

3-2. SIRIM/Ceramic Centre Project

(1) Background

The plan to establish a Ceramic Technology Centre, which would support the development of the domestic ceramic industry, started in 1978. The plan was forwarded in 1982. The plan, for which around M\$8 million was required from the budget, was suspended due to the very tight budgetary constraints at that time. In March 1986, the Malaysian government officially approved the proposed establishment of a center under the 5th Malaysia Plan with a budgetary allocation of M\$6 million. Due to the subsequent bad economic conditions in Malaysia, however, the implementation of the project still has been suspended.

Because of the above delay of the establishment of the proposed center, SIRIM has been proposing separate development programs annually as "R & D Programs of Ceramic Technology." In 1988, 5 programs with an investment amount of M\$538 thousand and in 1989, 2 programs worth M\$4.07 million were or are going to be implemented. One of the 2 projects scheduled to be implemented in 1989 is the Fine Ceramic Development Project (M\$2.5 million), for which the assistance of JICA has already been committed.

(2) Objectives of the Centre

The main objectives of the Ceramic Technology Centre are as follows:

- a) To develop and appropriate ceramic technology to help promote and upgrade the technological and economic status of the local industry, particularly the traditional, small and medium-scale sectors through R &D, consultancy, extension and training.
- b) To introduce and disseminate technology to help resolve the numerous present and future industrial problems faced by the industry.
- c) To coordinate and encourage the growth of a local ceramic industry with respect to the industrial strategy and investment climate in Malaysia.
- d) To encourage the growth of a new generation of entrepreneurs, professionals and related groups within the industrial and government institutions with good technical and scientific abilities in various aspects of ceramic technology.
- e) To promote the growth of high technology ceramics in a long term perspective.

(3) Major Activities of the Centre

Major activities expected from the Ceramic Technology Centre are as follows:

- a) To conduct R & D to broaden the scope and utilization of local ceramic resources, and to develop the production technology at each stage of chinaware production such as forming or burning.
- b) To conduct various consultancy and technical extension services, and also include troubleshooting exercises.
- c) To conduct design and fabrication activities involving preparation of ceramics and fabrication of equipment and tools, dryers and kilns.
- d) To test and inspect the product quality.
- e) To conduct in-house training programmes for quality control and production process control.
- f) To prepare data, statistics, market knowledge and other relevant economic indicators, and also technical information on products, machinery and components, suppliers, etc.

(4) Outline of the Building and Facilities

- a) Building: Main building for laboratories, total 3,080 m²
Pilot plant, work, shop, kiln, etc., total 1,000 m²

- b) Number of pieces of equipment by laboratory:

Material Processing Lab.	10
Geological Lab.	8
Instrumentation Maintenance Lab.	Not yet decided
Glass Lab.	11
Whiteware & Decoration Lab.	11
Heavy Clay Lab.	13
Refractory & Advanced Materials Lab.	18
Chemical Analysis Lab.	7
Physical Testing Lab.	9
Fuel & Combustion Lab.	17
Microstructure Lab.	5
Pilot Plant	17

Kiln Dept.	4
Metal & Woodworking Shop	6
TOTAL	153

(5) Glass Laboratory

The center is planned to consist of 11 laboratories, a pilot plant, a metal and woodworking shop and a kiln department. A Glass Laboratory is one of the above 11 laboratories, the details of which are as follows:

Objective:

To conduct various R & D program related to glass and the development of glass products.

Activities:

- Investigate the utilization of local silica sand resources for glass products
- Investigate the utilization of agrowaste residue as a source of silica and silica based products
- Develop optical glass
- Develop and improve products
- Make technical publications.

Equipment:

Sink Float Apparatus
 Knife Edge Tester
 Thermal Expansion Apparatus
 Head Capacity Calorimetry
 Strain and Annealing Point Apparatus
 Softening Point Apparatus
 Flow Point Apparatus
 High Temperature Viscosity Rotating Cylinder Apparatus
 Glass Melting Furnace
 Brinell Hardness Tester. ect.

(6) Project Cost Estimate

The total project cost estimated at the planning stage in 1986 was M\$6.0 million for initial development expenditures and M\$5.1 million for operating expenditures covering the initial 4 years. The break-down of the development expenditures is as follows:

Building Construction	M\$3.0 million
Equipment & facilities	M\$3.0 million
Total development costs	M\$6.0 million

The disbursement schedule of the project costs for both development and operating expenditures is as shown below.

	(Unit: M\$1,000)			
	1st year	2nd year	3rd year	4th year
Development Expenditures				
Construction	800	2,200	0	0
Equipment and facilities	300	700	1,000	1,000
Operation Expenditures				
Salaries and allowances	166	286	512	752
Supplies and materials	100	200	700	605
Professional services	100	250	400	500
Others	20	65	168	245
TOTAL	1,486	3,701	2,780	3,102

(7) Organization

In the proposed plan, the Ceramic Technology Centre would be established based on the existing staff and facilities of the Ceramic Technology Section, Research Unit in SIRIM. From this background, the major organization in charge of the center would be SIRIM. However, the relationships with the Geological Survey Department, which is in charge of geological surveys of ceramic raw materials and with SEDC of each state, have to be taken fully into consideration.

(8) Implementation

The Ceramic Technology Centre program covers not only the chinaware industry but also all other ceramic industries. There are still many issues to be examined or determined such as the project scale, implementation stages, updating of cost estimates, location, financing sources, and operating programs.

At this stage, it is recommended that a further feasibility study be made in advance of its implementation.

3-3. Intensification of the Functions of MIDA

(1) Activate investment invitation activities.

The following should be considered. Specifically, the activities should be targeted on the development of the 4 industries which are the target area in the study (moulds and dies, automotive metal parts, chinaware, glassware products).

a) Compile and supply investment guide books (subject to the 4 products).

Investment guidebooks which inform one of general investment climate of Malaysia such as institutions labor conditions or infrastructure, and already being published at MIDA. In addition, there are a number of investment guides published by financial agencies and consulting companies. Therefore, it is easy to gather information regarding general conditions for the enterprises which are considering investments. However, information on specific industries or enterprises is lacking. Investment guidebooks to supply such specific industrial information should be produced.

b) Dispatch and receive investment promotion missions and implement matching services for capital or technical tie-ups.

It is advisable to accept more actively investment environment investigation business organized by foreign enterprises which are interested in investing in Malaysia. Especially for the promotion of joint ventures, it would be effective to list the Malaysian enterprises interested in joint ventures, prepare precise information on enterprises, and perform aggressive matching services such as arranging mutual visits. In addition, it is also recommended to dispatch investment missions from Malaysia, and give seminars on the investment environment in Malaysia.

c) Intensify consulting functions.

Assign experts with the knowledge of targeted industries, and perform consultancy services for potential investors. A two year period of assignment for experts of the priority industries should be considered.

(2) Organization information.

a) Information on investment climate

General information is already prepared by MIDA. However, in order to supply more precise and new information at one place, it is desirable to connect MIDA and the SEDC of each state by an on-line computer system. The data base should cover information on estates, labor supply, or labor costs, etc, and the volume of information should be gradually increased.

b) Information on enterprises

The information most often required when foreign enterprises select an investment site is that of specific industries or the requirements for specific enterprises. Preparation of list of domestic parts suppliers and subcontracting enterprises should be considered. By simplifying this supply of information, additional opportunities for domestic enterprises to increase their business with foreign enterprises can be expected. Some SEDC are working out supporting industries in their own states. They have produced supporting industry directories and are supplying them to foreign enterprises. MIDA, with the cooperation of W. Germany, has also produced various kinds of supporting industry directories. At the first stage, data in such directions should be input into a computer data base, allowing for efficient updating and quick data retrieval. Data input should be continually updated. As the next step, the number of firms input into the data base should be expanded gradually.

Although industrial statistics are available, their classification are too rough. Data about production items and production size is included in company data, it will become very easy to identify industrial trends.

In the process data base creation, SEDC may collect information in their own states for more frequent updating. However, an agreement and coordination of activities between MIDA and SEDC will be required because costs are involved in the preparation and updating of data. One must also consider available human resources.

The following points could be considered for cooperation from overseas.

- i. Implement investigations for establishment of data based and necessary systems and equipment.
- ii. Supply necessary equipment (supply host computers to MIDA, supply terminals to each SEDC, and develop software).

Example Cost of Hardware

- Host Computers to MIDA

Central Processing Unit (Memory Size 5-6MB)

Magnetic Disk (Memory Size 300-600)

Printer 1 unit

Magnetic Tape Unit 1 unit

Terminal (In-house) 3-5 unit

About 30-50 million yen

- Terminal to Each SEDC

3 million yen x 14 unit = 42 million yen

Total: 72-92 million yen

3-4. Promotional Plans for Establishment of Skill Development Centre

(1) Background of the project

At present, in Malaysia the demand for precision moulds and dies is increasing together with the development of the electronics industry, and there is a pressing need for the training of skilled workers and also middle level workers.

This project is to especially foster middle level workers for providing a more practical training programs and facilities with the cooperation of both the public and private sectors. The IMP (Industrial Master Plan), which is the basis of industrial policy, notes the importance of cooperation between the public and private sectors.

(2) Proposed plan

a) Levels of training: The center should offer the following training programs for middle-level engineers.

Grade 1: 15 persons having 1-3 years experience in mould and die production.

Provide knowledge for designing and production of compound dies. Make it possible for trainees to understand for progressive blanking die layout.

In the area of plastic moulds, make it possible for trainees to design and produce precision segmental moulds.

Grade 2: 15 persons having 3-5 years experience in mould and die production.

Make it possible for trainees to design and produce dies for progressive blanking and drawing. Also make it possible for them to understand the concept of automation and higher speed operation.

In the area of plastic moulds, make it possible for trainees to design and produce multi-slide type high precision moulds.

b) The required facilities are as follows:

Machining center, large and small (one each), forming grinder (5), surface grinder (3), profile grinder (1), zig borer (1), zig grinder (1), CNC EDM, large and small (one of each), CNC wire cut EDM (2), profile projector (2), 3-dimensional measuring instruments (1), CAD system (2), heat treatment equipment, large and small (one of each), high speed press machine and injection moulding machine for trial (one of each), lathes, general purpose machine tools such as milling machines, radial drilling machines, etc. (10), measurement tools (complete set), peripheral equipment for the above

(complete set). Total price for machines and equipment of 0.8 to 1 billion yen, excluding buildings.

c) Invitation of experts from abroad

- i. 2 experts for designing press dies (including CAD), machining (including EDM), and assembly.
- ii 2 experts for designing plastic moulds (including CAD), machining (including EDM) and assembly.
- iii 4 years period.
- iv. Depending on the training course, (for example, heat treatment experts can be invited under temporary contracts for 1-2 weeks.)

(3) Activities

With the introduction of mechanical machines and equipment mentioned in (2), the following activities shall be performed.

- Practical technical guidance.
- Perform practical technical guidance conducted by the foreign experts.
- Training of technical instructors in foreign countries.
- Since this is a new center, training in foreign countries for the education of technical instructors is beneficial.
- Gather and supply technical information.
- Gather technical information which will be useful for the improvement of technical standards, and supply it for the use of private enterprises.

(4) Target Achievement

The most urgent need at present is the training of mid-level technical staff with immediate work potential, and emphasis should be placed on this.

1) Machining and Assembly

1st - 6th month: At the completion of this stage, trainees will have mastered basic cutting and grinding techniques for machine tools. The ability to process with precision up to 0.1mm, knowledge of measuring technology, and the ability to read drawings will be obtained.

6th month - 1st year: After the completion of this stage, trainees will be able to process with precision up to 0.01mm. Ability to control roughness of cut surfaces will be obtained.

1 - 2 years: This stage involves not only precision but also includes high level application of cutting and grinding techniques and understanding of processing technology for the entire mould and die process. At this stage, an international technical level is reached for the first time.

2) Design

Targeted People: Those who at minimum have a level of knowledge comparable to that of polytechnic school graduates are desirable.

Time Period: 6 months to 2 years

1. Starting with the basics of design, the main goals are as follow.

Metal moulds and dies: The level where compound moulds and dies, simple drawings, and progressive dies can be designed.

Plastic moulds and dies: The level where moulds and dies for miscellaneous goods and parts of household electric appliances can be designed.

2. After completion of the first set of goals, the secondary goals are as follow.

Metal moulds and dies: The level where the trainee can design precision progressive dies and precision compound moulds and dies.

Plastic moulds and dies: The level where the trainee can design moulds and dies for precision electronics goods.

3) Establishment of High Level Technology

Targeted People: Technicians with over 5 years experience

Time Period: Not decided, but the time target per each time is short. For example, 1 week or 10 days.

Subject Matter: Mastery of CAD, CAM, and CNC precision processing technology. This class is to play a role in raising Malaysian mould and die technology and must be designed from the standpoint of guiding beginners. Emphasis is to be placed on training top level workers.

3-5. New Financing Scheme (F/S)

(1) Background

Malaysia presently offers institutional financing through its development banks (MIDF, Development Bank of Malaysia and two other main banks), and a loan guarantee system for SMIs under the Credit Guarantee Corporation (CGC). In spite of these existing financing schemes, many of Malaysian firms interviewed raised difficulty in financing as one of their major management problem areas. The complicated lending procedures, insufficient security and high interest rates are expressed as the major causes of the above difficulty in the questionnaire survey conducted in Malaysia.

(2) Objective of the study

- 1) To review the existing institutional financing schemes in Malaysia and to investigate the possibility of improving them in order to better meet the industry demand;
- 2) To investigate the institutional financing schemes in other nations such as Japan; and
- 3) To examine the possibility of establishing a new financing scheme to support the development of the selected 4 industries.

(3) Outline of the proposed new financing scheme

The study has to be started from the stage of the establishment of the basic design of a new financing scheme, including the review of existing schemes and their improvement plans. However, the basic concept of the proposed new financing scheme is roughly as follows:

- 1) The scheme is to provide financial support for plant modernization and hence for the improvement of competitiveness of Malaysian firms in the selected industries.

2) To meet above objective, a program loan which could provide soft-term investment credit for the factory modernization projects should be either newly created or developed from existing schemes.

3) The credit should be extended not only for the establishment of new facilities but also for the expansion or the replacement of existing facilities.

3-6. Expansion of MEXPO's Export Promotion Activity

(1) Project Background

MEXPO, which was established in 1980 as an agency for export promotion, has been supporting Malaysian companies through trade information supply, trade inquiry service, and the assistance or participation in overseas exhibits and missions for the purpose of bolstering access to overseas' markets. The demand from the private sector for this kind of backing has been rising, and the further development and enrichment of MEXPO activities are desired. However, under the present conditions, there is a large limitation on the sizes of both the budget and personnel, and expansion of these will be needed as a first concern. Further, in order to achieve higher efficiency of MEXPO under the limitation, it is necessary to concentrate into more selected export items and to conduct concentrated efforts both in information collection and product improvement guidance.

(2) Contents of the Plan to be Proposed

The plans given below are basically not the new projects but rather the development of activities which MEXPO presently conducts.

1) Expansion of Information Collection and Supply

The amount of information relating to the foreign markets and the trends of product development and improvement in such areas as design and technology will have to be increased. Most of the documents published by foreign Industrial Associations and foreign Trade Promotion Organizations should be continuously collected, simultaneously, the marketing activities for each selected export item should be conducted and the results should be supplied widely to private companies.

2) Expansion of Advertisement Overseas

Newsletters which introduce Malaysian products, Malaysian companies, etc. should be distributed widely to overseas potential importers for the purpose of raising the level of recognition of Malaysian products overseas. In addition, the support for participation by Malaysian companies in overseas exhibitions and missions should be increased.

3) Trade Inquiry Service

The PR activities should be conducted in order both to increase the number of companies registered in the inquiry data base and to promote its active use. In order to make the access to the data base easier, a larger number of computer terminals are recommended to be installed in the library. The supply of hard copies of the data base should also be made swifter.

4) Product Improvement Guidance

The "Technical Assistance Project" which is now proceeding should be expanded. For that purpose, instructors should be sought from private domestic companies, including foreign affiliated companies.

5) Education of Exporters

Export incentive seminars, which are already taking place at present, and the publication of export guide books should be continued, in order to raise the domestic producers' interest in export. The PR activities of MEXPO's operations should be vigorously pursued, and usage of its services be expanded.

(3) Areas in which Overseas Cooperation is Anticipated

- Staffs of MEXPO should be sent overseas in order to train them as specialists of market surveys and trade procedures.
- The number of instructors invited from overseas should be increased for (2) - 4) and the levels of these service be expanded. In addition, the overseas training of the staff member of MEXPO should be conducted in order to have a consultant group in MEXPO.
- Instructors should be invited from overseas for (2) - 5). The seminars on export procedures and on the methods to approach foreign market, etc. should be expanded.
- Reviews of the operation and organization of MEXPO should be conducted by foreign consultants in order to raise the efficiency of MEXPO activities.

3-7. Intensification of Geological Survey of Ceramic Raw Materials

(1) Background

Although Malaysia abounds in major mineral resources used for chinaware production, these materials are not fully used for high quality products. In order to enhance more effective use of local raw materials, a further intensive, nation-wide geological survey for ceramic raw materials, as well as the analysis and testing of exploited materials, has to be conducted.

From the view of overall non-metallic mineral products industry development, including the chinaware as one of the core items, the Geological Survey Department (GSD) put out a paper entitled "IMP Plan of Action for Implementation" in May 1986. In this paper, GSD proposed an increase in man-power for NMMP work and upgrading of laboratory facilities. Due to the magnitude of the project cost and the government policy to reduce expenditure, this proposal was not put into practice.

In February 1987, GSD submitted the revised expansion proposal to the Ministry of Primary Industries and later to the Task Force on NMMP industry. Further, a working group was formed by GSD in March 1987 to review these initial proposals and to come up with a new GSD expansion plan.

