribution channels and demand trends should make development of this market possible.

(7) Countermeasures for Major Problems

1) Measures to overcome the low level of technology

a) Establish a basic technical research system

In order to promote domestic production of automotive metal parts, development and acquisition of production technologies and manufacturing skills should be required. For this purpose, it is advisable for organizations to establish a research system which would supply its results to the public. At the same time, diffusion of the research results to the private sector is recommended. It is further suggested that continuous on-the-spot guidance be conducted in addition to an introduction of new innovations in technology and quality improvement measures. For example, assembly type parts, now regarded as domestically produced, still largely depend upon imports. Therefore, assistance by public organizations is expected to support the local enterprises's effort to produce those parts domestically.

b) Affiliation and technical cooperation with foreign enterprises

To enhance the domestic production rate of automotive metal parts, it has been observed to be efficient either to promote affiliation with foreign enterprises or to introduce technologies from them. Therefore it is desirable to expand and enrich every possible measure for those improvements.

2) Measures to cope with weak price competitiveness

a) Promote domestic metal mould production

It has been observed that the percentage weight of moulds are high in the cost structure. Materials for metal moulds, if not domestically produced, could be purchased cheaply, provided appropriate designing and processing technologies are obtained. In the present situation, since development of the domestic mould industry is premature, improvements of technical levels in the field are recommended.

b) Have affiliated companies grow

Due to small lot production, machinery and equipment cannot maintain high working ratios. Therefore it is advisable to develop linkage type of a firm into which a particular processing works are concentrated, without dividing those operations among many firms. For this purpose, enchancement of the technical levels of the local linkage type of firms is necessary. Regarding metal processing technologies, continuous long-term on-the-spot guidance is needed. Furthermore, assistance is requested from assembly type of firms so that the linkage type of firms can develop their capabilities by getting sufficient volume of orders.

c) Make studies on diversification of products

It is suggested that a study be made as to whether automotive parts manufacturers who are equipped with multipurpose machines can produce some metal products other than automotive parts.

d) Educate owners

It is advisable to strengthen enterprises by introducing overall business management education. Education on the following aspects is advisable as a measure for multi-item production on a small scale, a means to enhance productivity and to tackle methods for cost reduction, as well as a methodology to introduce small group activities, and so on.

3) Measures against small domestic market demand

Expansion of exports is one policy to expand production. In joint ventures or technically cooperating enterprises, parent companies and their partners have already

created supply systems in the major markets. In this case, the two enterprises are expected to coordinate their activities there.

On the other hand, local enterprises with no such relationships are irrelevant to this coordination of activities. However, they have to face the difficulty of acquiring information concerning export markets. Accordingly, as one of the growth measures for local enterprises, it is suggested to give them assistance by offering information for export promotion.

8. Chinaware

(1) Production, Export, Import

The total production of pottery, china and earthernware in Malaysia was M$60.7 million in 1985. Total export was M$39.0 million in 1987, in which the export of statuettes and other ornaments occupied as large as large as M$30.0 million. The import in the same year was M$17.0 million , in which tableware of porcelain occupied M$11.4 million. The major countries exporting porcelain tableware are diversified. They are China, Taiwan, Korea, Japan, U.K. or W. Germany.

(2) Industry Structure

Almost all of the ceramic manufacturers are very small in scale and the number of establishments is also limited. Among the, however, relatively large differences are observed. From their management characteristics, chinaware manufacturers in Malaysia could largely be grouped into the following 4 categories:

A) Tableware manufacturers
B) Decorative manufacturers
   B-1 High-class decorativeware manufacturers
   B-2 General decorativeware manufacturers in W. Malaysia
   B-3 General decorativeware manufacturers in Sabah and Sarawak

At present there is only one specialized tableware manufacturer in Malaysia. This is a joint venture between Japanese and local firms. Their production capacity is around 1.0 million pcs. of tableware per month, and the number of employees is about 450 in 1988. Their products are directed both for domestic and for export markets. Another Japanese firm is now preparing to start tableware production in Malaysia. They are mainly targeting the export market.

There are 2 high-class decorative manufacturers presently operating in Malaysia. One firm is a U.S. and another is a Japanese wholly owned subsidiary. Their operation scales are relatively large with the total number of employees around 1,200 and 480, respectively. Their products are all directed into foreign markets.

