SURVEY ON COMPARISON OF BACKGROUNDS, POLICY MEASURES AND OUTCOMES FOR DEVELOPMENT OF SUPPORTING INDUSTRIES IN ASEAN

(MALAYSIA AND THAILAND IN COMPARISON WITH VIET NAM)

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		Malaysia	Thailand	Vietnam
I. Background		- 1970s: Shift from import substitution to export orientation - 1980s: Heavy industrialization; Look East Policy; IMP1 (1986-1995): outward-looking industrialization, modernization of supporting industries, and strengthening industrial linkages - 1990s: Vision 2020 – become a fully developed country; IMP2 (1996-2005): cluster-based industrial development, manufacturing plus plus - 2000s: IMP3 (2006-2020), National Missions (2006-2020), New Economic Model (2010) - GDP per capita (2009): 8,209USD	- 1970s: Agro-industry led industrialization- 1980s: FDI-driven growth, 6th Plan (1986-1991): engineering, agro-processing, and rural SMEs are three prioritized sectors; Eastern Board (ESB) Development; AMATA Industrial Park; massive inflow of Japanese investment - 1990s: Economic boom, trade liberation; Baht depreciation (1997), economic recession in the late 1990s; - 2000s: Economic recovery, establishments of OSMEP (2002) - GDP per capita (2009): 4,043USD	- 1975: Country's reunion - 1980s: Doimoi (renovation) was initiated, shift from planning to market-oriented economy; enactment of Foreign Investment Law (1981) - 1990s: Joined ASEAN, Decree No. 90/1991/ND-CP on Supporting SME Development; revision of Foreign Investment Law - 2000s: Became WTO member, establishment of ASMED, unified Investment Law, revision of Decree No. 90 - GDP per capita (2009): 1,051USD
II. SME/SI policy organizations		- National SME Development Council - SME Corp, MIDA, MPC, SME Bank, MIDF, MATRADE	- MOI, DIP, BSID, TAI, OSMEP - Board of Investment (BOI)	- MPI, ASMED - MOIT, Heavy Industry Department, IPSI, SIBDC
III. Key documents		- IMP 3 (2006-2020) - Annual SME Integrated Plan of Action	- Master Plan on Supporting Industries (1995) - Law of SME Development (2000) - Automotive Master Plan 2007-2011	- Master Plan on Supporting Industry (2007)
IV. Scope of SI		- Automobile/motorbike & Electric/Electronic	- Automobile/motorbike & Electric/Electronic	- Textile & garment, leather & footwear, mechanics, automobile/motorbike, electric/electronic
V. Policy measures	**1. Incentives**	- Pioneer Status (PS) - Investment Tax Allowance (ITA) -Other incentives: reinvestment allowance, accelerated capital allowance…	- Reduction of import duty on machinery- - Exemption of corporate income tax - Exemption of import duty on raw or essential materials used for export products	- (None)