(2) Outline of the expansion program proposed by the GSD working group.

The expansion program proposed by the GSD working group formed in March 1987 can be briefly summarized as follows.

Manpower requirement

	<u>Projected requirement</u>	<u>Existing posts</u>	<u>Additional requirement</u>
a) Managers, project heads or supervisors	33	12	21
b) Assistant geo-chemist	3	2	1
c) Geological and laboratory assistants and technicians	35	8	27
d) Junior geological and laboratory assistants	24	13	11
Total	95	35	60

Cost requirement

- a) Capital costs of M\$1.2 million for acquisition of equipment and vehicles
- b) Annual recurrent budget of M\$1.6 million to cover costs of emoluments and other allowances, field expenses, space rental and purchase of expendable items

Training requirement

- a) Field related training
 - Current techniques of geological survey particularly in deposit modelling, determination of reserves, and assessment of potential end uses.
 - Drilling and other related instrumentation techniques related to assessment of non-metallic mineral deposits.
 - Exploration and assessment of mineral commodities, such as phosphate and gypsum, the occurrence and potential of which is still unknown.
 - Computer techniques in mineral resources data management.
- b) Laboratory-related training
 - Current methods in the interpretation and treatment of test results, including the setting-up of a data bank, and electronic data processing techniques.
 - Quantitative and semi-quantitative analyses of non-metallic minerals using modern instruments.
 - Beneficiation of clay and silica sand using hydrocyclone, magnetic separator, and other modern techniques.

(3) Comments

- 1) The GSD expansion program mentioned above covers not only the chinaware industry but the total NMMP industry group. Thus, an evaluation of the scale and contents of the proposal would be beyond the scope of the study.
- 2) Because of the urgent need for the identification of high quality mineral resources for chinaware production, the GSD expansion program in the area of NMMP work would be supported.
- 3) Support from the international organizations in the following training areas would especially be required.
 - Short period attachment of the GSD staff member at some geological survey or similar organization in the field of non-metallic minerals, or at the overseas companies producing chinaware or supplying raw mineral materials.

– Sending of experts to GSD for reasonable time period (ex. one year) to provide on-the-job training and to recommend / oversee upgrading of facilities. Experts in testing and evaluation of raw ceramic materials are also required.

ANNEX

Member List of the Steering Committee (February 4, 1988)

ATTENDANCE FROM THE MALAYSIAN SIDE

1. Dr. Abdullah Mohd Tahir (Chairman)
Industry Section
Economic Planning Unit
Prime Minister's Dept.
2. Mr. Dzulkifli Mahmud
MEXPO,
Min. of Trade & Industry.
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ATTENDANCE FROM THE JAPANESE SIDE

1. Mr. Heihachiro Aoki
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2. Mr. Issei Koide
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9. Mr. Keizo Kagawa
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10. Mr. Koichi Hayase
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Member List of the Technical Committee (March 28, 1988)

ATTENDANCE FROM THE MALAYSIAN SIDE

1. Y. Bhg. Tan Sri Datuk Zainal - Chairman MIDA
Abidin Sulong
2. Mr. N. Sadasivan - MIDA
3. Mr. Geh Sim Hong - MIDA
4. Mrs. Zainun Aishah Ahmad - MIDA
5. Mr. Ahmad Sharkan - MIDA
6. Mrs. Rohana Baharuddin - MIDA
7. Mrs. Foong Jit Hai - MIDA
8. Mr. Tan Chee Chai - MIDA
9. Mr. Chua Chee Keong - MIDA
10. Mr. Foo Sin Fong - MIDA
11. Mr. Yau Chin Chong - MIDA
12. Mrs. Komala Devi - MIDA
13. Mr. N. Parameswaran - MIDA
14. Mr. A. Halim b. Ab. Rahman - SIRIM
15. Mr. Ramli Salleh - SIRIM
16. Mr. Megat A.Z. - SIRIM
17. Mrs. Khodijah Abdullah - MTI (ID)

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4. Mr. Sumihito Hirai - Development Economist/Industrial Policy
5. Mr. Takehide Teranishi - Economist/Engineering & Machinery
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7. Mr. Takashi Nobehara - Deputy/Development Economist/Management
8. Mr. Mitsuo Shimizu - Industrial Engineer/Production Engineering
9. Mr. Hirofumi Ohnishi - Embassy of Japan
10. Mr. Keizo Kagawa - JICA Malaysia Office
11. Mr. Koichi Hayase - JICA Expert (MIDA)



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PRODUCT DEVELOPMENT SURVEY - QUESTIONNAIRE

The Malaysian Industrial Development Authority (MIDA) and the Japan International Cooperation Agency (JICA) are jointly conducting a survey on the glassware, ceramic, automobile parts, and mold and die industries in Malaysia.

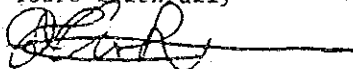
The purpose of this survey is to develop Malaysian export industries and promote exports of Malaysian products. The survey attempts an indepth study of factors impeding export in general and export industries in particular, and seeks to suggest ways to overcome such shortcomings.

The Study Team recognizes that one of the priorities of Malaysia's industrialisation programme is promotion of its exports overseas. In this respect, we beseech your assistance and cooperation in this study.

We shall be obliged if you could complete the enclosed questionnaire with detail information about your respective operation, and return to us via the postage paid self-addressed envelope provided by March 10, 1988.

Meanwhile, if there are any queries, please do not hesitate to contact Mr Aoki, Mr Koide, Mr Hirai, Ms Vivien or Ms Judy of JICA Study Team, c/o Malaysian Industrial Development Authority (MIDA), Tingkat 3, Wisma Damansara, Jalan Semantan, Damansara Heights, P O Box 10618, 50720 KUALA LUMPUR, Tel: 2550743, 2557051, 2551490 or 2550964.

Yours faithfully


HEIHACHIRO AOKI
Leader of JICA Study Team

Encl.

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* Pejabat-Pejabat Wilayah: * Alor Setar * Ipoh * Johor Bahru * Kota Bharu * Kota Kinabalu * Kuantan * Kuching * Trengganu.
* Pejabat-Pejabat Seberang Laut: * Chicago * Cologne * Hong Kong * London * Los Angeles * New York * Paris * Seoul
* Singapore * Sydney * Tokyo * Zurich

Date of filling up.....

QUESTIONNAIRE

A COMPANY OUTLINE

1. Name of Company :

Address of Head Office :

Tel No:

Tlx No:

Fax No:

2. Date of Establishment :

3. Paid-up Capital : M\$

4. Name of Chief Executive :

5. Number of Employees :

6. Main Production Items :

7. Total Annual Sales : 1986 M\$

8. Type of Company :
(Tick (/) whichever applicable)

Sole proprietorship ()

Limited partnership ()

Company corporation ()

Joint venture company ()

Government company ()

9. Composition of Employees - Ratio of total employees:

i) Managerial employees - %

ii) Clerical employees - %

iii) Technological employees - %

iv) General workers - %

B PRODUCTION

1. Production Items and Value (Express in M\$)

<u>Items</u>	<u>1988</u>	<u>1986</u>
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2. Production Utilization:

(Tick (/) whichever applicable)

Below 50% ()

50--75% ()

Above 75% ()

Reasons if operational rate below 50% (Please specify):

3. Production Costs

Raw materials Cost	:	% of total manufacturing cost
Personnel Expenses	:	% of total manufacturing cost
Fuel Expenses	:	% of total manufacturing cost
Outside order Expenses	:	% of total manufacturing cost
Manufacturing Expenses	:	% of total manufacturing cost
Others	:	% of total manufacturing cost

4. Supplier of Raw Materials
(Tick (/) whichever applicable)

Overseas ()

Domestic ()

5. i)	Ratio of Imports to Total Raw Materials	:	%
ii)	Ratio of domestic products to total raw materials	:	%
iii)	Main import items	:	%

C. EXPORTS

(Please tick (/) whichever applicable)

1. Currently not exporting but considering export of products in the near future ()
2. Not Exporting ()
3. Exporting ()
4. Total Annual Export Value (1986 - M\$)

<u>Items</u>	<u>Export Value M\$</u>	<u>Countries of Destination</u>
Direct exports ()	Indirect exports ()	
Smooth ()	Not Smooth ()	

If not smooth, please specify reason :

5. Motives for starting export :

- a) Receipt of overseas order ()
- b) Participation in overseas trade fair ()
- c) Receipt of order from domestic trading firm ()
- d) Failure to secure domestic market ()
- e) Others (Please specify)

What are you doing for promotion of exports?

6. a) Advertisement in overseas newspapers, magazines, etc ()
- b) Participation in overseas trade fair ()
- c) Survey of overseas market independently or through third party ()
- d) Dependence on trading firm ()
- e) Others (Please specify) ()
- f) None ()

7. i) Complaints from importers :
 Have arrived () Have not arrived ()
- ii) Contents of the complaints:
 a) Quality of products differs from those ordered ()
 b) Design is inferior ()
 c) Shortage in quantity ()
 d) Raw materials are inferior ()
- iii) Countries of destination from which complaints were made:

8. i) Preferential Measures for Exports:
 Received () Not Received ()
- ii) If not received :
 a) Procedures are too complicated ()
 b) No knowledge that the system exists ()
 c) Grant of measures is too slow ()
 d) Effects are doubtful ()
 e) Others (Please specify) ()

- iii) What measures are you receiving?
 a) Export Credit Refinancing Scheme ()
 b) Abatement of Adjust Income for Export ()
 c) Double Deduction of Export Credit Insurance
 Premiums ()
 d) Double Deduction for Promotion Export ()
 e) Industrial Building Allowance ()
 f) Others (Specify) ()

D. SHORTCOMINGS AND PROBLEMS

1. Sales

- a) Slump of domestic market ()
- b) Slump of foreign market ()

2. Finance

i) Difficult to raise funds because of :

- a) High interest rates ()
- b) Complicated procedures ()
- c) Lack of security ()
- d) Others (Please specify) ()

ii) Difficult to get preferential financing

- a) Export Credit Refinancing Scheme ()
- b) New Investment Fund ()
- c) Others (Please specify)

iii) Tax System

- (1) High import duties on parts and raw materials ()
- (2) Preferential tax system is hard to use ()

If so, which is especially difficult to use?

- a) Accelerated Depreciated Allowance ()
- b) Drawback of Customs Duties ()
- c) Abatement of Adjust Income for Export ()
- d) Double Deduction for Promotion of Export ()
- e) Others (Please specify)

- (3) Corporate taxes are high ()
- (4) Business tax is high ()

3. Employment

- a) Shortage of workers itself ()
- b) Lack of skilled workers ()
- c) No experience for in-company training ()
- d) Others (Please specify)

4. Marketing

- a) No Marketing affairs ()
- b) No experience for marketing ()
- c) Others (Please specify)

5. Technology

- a) Obsolete machines ()
- b) Lack of machines ()
- c) No Planner/no designer/no new product developer ()
- d) Others (Please specify)

6. Management

- a) Labour-management problems ()
- b) Lack of skilled managers ()
- c) Information and know-how about management ()
- d) Others (Please specify)

7. Competition

- a) Severe competition from rivals (Local/importers) ()
- b) High price ()
- c) Shortage of raw materials ()
- d) Others (Please specify)

E. OVERCOME SHORTCOMINGS THROUGH JOINT VENTURE/TECHNOLOGICAL TIE-UPS

1. i) Desire for joint venture : Yes () No ()
ii) Desire for technological tie-up : Yes () No ()
iii) Desired joint-venture partner country:
a) Japan ()
b) United States ()
c) United Kingdom ()
d) Others (Please specify)

2. What do you expect from the partner of a joint-venture company?

- a) Technology transfer
b) On the job training
c) Overseas market which has been already developed by the partner
d) Knowledge of management
e) Finance

F. GOVERNMENT REGULATIONS WHICH YOU DESIRE TO BE
REMOVED OR LIBERALIZED

Please specify :

G. PREFERENTIAL TREATMENT POLICIES WHICH HAVE BEEN
ESPECIALLY EFFECTIVE

Please specify :

End of Questionnaire
Thank You for your kind cooperation

Mailing List for Questionnaire SurveyQuestionnaire Survey to the local manufacturers

- | | | |
|------------------------------|---|--------------------|
| 1. Item | : | Molds and Dies |
| Total Despatched | : | 44 |
| Date of Despatched | : | Feb. 16 & 26, 1988 |
| No of answers as of March 18 | : | 5 |
| 2. Item | : | Autoparts |
| Total Despatched | : | 25 |
| Date of Despatched | : | Feb. 16, 1988 |
| No of answers as of March 18 | : | 4 |
| 3. Item | : | Glassware |
| Total Despatched | : | 4 |
| Date of Despatched | : | Feb. 16, 1988 |
| No of answers as of March 18 | : | 1 |
| 4. Item | : | Chinaware |
| Total Despatched | : | 7 |
| Date of Despatched | : | Feb. 16, 1988 |
| No of answers as of March 18 | : | 1 |

(Attached are the list of the companies to which questionnaires were sent)

Molds & Dies

Yau Kam Fook Plastic Industries Sdn Bhd

Lot 20/69, Pesiaran Selangor 40700 Shah Alam SELANGOR

Tel: 03-5591657

Keen Components Industries Sdn Bhd

8 Jalan 213 46050 Petaling Jaya SELANGOR

Tel: 03-7912376

Far East Metal Works Sdn Bhd

No. 17 Jalan Tandang 46050 Petaling Jaya SELANGOR

Tel: 03-7560222

Mattel Tools Sdn Bhd

993 Solok Perusahaan 3 Prai Industrial Complex 13600 Prai SEBERANG PRAI

Tel: 04-308241

Malaysian Gauge & Tools Sdn Bhd

Jalan Tukang 2/2 40000 Shah Alam SELANGOR

Tel: 03-5592806

Loon Sun Engineering Sdn Bhd

Lot 8233 Jalan 225 46100 PETALING JAYA

Tel: 03-7561655

Hup Lee Engineering Works

No. 46 Jalan SS 25/28 Taman Mayang 47301 Petaling Jaya SELANGOR

Tel: 03-7039321

Kejuruteraan Faun Yee Sdn Bhd

No. 12 Lot B9-10 Jalan 213 46050 Petaling Jaya SELANGOR

Tel: 03-7911600

Pan Malaysia Engineering Works

No. 19 Jalan Segambut Atas Segambut Industrial Area 52100 KUALA LUMPUR

Tel: 03-6265730

Solar Mechanical Engineering
1380-2, 5 1/2 Miels Klang road
58000 KUALA LUMPUR
Tel: 03-7929148

Sun Tong Seng Mould-Tech S/B
16 Jalan P/8 MIEL Industrial Area Bandar Baru Bangi 43000 Kajang SELANGOR
Tel: 03-8258132/3/4

Kam Kit Engineering Sdn Bhd
46A Jalan Negara Taman Melawati 53100 KUALA LUMPUR
Tel: 03-4083560

Ngai Foong Engineering Works Sdn Bhd
140 Mezzanine Floor Jalan Besar salak South 57100 KUALA LUMPUR
Tel: 03-7813902/7812417

Rax Industries Trading Sdn Bhd
628 Jalan Sekolah Rendah 43300 Seri Kembangan SELANGOR
Tel: 03-9486586

Hip Hoe Engineering Works Sdn Bhd
33A Jalan Kampong Pasir Batu 6, Jalan Klang Lama 58200 KUALA LUMPUR
Tel: 03-7921549

Acmold Engineering Sdn Bhd
102 Jalan 27 Kawasan 16 Sungei Rasah Kawasan Perindustrian Ringan 41300 Klang
SELANGOR
Tel: 3424077

Hiat Sang Engineering Works Sdn Bhd
813 Jalan 33 Salak South New Village 57100 KUALA LUMPUR
Tel: 03-7834277

Top 1 Plastic Mould Designing Sdn Bhd
1113 Jalan Bagan Lalang 13400 BUTTERWORTH
Tel: 04-311695

Erect Engineering Works Sdn Bhd
SL 12 Lot 14981 7 1/2 Miles Jalan Puchong 458200 KUALA LUMPUR
Tel: 03-7830776

Tan Engineering Works
23 Jalan Segambut Atas Segambut 51200 KUALA LUMPUR
Tel: 03-6267793

Tecnokraft Engineering Sdn Bhd
B1, Batu 4 Jalan Klang Lama 58100 KUALA LUMPUR
Tel: 03-7832578

Leader Engineering Sdn Bhd
1325 Kawasan Perusahaan Tikam Batu 08600 Sungei Petani KEDAH
Tel: 04-478585

Malaysian Engineering Plastics Sdn Bhd
Part of Lot 1241 Phase 3 Bayan Lepas Free Trade Zone 11900 PENANG
Tel: 04-838611

Dynamic Precision Tools Sdn Bhd
7 Lorong Sempadan 5 11400 PENANG
Tel: 04-681358

Loshta Sdn Bhd
12 Lebuhan Raya Kapal Off Chain Ferry Road 12100 Butterworth PENANG
Tel: 04-348107

Metfab Engineering (M) Sdn Bhd
Plot 56 Lintang Kampong Jawa Bayan Lepas Non Free Trade Zone 11900 PENANG
Tel: 04-841102

Ching Khong Engineering Works Sdn Bhd
46A Jalan 2 Salak South Baru 57100 KUALA LUMPUR
Tel: 03-7831303

Heng Kong Engineering Sdn Bhd
13 Jalan Kaskas 2, Taman Ceras 56100 KUALA LUMPUR
Tel: 03-9300937

Sun Hing Engineering Works Sdn Bhd
17 Jalan 3 off Jalan Chan Söw Lin 55200 KUALA LUMPUR
Tel: 03-2213370

Wong Engineering Industries Sdn Bhd
1114 Jalan Bagan Lallang 13400 Penang BUTTERWORTH
Tel: 04-311672/344669

