

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Prior to Independence in 1957, Malaysia's industrial development was immature and geared mainly towards processing of primary commodities. The manufacturing sector was characterized by dominance of small establishments and low capitalization. It was only after the promulgation of the Pioneer Industries Ordinance Act of 1985 that industrialization became a firmly based policy objective for Malaysia's national development. Since then and up to 1995, the manufacturing sector has become the most dynamic and the fastest growing sector in Malaysia. On average, the annual rate of growth was 11.5% in the 1960s, 12.2% in 1970, 20.5% in 1980 and 13.3% between 1990-1995 (Osman, Toh and Anuwar 1986 and Malaysia 1996).

In spite of the great success, in the sense of growth of the manufacturing sector, some weaknesses are often pointed out such as an over-reliance on foreign technology. Anuwar Ali (1993) showed most of the technology transfer agreements approved during 1975 to 1987 period were in the electronics and electrical industries (17.7%), fabricated metal industries (10.8%), chemical industries (12.3%) and transport equipment (10.6%). These four industries accounted for more than 50% of all technology transfer agreements signed, reflecting the strong need for technology transfers to these relatively technology intensive industries.

Although the primary concern of the Seventh Malaysia Plan was to build and develop a stronger indigenous technological base, the transfer of technology from abroad continued to be important. The inflow of technology by industry group indicated by the number of contractual agreements approved by the government during the Sixth Plan is shown in table 1.1. During the Sixth Malaysia Plan period, in line with the expanding high value added capital and technology intensive industries, there was a concurrent rise

in technology imports. The changing industrial structure had an influence on the growing demand for a wide range of technologies from abroad, particularly those used in growth areas such as the automobile, oil and gas and aerospace industries.

The high demand of foreign technology in the automobile industry from early 1980s until the Sixth Malaysia Plan indicates this industry depends on foreign technology.

1.2 LITERATURE REVIEW

The Malaysian automobile industry is a popular subject and there is no shortage of literature especially on technology transfer. Hans-Georg Leutert and Ralf Sii (1999) undertook a study on the technology capacity building in the Malaysian automotive industry. The study showed that the automobile industry in Malaysia has progressed slowly towards the development of a competitive cluster based on innovation and technology. This is due to, Proton thus far, having not moved beyond the technological level of adaptation and with reference to high-tech components, not beyond basic technology absorption. Perodua's labour intensive production and the lack of in the development of internal R&D activities as well as small production volume labour intensive techniques particularly among new Proton suppliers, too contribute to the slow progress. Furthermore, it was highlighted that the technical and human resource institution supporting the automotive industry have major weaknesses due to lack of institutional education for automobile specific subject. The study also concluded that to a large extent, the strong policies of the government have not helped to build successful clusters in the Malaysian automotive industry.

Kamaruding Abdulsomad (1999) conducted a comparative study on technological development under industrial policies in the automobile industry in Malaysia and Thailand. The study characterized the Malaysian automobile industry as having a strong state intervention. Besides developing national automotive capacity, the Malaysian government has another three important objectives in the setting of a national car project. Firstly, to expand "Bumiputera" involvement in the automobile

industry. Secondly, to promote industrial linkages. And finally, to upgrade local technology of the industry. He further added, that the domination of Proton in Malaysia has had various effects on industrial and technological development in the automotive industry. Problems such as the proliferation of models and makes, which were the obstacle to the successful development of local auto parts firms, have been overcome with the national car project. In addition, Proton formulated localization programs to increase local content of the national car project and to help to develop the automobile component industry. Thus, the local content programme and government's active support in the R&D policies as well as incentives were used to enhance the technological development of the automobile industry.

Richard Butler and Jas Gill (1999), in studying trust and dynamics of the Japanese joint ventures in the Malaysian passenger and commercial vehicle sectors, showed that joint ventures provide greater commitment from the Japanese partner, and therefore more effective technology transfer mechanism.

Rasiah (1997) showed persistence of high monopolistic rents in Proton under the restrictive conditions imposed by Mitsubishi in the technology transfer agreement. He added that for Proton to become economically viable, the terms of the technology transfer agreement should shift substantially to favor local partners. He also emphasized that the government should not only improve its bargaining capacity but to also expand its absorptive capacities.

Sadoi (1998), showed that the Malaysian auto industry does not only lack advanced skills that are required for making of prototypes for R&D but also semi-skilled labours. The study concluded that measures taken by the Malaysian government to increase the skill formation in the industry is inadequate. And at the same time the shortage is also due to employers' lukewarm attitude towards skill formation in an unfavourable environment and weak individual interest.