	2. Matching & linkage	- Vender Development Program (VDP) (1998) - Industrial Linkage Program (ILP) (1995-96) - Other matching services: trade fairs, global service network, SME Info Portal	- Skills, Technology and Innovation Program (STI) - BOI Unit for Industrial Linkage Development (BUILD)	- (Annual Supporting Industry Exhibition by JETRO)
	3. Capacity building	- Training courses provided by SME Corp - Training courses provided by MPC - Training services provided by SME Banks	- TPA's management and technical training courses - Thai-Ninchi Institute of Technology (2007) - Thai-German Institute's training courses - King Mongkut's Institute of Technology Ladkrabang (KLMITL)	- Management training courses at VJCC - Technical training at VJC, HaUI
	4. Enterprise consultation	- SME counselor program	- Shindan training (1999-2004) - TPA's consulting service - Shindan House (under construction)	- (Under consideration)
	5. SME finance	- Banking institutions: SME Bank, Bank Negara, commercial banks - MIDF (1960) - Credit Guarantee Corporation (1972)-SME Credit Bureau (2008)	- Banking institutions: SME Development Bank, Bank of Agriculture and Agricultural Cooperation, Government Savings Bank, and Export-Import Bank - One village one product (OTOP) loans	-Two step loans for SME (under consideration for targeting SI) - Credit guarantee funds for SMEs
	6. Current Japanese cooperation	- Malaysia Japan Automotive Industry Cooperation (MAJAICO) , 2006-2011 - Development of Human Resource for SMI Project (2006-2009)	- Shindan training (1999-2004) - Automotive Human Resource Development Program (AHRDP), (2006-2008., 2009-2010) - Expert dispatch by JODC, JICA	- Drafting Action Plan for Supporting Industry Development (on going) - Dispatch of experts & survey teams in policy making, human capital building, FDI attraction, business linkage
VI. Policy impact and performance	**Outcomes**	- E&E clusters in Penang, Shah Alam, Hohor Baru - Agglomeration of automotive supporting industries	- Largest auto producer in ASEAN and world's second largest producer and market of pick-up trucks - Thick layer of auto suppliers	- Developed supplier system for motorbike industry - Some local companies supply simple parts
	Issues	- Lack of private response to policies - Conflict between the government's desires: intervene in the market vs. activate private dynamism - Risk of leapfrogging approach: from supporting industry promotion to fostering of innovative and high-tech SME	- Lack of strong response from the Thai private sector - Less structured industrial policy, allowing greater flexibility and pragmatism, but also causing the lack of transparency and coordination - Deeper regional policy (AFTA is completed, FTAs & EPAs proliferate)	- Too broad scope of supporting industries - Lack of policy enthusiasm in supporting industry promotion - Without incentive scheme for part and component manufactures - No specialized business matching & linkage program - No financial mechanism specially targeted to supporting industries

SO SÁNH BỐI CẢNH, BIỆN PHÁP CHÍNH SÁCH VÀ KẾT QUẢ PHÁT TRIỂN CÔNG NGHIỆP HỖ TRỢ Ở ASEAN

		Malaysia	Thái Lan	Việt Nam
I. Bối cảnh		- Những năm 1970: Chuyển từ thay thế nhập khẩu sang định hướng xuất khẩu - Những năm 1980: Công nghiệp hóa dựa vào công nghiệp nặng, Chính sách Hướng đông, IMP1 (1986-1995): công nghiệp hóa hướng ngoại, hiện đại hóa công nghiệp hỗ trợ, và tăng cường liên kết côngnghiệp - Những năm 1990: Tầm nhìn 2020 – trở thành nước phát triển đầy đủ; IMP2 (1996-2005): phát triển công nghiệp dựa vào cụm công nghiệp, sản xuất nhiều nhiều nữa - Những năm 2000: IMP3 (2006-2020), Nhiệm vụ quốc gia (2006-2020), Mô hình kinh tế mới (2010)- GDP bình quân đầu người (2009): 8.209USD	- Những năm 1970: Công nghiệp hóa dựa vào nông nghiệp - Những năm 1980: Tăng trưởng dựa vào FDI, Kế hoạch 5 năm lần thứ 6 (1986-1991): khoa học kỹ thuật, chế biến nông sản, SME nông thôn là ba lĩnh vực ưu tiên, Phát triển Vùng ven biển phía Đông (ESB); Khu Công nghiệp AMATA; luồng đầu tư lớn từ Nhật Bản - Những năm 1990: bùng nổ kinh tế, tự do hóa thương mại, đồng Bạt mất giá (1997), kinh tế suy thoái vào cuối những năm 1990; - Những năm 2000: phục hồi kinh tế, thành lập OSMEP (2002)- GDP bình quân đầu người (2009): 4.043USD	- 1975: Thống nhất đất nước - Những năm 1980: Bắt đầu Đổi mới , chuyển từ nền kinh tế tập trung sang nền kinh tế định hướng thị trường, ban hành Luật Đầu tư nước ngoài (1981) - Những năm 1990: Gia nhập ASEAN, ban hành Nghị định 90/1991/ND-CP về hỗ trợ phát triển SME, sửa đổi Luật Đầu tư nước ngoài - Những năm 2000: Trở thành thành viên WTO, thành lập ASMED, Luật đầu tư hợp nhất, sửa đổi Nghị định 90 - GDP bình quân đầu người (2009): 1.051USD
II. Các cơ quan chính sách về SME/SI		- Hội đồng Phát triển SME Quốc gia - SME Corp, MIDA, MPC, SME Bank, MIDF, MATRADE	- MOI, DIP, BSID, TAI, OSMEP -Ủy ban Đầu tư (BOI)	- MPI, ASMED - MOIT, Vụ CNN, IPSI, SIBDC
III. Các văn bản chính		- IMP 3 (2006-2020) - Kế hoạch hành động hợp nhất SME hàng năm	- Quy hoạch Phát triển công nghiệp hỗ trợ (1995) - Luật Phát triển SME (2000) - Quy hoạch công nghiệp ô tô, 2007-2011	- Quy hoạch Phát triển Công nghiệp hỗ trợ (2007)
IV. Phạm vi CNHT		- Ô tô / xe máy & Điện / điện tử	- Ô tô / xe máy & Điện / điện tử	- Dệt may, da giầy, cơ khí, ô tô / xe máy, điện / điện tử
V. Biện pháp chính sách	**1. Ưu đãi**	- Tư cách tiên phong (PS) - Trợ cấp thuế đầu tư (ITA) - Các ưu đãi khác: trợ cấp tái đầu tư, trợ cấp vốn gia tốc…	- Giảm thuế nhập khẩu máy móc thiết bị - Miễn giảmg thuế thu nhập doanh nghiệp - Miễn giảm thuế nhập khẩu nguyên vật liệu thô hoặc thiết yếu dùng cho hàng xuất khẩu	- (Chưa có)