Mifa Precision Engineering Sdn Bhd
351-I Perak Road 11600 PENANG
Tel: 04-28680

Rapid Engineering Sdn Bhd
1238-M Jalan Paya Terubong 11060 PENANG
Tel: 04-685388

Chip Soon engineering Works Sdn Bhd
401 Batu 6 Jalan Klang Lama 58000 KUALA LUMPUR
Tel: 03-7920201

Hui Tat Plastic Mould Manufacturer S/B
318 Tasek Permai Ampang 68000 SELANGOR
Tel: 03-4919926

Yang Mechanical Engineering Works
5 Jalan 3 Off Jalan Sungei Besi 57100 KUALA LUMPUR
Tel: 03-2213839

Doe Industries Sdn Bhd
11A-1 Jalan 19/29 46300 PETALING JAYA
Tel: 03-7570013

Sri K-K Industries Sdn Bhd
Lot 4A Merlimau Ind Estate 77300 Merlimau MELAKA
Tel: 06-391325

Watertec (Malaysia) Sdn Bhd
33A Jalan Kg Pasir Bt 6, Jalan Klang Lama 58200 KUALA LUMPUR
Tel: 03-7929054

Warga Hikmat Kejuruteraan Sdn Bhd
539 Jalan Tuanku Antah 70100 SEREMBAN
Tel: 06-723026

Melcom Industries Sdn Bhd
Pandamaran Industrial Site P.O.Box 104 42008 PORT KELANG
Tel: 3687941

Yau Fong Foundry Sdn Bhd
Jalan Lahat Falim 30760 Ipoh PERAK
Tel: 05-545050

Lee Bing Hon Engineering Works
28A Jalan Tiga Off Jalan Chan Sow Lim 55200 KUALA LUMPUR
Tel: 03-2413160

Kris Components Snd Bhd
Lot 11A Lorong 2A Ceras Jaya Jalan Balakong 43200 Batu 9 Cheras SELANGOR
Tel: 03-9055117

Omiya Moulding Industry Sdn Bhd
2 Tingkat Tembikai 2 Taman Seri Rambai 14000 B.M. PENANG
Tel: 04-597802

Autoparts

VDO Instruments Sdn Bhd

2455, Mk. 1, Lorong Perusahaan 2 Prai Industrial Complex 13600 Prai PENANG

Tel: 04-308193

Alloy Automotive Sdn Bhd

12 Jalan 115 Kepong Baru 52100 KUALA LUMPUR

Tel: 03-6345736

Amalgamated Parts Manufacturers S/B

Lot 2684-2686 Jalan Tingkat Kilang Jelepong Industrial Estate 30100 Ipon PERAK

Tel: 05-7331419

Oriental Manufacturing Sdn Bhd

9 Batu 5 1/2, Jalan Scudai 81200 JOHORE BAHRU

Tel: 07-361355

Gah Hup Seng Sdn Bhd

Batu 6 Jalan Tanjung Karang Tanjung Karang 45500 Tanjung Karang SELANGOR

Tel: 03-8795810

Nippondenso (M) Sdn Bhd

Lot 2 Section 13 Bangi Industrial Estate Bandar Baru Bangi 43000 Kajang SELANGOR

Tel: 03-8250121

Oriental Showa

Plot 19, Tikam Batu Industrial Estate Tikam Batu Sg Petani 08600 Kedah

Tel: 04-478793

Lucas (M) Sdn Bhd

Plot 17 Senai Industrial Estate (FIZ) KB 105 81400 Senai JOHOR

Tel: 07-591301-4

Auto Parts Mfrs Co Sdn Bhd

62/68 Jalan Ipoh 51200 KUALA LUMPUR

Tel: 03-3684207

Oriental Metal Industries (M) Sdn Bhd
Lot 51 Jalan Utas P.O. Box 24 40700 Shah Alam SELANGOR
Tel: 03-5594526

Patco (M) Sdn Bhd
Lot 2 Persiaran Selangor 40000 Shah Alam SELANGOR
Tel: 03-5504554/8708

United Industries Sdn Bhd
5 1/2 Miles Jalan Meru 41050 Kelang SELANGOR
Tel: 03-3921101

Teck See Plastic Sdn Bhd
Lot 4 Jalan Pasak 15/8 Off Jalan Utas 40000 Shah Alam SELANGOR
Tel: 03-5503188/181/185

AAZ ZF Steering Sdn Bhd
8th Floor Beno Tower 160 Jalan Ampang 50450 KUALA LUMPUR
Tel: 03-2439233

Belton Sdn Bhd
Lot 32 Sg. Siput Light Industrial Estate 31100 Sungei Siput PERAK
Tel: 05-781036

S.B. Industries Sdn Bhd
Lot 32 & 34 Jalan Beliong 40700 SHAH ALAM SELANGOR
Tel: 03-5591795

Gold parts Impex Company
Suite 233 Orchid Plaza Jalan Wong Ah Fook 80000 JOHOR BARU
Tel: 07-241198

Cheong Hing Trading (M) Sdn Bhd
130 Jalan Mega Mandung Bandar Complex 58200 KUALA LUMPUR
Tel: 03-7822422

Sandan Intl (M) Sdn Bhd
PLO 212 Jalan Pekeliling P.O. Box 24 817071 Pasir Gudang JOHOR
TEL: 07-513501-6

Emasen (M) Sdn Bhd
Lot 1 Jalan 243 46100 PETALING JAYA
Tel: 03-7767268 Ex. 215

Don Eastern Sdn Bhd
Lot 18 Jalan 19/1 46300 PETALING JAYA
Tel: 03-7564820

Delloyd Auto Parts (M) Sdn Bhd
N 25 Jalan Tapah Off Jalan Goh Hock Huat 41400 KLANG
Tel: 3422924

Driton (M) Sdn Bhd
41 Jalan Harimau Tarum Century Garden 80250 JOHORE BAHRU
Tel: 07-319922

May Plastics Industries Sdn Bhd
15 Jalan 113 Kawasan Perindustrian Kepong Baru 52100 KUALA LUMPUR
Tel: 03-6344180

Pacifico Alliance Sdn Bhd
29-58 Jalan Loke Yew 55200 KUALA LUMPUR
Tel: 03-2214633

Glassware

JG Containers (M) Sdn Bhd

P.O. Box 16 Lot 114 Jalan Kebun 41700 Kelang SELANGOR

Tel: 03-3313188

Malaya Glass Factory Bhd

P.O. Box 60 72A Jalan Tampoi 80700 JOHORE BAHRU

Tel: 07-371701

Schott Glass (M) Sdn Bhd

Lot 217 FTZ 13600 Prai PENANG

Tel: 04-308200

Malaysian Sheets Glass Bhd

P.O. Box 12221 50770 KUALA LUMPUR

Tel: 03-6561001

Chinaware

Asian Pottery (P) Sdn Bhd
547 Tanjung Bungah 11200 PENANG
Tel: 04-895317

Inter Revco Industrial (M) Sdn Bhd
18 Jalan 4 Kawasan 16 Taman Intan 41300 Klang SELANGOR
Tel: 03-3424677

Korimal Artificial Concrete Timber Sdn Bhd
Lot 5 Jalan Perusahaan Kiri Setapak 53200 KUALA LUMPUR
Tel: 03-4227250

Everadvance Trading Sdn Bhd
Suite 19.05A, 19th Floor Wisma MCA 163 Jalan Ampang 50450 KUALA LUMPUR
Tel: 03-2616373

Thet Hydroculture (M) Sdn Bhd
Lot 26A Jalan 223/51A 46100 PETALING JAYA
Tel: 03-7562480

Clay Industries Sdn Bhd
57 Miles, Jalan Johor 86100 Air Hitam Kluang JOHOR
Tel: 07-784201

Oriental Ceramic Sdn Bhd
600 Jalan Kluang 83000 Batu Pahat JOHOR
Tel: 07-443880

**Results of Questionnaire Survey on Related Companies
in Four Industries in Malaysia**

	Moulds and Dies	Auto Parts	Chinaware	Glassware	Total
No. of Questionnaires Sent	44	25	7	4	80
Total No. Returned	9	10	1	2	22
Place Materials Procured (multiple responses)					
Overseas	5	7	1	2	15
Domestically	8	6	1	2	17
(1) Exports					
Export Experience Possessed					
Motivation for Exports	4	7	1	2	14
a. Orders Received from Overseas	8	4	0	2	14
b. Participation in Overseas Exhibition	0	2	0	0	2
c. Orders Received from Domestic Trading Company	2	1	0	0	3
d. Failure to Secure Domestic Market	0	0	0	0	0
e. Others	0	3	1	0	4
Export Promotion Measures					
a. Placing Advertisements in Overseas Magazines etc.	1	1	0	0	2
b. Participation in Overseas Exhibitions	1	2	0	0	3
c. Independent Survey of Overseas Market	2	3	1	1	7
d. Reliance on Trading Companies	2	1	0	0	3
e. Others	1	2	0	2	5
f. Nothing	2	3	0	0	5
Direct Exports	3	6	1	2	12
Indirect Exports	3	0	0	0	3
Use of Export Incentives	1	3	0	2	6
a. Export Credit Refinancing (ECR) System	1	1	0	2	4
b. Abatement of Adjusted Income for Export	0	2	0	1	3
c. Double Deduction of Export Credit Insurance Premiums	0	0	0	0	0
d. Double Deduction of Export Promotion Expenses	0	0	0	1	1
e. Industrial Building Allowance (IBA)	0	1	0	1	2
f. Others	0	1	0	0	1
(2) Problems in Business					
Sales					
a. Sluggishness of Domestic Market	6	7	1	1	15
b. Sluggishness of Overseas Market	2	0	0	0	2
Finances (i) Difficulties in Raising Funds					
a. High Interest Rates	4	1	0	0	5
b. Complicated Procedures	5	2	0	0	7
c. Insufficient Security	2	3	1	0	6
d. Others	1	1	0	0	2
Finances (ii) Difficulties in Preferential Financing					
a. Export Credit Refinancing (ECR)	1	1	0	0	2
b. New Investment Fund (NIF)	2	2	0	0	4
c. Others	1	0	0	0	1
Tax System					
(1) High Tariffs on Imported Materials and Parts	7	5	0	1	13

(2) Difficulties in Utilization of Preferential Tax Measures					
a. Acceleration Depreciation	0	1	0	0	1
b. Refund of Tariffs	2	2	0	0	4
c. Abatement of Adjusted-Income	1	1	0	0	2
d. Double Deduction of Export Promotion Expenses	0	0	0	0	0
e. Others	1	0	0	0	1
(3) High Corporate Taxes	6	3	0	1	10
Employment					
a. Insufficient Workers	2	2	0	0	4
b. Insufficient Skilled Labor	8	3	0	0	11
c. Insufficient Experience in Corporate Training	1	4	0	0	5
d. Others	2	0	0	1	3
Marketing					
a. No Marketing Activities	5	1	0	0	6
b. No Experience in Marketing	2	1	0	0	3
c. Others	0	0	0	0	0
Technology					
a. Antiquated Equipment	0	1	0	0	1
b. Insufficient Machines	4	2	0	0	6
c. No Planning, Design, and New Product Development Personnel	5	3	0	0	8
d. Others	0	1	0	0	1
Management					
a. Labor-management Problems	2	2	0	0	4
b. Insufficient Skilled Managers	1	2	0	0	3
c. Management Information and Know-How	3	1	0	0	4
d. Others	1	1	0	0	2
Competition					
a. Competition with Rivals	5	5	0	1	11
b. High Prices	3	3	0	0	6
c. Insufficient Raw Materials	2	4	0	1	7
d. Others	0	1	0	0	1
(3) Willingness for Technical Tieups or Ventures					
Joint Venture Desired	7	3	1	0	11
Technical Tieup Desired	8	4	1	0	13
Joint Venture Country Desires					
a. Japan	6	3	1	0	10
b. U.S.		3	2	1	0
c. U.K.		1	3	0	0
d. Others	3	1	0	0	4
Hopes Vi-a-Vis Partner					
a. Technical Transfer	4	4	0	1	9
b. OJT		3	3	0	0
c. Overseas Markets Developed by Partner	5	4	1	1	11
d. Management Know-How	3	2	0	0	5
e. Funds	3	3	1	0	7
(4) Operation Rates					
a. 50% or Less	1	2	0	0	3
b. 50 to 75%	3	4	0	0	7
c. 75% or More	3	2	1	2	8

Note: Some Multiple Responses.

**Results of Telephone Interviews
(Degree of Knowledge and Use of Various Incentives)**

Item	Molds and Dies	Industry			TOTAL
		Auto Parts	Ceramicware	Glassware	
A. Export Incentives					
a. Export credit refinancing system (ECR)	3	8 (2)	2	2 (2)	15 (4)
b. Abatement of export income	1 (1)	5	1	2 (2)	9 (3)
c. Double deduction of export credit insurance premiums	1 (1)	6 (1)	0	2 (2)	9 (4)
d. Double deduction of export promotion costs	2 (1)	6	2	2 (1)	12 (2)
e. Return of tariffs	1	5 (4)	0	2 (2)	8 (6)
B. Financing System					
a. New Investment Fund (NIF)	3	9 (1)	2	3 (2)	17 (3)
b. Malaysian Industrial Development Fund (MIDF)	3 (1)	9 (4)	3	3 (1)	18 (6)
c. Malaysian Export Credit Insurance Berhad (MECIB)	1	2	0	2	5
d. Credit Guarantee Corporation (CGC)	3	3 (1)	2	3 (1)	11 (2)
e. Commercial banks	2 (1)	9 (9)	3 (3)	3 (3)	17 (16)
C. Tax System					
a. Accelerated depreciation	1	6 (2)	2	3 (2)	12 (4)
b. Tax holidays	2 (1)	7 (2)	1	2 (1)	12 (4)
c. Deductions of investment taxes	2 (1)	8 (4)	2	3 (1)	15 (6)
D. Government Organizations					
a. Malaysian Export Trade Center (MEXPO)	2	8 (4)	2 (2)	2	14 (6)
b. National Productivity Center (NPC)	2	8 (4)	2 (1)	3	15 (5)
c. Standard and Industrial Research Institute of Malaysia (SIRIM)	3	9 (7)	3 (1)	3	18 (8)
d. State Economic Development Corporation (SEDC)	3 (2)	9 (4)	3 (1)	3	18 (7)
Total Responding Companies	3	9	3	3	18

Note: Figures in parentheses indicate number of companies which have used systems in past.

(List of Companies Covered by Telephone Interviews)

[Molds and Dies] 3 companies

1. Loh Kim Teow Engineering Sdn. Bhd.
2. Metfab Engineering Sdn. Bhd.
3. Binamold Sdn. Bhd.

[Auto Parts] 9 companies

1. Belton Sdn. Bhd.
2. AAE-ZF Steerings Sdn. Bhd.
3. Oriental Metal Industries (M) Sdn. Bhd.
4. Oriental Assemblers Sdn. Bhd.
5. Sanden
6. U.I. Group
7. Auto Parts Manufactures Co., Sdn. Bhd.
8. Car Seats (Malaysia)
9. Izumi (Malaysia) Sdn. Bhd.