Most of other chinaware manufacturers are small-scale firms which produce such various kinds of products as flower pots, earthern tableware or ceramic artware. They are usually family-management type of firms.

(3) Market Analysis of the Third Countries

Total import of chinaware in the world market were US$2.7 billion in 1985. The U.S. is the largest market for chinaware occupying around 50% of the total world import, followed by the total Europe with the share of around 30%. In the European market, however, the share of the trade within the market is large. Thus, for other regions the importance of Europe as an export target market would be reduced.

With regard to the world exports of chinaware, Japan has been the largest supplier in the world. Due to the recent rapid appreciation of the yen, Japan is rapidly losing its share. By country, those European countries as W. Germany, U.K. or Italy which have long tradition in chinaware production follow to Japan. As a recent movements, the exports of chinaware from those countries as Taiwan and China re showing rapid increase trends. Followed to these countries, the exports from Thailand and Indonesia, which are the neighboring countries of Malaysia, show a significant growth.

(4) Cost Analysis

The level of production costs of chinaware in Malaysia was measured and analyzed from 3 aspects. Firstly, the production cost structure of Malaysia chinaware manufacturers was compared with that of an average Japanese chinaware manufacturers. As a results it was observed that Malaysian manufacturers enjoy the benefit of cheap raw materials, while they suffer from high interest payments for outside borrowing. Further, in spite of the availability of the cheap labour force, the labour cost ratio is not necessarily high in Malaysian manufacturers compared with the ratio in Japan. This is due to the difference of the product unit sales value and partly due to the difference in production volume.

Secondly the production costs were compared under the assumption that the same type of a product, namely mugcup of stoneware, would be produced both in Malaysia and in Japan. The result shows that the net production cost in Malaysia is M$1.10/each, while that in Japan is M$1.90/each. At the level of ex-factory cost, which is net production cost plus sales and administration expenses, the cost in Malaysia is M$1.34/each, compared to that in Japan, M$2.40/each. Further, the C.I.F. price level of Malaysian product in case of exporting to Japan would be M$1.70/each which is about 70% of the Japanese level.

Thirdly, a rough feasibility analysis for the new establishment of a factory of high-class porcelain tableware has been conducted based on various assumptions. By the study, the Financial Internal Rate of Return (FIRR) of the assumed project whole through

the economic project life period was calculated at about 8.5%, which is almost the level of profitability.

(5) Specific Problems at Present

Major problems which Malaysian manufacturers are facing at present would be briefly summarized as follows:

Industrial Structure: The major Malaysian chinaware manufacturers of raw material supplier groups are in separate enclaves, which makes the balanced growth of the ceramic industry difficult. For one, there is a group that exports 100 percent of their products overseas while depending wholly on imported raw materials, production technology, design or on the marketing capability of their parent companies overseas. For another, there are relatively large number of local manufacturers that produce traditional types of decorativeware as souvenirs. They mainly depend on the traditional production technology and raw materials locally available.

Institution: Malaysia lacks a public institute or organization to support its ceramic industry group, and almost no assistance in technology, market information or engineering training has been done. In addition, a relatively low import tax on ceramic products and a high demand for chinaware products not produced in Malaysia combine to force the very large variety of imported chinaware products.

Raw Materials: Malaysia abounds in major mineral materials essentially used for chinaware production such as Kaolin or ball clay. Unfortunately, however, these raw materials are not fully utilized for the production of high value added products. This is partly because of the low quality of mineral resources presently produced in Malaysia but mainly because of the lack of investigation for better utilization of materials and the lack of suppliers who could supply a consistent grade of various kinds of clay material. Although there are two Kaolin processing plants in Ipoh, their products are mainly for paper and other industrial uses and not specifically for ceramic industries.

Management and Marketing: Small domestic market size is one of the major problems for chinaware production as well as for most other industrial production in as well as for most other industrial production in Malaysia. In addition to the smallness of the total market size, the diversified demand of consumers from top-quality products to low-end products makes the production unit of each product volume even smaller. This

limited market size is largely preventing the autonomous growth of chinaware manufacturing in Malaysia.