	2. Kết nối kinh doanh	- Chương trình Phát triển nhà cung cấp (VDP) (1998) - Chương trình Kết nối công nghiệp (ILP) (1995-96) - Các dịch vụ kết nối khác: hội chợ thương mại, mạng lưới dịch vụ toàn cầu, Cổng thông tin SME	- Chương trình kỹ năng, công nghệ và đổi mới (STI) - Chương trình Phát triển Liên kết công nghiệp của BOI (BUILD)	- (Triển lãm công nghiệp hỗ trợ do JETRO tổ chức hàng năm)
	3. Xây dựng năng lực	- Các khóa đào tạo của SME Corp - Các khóa đào tạo của MPC - Các khóa đào tạo của SME Banks	- Các khóa đào tạo quản lý và kỹ thuật của TPA - Viện công nghệ Thái - Nhật (2007) - Các khóa đào tạo Viện Thái - Đức - Viện Công nghệ Quốc vương Mongkut Ladkrabang (KLMITL)	- Các khóa đào tạo quản lý tại VJCC - Đào tạo kỹ thuật tại VJC, HaUI
	4. Tư vấn doanh nghiệp	- Chương trình Nhà tư vấn SME	- Đào tạo Shindan (1999-2004) - Dịch vụ tư vấn của TPA - Ngôi nhà Shindan (đang triển khai)	- (Đang xem xét xây dựng tại Việt Nam)
	5. Tài chính SME	- Các tổ chức ngân hàng: Ngân hàng SME, Ngân hàng Trung ương, các ngân hàng thương mại - MIDF (1960) - Công ty Bảo lãnh tín dụng (1972) - Phòng Tín dụng SME (2008)	- Các tổ chức ngân hàng: Ngân hàng Phát triển SME, Ngân hàng Nông nghiệp và Phát triển nông nghiệp, Ngân hàng Tiết kiệm Chính phủ, và Ngân hàng Xuất nhập khẩu - Vốn vay Mỗi làng một sản phẩm (OTOP)	- Vốn vay hai bước dành cho SME (đang xem xét định hướng vào SI) - Quỹ bảo lãnh tín dụng dành cho SME
	6. Hợp tác với Nhật Bản hiện nay	- Hợp tác Công nghiệp ô tô Malaysia - Nhật Bản (MAJAICO) , 2006-2011 - Dự án Phát triển nguồn nhân lực cho SMI (2006-2009)	- Đào tạo shindan (1999-2004) - Chương trình Phát triển Nguồn nhân lực ô tô (AHRDP), (2006-2008., 2009-2010) - Chương trình cử chuyên gia của JODC, JICA	- Soạn thảo Kế hoạch hành động Phát triển công nghiệp hỗ trợ (đang thực hiện) - Cử chuyên gia và đoàn khảo sát về lập chính sách, xây dựng năng lực , thu hút FDI, kết nối kinh doanh
	Kết quả	- Các cụm công nghiệp điện/điện tử tại Penang, Shah Alam, Hohor Baru - Tích tụ nhiều trong công nghiệp hỗ trợ của ngành ô tô	- Quốc gia sản xuất ô tô lớn nhất ASEAN và quốc gia sản xuất và thị trường xe bán tải lớn thứ hai thế giới - Nhiều tầng lớn nhà cung cấp linh phụ kiện ô tô	- Hệ thống nhà cung cấp trong công nghiệp ô tô khá phát triển - Một số doanh nghiệp trong nước đã có thể cung cấp các linh phụ kiện đơn giản
VI. Ảnh hưởng chính sách và kết quả đạt được	**Vấn đề còn tồn tại**	- Thiếu sự hưởng ứng từ khu vực tư nhân - Xung đột trong mong muốn của chính phủ: giữa mong muốn can thiệp thị trường và mong muốn thúc đẩy sự năng động của khu vực tư nhân - Rủi ro trong cách tiếp cận nhảy cóc: từ thúc đẩy công nghiệp hỗ trợ sang đẩy mạnh đổi mới và SME công nghệ cao	- Thiếu sự hưởng ứng nhiệt tình từ khu vực tư nhân Thái Lan - Chính sách công nghiệp có cấu trúc lỏng lẻo, có tính linh hoạt và thực dụng cao, nhưng cũng là nguyên nhân làm kém minh bạch và sự phối hợp giữa các cơ quan liên quan - Hội nhập khu vực ngày càng sâu sắc hơn (thực hiện đầy đủ nghĩa vụ AFTA, ngày càng nhiều FTA và EPA được ký kết)	- Phạm vi công nghiệp hỗ trợ quá rộng - Thiếu sự nhiệt tình chính sách trong việc thúc đẩy công nghiệp hỗ trợ - Không có chương trình ưu đãi dành cho các nhà chế tạo linh phụ kiện - Không có chương trình riêng dành cho kết nối kinh doanh. - Không có cơ chế tài chính dành riêng cho CNHT.