[Ceramicware] 3 companies

1. Asian Pottery (Penang) Sdn. Bhd.
2. The Aw Pottery
3. Oriental Ceramics Sdn. Bhd.

[Glassware] 3 companies

1. K.L. Glass Manufacturers Co. Sdn. Bhd.
2. Malaya Glass
3. Malaysian Lamps Sdn. Bhd.

INTERVIEW GUIDE FOR MOULD PROCESSING FACTORY1. Company Outline

- 1) Company Name : _____
- 2) Year of Establishment: _____
- 3) Number of Employees: _____
- 4) Turnover : _____ 1,000 M\$/Year
- 5) Production Items, Volume and Value

<u>Production Item</u>	<u>Production Volume</u> (No. of Models/Month)	<u>Production Value</u> (M\$/Month)
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____

- 6) Electricity Consumption : _____ KWH/Month
- 7) Water Consumption : _____ m³/Month
- 8) Fuel Consumption : _____ Liter/Month
()

2. Factory Operation

- 1) Working Hours per Day : _____ Hours/Day
- 2) Working Days per Month : _____ Days/Month
- 3) Shift System : _____ Shifts/Days

3. Review of Each Production Process

3-1 Raw Materials, Components, Sub-Assembly Parts

1) Body

<u>Item</u>	<u>Specifi- cation</u>	<u>Cost</u>	<u>Maker</u>	<u>Delivery Period</u>
(Base and Related Parts)				
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____
(Main Portion)				
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____
(Slide Parts)				
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____

2) Assembled Components and Parts

<u>Item</u>	<u>Ratio of Internal Production</u>	<u>Supplier</u>	<u>Delivery Period (Days)</u>
* Guide Pin	_____	_____	_____
* Projected Pin	_____	_____	_____
* Return Pin	_____	_____	_____
* Bolt	_____	_____	_____
* Angular Pin	_____	_____	_____
* Others	_____	_____	_____

3) Sub-Assembled Parts

<u>Process of Sub-Assembly</u>	<u>Use of Affiliated Companies (Yes/No)</u>	<u>Delivery Period (Days)</u>
* Carving	_____	_____
* Latheing	_____	_____
* Milling	_____	_____
* Heat Treatment	_____	_____
* Other Processes ()	_____	_____

3-2 Designing and Process Planning

1) Use of CAD - CAM System Yes _____ No _____

2) Main Facilities and Equipments

<u>Type</u>	<u>Model/Capacity</u>	<u>Model Year</u>	<u>Country of Origin</u>
*	_____	_____	_____
*	_____	_____	_____
*	_____	_____	_____

3) Allocations of Workers

4) Problems (Remarks)

3-3 Processing Process

1) Internal Preparation of NC Programming (Tape/Disc)

Yes _____ No _____

2) Internal Operator of NC Machines

Yes _____ No _____

3) List of Main Equipment

<u>Type</u>	<u>Model/Capacity</u>	<u>Model Year</u>	<u>Country of Origin</u>
*			
*			
*			
*			
*			
*			
*			
*			

4) Allocation of Workers

5) Characteristics of Production System

Through Process or Divided Process

6) Problems (Remarks)

3-4 Finishing and Assembly

1) Operators' Average Years of Experience: _____ Years

2) Allocation of Workers

3) Problems (Remarks)

3-5 Inspection

1) Main Inspection Equipment

	<u>Type</u>	<u>Model/Capacity</u>	<u>Model Year</u>	<u>Country of Origin</u>
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____

2) Allocation of Workers

3) Problems (Remarks)

3-6 Tool Maintenance

1) Main Facilities

<u>Item</u>	<u>Model/Capacity</u>	<u>Model Year</u>	<u>Country of Origin</u>
*			
*			
*			
*			

2) Allocation of Workers

3) Problems (Remarks)

4. Evaluation of Products

4-1 Items, Production Period, Type of Order and Required Tolerance

<u>Item</u>	<u>Production Period (Days)</u>	<u>Type of Order (New/Repeat)</u>	<u>Tolerance (M/M)</u>
*			
*			
*			
*			
*			
*			

4-2 Quality Control (Quality Analysis)

1) Measures for Product Quality Control

2) Formation of Organization on Quality Control; Assignment of Full-time Quality Control Engineer

3) Establishment of System to Avoid Repeating Quality Problems

4) Problems on Quality Control system

4-3 Overall Evaluation of Products

5. Level of Technology

5-1 Ratio of New Products Developed by Own Technology

	<u>Item</u>	<u>Ratio (%)</u>
*	_____	_____
*	_____	_____
*	_____	_____
*	_____	_____
*	_____	_____

5-2 License

- 1) Number of Licenses Owned No. : _____
- 2) Number of Applications for License a Year No./Year : _____

5-3 Authorized Industrial Standards

<u>Name of Standard</u>	<u>Country of Standard</u>	<u>Year of Authorization</u>
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____

6. Delivery Control

- 1) Occurrence Ratio of Delivery Delay %/Month: _____
- 2) Cause of Delivery Delay

7. Employees

7-1 Employee Management

- 1) Attendance Ratio: _____ %/Day
- 2) Employee Turnover: _____ %/Year

7-2 Engineering Level of Employees

- 1) Educational Level of Factory Workers

<u>Final Education</u>	<u>Number</u>
* University	_____
* Technical Institution	_____
* High School	_____
* Junior High School	_____
* Elementary School	_____

2) Years of Experience

Number

- * 1 - 3 Years _____
- * 3 - 5 Years _____
- * 5 - 10 Years _____
- * 10 - 15 Years _____
- * Over 15 Years _____

7-3 Internal Education and Training System

7-4 Internal Measures for the Improvement of Working Morale

- 1) Periodical Meetings: Yes _____ No _____
- 2) Open Suggestion System: Yes _____ No _____
- 3) Others

8. Production Costs

1) Wage

- * Supervisor : _____ M\$/Day
- * Skilled Worker - Male : _____ M\$/Day
- Female : _____ M\$/Day
- * Non-skilled Worker - Male : _____ M\$/Day
- Female : _____ M\$/Day

2) Ratio of Production Costs

- * Labour : _____ %
- * Raw Materials : _____ %
- * Utilities: _____ %
(Electricity, Water, Fuel, etc.)
- * Sub-assembly: _____ %
- * Depreciation: _____ %
- * Maintenance: _____ %
- * Others: _____ %

9. Others

9-1 What kind of measures do you think are necessary to strengthen competitiveness from the view point of production technology?

Your Company

Industrial Association

Government

9-2 Present Government Aids on Development of Industry and Present Situation with Your Company

<u>Type of Aid</u>	<u>Application</u>	<u>Problems</u>
*		
*		
*		
*		

9-3 Do you have a plan to make a joint venture or enter into technical agreement with foreign companies?

.....
.....
.....
.....

INTERVIEW GUIDE FOR AUTOMOTIVE PARTS (METAL) FACTORY

1. Company Outline

1) Company Name : _____

2) Year of Establishment: _____

3) Number of Employees: _____

4) Turnover : _____ M\$/1986

5) Production Items, Volume and Value

<u>Production Item</u>	<u>Production Volume</u> (No. of Models/Month)	<u>Production Value</u> (M\$/Month)
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____

6) Electricity Consumption : _____ KWH/Month

7) Water Consumption : _____ m³/Month

8) Fuel Consumption :

() _____ Liter/Month

() _____ Liter/Month

2. Factory Operation

1) Working Hours per Day : _____ Hours/Day

2) Working Days per Month : _____ Days/Month

3) Shift System : _____ Shifts/Days

3. Review of Each Production Process

3-1 Designing

1) CAD System

	<u>Model No.</u>	<u>No. of Systems</u>
Yes _____	* _____	_____
	* _____	_____
No _____		

2) Main Facilities for Trial Production

<u>Type</u>	<u>Model No. /Capacity</u>	<u>No. of Machines</u>	<u>Model Year</u>	<u>Country of Origin</u>
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____

3) Allocation of Workers

4) Problems (Remarks)

3-2 Raw Materials, Components, Sub-assembly (OEM) Parts

1) Raw Materials

<u>Major Items</u>	<u>Specifi- cation</u>	<u>Cost</u>	<u>Supplier</u>	<u>Volume (/Month)</u>	<u>Delivery Period (Days)</u>
*					
*					
*					
*					
*					

2) Components and Parts (Except OEM Parts)

<u>Major Items</u>	<u>Specifi- cation</u>	<u>Cost</u>	<u>Supplier</u>	<u>Volume (/Month)</u>	<u>Delivery Period (Days)</u>
*					
*					
*					
*					
*					

3) Sub-assembly (OEM) Parts

<u>Major Items</u>	<u>Specifi- cation</u>	<u>Cost</u>	<u>Supplier</u>	<u>Volume (/Month)</u>	<u>Delivery Period (Days)</u>
*					
*					
*					
*					
*					

3-3 Machining Process

1) Main Facilities

<u>Type</u>	<u>Model/Capacity</u>	<u>No. of Machines</u>	<u>Model Year</u>	<u>Country of Origin</u>
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____
* _____	_____	_____	_____	_____

2) Preparation of NC Programing

Yes _____ (No. of Programmers : _____)

No _____

3) Operation of NC Machines by Own Operators

Yes _____ (No. of Programmers : _____)

No _____

4) Allocation of Workers

5) Machine Layout

6) Machine Processing by Sub-contractors

<u>Sub-contracted Process</u>	<u>Ratio of Sub-contracting (% over Total Production)</u>	<u>Delivery Period (Days)</u>
*	_____	_____
*	_____	_____
*	_____	_____
*	_____	_____
*	_____	_____
*	_____	_____

7) Problems (Remarks)

3-4 Finishing, Assembling Process

1) Main Facilities

<u>Type</u>	<u>Model No./ Capacity</u>	<u>No. of Machines</u>	<u>Model Year</u>	<u>Country of Origin</u>
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____

2) Work Efficiency

<u>Major Work</u>	<u>Content</u>	<u>No. of Workers</u>	<u>Efficiency</u> (No. of Parts /Man Hour)
*			
*			
*			
*			
*			

3) Allocation of Workers

4) Factory Layout

5) Problems (Remarks)

3-5 Inspection

1) Main Inspection Equipment

<u>Type</u>	<u>Model No./Capacity</u>	<u>Model Year</u>	<u>Country of Origin</u>
*			
*			
*			
*			

2) Allocation of Inspectors at Each Process

3) Problems (Remarks)

3-6 Tools

1) Main Facilities (For Production of Tools)

<u>Type</u>	<u>Model No./Capacity</u>	<u>Model Year</u>	<u>Country of Origin</u>
*			
*			
*			
*			

2) Moulding Dies

<u>Type</u>	<u>Internal Production Ratio (% over Total Production)</u>
* _____	_____
* _____	_____

3) Allocation of Workers

4) Problems (Remarks)

4. Evaluation of Products

4-1 Items, Production Period, Type of Order and Required Tolerance

<u>Major Items</u>	<u>Production Period</u>	<u>Type of Order</u>	<u>Tolerance</u>
* _____	_____	_____	_____
* _____	_____	_____	_____
* _____	_____	_____	_____
* _____	_____	_____	_____

4-2 Quality Control (Quality Analysis)

1) Measures for Keeping Stable Product Quality Control

2) Formation of Organization on Quality Control; Assignment of Full-Time Quality Control Engineer

3) Establishment of System to Avoid Repeating Quality Problems

4) Problems in Quality Control System

4-3) Overall Evaluation of Products

5. Level of Technology

5-1 Ratio of New Products Developed by Own Technology

<u>Item</u>	<u>Ratio (%)</u>
* _____	_____
* _____	_____
* _____	_____
* _____	_____

5-2 License

- 1) Number of Licenses Owned : No. _____
- 2) Number of Applications for License per Year : No./Year _____

5-3 Authorized Industrial Standards

<u>Name of Standard</u>	<u>Country of Standard</u>	<u>Year of Authorization</u>
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____

6. Delivery Control

6-1 Customers' Requested Period : Approx. _____ Days

6-2 Delivery Delay

- 1) Occurrence Ratio of Delivery Delay (%/Month) : _____
- 2) Cause of Delivery Delay

7. Employees

7-1 Employee Management

- 1) Attendance Ratio: _____ %/Day
- 2) Employee Turnover: _____ %/Year

7-2 Engineering Level of Employees

1) Educational Level of Factory Workers

<u>Final Education</u>	<u>Number</u>
* University	_____
* Technical Institution	_____
* High School	_____
* Junior High School	_____
* Elementary School	_____

2) Years of Experience

	<u>Number</u>
* Less than 3 Years	_____
* 3 - 5 Years	_____
* 5 - 10 Years	_____
* 10 - 15 Years	_____
* More than 15 Years	_____

7-3 Internal Education and Training System

7-4 Internal Measures for the Improvement of Working Morale

1) Periodical Meetings: Yes _____ No _____

2) Open Suggestion System: Yes _____ No _____

3) Others

7-5 Technical Training at an Outside Institution

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8. Production Costs

8-1 Wage

- * Supervisor : _____ M\$/Day
- * Skilled Worker - Male : _____ M\$/Day
- Female : _____ M\$/Day
- * Non-skilled Worker - Male : _____ M\$/Day
- Female : _____ M\$/Day

8-2 Ratio of Production Costs

- * Labour : _____ %
- * Raw Materials : _____ %
- * Utilities: _____ %
(Electricity, Water, Fuel, etc.)
- * Sub-assembly: _____ %
- * Depreciation: _____ %
- * Interests: _____ %
- * Maintenance: _____ %
- * Others: _____ %

8-3 Selling Price of Major Products

<u>Items</u>	<u>Specification</u>	<u>Unit Price</u> (M\$/Unit or Set)
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____

9. Others

9-1 What kind of measures do you think are necessary to strengthen competitiveness from the view point of production technology?

Your Company

Industrial Association

Government

9-2 Present Government Aids on Development of Industry and Present Situation with Your Company

<u>Type of Aid</u>	<u>Application</u>	<u>Problems</u>
*	_____	_____
*	_____	_____
*	_____	_____
*	_____	_____

9-3 Do you have a plan to make a joint venture or enter into technical agreement with foreign companies?

INTERVIEW GUIDE FOR CERAMIC FACTORY

1. Company Outline

1) Company Name : _____

2) Year of Establishment: _____

3) Number of Employees: _____

4) Production Items, Volume and Value

<u>Production Item</u>	<u>Production Volume</u>	<u>Production Value</u>
	(pcs./Month or ton/Month)	(M\$/Month)
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____

5) Electricity Consumption : _____ KWH/Year or Month

6) Water Consumption : _____ m³/Year or Month

2. Factory Operation

1) Working Hours per Day : _____ Hours/Day

2) Working Days per Month : _____ Days/Month

3) Shift System

* Calcination Section : _____ Shift/Day

* Other Sections : _____ Shift/Day

3. Review of Each Production Process

3-1 Raw Materials

1) Type of Material, Production Area, Price and Chemical Composition

	Type of Material	Production Area	Price	Chemical Composition
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____

2) Ratio of Blending

	Material	Percentage
* Green Body :	_____	%
	_____	%
	_____	%
	_____	%
* Glaze :	_____	%
	_____	%
	_____	%
	_____	%
* Pigment :	_____	%
	_____	%
	_____	%
	_____	%
* Sagger :	_____	%
	_____	%
	_____	%
	_____	%

3-2 Body Preparation Section

1) Main Machinery & Equipment

<u>Description</u>	<u>No.</u>	<u>Capacity</u>
Jaw Crusher	_____ Set	_____ T/hr
Hammer Mill	_____ Set	_____ T/hr
Ball Mill	_____ Set	_____ T/Batch
Magnetic Ferro Filter	_____ Set	_____ T/hr
Filter Press	_____ Set	_____ T/Batch
De-Airing Auger Machine	_____ Set	_____ T/hr
_____	_____	_____
_____	_____	_____
_____	_____	_____

2) Crushing Size

- * Crusher : Crushing Size : _____ mm
- * Ball Mill : Crushing Time : _____ hr
- : Crushing Grain Size : _____ mesh
- * De-Airing Mixing
 Auger Machine : Water Content : _____ %

3) Number of Workers : _____

3-3 Forming Section

1) Main Machinery and Equipment

<u>Description</u>	<u>No.</u>	<u>Capacity</u>
* Mechanical Jiggering Machine	_____	_____
* Roller Head Jiggering Machine	_____	_____
* Dryer	_____	_____
_____	_____	_____
_____	_____	_____

2) Quantity of Body (Prepared Clay)

For Jiggering : _____ T/Day

For Casting : _____ T/Day

3) Number of Workers : _____

3-4 Biscuit Firing Section

1) Kiln Type : Shuttle or Tunnel Kiln

2) Firing Condition

Firing Capacity : _____ pos/cycle

Firing Temperature and Time : _____ °C _____ hr

Kind of Fuel : _____

Price of Fuel : _____

Number of Workers : _____

3-5 Underglaze Decoration Section

1) Main Machinery and Equipment

<u>Description</u>	<u>No.</u>	<u>Capacity</u>

2) Method of Decoration : Hand Writing Printing

Transfer Paper

3) Use of Pigment

* Method of Arrangement

* Kind and Price

4) Number of Workers :

3-6 Glazing Section

1) Main Machinery and Equipment

<u>Description</u>	<u>No.</u>	<u>Capacity</u>

2) Consumption of Glaze : _____ T/Month or T/Day

3) Condense of Glaze : _____

4) Viscosity of Glaze : _____

5) Use Condition of
Sediment Preventive drug

* Do you use ? : Yes No

* Type & Volume : _____ %

6) Number of Workers : _____

3-7 Glost Firing Section

1) Main Machinery and Equipment

<u>Description</u>	<u>No.</u>	<u>Capacity</u>	<u>Firing</u> <u>Temp. x Time</u>
Shuttle Kiln	_____	_____	_____ °C x _____ hr
Dragoon Kiln	_____	_____	_____ °C x _____ hr
Tunnel Kiln	_____	_____	_____ °C x _____ hr
_____	_____	_____	_____ °C x _____ hr

2) Kind of Fuel : _____

3) Consumption of Fuel : _____ /cycle or Month

4) Firing Method : Sagger Slab

5) Life of Sagger of Slab : _____ Times

6) Number of Workers : _____

7) Defect on Glost Firing

3-8 Over Glaze Decoration Section

1) Main Machinery and Equipment

Description	No.	Capacity

2) Specification of Decoration Kiln

* Type : _____

* Capacity : _____

* Firing Temp. and Firing Time : _____

* Kind of Fuel : _____

3) Number of Workers : _____

3-9 Sagger Making Section

1) Main Machinery and Equipment

Description	No.	Capacity

2) Raw Materials

<u>Description</u>	<u>Place of Produce</u>	<u>Refractoriness</u>
		SK
		SK
		SK
		SK

3) Use of Sagger : _____ Times

3-10 Gypsum Mould Making Section

1) Main Machinery and Equipment

<u>Description</u>	<u>No.</u>	<u>Capacity</u>

2) Method of Mould Forming :

--	--	--

3) Life of Mould

* Gypsum Mould for Jigging : _____ Times

* Gypsum Mould for Casting : _____ Times

4. Yield

Main defect or improvement point in each section

<u>Section</u>	<u>Yield (%)</u>	<u>Defect or Problem</u>
1) Raw Materials		
2) Body Preparation Section		
3) Forming Section		
4) Biscuit Firing Section		
5) Underglaze Decoration Section		
6) Glazing Section		
7) Glost Firing Section		
8) Overglaze Decoration Section		
9) Sagger Making Section		
10) Gypsum Mould Forming Section		

5. Production Cost

1) Wages

* Foreman : _____ M\$/Day

* Skilled Worker - Male : _____ M\$/Day

Female : _____ M\$/Day

* Unskilled Worker - Male : _____ M\$/Day

Female : _____ M\$/Day

2) Construction Ratio of Production Cost

* Labour Cost _____ %

* Raw Materials : _____ %

* Utility _____ %

* Interest _____ %

* Maintenance _____ %

* Others _____ %

INTERVIEW GUIDE FOR GLASSWARE FACTORY

1. Company Outline

- 1) Company Name : _____
- 2) Year of Establishment: _____
- 3) Number of Employees: _____
- 4) Sales Amount : _____ 1,000 M\$/Year
- 5) Overall Production Percentage Pack : _____ %
- 6) Production Items, Volume and Value

<u>Production Item</u>	<u>Production Volume</u> (No. of Models/Month)	<u>Production Value</u> (M\$/Month)
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____

- 7) - Electricity Consumption : _____ KWH/Month
- Water Consumption : _____ m³/Month
- Fuel Consumption : _____ Liter/Month
()

- 8) Capital Participation : _____
(Name of Companies)
- 9) Licenser/Licensee : _____
- 10) No. of Furnaces : _____

2. Factory Operation

- 1) Working Days per Year : _____ Days/Year
- 2) Working Hours per Day : _____ Hours/Day
- 3) Working Days per Month : _____ Days/Month
- 4) Shift System : _____ Shifts/Days

3. Review of Each Production Process

3-1 Raw Materials, Cullet, Moulds, Feeder Refractory

1) Raw Materials

	<u>Production Site</u>	<u>Price</u> (M\$/Ton)	<u>Base</u> <u>Dealing Unit</u>
* Silica Sand	_____	_____	_____
* Alumina Source	_____	_____	_____
* Lime Stone	_____	_____	_____
* Dolomite	_____	_____	_____
* Soda Ash Chemicals	_____	_____	_____
* Salt Cake	_____	_____	_____
* Iron Oxide	_____	_____	_____
* Carbon	_____	_____	_____
* Lead Oxide	_____	_____	_____

2) Cullet

- * Recycling System : _____
- * Contamination Level
of Stone Source or Organic Matter : _____
- * Price : _____ M\$/Ton
- * Storage Condition : _____

3) Blank Moulds, Blow Moulds, BP, BFP

* No. of Sets : _____ Sets

* Price : _____ M\$/Set

* Maker/Country : _____

4) Feeder Refractory

* Maker/Country : _____

5) Oil etc.