From managerial points, many local companies are small sized family owned firms except those of foreign capital companies. They are managed without modernized management methods and facilities for quality control. In fact, they often lack even the concept of quality control. As for sales, most of the firms take a very primitive method of selling their products at their own retail shops operated beside their factories. Many of them have no experience or know-how of exports.

Except for some foreign subsidiaries, most Malaysian chinaware manufacturers lack the capability to develop their own design. They mostly follow the traditional designs or imitate the designs of foreign products. As long as they stay in this stage, it is rather difficult for them to achieve enough competitiveness in the export market.

As the ceramic industry in Malaysia belongs to the relatively capital-intensive category, the modernization of facilities requires considerable investment funds. However, because of the smallness of most of the chinaware manufacturers, Malaysian financial organizations do not show much interest in the financial support for their equipment investment. In addition to this, there is another problem of underlying assets being too weak to borrow necessary funds from financial sources.

Production Technology: Chinaware manufacturing is an industry in which continuous product development efforts are needed in order to produce the highest quality products making best use of locally available raw materials. However, most Malaysian chinaware manufacturers are small in scale. Most of them rely either on directly imported production technology or on traditional production methods, and have not enough capability to develop their own technology best fit for their condition.

In production process and quality control, a great gap in technical level can be pointed out between local manufacturers depending on traditional methods and foreign subsidiaries who are export oriented.

Improvement in technology and capability in each level of engineers and workers in chinaware manufacturers in Malaysia is an essential matter. Unfortunately however, in the Malaysian ceramic industry, there can be found almost no training facility, either private nor public, capable to train engineers or workers. The present situation is that they rely exclusively on their own experience attained through on-the-job training at their factories.

(6) Measures to Promote Malaysian Chinaware Industry

Some kinds of measures considered to solve the specific problems are as follows:

Problems in the Industrial Structure: In order to solve the problems of ceramic manufacturers located in separate enclaves and lacking mutual relationship, a measure such as establishment of a private associated union could be recommended. there is a ceramic association comprised mainly of tile manufacturers. However,it does not cover at all the tableware or ornament manufacturers. An associated union such as recommended here would have to meet the requirement of activities such as mutual technical exchange or collection in common of market information. Also, it is recommended that the possibility of construction of a ceramic industrial complex mainly constituted of materials suppliers, testing and research institutes, be examined.

Institutional Problems: In Malaysia, the establishment of a governmental policy of an institutional supporting system for the development of the chinaware industry is largely belated. In particular, the establishment of testing and research institutes or training centers is urgently required. A preliminary survey is necessary for the start of production of items which are not produced at present domestically. For this purpose, it is also necessary to promote and active the inducement of investment of foreign companies who have know-how in both production and marketing.

Problems of Raw Materials: In order to produce high quality clay and kaolin, essential materials for high quality chinaware, a better method of exploration and mapping operation for these materials is needed. The development of techniques in materials mixing and refining for effective utilization of domestic raw materials is also needed. A feasibility study for the establishment of a ceramic raw material suppliers group or institute which is capable to supply consistent quality to ceramic manufacturers, and the study of the possibility of common utilization of raw materials among manufacturers would be recommended.

Improvement of Management and Marketing: For the modernization or the enforced external competitiveness of Malaysian chinaware industry, manager training is necessary. To meet that requirement, facilities and programmes of training should be established. In order to develop the small-sized Malaysia chinaware manufacturers into export-oriented companies, it is essential to provide them with governmental supports in the fields of information of overseas markets, overseas marketing, training of an export

procedures and more effective implementation of the export financing system. For the financial needs for capital investment to modernize their major facilities, some kinds of supporting measures which make the funds available on soft-terms would have to be established because of the difficulty of fund recruitment, which most Malaysian manufacturers seem to be faced with.

Improvement of Manufacturing Technology: In Malaysia, except for foreign subsidiaries, in the field of manufacturing technique, there are many small sized companies having insufficient product development capability compared with these in major competing foreign countries. First of all, governmental supports are needed in the field of ceramic related testing and research institute or training facilities where comprehensive activities in raw material mixing, technique of burning, inspection of product, quality control or design development would be expected. Promotion of financial and technical cooperation with foreign companies with top quality production know-how would also be needed. Meanwhile, their efforts by the private sector would also be necessary for the improvement of technology through technical exchange and mutual cooperation among themselves.