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Executive Summary

Supporting industries, which are domestic industrial clusters that supply parts and components to assembler firms of automotive, electronics and other mechanical products, are the key element in boosting industrial capability. Replacement of imported parts and components by competent domestic supply improves the competitiveness of these industries through better quality, cost and delivery (QCD) performance. Vietnam's supporting industries are currently underdeveloped and policies to accelerate their growth are largely absent in comparison with the neighboring ASEAN countries such as Malaysia and Thailand which introduced vigorous promotion programs for supporting industries in the 1980s.

By now both Malaysia and Thailand have highly developed policy mechanisms to promote SMEs in general and supporting industries in particular. The standard policy measures are similar between the two countries and include strategic definitions; constant reform of policy organization and coordination; legal framework and plan documents; deep involvement of stakeholders such as businesses, industry associations, financial institutions and academia; human resource development and business consultation; SME finance; FDI-local firm linkage and matching; and strategic mobilization of foreign private and public resources. However, Malaysia's policy formulation is more explicit, complex and pre-announced than that of Thailand which takes a more flexible and pragmatic approach without deciding detailed procedure and responsibilities in advance.

While both countries have achieved long-term growth and dramatic structural change from resource-based output and exports to manufacturing-based ones, their industrial performance is not as brilliant as that of Taiwan or Korea which have already attained very high income. Both feel trapped in middle income, dominated by multinational corporations and unable to create high value by themselves. For Malaysia, overcoming the middle income trap has become a central pillar of development policy since 2009. However, the approaches taken by the two to cope with this problem differ significantly. Malaysia is encouraging the emergence of value-creating high-tech SMEs independent of foreign giants or government linked companies. By contrast, Thailand continues to pursue the traditional policy of absorbing a large amount of FDI manufacturers and helping local firms to link with and learn from them. Malaysia features relatively strong state guidance while Thailand prefers to utilize private initiatives and globalization pressure more. Malaysia intends to create national brand industrial products while Thailand does not. Together they offer rich and different experiences in supporting industry promotion from which Vietnam can choose and blend.