<u>Item</u>	<u>Brand Name</u>	<u>Price</u>
* Oil for Shear Cut	_____	_____ M\$/Litre
	_____	_____ M\$/Litre
* Oil for Swabbing	_____	_____ M\$/Litre
	_____	_____ M\$/Litre
* Material for Hot Coating	_____	_____ M\$/Litre
* Material for Cold Coating	_____	_____ M\$/Litre

3-2 Utilities

1) Fuel

<u>Item</u>	<u>Production Site</u>	<u>Calorie</u> (K Cal./Kg)	<u>Price</u>
* Heavy Oil	_____	_____	_____ M\$/K Litre
* LPG, LNG	_____	_____	_____ M\$/M3
* Kerosene	_____	_____	_____ M\$/K Litre
* Coal	_____	_____	_____ M\$/Ton

2) Electricity Supply

* Voltage/Stability : _____ Volts

* Cycle/Stability : _____ HZ

* Frequency of Supply Stop : _____ Times/Month

* Cost : _____ M\$/KWH

3-3 Mixture of Raw Materials

1) Level of Automation : _____

2) Level of Control : _____

3) Technology of Color Change : _____
(Mixture)

4) Ratio of Cullet Usage : _____ %

3-4 Melting (Furnace)

1) Construction Cost : Approx. _____ M\$/Furnace

2) Life : Approx. _____ Years

3) Capacity of Melting

	<u>Melting Area</u> (m x m)	<u>Output/Day</u> ()
*	_____	_____
*	_____	_____
*	_____	_____
*	_____	_____

4) Bricks etc.

	<u>Maker</u>	<u>Price</u> (M\$/Ton)
* High Magnesia Bricks	_____	_____
* High Alumina Bricks	_____	_____
* Stamp Materials	_____	_____
* Others ()	_____	_____
()	_____	_____

5) Heating Up/Down System

	<u>Your Company</u>	<u>Supplied by</u> <u>Other Companies</u>
*	_____	_____
*	_____	_____

3-5 Melting (Burner etc.)

1) Main Equipment

	<u>System</u>	<u>Setting</u>
* Burner	_____	_____

2) Air Pollution Prevention

	<u>Measure & Means</u>
* SOX	_____
* NOX	_____
* E.P.	_____

3) Control System

System

* Glass Level Control _____

* Pressure Control _____

3-6 Forehearth & Feeder Control

1) Main Equipment

	<u>Model</u>	<u>Capacity</u>	<u>Maker</u>
*	_____	_____	_____
*	_____	_____	_____

2) Level of Control

	<u>Automated Control</u>
* Temperature Control	<u>Yes / No</u>
* Tube Height	<u>Yes / No</u>
* Gas Pressure	<u>Yes / No</u>
* Air to Gas Ration	<u>Yes / No</u>
* Overall Control	<u>Yes / No</u>

3-7 Glass Forming

1) Forming Machines

	<u>Model</u>	<u>Center Distance</u>	<u>No. of Machines</u>	<u>Maker</u>
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____

3-8 Shrink Film Packing

<u>Item</u>	<u>Supplier</u>	<u>Delivery Period</u>	<u>Price</u>
* For Bulk	_____	_____	_____
* For Container	_____	_____	_____

4. Evaluation of Products

4-1 Items, Specification, Required Tolerance

<u>Item</u>	<u>Weight/Volume</u> (g) ± (ml) ±	<u>Eccen- tricity</u> Max. (mm)	<u>Thick- ness</u> Min. (mm)	<u>Max. Inside Pressue</u> (Kg/cm ²)	<u>Percentage Pack</u> (%)
*	_____	_____	_____	_____	_____
*	_____	_____	_____	_____	_____
*	_____	_____	_____	_____	_____
*	_____	_____	_____	_____	_____
*	_____	_____	_____	_____	_____
*	_____	_____	_____	_____	_____

4-2 Glass Standard

Requirement

- * Stone : Max. _____ (mm)
- * Blister : Max. _____ (mm)

4-3 Quality Control (Quality analysis)

1) Measures for Product Quality Control

2) Formation of Organization on Quality Control; Assignment of Full-time Quality Control Engineer

3) Establishment of System to Avoid Repeating Quality Problems

4) Problems or Quality Control system

4-4 Overall Evaluation of Products

5. Level of Technology

5-1-1 Design of Final Products and Mouldings

<u>Item</u>	<u>Own Design</u>
* _____	<u>Yes / No</u>
* _____	<u>Yes / No</u>
* _____	<u>Yes / No</u>
* _____	<u>Yes / No</u>
* _____	<u>Yes / No</u>

5-2 License

- 1) Number of Licenses Owned No. : _____
- 2) Number of Applications for Licenses a Year No./Year : _____

5-3 Authorized Industrial Standards

<u>Name of Standard</u>	<u>Country of Standard</u>	<u>Year of Authorization</u>
* _____	_____	_____
* _____	_____	_____
* _____	_____	_____

6. Delivery Control

- 1) Occurrence Ratio of Delivery Delay : _____ %/Month
- 2) Cause of Delivery Delay
- 3) Standard Period between Order Acceptance and Delivery _____ Days

7. Employees

7-1 Employee Management

- 1) Attendance Ratio: _____ %/Day
- 2) Employee Turnover: _____ %/Year

7-2 Engineering Level of Employees

1) Educational Level of Factory Workers

<u>Final Education</u>	<u>Number</u>
* University	_____
* Technical Institution	_____
* High School	_____
* Junior High School	_____
* Elementary School	_____

2) Years of Experience

	<u>Number</u>
* Less than 3 Years	_____
* 3 - 5 Years	_____
* 5 - 10 Years	_____
* 10 - 15 Years	_____
* More than 15 Years	_____

7-3 Internal Education and Training System

7-4 Internal Measures for the Improvement of Working Morale

1) Periodical Meetings: Yes _____ No _____

2) Open Suggestion System: Yes _____ No _____

3) Others

8. Production Costs

8-1 Wage

- * Supervisor : _____ M\$/Day
- * Skilled Worker - Male : _____ M\$/Day
- Female : _____ M\$/Day
- * Non-skilled Worker - Male : _____ M\$/Day
- Female : _____ M\$/Day

8-2 Allocation of Workers at Each Process

(Refer to Attached Process Chart)

~~8-3~~ Ratio of Production Costs

- * Labour : _____ %
- * Raw Materials : _____ %
- * Utilities: _____ %
(Electricity, Water, Fuel, etc.)
- * Sub-assembly: _____ %
- * Depreciation: _____ %
- * Maintenance: _____ %
- * Others: _____ %

9. Others

9-1 What kind of measures do you think are necessary to strengthen competitiveness from the view point of production technology?

Your Company

Industrial Association

Government

9-2 Present Government Aids on Development of Industry and Present Situation with Your Company

Type of Aid

Application

Problems

*

*

*

*

9-3 Do you have a plan to make a joint venture or enter into technical agreement with foreign companies?

FACTORY SURVEY CHECK LIST

DATE OF SURVEY (, 1988)
REPORTER ()

COMPANY NAME: _____
LOCATION: _____

PRODUCTS: _____ SALES(YEAR): _____
CAPITAL: _____ EMPLOYEES: _____

CATEGORY	SURVEY ITEMS	EVALUATION					REMARKS
		CONTENT	CHECK POINTS	EVALUATION STANDARD			
ENGINEERING LEVEL	R&D	TECHNOLOGY LEVEL	JIG, TOOLS, DESIGN ROOM	<input type="radio"/> HIGH	<input type="triangle"/> MED	<input type="checkbox"/> LOW	
		PRODUCT DEVELOPMENT CAPABILITY	TRIAL PRODUCTION FACILITIES	<input type="radio"/> HIGH	<input type="triangle"/> MED	<input type="checkbox"/> LOW	
	DESIGN	INSPECTION CAPABILITY	INSPECTION EQUIPMENT	<input type="radio"/> STRONG	<input type="triangle"/> MODERATE	<input type="checkbox"/> WEAK	
		PROCESS MANAGEMENT	I.E. QC, VA SIGNS	<input type="radio"/> GOOD	<input type="triangle"/> MODERATE	<input type="checkbox"/> POOR	
	PRODUCTION	INDUSTRIAL PROPERTY	(INTERVIEW)	<input type="radio"/> MANY	<input type="triangle"/> SOME	<input type="checkbox"/> NONE	(NO. OF FACTORS-PATENTS, LICENSES ETC:)
		INDUSTRIAL STANDARD	(INTERVIEW)	<input type="radio"/> MANY	<input type="triangle"/> SOME	<input type="checkbox"/> FEW	(NO. OF STANDARDS:)
		INTERNALLY DEVELOPED PRODUCTS	(INTERVIEW)	<input type="radio"/> HIGH	<input type="triangle"/> MED	<input type="checkbox"/> LOW	(RATIO: %)
FACILITIES	MACHINE	MODERN EQUIPMENT	UP-TO-DATE MACHINES (MC ETC.)	<input type="radio"/> MANY	<input type="triangle"/> A FEW	<input type="checkbox"/> NONE	(NO. OF MACHINES:)
		OBSOLETE	RETROFIT NECESSITY	<input type="radio"/> NO PROBLEM	<input type="triangle"/> NEED TO RETROFIT	<input type="checkbox"/> NEED TO REPLACE	
		MAINTENANCE	CLEANLINESS	<input type="radio"/> CLEAN	<input type="triangle"/> MODERATE	<input type="checkbox"/> DIRTY	
	OPERATING CONDITION	OPERATION	MACHINES IN OPERATION	<input type="radio"/> MORE THAN 90%	<input type="triangle"/> APPROX. 70%	<input type="checkbox"/> 50% OR LESS	
		WORKING CONDITION	NUMBER OF STOPS	<input type="radio"/> NO STOP	<input type="triangle"/> OCCASIONAL STOP	<input type="checkbox"/> FREQUENT STOP	(RATIO: %)
MATERIAL	VOLUME	INVENTORY	VISUAL ESTIMATE	<input type="radio"/> JUST ENOUGH	<input type="triangle"/> MORE THAN NECESSARY	<input type="checkbox"/> EXCESSIVE	
		ATTENTION TO YIELD	SCRAP VOLUME	<input type="radio"/> EAGER	<input type="triangle"/> MODERATE	<input type="checkbox"/> IGNORE	
	YIELD	(INTERVIEW)	<input type="radio"/> MORE THAN 90%	<input type="triangle"/> 80 TO 89%	<input type="checkbox"/> LESS THAN 80%	(OVERALL YIELD: %)	
PRODUCTION	VOLUME	FINISHED PRODUCTS	VISUAL ESTIMATE	<input type="radio"/> JUST ENOUGH	<input type="triangle"/> MORE THAN NECESSARY	<input type="checkbox"/> EXCESSIVE	
	FLOW	WORK-IN-PROCESS PARTS	VISUAL ESTIMATE	<input type="radio"/> JUST ENOUGH	<input type="triangle"/> MORE THAN NECESSARY	<input type="checkbox"/> EXCESSIVE	
OPERATION	WAY OF OPERATION	EFFICIENCY	USELESS MOVEMENT	<input type="radio"/> HIGH	<input type="triangle"/> MODERATE	<input type="checkbox"/> LOW	
		SPEED	RATING	<input type="radio"/> HIGH	<input type="triangle"/> MODERATE	<input type="checkbox"/> LOW	
	OPERATION MANAGEMENT	MANUAL	SIGNS	<input type="radio"/> ADEQUATE	<input type="triangle"/> MODERATE	<input type="checkbox"/> NONE	
		WAITING	WAITING WORKERS	<input type="radio"/> FEW	<input type="triangle"/> SOME	<input type="checkbox"/> MANY	
	LABOUR ALLOCATION	STREAMLINING LEVEL	AUTOMATION, ROBOTS	<input type="radio"/> HIGH	<input type="triangle"/> MODERATE	<input type="checkbox"/> LOW	
SKILLNESS LEVEL		MULTI-SKILLED WORKERS	<input type="radio"/> HIGH	<input type="triangle"/> MODERATE	<input type="checkbox"/> LOW		
WORKING ENVIRONMENT	APPLICATION OF 5S+	FACTORY	ACTUAL APPLICATION	<input type="radio"/> GOOD	<input type="triangle"/> MODERATE	<input type="checkbox"/> POOR	
		WORKING AREA	JIGS, TOOLS	<input type="radio"/> GOOD	<input type="triangle"/> MODERATE	<input type="checkbox"/> POOR	
	SAFETY	DANGEROUS AREA	SIGNS, PROTECTIVE COVERS ETC.	<input type="radio"/> ALL AREAS	<input type="triangle"/> SOME AREAS	<input type="checkbox"/> NONE	
OTHERS:	*5S MEANS: SEIRI : PUT IN ORDER SEITON : KEEP TIDY SHITSUXE : WELL TRAIN SEIKETSU : MAKE CLEAN SEISOU : THROW DUST AWAY						

CATEGORY	SURVEY ITEMS	EVALUATION			REMARKS
		CONTENT	CHECK POINTS	EVALUATION STANDARD	
QUALITY CONTROL	QUALITY ASSURANCE	LEVEL OF STANDARDIZATION	INSPECTION STANDARD POSTED	<input type="radio"/> PROPER STANDARD <input type="triangle"/> INPROPER STANDARD <input type="checkbox"/> NONE	
		CP VALUE MANAGEMENT	CP DATA POSTED	<input type="radio"/> GOOD <input type="triangle"/> MODERATE <input type="checkbox"/> NONE	
		PRODUCTION LOT MANAGEMENT	HANDLING OF PRODUCTS	<input type="radio"/> GOOD <input type="triangle"/> MODERATE <input type="checkbox"/> POOR	
		QUALITY ASSURANCE ORGANIZATION	(INTERVIEW)	<input type="radio"/> GOOD <input type="triangle"/> MODERATE <input type="checkbox"/> NONE	
		PREVENTION OF REPEAT PROBLEMS	(INTERVIEW)	<input type="radio"/> GOOD <input type="triangle"/> MODERATE <input type="checkbox"/> POOR	
	SUPPORTING ACTIVITY	QC GROUP ACTIVITY	SIGNS	<input type="radio"/> ACTIVE <input type="triangle"/> LESS ACTIVE <input type="checkbox"/> NONE	
		UTILIZATION OF INSPECTION DATA	SIGNS, GRAPHS	<input type="radio"/> ACTIVE <input type="triangle"/> LESS ACTIVE <input type="checkbox"/> NONE	
	SYSTEM TO PREVENT SHIPMENT OF DEFECTIVE PRODUCTS	LEVEL OF INSPECTION	INSPECTION AT EACH PROCESS	<input type="radio"/> EFFECTIVE <input type="triangle"/> PARTLY EFFECTIVE <input type="checkbox"/> NONE	
		INSPECTION EQUIPMENT	EQUIPMENT IN USE	<input type="radio"/> GOOD <input type="triangle"/> MODERATE <input type="checkbox"/> POOR	
		INSPECTORS' SKILL	HANDLING OF PRODUCTS	<input type="radio"/> GOOD <input type="triangle"/> MODERATE <input type="checkbox"/> POOR	
HANDLING OF DEFECTIVE PARTS		SEPARATION FROM GOOD PARTS	<input type="radio"/> PERFECT <input type="triangle"/> PARTLY MIXED <input type="checkbox"/> MIXED		
	MODIFICATION OF DEFECTIVE PRODUCTS	MODIFICATION OF WORK	<input type="radio"/> NONE <input type="triangle"/> LITTLE <input type="checkbox"/> MANY		
LOGISTICS	FACTORY TRANSPORTATION	ADEQUATE FACILITIES	FACILITIES IN USE	<input type="radio"/> ADEQUATE <input type="triangle"/> MODERATE <input type="checkbox"/> NO FACILITY	
	OUTDOOR TRANSPORTATION	ADEQUATE FACILITIES	FACILITIES IN USE	<input type="radio"/> ADEQUATE <input type="triangle"/> MODERATE <input type="checkbox"/> INADEQUATE	
	FACTORY ENTRANCE/EXIT LOCATION OF FACTORY	LOCATION, SIZE	PAMPHLET	<input type="radio"/> WELL DESIGNED <input type="triangle"/> MODERATE <input type="checkbox"/> NOT GOOD	
				<input type="radio"/> GOOD <input type="triangle"/> MODERATE <input type="checkbox"/> POOR	
DELIVERY CONTROL	DELIVERY SITUATION	CUSTOMERS' REQUEST	(INTERVIEW)	<input type="radio"/> TOLERABLE <input type="triangle"/> MODERATE <input type="checkbox"/> URGENT	(DAYS)
		PRODUCTION PERIOD	(INTERVIEW)	<input type="radio"/> SHORT <input type="triangle"/> MODERATE <input type="checkbox"/> LONG	(DAYS)
		RATIO OF DELIVERY DELAY	(INTERVIEW)	<input type="radio"/> LESS THAN 5% <input type="triangle"/> 6 TO 19% <input type="checkbox"/> MORE THAN 20%	(%)
MANAGEMENT	TURNOVER	YEARS OF EXPERIENCE	(INTERVIEW)	<input type="radio"/> MORE THAN 5 YEARS <input type="triangle"/> 2 TO 4 YEARS <input type="checkbox"/> LESS THAN 2 YEARS	(YEARS)
	WORKING CONDITIONS	ATTENDANCE RATIO	(INTERVIEW)	<input type="radio"/> MORE THAN 95% <input type="triangle"/> 80 TO 95% <input type="checkbox"/> LESS THAN 90%	(%)
	INTERNAL TRAINING	CONTENT OF TRAINING	(INTERVIEW)	<input type="radio"/> ADEQUATE <input type="triangle"/> LESS ADEQUATE <input type="checkbox"/> NONE	
LABOUR	MORALE	PERIODICAL MEETING	(INTERVIEW)	<input type="radio"/> EVERY DAY <input type="triangle"/> ONCE A MONTH <input type="checkbox"/> NONE	
		OPER SUGGESTION SYSTEM	(INTERVIEW)	<input type="radio"/> ACTIVE <input type="triangle"/> LESS ACTIVE <input type="checkbox"/> NONE	
OTHERS					