Jomo (1994), proved that Mitsubishi has made substantial gains from the supply of car parts, production equipment, technical and managerial support from the turn-key contract with Proton. Though big new machines and modern management techniques have been brought in, Malaysia's own real car manufacturing technological capacity remains very limited. Thus, Proton's operations and viability remains very much subordinated to Mitsubishi's interests.

Machado (1994), Mitsubishi Motor Corporation's (MMC) participation in Proton because Proton's localization programme as well as MMC's export goals. Localization was agreed by MMC by requiring imported steel through Mitsubishi Corporation (MC) from Japan to produce parts locally. He also added that the MMC agreed to the joint venture as Proton heavily depended on MMC's technology.

1.3 OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

1. To identify the technology transfer channels.
2. To evaluate the dominant technology transfer channels in the Malaysian automobile industry.
3. To identify constraints in these technology transfer channels. And evaluate the dominant constraints in the technology transfer channels adopted in the Malaysian automobile industry.

1.4 RESEARCH METHODOLOGY

1.4.1 SCOPE OF STUDY

This study is limited to automobile firms located in Peninsula Malaysia. It focuses on the firms located in Selangor, Kuala Lumpur, Kedah, Penang and Pahang. The sample

size of this study is only 30. This sample consists of 9 automobile assemblers/manufacturers and 21 component parts manufacturers.

1.4.2 SOURCES OF DATA

The principal sources of primary data are:

1. Field research, a survey on the randomly picked sample of the automobile firms in Peninsula Malaysia based on the Malaysian Industrial Development Authority's (MIDA) "Directory of Approved Companies in Production 1997".
2. The survey was conducted based on a questionnaire entitled " A survey on the channels of technology transfer in the Malaysian automobile industry" (refer to the appendix). This questionnaire incorporates principal information on the background of the company, adopted technology transfer channels and constraints faced in these channels.
3. Personal interviews with the management of the sample firms located in Selangor and Kuala Lumpur were conducted. Meanwhile, questionnaires were posted to the sample firms located in Penang, Kedah and Pahang.
4. The data collected from these interviews were then transformed into percentage in tables to simplify the evaluation of the study.
5. Technology transfer channels that are applied in 50% and more of the surveyed firms are considered dominant technology transfer channel in the industry.
6. When more than half of the surveyed firms that adopted a channel admitted the presence of a constraint in that channel, the constraint is considered dominant in the particular channel.

The principal sources of secondary data are:

1. Publications of the Malaysian Industrial Development Authority, Ministry of Finance as well as Ministry of International Trade and Industry.
2. Journals, books, newspapers and academic research.

1.5 ORGANIZATION OF THE STUDY

The study is divided into five chapters. The first chapter is an introductory chapter. It contains a section on the objectives of the study and literature review of the technology development in the automobile industry in Malaysia. This chapter also provides information on the research methodology and chapter organization.

The following chapter begins with description of the identified technology transfer channels and proceeds with evaluation on the dominant technology transfer channels.

The third chapter provides a background of the automobile industry before and after the national car projects. Then, it evaluates the dominant technology transfer channels adopted in the surveyed Malaysian automobile firms.

Meanwhile, the chapter four gives a description of the identified constraints in the technology transfer channels. Based on these constraints, evaluation is conducted to identify the dominant constraints in the technology transfer channels, adopted by the surveyed firms.

Finally, chapter five is the concluding chapter of the study. This chapter provides a summary of findings and recommendations.

Table 1.1: TECHNOLOGY INFLOWS BY INDUSTRY GROUP, 1990-1995
(Number)

Industry Group	1990	1991	1992	1993	1994	1995	6MP
Electrical & Electronic Products	41	45	38	69	44	25	221
Chemical & Chemical Products (including Pharmaceutical)	24	21	19	20	12	17	89
Transport Equipment	18	16	28	25	21	9	99
Fabricated Metal Products	4	13	6	11	4	4	38
Food Manufacturing	4	6	2	11	2	2	23
Rubber & Rubber Products	8	10	8	5	4	3	30
Non-metallic Mineral Products	7	7	12	5	8	1	33
Basic Metal Products	4	7	2	5	4	0	18
Textiles & Wearing Apparel	7	6	7	3	1	1	18
Hotel & Tourist Complexes	3	8	1	5	0	0	14
Plastic & Plastic Products	5	6	6	11	3	6	32
Wood & Wood Products (including Furniture)	6	5	0	4	0	1	10
Paper & Paper Products, Printing & Publishing	4	4	2	3	1	4	14
Manufacture of Machinery	6	6	5	2	2	4	19
Beverages & Tobacco	10	3	1	4	2	1	11
Petroleum & Coal	0	0	1	1	19	1	22
Leather & Leather Goods	1	0	1	1	0	0	2
Miscellaneous	3	2	1	0	1	0	4
Total	155	165	14	185	128	79	697

Source: Seventh Malaysia Plan