In Malaysia, supporting industry promotion is part of SME development strategy. While Industrial Linkage Program and incentives for supporting industries still exist, it is no longer given top priority in industrialization. At the highest level, SME policy is determined by the National SME Development Council chaired by the prime minister. At

the operational level, SME Corporation Malaysia (SME Corp) coordinates activities among a large number of ministries and agencies. Among ministries, the Ministry of International Trade and Industry (MITI) plays the leading role in drafting industrial master plans and providing various functions through specialized agencies such as Malaysian Industrial Development Agency (MIDA, investment), Malaysia Productivity Corporation (MPC, research, training and consultation), SME Bank (finance), and Malaysia External Trade Development Corporation (MATRADE, trade).

Investment incentives (pioneer status, investment tax allowance and their variations) in Malaysia are provided by MIDA which uses the published list of priority activities and products as well as internal deliberation to approve projects and incentives. The Industrial Linkage Program, which offers financial incentives, business matching and business support packages, is the main vehicle for encouraging "anchor firms" (large assemblers) and "vendors" (local suppliers) to work together. Training and consultation are offered by a large number of agencies and programs including SME Corp, MPC, SME Bank, Malaysia-Japan Automotive Industry Cooperation (MAJAICO) and the JICA Program for training SME counselors.

According to MIDA's incomplete data, there are about 1,000 supporting industry establishments in Malaysia engaged in machining, mould and die, metal stamping, metal casting, heat treatment and plating, and an additional 2,000 are in metal fabrication. Most of these establishments are likely to be serving automotive or electrical and electronics (E&E) industries. In promoting supporting industries, Malaysia targets Bumiputra (local Malay) firms for the purpose of social equity. The newly revised National Automotive Policy pursues scale economy, industry linkage and value creation through administrative measures. Whether such policy guidance and interventions are consistent with globalization and whether the private sector will respond strongly to the enhanced SME and automotive policies remain to be seen.

In Thailand, long-term growth has been realized despite chronic political instability and serious setbacks caused by occasional economic crises. This was made possible by the existence of key policy organizations staffed with competent officials such as the National Economic and Social Development Board (NESDB, planning), the Bank of Thailand (macroeconomy), the Ministry of Industry (MOI, industrial policy), and the Board of Investment (BOI, investment). In particular, the Department of Industrial Promotion (DIP) of MOI has played the most important role in industrial policy design while implementation was carried out by a rich array of official and non-official organizations such as the Bureau of Sup porting Industry Development (BSID) of MOI, several sector-specific institutions, industry associations, academic institutions, NPOs, industrial estates and FDI and ODA partners. From the 1980s the mega project of Eastern Seaboard Development was executed despite great financial risks but it eventually proved very successful as the newly created and largest industrial region of Thailand. Compared with Malaysia, Japanese concepts and methods are more explicitly recognized and vigorously learned in Thai industrialization.

In Thailand, the Supporting Industry Master Plan of 1995 and the Automotive Master Plan 2007-2011 are the key documents for the development of supporting industries. While the former is already 15 years old, Thai industrial officials still use it as a checklist of remaining tasks. The latter sets five strategic thrusts (human resources, productivity, market, technology, investment and linkage) and twelve action plans. It also advocates Eco-Car Project as the industry's new priority. As for investment incentives, BOI approves them based on the published list of priority activities and products and internal deliberation as in the case of Malaysia. E&E, machinery and their components are featured as priorities along with others. Business matching and linkage is also provided by BOI through its Skills, Technology and Innovation Program and the BOI Unit for Industrial Linkage Development (BUILD). In TVET and business consultation, a large number of organizations are involved as in Malaysia. They include Technology Promotion Association, Thai-Nichi Institute of Technology, King Mongkut's Institute of Technology, Thai-German Institute and Japan's continuous technical assistance (JICA, JODC, AOTS, JETRO and Japanese FDI companies). From 1999 to 2004 the shindan (enterprise diagnostic and advisory) system was introduced with Japanese help to produce 450 shindanshi (enterprise advisors). Currently, the Automotive Human Resource Development Program is implemented with strong cooperation of four leading Japanese auto firms. SME finance in Thailand is provided by SME Development Bank, Rural Development Bank, People Bank and Exporters' Bank.