LIST OF COMPANIES AND ORGANIZATIONS VISITED BY THE TEAM

No	Name of Company	Address	TEL
[MOULDS AND DIES]			
1.	PRODELCON SDN. BHD.	Plot 13, Lebohraya Kampung Jawa, 11900 Bayan Lepas, Penang	04-838912/3
2.	TOPLA ENGINEERING (M) SDN. BHD.	Lot 56, Tasek Industrial Estate, 31400 Ipoh, Perak	551855 558923 551620
3.	MATSUSHITA ELECTRIC CO., (M) BHD.	Shah Alam Industrial Site 40000 Shah Alam, Selangor	03-5591010-9
4.	ATLAN INDUSTRIES SDN.BHD. BINAMOLD SDN.BHD.	106, Lintang Kampung Jawa, 11900 Bayan Lepas, Penang	04-838191
5.	MICRO MASHINING SDN.BHD.	Bayan Lepas Free Trade Zone, 11900 Bayan Lepas, Penang	04-830906-8 837944 837949
6.	ENG HARDWARE ENGINEERING SDN.BHD.	Plot 69, Persiaran Kampung Jawa, Bayan Lepas Non-Free Trade Zone, 11900 Bayan Lepas, Penang	840262 840122
7.	MATTEL TOOLS SDN.BHD.	993, Solok Perusahaan 3, Prai Industrial Estate, 13600 Prai, Seberang Perai, Penang	04-307585/6 04-308240/1
8.	LOH KIM TEOW ENGINEERING SDN.BHD.	Plots 31-34, Lengkok Kampung Jawa Dua, Bayan Lepas Non-Free Trade Zone, Penang	837999
9.	KOHNO PLASTICS (M) SDN.BHD.	Lot 79, Lorong Enggang 35, Kawasan Perusahaan Bebas, Ampang Ulu Klang, 54200 Selangor	4566622 4566601
10.	POLY TOOLS INC. SDN.BHD.	No.9, Persiaran Indah Rokan 4, Gunong Rapat, 31350 Ipoh, Perak	05-203663
11.	Q & S KEJURUTERAAN SDN.BHD.	368-4, Batu 3 1/2, Jalan Sungai Besi, Kuala Lumpur	7822102 7839713
12.	HOCKPIN PRECISION ENGINEERING SDN.BHD.	353, Beach Street, 10300 Penang	623987 612591
13.	SUN TONG SENG MOULD-TECH SDN.BHD.	16, Jalan P/8, MIEL Industrial Area, Bangi New Town, 43000 Kajang, Selangor	8258132-4

No	Name of Company	Address	TEL
[MOULDS AND DIES]			
14.	KEJURUTERAAN FAUN YEE SDN. BHD.	No. 12, Lot B 9-10, Jln. 213, 46050 Petaling Jaya	7911600
15.	UNICOS METAL & PLASTIC CORP. SDN. BHD.	Lot 58, Kawasan Perusahaan Ringan, Batu Caves, 68100 Selangor	6892168
16.	METFAB ENGINEERING SDN. BHD.	Plot 56, Lintang Kampung Jawa, Bayan Lepas Non Free Trade Zone, 11900 Penang	04-841102/3
17.	HUP LEE ENGINEERING WORKS	No. 46, Jalan SS25/28, Taman Mayang, 47301 Petaling Jaya	7039321
18.	TECH SEE PLASTIC SDN. BHD.	Lot 4, Jalan Pasak 15/8, Off Jalan Utas, 40000 Shah Alam	5503181/5/8
19.	HIP HOE ENGINEERING WORKS	31 Jalan Kg Pasir Baru, Batu 6, Jalan Klang 58000 Kuala Lumpur	7929954
20.	NGAI FOONG ENGINEERING WORKS	No. 11.8 1/2 Miles, Batu Caves Light Industrial Area 68100 Batu Caves, Selangor	6893320
21.	SOLAR MECHANICAL ENGINEERING	1380-2,5 1/2 Miles, Klang Road 58000 Kuala Lumpur	7929148
22.	CHING KHONG ENGINEERING WORKS SDN. BHD.	No. 46A, Jalan Dua, Salak South Baru, 57100 Kuala Lumpur	7831303
23.	SUN TONG SENG MOULD-TECH SDN. BHD.	16 Jalan P/8, MIEI Industrial Area, Bandar Baru Bangi, 43000 Kajang	8258132
24.	TAKANG STEEL MOULD MAKER	7 Supreme Garden, Prai 13700 Butterworth, Penang	305644
25.	OMIYAH MOULDING INDUSTRY	2 Tingkat Tembikai 2, Taman Seri Rambai 140000 Bukit Mertajam, Penang	597802
26.	TOP 1 PLASTIC MOULD DESIGNING SDN. BHD.	1113 Jalan Bagan Lallang 13400 Butterworth, Penang	311695

No	Name of Company	Address	TEL
[CERAMICS]			
1.	HUA LIAN POTTERY MAKER	7 1/2 Mile Penrissen Road, Kuching, Sarawak	082-612540
2.	KIM HIN INDUSTRY SDN.BHD.	4 1/2 Mile, Kong Ping Road, P.O.Box 1842, 93736 Kuching, Sarawak	082-451567 451017 458857
3.	KEDAH POTTERY SDN.BHD.	Sungei Ketapang 08300 Gurun, Kedah	04-486032 04-486201
4.	HONG POTTERY INDUSTRY	97, K.C.L. 7th Miles, Off Jln.Kepong 52100 Kuala Lumpur, Selangor	03-6347394 03-6343855
5.	NG LI SENG SDN.BHD.	5th Mile, Penrissen Road, P.O.Box 2831, 93754 Kuching, Sarawak	451108 451571
6.	MARULEE (M) SDN.BHD.	Lot P.T.1317, Jalan 3 & 4 Pengkalan Chepa Industrial Estate Phase II 16100 Kota Bharu, Kelantan	09-736613/14
7.	SABAH OXYGEN SDN.BHD.	Jln.Kolombong, Off Kilometer 7, Jln. Tuaran, P.O.Box 11577, 88817 Kota Kinabalu, Sabah	088-213499
8.	WONG SIAN HUP POTTERY FACTORY SABAH	18 Mile, Tuaran Road, Kota Kinabalu, P.O.Box 117, Tuaran Sabah	788460
9.	FRANKLN PORCELAIN SDN.BHD.	Kulim Industrial Estate, 09000 Kulim, Kedah	04-575711 575801 575902
10.	THE AW POTTERY	13, Kg. Macap, 86200-Simpang Rengan, Kluang, Johore	07-784076 784082
11.	ORIENTAL CERAMICS SDN.BHD.	600, Jalan Kluang, 83000 Batu Pahat, Johore	07-443018 443880 444282
12.	ASIAN POTTERY (PENANG) SDN.BHD.	547, Tanjong Bungah, 11200 Penang	04-895317 891880

No	Name of Company	Address	TEL
[GLASS]			
1.	KUALA LUMPUR GLASS MANUFACTURERS COMPANY SDN.BHD.	Lot 5, Jalan Kilang, 46050 Petaling Jaya	7912277
2.	JG CONTAINERS (M) SDN.BHD.	Lot No.114, Jalan Kebun, P.O.Box 16, 41700 Kelang, Selangor	3313430 3313188 3313435
3.	MALAYA GLASS BHD.	72-A, Jalan Tampoi, 81200 Johor Bahru, Johor	371701 376157
4.	SYARIKAT SEBANGUN SDN.BHD. GLASS SAND COMPANY BHD.	Tg. Batu Road, P.O.Box 168, 97007 Bintulu, Sarawak	35171 31258
5.	MALAYSIAN LAMPS SDN.BHD. MALTRONICS SDN.BHD.	P.O.Box 155, 76, Jalan University 46710 Petaling Jaya, Selangor	7567122
6.	SCHOTT GLASS (M) SDN.BHD.	WD-5 13609 Prai/Prov Wellesley	308200
7.	MALAYSIAN SHEET GLASS BHD.	21 Km, 47000 Sungei Buloh, Selangor	03-6561001/5 6561391/4
8.	KAOLIN (M) SDN.BHD.	Lots 322, 3rd Floor, Wisma MPI, Jalan Raja Chulan, 50784 Kuala Lumpur	2481688

No	Name of Company	Address	TEL
[AUTOMOBILE METAL PARTS]			
1.	IZUMI (M) SDN. BHD.	225, Kota Road, Taiping, Perak. P.O. Box 125	05-834272 05-822577
2.	BELTON SDN. BHD.	Lot 32, Sungei Siput Light Industrial Estate, 31100 Sungei Siput (N), Perak	05-781036 05-782611
3.	NGK SPARK PLUGS (M) BHD.	4586, Jin Permatang Pauh, 13400, B'worth	347555
4.	ORIENTAL SHOWA SDN. BHD.	Plot 19, Tikam Batu industrial Estate, Tikam Batu, 08600 Sungai Petani, Kedah	478791-3
5.	ASIAN AUTOMOTIVE ENGINEERING	2445 Lorong Perusahaan 6 Kaw, Perindustrian Prai 13600 Prai/Penang	04-308019 04-307039
6.	AAE-ZF STEERINGS SDN. BHD.	No. 2445, Lorong Perusahaan 6 Kaw, Perindustrian Prai, 13600 Prai, Penang	04-030819 04-307039
7.	UMW TOYOTA MOTOR SDN. BHD.	Lot 5, Jalan 219, Federal Highway, P.O. Box 133, 46710 Petaling Jaya.	03-7575666
8.	ORIENTAL METAL INDUSTRIES (M) SDN. BHD.	Lot 51, Jalan Utas, 15/7, P.O. Box 24, 40700 Shah Alam, Selangoor	03-5594075 5594733 5594526
9.	SANDEN INTERNATIONAL (M) SDN. BHD.	Lot Plo 212, Jalan Pekeling, P.O. Box 24, 81707 Pasir Gudang Industrial Estate, Johore	513501
10.	CAR SEATS (M) SDN. BHD.	Lot 1919, Jin. Bukit Kemuning, 42450 Klang, Selangor	03-5214361 5214385
11.	ORIENTAL ASSEMBLERS SDN. BHD.	Batu 2, Jalan Tampoi, P.O. Box 204, 80720 Jonor Bahru Johor	07-361400 361304
12.	AUTO PARTS MANUFACTURERS CO. SDN. BHD.	Lot 601, Pandamaran Industrial Estate, P.O. Box 144, 42008 Port Klang, Selangor	3685007 3682306

13. ASIA AUTOMOBILE INDUSTRIES SDN. BHD.	No. 11 Road 219, 46962 Petaling Jaya, Selangor	7564370
14. NIPPONDENSO (M) SDN BHD	Lot 2, Jalan P/1, Section 13, Bandar Bangi, 43000 Selangor	8250320 8250120
15. NIPPONDENSO CAPITAL SDN BHD	Lot 2, Jalan P/1, Section 13, Bandar Bangi, 43000 Selangor	8250120 8250121 8250122 8250123 8250124
16. United Industries	5 1/2 Mile, Jalan Meru, 41050 Klang, Selangor Darul Ehsan	3921101 3921102 3921103
17. ASSOCIATED MOTOR INDUSTRIES (M) SDN. BHD.	Jalan Sesiku, 40000 Shah Alam, Selangor	591601
18. PROTON	Hicom Industrial Estate, Batu 3 Locked Bag No.12 Post Office, PKNS Complex 40990 Shah Alam, Selangor	03-5111055
19. SUZUKI ASSEMBLERS (M) SDN. BHD.	14, Jalan Vivekananda, Brickfields 50470 Kuala Lumpur	2746911 2746922

No	Name of Organization	Address	TEL
[GOVERNMENT ORGANIZATION]			
1.	MALAYSIAN INDUSTRIAL DEVELOPMENT AUTHORITY (MIDA) TARIFF DIV. INDUSTRIAL PROMOTION DIV. ENGINEERING INDUSTRIES DIV. COMPUTER & STATISTICS SECTION.	3-6 Floor, Wisma Damansara, Damansara Heights, P.O.Box 10618, 50720 Kuala Lumpur	03-2543633
2.	MINISTRY OF TRADE AND INDUSTRY INTERNATIONAL TRADE DIVISION	Block 10, 8th Floor, Government Office Complex, Jalan Duta, 50622 Kuala Lumpur	2547144 2540338 2546022 2548044
3.	MALAYSIAN EXPORT TRADE CENTRE (MEXPO)	Grd.Floor, Wisma PLMNS, Jalan Raja Laut, 50350 Kuala Lumpur	03-2928122 2928279
4.	Standards and Industrial Research Institute of Malaysia (SIRIM) Ceramic Div. Public and Industrial Affairs Unit MIDEC Unit for the Development of New Technical Programmes Quality Assurance Unit Industrial Incubator Program	P.O.Box 35, 40700 Shah Alam, Selangor	03-5591630 03-5592601
5.	ECONOMIC PLANNING UNIT. (EPU) Trade and Industry	Jalan Dato' Onn, 50502 Kuala Lumpur	2326675 2933333
6.	HEAVY INDUSTRIES CORPORATION OF MALAYSIA BHD. (HICOM) Project Development Division	Tingkat 19, Menara Dato' Onn, Kompleks UMNO Malaysia, 45, Jalan Tun Ismail, Peti Surat 10707, 50722 Kuala Lumpur.	2935688
7.	THE CENTRE FOR INSTRUCTOR AND ADVANCED SKILL TRAINING (CIAST)	Section 19, P.O. Box 12, Shah Alam, 40700 Selangor Darul Ehsan	5502736 5502739
8.	MINISTRY OF SCIENCE, TECHNOLOGY AND THE ENVIRONMENT TECHNOLOGY PARK IMPLEMENTATION UNIT	14th Floor, Wisma Sime Darby, Jalan Raja Laut, 50662 Kuala Lumpur	03-2938955
9.	MINISTRY OF NATIONAL AND RURAL DEVELOPMENT. SMALL SCALE ENTERPRISES DIV.	9th Fl. Komplek Kewangan Jalan Raja chulan, 50606 Kl.	2612622

10. Ministry of Finance. Economic Div. Tax Div.	Blag. 9. 9th Fl. Jalan Duta. Kl.	254-6000
11. BAHAGIN KEMAHIRAN MARA	Medan Mara, Jalan Raja Laut, 50609 Kuala Lumpur	03-2915111 2987087
12. CREDIT GUARANTEE CORPORATION MALAYSIA BHD. (CGC)	Tingkat 22, Menara Tun Razak, Jalan Raja Laut, 50350 Kuala Lumpur.	03-2987288 2987392
13. MINISTRY OF LABOUR Research and Planning Division.	Level 3, Block B Jalan Satu Pusat Bandar Damansara, 50530 Kuala Lumpur.	2556346
14. INSTITUT TEKNOLOGI MARA	Pejabat: 40450 Shah Alam, Selangor. Kediaman: 3 Jalan Kerambit. 11/4C. 4000 Shah Alam, Selangor.	5592950 5507676
15. MALAYSIA INDUSTRIAL DEVELOPMENT FINANCE BERTHAD (MIDF)	195A, Jalan Tun Razak, 50400 Kuala Lumpur. P.O.Box 12110, 50939 Kuala Lumpur.	2610086 2611166
16. NATIONAL PRODUCTIVITY CENTRE (NPC)	Jalan Sultan, P.O. Box 64, 46904 Petaling Jaya, Selangor.	7557266-296
17. MALAYSIA EXPORT CREDIT INSURANCE BERHAD (MECIB)	29-3 & 29-4, Jalan Medan Tuanku. P.O. Box 11048, 50734 Kuala Lumpur.	2910782
18. BANK NEGARA MALAYSIA	Jalan Kuching, 51200 Kuala Lumpur, P.O. Box 10922	30201
19. PENANG DEVELOPEMENT CORPORATION (PDC) Industrial & Tourism Div. Coordinator Promotion Div. SARAWAK ECONOMIC DEVELOPMENT CORPRATION.	No.1, Jalan Sungei Nibong. 11909 Bayan Lepas, Penang	832111 832911
20. SARAWAK ECONOMIC DEVELOPMENT CORPORATION	6-11 Floor, Bangunan Menara SEDC (Sarawak Plaza) Jalan Tunk Abul Rahman Peti Surat 400, 93902 Kuching, Sarawak	082-416777
21. BINTULU DEVELOPMENT AUTHORITY	Bangunan BDA, Jalan Sommerville, Bintulu Sarawak. P.O.Box 55	34198 32011

No	Name of Company and Association	Address	TEL
[OTHERS]			
1.	THE NOMURA SECURITIES CO LTD	Letter Box 23, 24th Floor UBN Tower No.10 Jalan P. Ramlee, 50250 Kuala Lumpur	2305659 2305792 2305664
2.	MARUBENI CORPORATION	5th Floor UBN Tower 10, Jalan P. Ramlee 50250 Kuala Lumpur	03-238-1688
3.	THE JAPANESE CHAMBER OF TRADE & INDUSTRY, MALAYSIA	4th Floor, Menara Boustead, 69, Jin. Raja Chulan, 50200 Kuala Lumpur.	2427106 2414460
4.	SUMITOMO CORPORATION	4th Floor, Wisma Supreme, Jalan Punchak, P.O. Box 10297, 50710 Kuala Lumpur	2308133
5.	THE BANK OF TOKYO LTD..	No.1 Leboh Ampang, 50100 Kuala Lumpur	2389100 2385855
6.	FEDERATION OF MALAYSIAN MANUFACTURERS	17th Floor, Wisma Sime Darby, Jalan Raja Laut, 50350 Kuala Lumpur. P.O.Box 12194, 50770 Kuala Lumpur.	03-2931244
7.	THE OVERSEAS ECONOMIC COOPERATION FUND (JAPAN)	22nd Floor, UBN Tower, Letter Box No.59, Jalan P. Ramlee, 50250 Kuala Lumpur.	2323255 2322201 2322202
8.	NATIONAL CHAMBER OF COMMERCE AND INDUSTRY OF MALAYSIA	17th Floor, The Tower, Jalan Tun Razak, Plaza Pekeliling P.O. Box 12529, 50780 Kuala Lumpur.	03-4429871 03-4429873
9.	MALAYSIAN AUTOMOTIVE COMPONENT PARTS MANUFACTURERS ASSOCIATION (MACPMA)	P.O. Box 12221, Kuala Lumpur.	651001/5
10.	UNIVERSITI SAINS MALAYSIA	11800 Usm Penang	883822
11.	MALAYSIAN INSTITUTE OF ECONOMIC RESEARCH	9th. Floor, Bangunan Bank Negara Malaysia, Jalan Kuching, 50768 Kuala Lumpur, Selangor. P.O. Box 12160	03-2926188 2926496
12.	INSTITUTE OF STRATEGIC & INTERNATIONAL STUDIES (ISIS) MALAYSIA	No.1, Jalan Sultan Salahuddin, P.O.Box 12424, 50778 Kuala Lumpur.	2939366

13. BANK PEMBANGUNAN MALAYSIA BHD.

Menara Bank Pembangunan. Jalan Sultan
Ismail. Peti Surat 12352.
50250 Kuala Lumpur.

03-2913399
03-2917799
03-2912043

MOULDS AND DIES

Outline of Malaysian Firms Surveyed

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Micro Machining Sdn. Bhd	Precision Press Dies Plastic Moulds	200	Wire Cut EDM, EDM, CNC, MC, CAD	National Semiconductor Sdn, Bld. ... 60% FTZ ... 30% Export to USA, Singapore & The Philippines ... 10%	An affiliated company of National Semiconductor, USA, 100% USA capital. Built-in FTZ, Bayan Lepas. Has the biggest & most modern facilities in South East Asia. Partially produces automatic machines & press processing. Establishing CAD system, adjustment section, calibration lab.
Mattel	Plastic Moulds for Toy	100	—	Parent Company in Penang Exports to Mexico & Italy	A supply base for American toy makers. Facilities will be transferred from Philippines & Taiwan.
Binamold Sdn. Bhd. Ahan Industries Sdn. Bhd.	Metallic Component Moulds & Dies	130	Transfer Moulding Machine	Sharp ... 45% Sony ... 35% Aoso Philips, Sanyo, Matsushita	Has coating facilities. Moulds are designed by the owner or engineers. Started to export metallic component of furniture to Japan through Singapore in 1987, & expecting to produce this item 50% of all production.
Syarikat Malaysia Explosives (Toofs) Sdn. Bhd.	Press Dies Plastic Moulds	100	—	Civilian Demands 50% Munitional Demands 50%	Defence Ammunition State Manufacture subsidized by The Ministry of Finance. Well facilitated. Its technology transferred from India is higher than average.
Eng Hardware Eng	Parts Processing of Moulds & Dies (with High Precision) mainly electronic parts	—	Wire Cut EDM EDM CNC MC	Mainly the semiconductor makers in FTZ, Penang	High-grade facilities Needs to train engineers Achieved micron order accuracy.

MOULDS AND DIES

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Sumiputech Steel Centet Sdn. Bhd	Primary Processing of Steel Products	150	—	Mainly Japanese Enterprises	Sells cut sheets, slitted coils, balinghoop by shearing & slitting steel belt imported from Japan. Dies for press processing need to be supplied by customers.
MELCOM	Home Electric Appliances	40	—	Started External Sales (Matsushita enterprises in Malaysia & Singapore) ... 40%	The total annual production value in MS 1.5 million. Well organized training system.
Topla Eng. Topla Plastic Sdn. Bhd.	Plastic Moulds	22	Grinder Measuring Instrument Injection Machine	Mainly Japanese enterprises; Matsushita, Sanyo, Minoita, Omron, Tamura	Topla Eng. is an affiliated company of Topla Plastic. Keeps 0.01mm accuracy tolerance.
Prodeicon Sdn. Bhd.	Press Dies Plastic & Rubber Moulds	38	—	Electronic Industry ... 95% Rubber Processing Industry ... 50%	Uses ASSAB mould base & Mitsubishi standard components.
Melfab Engineering Sdn. Bhd.	Mould & Dies Equipment for Electronic Industry	30	—	Intel, Hitachi, Mep	100% local investment. Produces metal mould parts processing 50% & automated equipments 50%. Automated equipments were exported to USA & the Philippines before.

MOULDS AND DIES

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Hockpin Precision Engineering Sdn. Bhd.	Mould & Dies	30	CNC Bridge-port Series ... 1	For domestic market only.	Planning to move to Kg. Jawa in 1988. The total annual production value is M\$ one million. Typical old type workshop & poor efficiency.
Unicos Metal & Plastic Corp. Sdn. Bhd.	Moulds & Dies	15	—	For Electronic Industry in FTZ	Produces mainly metal mould parts: Press processing parts & automotive machines. VAAC is a planning & designing section for VMPC.
Unicos Advanced Automation Corp Sdn. Bhd.					
Kolimo Plastic	Plastic Injection	—	—	—	Achieved accuracy of moulding for general industries. Basic Q and C has gradually been done. Planning to install advanced machined.
Carsem (M) Sdn. Bhd.	Semiconductor Assembling	—	—	—	Imports 90% of metal mould from USA, Japan & Hong Kong as a user. User 20% domestically made spare parts
Q & S Machine Co.	Moulds & Dies for Motor Vehicle (Radiator tank, seat)	20	Bridge-port type Milling Machine ... 7 Lathe ... 3 Surface Grinder ... 1 Internal ... 1 Shaper ... 1 Press Machine ... 3	Mainly Proton & Nissan	Basic grinding & Annealing. Large size material in ordered outside. Accuracy tolerance withing 0.1mm Basic knowledge — uses Japanese manual for moulds & Dies.

MOULDS AND DIES

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Kejuruteraan Fian Yee Sdn. Bhd.	Plastic Moulds	17	EDM Copy Milling Machine, multi-shaft Milling Machine, large-size EDM will be installed.	About 20 companies, 4 of them are foreign enterprises.	The level of designing is on the average. Overall accuracy marks 70 points, but not enough all round ability. Gets order with considerable growth. Needs one month for delivery.
Poly Tools Inc. Sdn. Bhd.	Moulds & Dies for Machine Processing	7	—	CARSEM for domestic sales. Exports to Taiwan, Hong Kong, Singapore, Thai, Philippines, USA & Japan (Matsushita & Pioneer)	Typical flat-style workshop. Technical tie-up with USA enterprise. All the raw materials are imported.
Loh Lim Teow Engineering Sdn. Bhd.	Mould & Die Parts Precision Tools Metal Working	100	EMD Surface Grinder Milling Machine Drilling Machine	Electronics industry Singapore, USA, the Philippines	Having 6 designers Planning to introduce CAD, CAM systems

MOULDS AND DIES

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Hup Lee Engineering Sdn. Bhd.	Plastic Moulds Jig	50	EDM ... 4 Milling Machine ... 12 Lathe ... 3 Drilling Machine ... 6 Machining Centre ... 3 Surface Grinder ... 3	Melcom, etc.	100% local capital well organized firm Having designing department
Hip Hoe Engineering Sdn. Bhd.	Plastic Mould Water Tap	25	Milling Machine ... 7 Machining Centre ... 1 Radial Drilling Machine ... 2 EDM ... 2, Lathe	Melcom, etc.	Having a plastic injection moulding factory
Ngi Foong Engineering	Plastic Mould	9	Milling Machine ... 4 Lathe ... 2, EDM ... 1 Shaper ... 1	Domestic	Has to improve cutting & grinding technology
Solar Mechanical Engineering	Plastic Mould	17	EDM ... 2 Surface Grinder ... 1 Shaper ... 1, Lathe ... 2 Engraving Machine ... 1 Milling Machine ... 5	Domestic	Has to use machineries correctly

MOULDS AND DIES

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Ching Khong Engineering Works Sdn. Bhd.	Plastic Mould	9	EDM ... 1 Surface Grinder ... 2 Milling Machine ... 3-4 Lathe ... 2	Melcom, Mico, TWD, etc.	Has to improve cutting & grinding technology
Sun Tong Seng Mould-Tech Sdn. Bhd.	Plastic Mould Injection Moulding	20	EDM ... 2 CNC Copy Milling Machine ... 1 NC Milling Machine ... 1 Milling Machine ... 8 Lathe ... 2 Surface Grinder ... 4 Shaper ... 1	Domestic, Indonesia	100% local capital well organized firm
Takang Mould Designing & Engineering	Plastic Mould	10	Milling Machine ... 5 Surface Grinder ... 2 Lathe ... 2, EMD ... 2 Shaper ... 1 Drilling Machine ... 3	Domestic	Rough operations
Omiya Moulding Sdn. Bhd.	Plastic & Rubber	35	EDM ... 3 Drilling Machine ... 4 Milling Machine ... 12 Engraving Machine ... 1 Shaper ... 1, Lathe ... 3 Surface Grinder ... 1	Domestic	Rough operations
Top-1 Plastic Mould Designing Co.	Plastic Mould	7	EDM ... 2 Surface Grinder ... 2 Drilling Machine ... 3 Milling Machine ... 4 Lathe ... 1, Shaper ... 1	Domestic	Has to improve cutting & grinding technology

MOULDS AND DIES

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Tech See Plastic Sdn. Bhd.	Plastic Auto Parts	124	Plastic Injection Machine ... 17	Honda, Proton, Sony.	Well factory layout & well maintained
Tiong Seng Plastic Industries Sdn. Bhd.	Plastic Products Chair, Cage	100	Plastic Injection Machine ... 13	Domestic	Has to introduce QC system.

AUTOMOTIVE METAL PARTS

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
United Industries Sdn. Bhd.	Mufflers Exhaust Pipes		Facilities for Welding Pipes.	Domestic	
United Filter Sdn. Bhd.	Oil Filters, Air Filters, Air Receiver Housings		Small-sized Hydraulic Presses.	Domestic	
United Vehicles Industries Sdn. Bhd.	Fuel Tanks, Screw Jacks, Cross Members		1500T, 1000T and 500T Presses.	Domestic	
United Sanoh Industries Sdn. Bhd.	Brake Tubes, Fuel Tubes			Domestic	Joint venture
United Tools & Dies Sdn. Bhd.	Jigs, Tools				Manufactures jigs and tools for use by the above-stated firms.
Nippondenso Capital Sdn. Bhd.	Receiver Hoses, Evaporators, Condensers, Compressors			Domestic	Joint venture
Nippondenso (M) Sdn. Bhd.	Starter Motors, Regulators, Alternators, Radiators, Windshield Wipers			Domestic	Joint venture
Auto Parts Manufacturers Co. Sdn. Bhd.	Leaf Springs, Shock Absorbers		Hydraulic Presses, Heat Treatment Furnaces, Load Testers.	Domestic	Technological tie-up Capitalized by Tan Chon Motor Holdings Bhd.
Auto Coil Spring Sdn. Bhd.	Coil Springs			Domestic	Technological tie-up Capitalized by Tan Chon Motor Holdings Bhd.
Kilang Alaganti Bangi Sdn. Bhd.	Body Side Mouldings		Roll Moulders	Domestic	Technological tie-up Capitalized by Tan Chon Motor Holdings Bhd.

AUTOMOTIVE METAL PARTS

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Sanden International (M) Sdn. Bhd.	Compressors for Car Air-Conditioners, Clutches for Compressors			Domestic Japan (nominal)	Joint venture QC circles in practice
Car Seats (M) Sdn. Bhd.	Seats Complete			Domestic	Joint venture Removal of factory planned.
Oriental Metal Industries (M) Sdn. Bhd.	Wheels			Domestic	Joint venture Produced for Proton alone.
AAE-ZF Steerings Sdn. Bhd.	Steering Gears, Lacks and Pinions	30		Domestic	Joint venture
AAE-TRW Components Sdn. Bhd.	Tie-rod Ends	30		Domestic	Joint venture
GMPE Sdn. Bhd.		30			Design and manufacture of tools for AAE firms.
NGK Spark Plugs (M) Bhd.	Spark Plugs			Domestic	Joint venture Equipped with plating facilities, QC circles in practice.
Oriental Showa Sdn. Bhd.	Shock Absorbers			Domestic	Joint venture
Izumi (M) Sdn. Bhd.	Pistons, Cylinder Liners	39		Domestic	Joint venture
Belton Sdn. Bhd.	Wheel Smds, Wheel Nuts, U Bolts, Shackle Ass'y	110	Equipped with Cold Forging and Heat Treatment Facilities	Domestic Singapore, Australia	

AUTOMOTIVE METAL PARTS

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Yodoshi Malleable (M) Sdn. Bhd.	Brackets for Compressors		Equipped with Continuous Production Line of Cast Iron for Small-sized Products.	Domestic USA	Joint venture

Notes: The following five automobile firms were visited.

1. Perusahaan Otomobil Nasional Sdn. Bhd.
2. Associated Motor Industries Malaysia Sdn. Bhd.
3. Asia Automobile Industries Sdn. Bhd.
4. Assembly Services Sdn. Bhd.
5. Oriental Assemblers Sdn. Bhd.

[CHINAWARE]

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Marulee Sdn. Bhd.	Novelty	480	Machine & Equipment ... 6	Export 100% (90% to USA, 10-15% to Europe, mainly U.K.)	100% Marulee, Japan capital. Extended to Haiwan, Mexico & Malaysia. All the raw materials are imported. On the process of expanding facilities.
Kim Him Industry Sdn. Bhd.	Tile	More than 450	Tunnel Kiln	24 domestic companies Exports mainly U.S.A. & Japan.	Actively expanding. Building a new floor-tile factory, & planning to extend to the field of tableware & glassware. Has a company licence of sanitary ware.
Mida Hong Pottery Industry	Chinaware	60	—	Exports 30% to Canada, Australia, & U.S.A.	Facing many technical difficulties. Raw materials are imported.
Ng Li Seng Sdn. Bhd.	Traditional type of "Sarawak pottery", mainly pot	20-30	Noborigama ... 2 (Traditional kiln)	Sells at retail shops as souvenir. Inconsistent export to Australia & Singapore.	Quality of raw materials is unstable. Uses clay material open air mined in the area near the factory.
Wong Sian Hup Pottery Factory Sabah	Earthware Novelty, pot	23	Shuttle kiln ... 4 Noborigama ... 1 Vacuum Agitator ... 1	For domestic market only.	High quality of products. Raw materials are imported from Taiwan. Owns three other factories in Sabah & Sarawak.
Wong Sian Hup Pottery Factory Kushing	Pottery	20	Shuttle kiln ... 3	For domestic market only	Related company with Wong Sian Hup, Sabah. Family management. Raw materials are imported from Taiwan. Highest quality of products in Sabah & Sarawak.

[CHINAWARE]

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Sabah Oxygen Sdn. Bhd.	Novelty; mainly Pot Savitary earthenware	20	Noborigama ... 2 Shuttle ... 2 Test kiln ... 1	For domestic market only	Quality level is not satisfactory. Facilities is large in scale. Raw materials from Taiwan, China, Japan
Hua Lian Pottery Maker	Mainly Pot	—	Noborigama ... 2	—	Graze is made in this factory, but has a problem of coming off. Pigment is imported. Strong dependence on their sense & experience for mixing materials and drying.

[GLASS]

Name of Companies Interviewed	Production Items	Number of Employees	Main Facilities	Main Customers	Miscellaneous
Malaya Glass Factory Bhd.	Glassware (Glass Bottle & Tableware)	500	Furnace ... 2 Press Machine ... 1	Export 30% Mainly to Singapore	Technical tie-up with Yamakura Glass, & negotiation with Sasaki Glass. Has steady progress in sales with big customers of beer & coke companies.
J.G. Containers Sdn. Bhd.	Glassware Mainly Bottle	350-400	—	Export 30%	Joint venture with J.G. India: Ballarpur Industries Ltd & Maul Brothers U.S.A. Has financial difficulties.
Schott Glass (Malaysia) Sdn. Bhd.	Optical Glass Pharmaceutical Glass Laboratory Glass Pharmacy Glass	400	—	Export 90% Domestic 10%	Under the control of Schott, Singapore. Imports glass from West Germany.
K.L. Glass	Glass Bottle	—	IS Machine ... 4	Export mainly to Singapore, Japan, Australia	Has financial difficulties due to less competitiveness 30M. MS Loan (40% from abroad) 40-70% of actual IS for transformation.
Syarikat Sebangun.	Silica Sand	—	—	Export 95% to Japan	230,000 tons per annum output 1.5M. tons deposit joint venture with Glass Sand Co., Bhd. Sarawak Economic Development Co.

TRADE ASSOCIATIONS

1. MALAYSIAN ASSOCIATION OF MALAY EXPORTERS
(Persatuan Pengeksport Malayu Malaysia)
173 Ground Floor
Jalan Ipoh
51200 KUALA LUMPUR
Telefon : (03) - 4426788
Telex : MA 30763
Presiden : YM Raja Rosdin
Setiausaha : Encik Abdul Rahman Yusuf
(Secretary
General)

2. FEDERATION OF MALAYSIAN MANUFACTURERS
(Persekutuan Pekilang-Pekilang Malaysia)
17th Floor Wisma Sime Darby
Jalan Raja Laut
P O Box 12194
50770 KUALA LUMPUR
Telefon : (03) - 2931244 (5 lines)
Telex : MA 32437 FMM
Presiden : Ym Tunku Tan Sri Mohamed bin Tunku
Besar Burhanuddin

Naib
Presiden : (i) Encik Yong Poh Kon
(ii) Encik Siew Wan Shing
(iii) Encik Ghazali Yusoff

3. MALAYSIAN FOOD CANNERS ASSOCIATION
1 Jalan 221
Peti Surat 6
46700 PETALING JAYA
Selangor Darul Ehsan
Telefon : (03) - 7565588, 7563858
Telex :
Presiden : Encik Yeo Chee Yan
Setiausaha : YM Raja Redzwa

4. PALM OIL REGISTRATION & LICENSING AUTHORITY (PORLA)
(Lembaga Pendaftaran & Pelesenan Minyak Kelapa Sawit)
Tingkat 4 Block B
Kompleks Pejabat Damansara
Jalan Dungun
Damansara Heights
50490 KUALA LUMPUR
Telefon : (03) - 2547122
Telex : MA 30087
Ketua Pengarah : Encik Toh Ah Bah

5. PALM OIL RESEARCH INSTITUTE OF MALAYSIA (PORIM)
(Institusi Penyelidikan Minyak Kelapa Sawit)
No 6 Persiaran Institusi
P O Box 10620
Bandar Baru Bangi
43000 KAJANG

- Selangor Darul Ehsan
 Telefon : (03) - 8335592
 Telex :
 Ketua Pengarah :
6. FEDERAL AGRICULTURAL MARKETING AUTHORITY (FAMA)
 (Lembaga Pemasaran Pertanian Persekutuan)
 Tingkat 5, 6, 7 & 8, Bangunan KUWASA
 Jalan Raja Laut
 50350 KUALA LUMPUR
 Telefon : (03) - 2932622
 Telex : MA 31769, MA 31669
 Pengerusi : Encik Hashim bin Safin
 ketua Pengarah : Encik Ahmad bin Tukimin
7. FEDERAL INDUSTRIAL MARKETING AUTHORITY (FIMA)
 (Kumpulan FIMA Bhd)
 Tingkat 3 & 4 Main Tower Block
 Wisma MCIS, Jalan Barat
 55100 PETALING JAYA
 Selangor Darul Ehsan
 Telefon : (03) - 7561617
 Pengerusi : Datuk Hj Bashir Ismail
 Pengarah :
 Urusan : Encik Mohd Ramli Kushairi
 Pengurus Besar (Operasi) : Encik Chye Kooi Onn
8. MALAYSIA OIL PALM GROWERS COUNCIL
 Tinghkat 3 Wisma Getah Asli 1
 148 Jalan Ampang
 Peti Surat 10747
 50724 KUALA LUMPUR
 Telefon : (03) - 2425088 Telex: MA 30235, 31356
 Pengerusi : Encik Lee Oil Hian
 Setiausaha :
 Eksekutif : Cik Neoh Siew Hwa
9. MALAYAN EDIBLE OIL MANUFACTURERS ASSOCIATION (MEOMA)
 No 134-1, First Floor
 Jalan Sambanthan
 Brickfields
 50470 KUALA LUMPUR
 Presiden : Encik Toh Pang Huat
 Setiausaha Kehormat : Encik Lin Sen Hok (Telex MA 31337)
 Telefon : (03) - 2747420, 274721, 2747422
10. PALM OIL REFINERS ASSOCIATION OF MALAYSIA (PORAM)
 (Persatuan Penapis Minyak Sawit Malaysia)
 10.06, 10th Floor
 Wisma HLA
 Jalan Raja Chulan
 Telefon : (03) - 2488916, 2488893
 Telex : MA 31337, MA 31483 PORAM
 Cable : "PROAM" KUALA LUMPUR
 Pengerusi : Datuk Robert Chan

Naib Pengerusi : Encik Toh Pang Huat
Setiausaha Eksekutif : Paul Yap Singh

11. THE PINEAPPLE BOARD
(Lembaga Perusahaan Nenas)
5th Mile, Johor Bahru
Johor
Telefon : (073) - 61211, 61012
Telex :
Ketua Pengarah :
12. MALAYSIAN TIMBER INDUSTRY BOARD (MTIB)
(Lembaga Perindustrian Kayu Malaysia)
Tingkat 5 & 6, Bangunan Sateras
Jalan Ampang
50450 KUALA LUMPUR
Telefon : (03) - 2486233, 2484791
Telex : MALTIM MA 30993
Cable : MASKAYU
Pengerusi : Encik Wong Kam Choon
Ketua Pengarah : Tuan Haji Baharuddin Hj Ghazali
13. FEDERATION OF MALAY TIMBER EXPORTERS ASSOCIATION
Straits Trading Building
Tingkat 3 Peti Surat 10742
50724 KUALA LUMPUR
Telefon : (03) - 2986266
Telex :
Pengerusi : Tuan Haji Abdul Razak bin
Abdul Peter Wong
Pengarah Eksekutif : Encik D.G. Frost
14. FEDERATION OF MALAYSIAN FURNITURE MANUFACTURERS &
TRADERS ASSOCIATION
Room 710, 7th Floor
Wisma Lim Foo Yong
P O Box 12639
50784 KUALA LUMPUR
Telefon : (03) - 2482501, 2484606
Pengerusi : Encik Woo Chark Kum
Setiausaha Eksekutif : Encik Tan Chin Huat
15. THE MALAYSIAN PLYWOOD MANUFACTURERS ASSOCIATION
36 & 36A, Jalan Telawi
Bangsar Baru
59100 KUALA LUMPUR
Telefon : (03) - 2543357, 2548062
Telex : MA 31377
Pengerusi : Encik Chai Fook Loong
Setiausaha Pentadbiran : Encik C L Cheang
16. MASTER BUILDERS ASSOCIATION MALAYSIA
No. 13, 3rd Floor
Jalan Gereja
50100 KUALA LUMPUR
Telefon : (03) - 2382433, 3321636

- Presiden : Tan Sri Dato' Yeoh Tiong Lay
 Setiausaha : Encik Oh Kong Yew
 Naib Presiden : Encik Sia Kwee Mow
17. THE CEMENT & CONCRETE ASSOCIATION OF MALAYSIA
 c/o Federation of Malaysia Manufacturers
 17th Floor, Wisma Sime Darby
 Jalan Raja Laut
 P O Box 12194
 50770 KUALA LUMPUR
 Telefon : (03) - 2931244
 Telex : FMM MA 32437
 Pengerusi : YB Datuk Mohd Amin Satem
 Naib Pengerusi : Encik Lin Yen Hatt
 Setiausaha Eksekutif : Encik Agapit Peter Koh
18. MALAYSIAN PAINTS MANUFACTURERS ASSOCIATION
 c/o Berger Paints
 No. 4, Jalan 205
 Peti Surat 1
 46700 PETALING JAYA
 Selangor Darul Ehsan
 Telefon : (03) - 7573844
 Telex :
 Pengerusi : Encik Lim Say Chong
 Setiausaha Kehormat : Encik J D Bruggen
 Bendahari : Encik Ho Yew Cheong
19. MALAYSIAN AUTOMOTIVE COMPONENT PARTS MANUFACTURERS
 c/o Malaysian Sheet Glass Bhd
 21 Km, Sungei Buloh
 47000 SELANGOR DARUL EHSAN
 Telefon : (03) - 6561001
 Telex : MA32108
 Presiden : Encik Paul Low Kuan Seng
 Setiausaha Kehormat : Encik Terry Hong
20. RUBBER RESEARCH INSTITUTE OF MALAYSIA
 (Institute Penyelidikan Getah Malaysia)
 No. 260 Jalan Ampang
 50908 KUALA LUMPUR
 Telefon : (03) - 4567033
 Telex : RRIM MA 30369
 Pengarah : Dr. Ab Aziz bin S A Kadir
21. RUBBER INDUSTRY SMALLHOLDERS DEVELOPMENT AUTHORITY
 (RISDA)
 (Pihak Berkuasa Kemajuan Pekebun Kecil Perusahaan)
 Ibu Pejabat RISDA
 Jalan Ampang
 P O Box 11067
 50734 KUALA LUMPUR
 Telefon : (03) - 4564022
 Telex : MA 31211
 Ketua Pengarah : Encik Mohd Zain bin Hj Yahya
 Ketua Pengarah Kanan : Encik Abdul Halim bin Dato'

- Abdul Raof
- ketua Pengarah
 Pentadbiran : Encik Osman Bin Mohd Said
 Ketua Pengarah Operasi : Encik Shahbuddin bin safie
22. MALAYSIAN RUBBER EXCHANGE & LICENSING BOARD (MRELB)
 (Lembaga Penyelidikan & Kemajuan Getah Malaysia)
 Tingkat 3, Wisma Getah Asli
 148 Jalan Ampang
 50540 KUALA LUMPUR
 Telefon : (03) - 2615566 (2 lines)
 Telex : MA 30220
 Pengerusi : Datok Ahmad Sabki bin Jahidin
23. MALAYSIAN RUBBER RESEARCH & DEVELOPMENT BOARD (MRRDB)
 (Lembaga penyelidikan & Kemajuan Getah Malaysia)
 15th Floor, Wisma Getah Asli 2
 P O Box 120508
 50716 KUALA LUMPUR
 Telefon : (03) - 2614422
 Telex : MRRDB MA 30954
 Pengawal : (i) Encik Ahmad Farok
 (ii) Cik Tan
24. MALAYSIAN RUBBER PRODUCTS MANUFACTURERS ASSOCIATION
 15th Floor, Wisma Getah Asli 2
 148 Jalan Ampang
 P O Box 10508
 50716 KUALA LUMPUR
 Telefon : (03) - 261134, 2614422
 Telex : MRRDB MA 30954
 Presiden : Encik Shurn Kwai Hong
 Naib Presiden : Encik Idris bin Samad
25. MALAYSIAN RUBBER PRODUCERS COUNCIL
 Bangunan Getah Asli 1
 3rd Floor, 148 Jalan Ampang
 P O Box 12688
 50750 KUALA LUMPUR
 Telefon : (03) - 2482677
 Telex :
 Pengerusi : Tuan Haji Mazlan bin Haji
 Jamaluddin
 Setiausaha Eksekutif : Tuan Hj Mohamed Nor bin Maidin
26. MALAYSIAN RUBBER DEVELOPMENT CORPORATION BHD (MARDEC)
 (Perbadanan Kemajuan Getah Malaysia)
 Jalan Kerja Air Lama
 Off Ulu klang
 P O Box 10546
 50716 KUALA LUMPUR
 Telefon : (03) - 2488716
 Pengurus Besar : Dr. Mahmood Kadir
 Timbalan Pengurus Besar : Encik Rosli bin Kassim
27. ASSOCIATION OF NATURAL RUBBER PRODUCING COUNTRIES

- 1st Floor Bangunan Getah Asli
148 Jalan Ampang
50540 KUALA LUMPUR
Telefon : (03) - 2481735
28. MALAYSIAN ORCHID GROWERS ASSOCIATION (MOGA)
No. 17 Lorong 2
Jalan Rentaka 2
80050 Johor Bharu
Johor
Telefon : (07) - 339774
Pengerusi : Encik Wong Kang Ho
29. 37 Tingkat 2.
Jalan 20/14
Taman Paramount
46300 PETALING JAYA
Selangor Darul Ehsan
Telefon : (03) - 7763027
Presiden : Encik Johnny Yong Chui Sen
Naib Presiden : (i) Encik S Y Liew
(ii) Encik K L Tan
Setiausaha : Encik T C Siow
30. MALAYSIAN TEXTILES MANUFACTURERS ASSOCIATION
(Persatuan Pengilang-Pengilang Tekstil Malaysia)
T019, 3rd Floor
Sungei Wang Plaza
SWP Box 594
55100 KUALA LUMPUR
Telefon : (03) - 2486454, 2486587
Telex : MTMA MA 30528
Presiden : Encik Alan Tan
Naib Presiden : Encik Azmi Hashim
Setiausaha Eksekutif : Puan Cecilia Choo
31. SELANGOR CHINESE TEXTILE GENERAL GOODS MERCHANTS
ASSOCIATION
59B, 2nd Floor
Jalan Sultan
50000 KUALA LUMPUR
Telefon :
Pengerusi : Encik kok Ng Fong
32. GARMENT MANUFACTURERS ASSOCIATION OF THE STATES OF
MALAYSIA
No. 9A & B, Jalan Lingkungan Brunei
Pudu
55100 KUALA LUMPUR
Telefon : (03) - 2422491
Presiden : Encik Chow Yuen Seng
33. HANDICRAFT BOARD DEVELOPMENT CORPORATION MALAYSIA
(Perbadanan Kemajuan Kraftangan Malaysia)
Wisma Kraftangan
No. 9 Jalan Tun Perak

- 50050 KUALA LUMPUR
 Telefon : (03) - 2925322
 Telex : MA 28203
 Pengerusi : Tan Sri Abdul Samad bin Idris
 Ketua Pengarah : YM Raja Fauziah Raja Tun Uda
34. SYARIKAT PEMASARAN KARYANEKA SDN BHD
 186-188, Jalan Raja Chulan
 50200 KUALA LUMPUR
 Telefon : (03) - 2431686, 2413704
 Telex : MA 30316 (BMB)
 Cable : "KARYANEKA" KUALA LUMPUR
 Pengurus Perniagaan
35. MALAYSIAN FOOTWEAR MANUFACTURERS ASSOCIATION
 (Persatuan Pembuat-Pembuat Kasut Malaysian)
 c/o Marco Shoe Sdn Bhd
 Pandamaran Industrial Site
 P O Box 160
 42008 Port Klang
 SELANGOR DARUL EHSAN
 Telefon :
 Telex :
36. MALAYSIAN INSTITUTE OF FOOD TECHNOLOGY
 P O Box 241
 Pejabat Pos Jalan Sultan
 46730 Petaling JAYA
 Selangor Darul Ehsan
 Telefon :
 Telex :
37. MALAYSIAN FROZEN SEAFOOD PROCESSING ASSOCIATION
 (PERSATUAN PERUSAHAAN MAKANAN SEJUK BEKU MALAYSIA)
 161 Beach Street
 10300 Pulau Pinang
 Telefon :
 Telex :
38. FRUITS EXPORTERS ASSOCIATION
 (PERSATUAN PENGEKSPORT BUAH-BUAHAN MALAYSIA)
 c/o Kumpulan FIMA Bhd
 Ground Floor, FIMA Airtel Complex
 Subang Airport
 47200 Subang
 Selangor Darul Ehsan
 Telefon : (03) - 7465050
 Telex : FIMA MA 37933
 Presiden : Encik Arphan Ahmad
39. INSTITUTE OF STRATEGY INTERNATIONAL STUDY
 (INSTITUT KAJIAN STRETEGIK DAN ANTARABANGSA (ISIS))
 No.1 Jalan Taming Sari
 P O Box 12424
 50778 KUALA LUMPUR

40. **BUMIPUTRA TIMBER PRODUCERS ASSOCIATION OF MALAYSIA
(PERSATUAN PENGUSAHA-PENGUSAHA KAYU-KAYUAN BUMIPUTRA
MALAYSIA)**
No. 28, Tingkat 3
Lorong Medan Tuanku Satu
Off Jalan Tuanku Abdul Rahman
50300 Kuala Lumpur
Telefon : (03) - 2913673, 2913504
Telex :
Yang Di Pertua
41. **BATEK MALAYSIA BERHAD**
No. 15 Jalan Cahaya 15
Taman Cahaya
68000 Ampang
Selangor Darul Ehsan
Telefon :
Telex :
42. **FEDERATION OF ELECTRICAL ASSOCIATION OF MALAYSIA**
5 Jalan Gelugor
Off Jalan Kenanga
55200 KUALA LUMPUR
Telefon :
Telex :
43. **MALAYSIAN PHARMACEUTICAL TRADE AND MANUFACTURERS
ASSOCIATION**
31A, Tingkat 1
Jalan SS 21/37
Damansara Utama
47400 PETALING JAYA
Selangor Daru Ehsan
Telefon :
Telex :

JICA