The Thai automotive industry is the leading manufacturing sector in Thailand as well as the largest auto producer in ASEAN. Despite severe shocks arising from the 1997-98 and 2008-09 crises, the industry bounced back strongly to export not only completed vehicles (including pickup trucks) but also parts and components. The Thai automotive industry has 17 car assemblers and 9 motorcycle assemblers, 648 first-tier suppliers and 1,641 second- and third-tier suppliers. It can be concluded that the Thai automotive industry has grown successfully with a relatively strong local supporting industry base. However, like Malaysia, Thailand is still stuck in the middle income range. Kindling private dynamism and re-organizing and re-focusing industrial strategies to take full advantage of deepening globalization are its major challenges.

The experiences of these two countries offer the following lessons for Vietnam. First, policy makers should build a proper mindset toward supporting industry promotion and place it at the center of industrial policy. Second, Vietnam should adopt the two-pronged strategy of building local-FDI linkage and encouraging the emergence of independent high-tech SMEs simultaneously. Third, an effective execution of supporting industry promotion calls for a radical reform in Vietnam's policy making organization. Fourth, leadership at all levels-top, middle and operational-is crucial. Fifth, for drafting and implementing concrete policy packages, detailed information from Malaysia, Thailand and other East Asian countries are highly useful. This report is intended to partially fill this information gap.

1. Introduction

Supporting industries are a group of manufacturing firms operating within a country-whether local or foreign-owned-that supply parts and components or process them for assembler firms of products such as automobiles, motorcycles, electronics, precision machinery and industrial machinery which are also operating in the same country. The growth of supporting industries therefore increases the domestic availability of intermediate industrial goods. Since parts and components occupy a large part of cost structure of assembled industrial products (typically 80-90%), the existence of a broad base of competent supporting industries within a country contributes greatly to the quality, cost and delivery (QCD) performance of assembler firms, the reduction of part and component imports, the expansion of the manufacturing base, and the leveling up of income and industrial capability of that country.

Under global and regional integration, aiming at 100% local procurement is both unrealistic and undesirable. Each country should achieve localization of industrial inputs which is less than 100%. The optimal localization ratio depends, among other things, on the characteristics of individual parts and components (Mori and Ohno, 2005). Those parts that are bulky or require daily on-time delivery and/or frequent re-designing should be produced near the assembly factory while those parts that are light and globally common or require huge capital investment for scale economy should be produced in one location and distributed throughout the world. The fact is that the current degree of Vietnam's local procurement is far below optimal, and the lack of supporting industries is regarded as a serious deterrence to investment in Vietnam[1].

Vietnam, which is in the early stage of industrialization, should develop its supporting industries as top national priority in order to improve industrial capability and competitiveness. Further progress in development and industrialization requires concentrated internal effort in such areas as upgrading skills and technology, creating efficient logistics, and broadening the industrial base and linkage. Supporting industry promotion touches upon all these areas and is therefore the key to accelerating Vietnam's industrialization. This is especially so because Vietnam is about to complete the process of regional and international integration, and tariff and non-tariff barriers to trade and investment are being dismantled. Another serious concern is the rise of wage levels without comparable increases in productivity. Without building internal capability, there are serious risks of FDI exodus, de-industrialization, and economic slowdown and even stagnation before reaching high income-phenomena which can be collectively called the "middle income trap."

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[1] The JETRO survey of Japanese manufacturing firms operating in Asia reports the overall local procurement ratio of 55.6% in Thailand, 44.3% in Indonesia, 43.1% in Malaysia, and 24.0% in Vietnam. The percentage of Japanese firms that considered the accumulation of supplier firms as a positive factor for investment in respective country was 47.4% in Thailand, 21.7% in Indonesia, 20.1% in Malaysia, and 12.2% in Vietnam. These results are based on the survey conducted in September-October 2009

Historically, the importance of supporting industry promotion has been well recognized in other ASEAN countries such as Thailand and Malaysia. These countries have adopted a series of supporting industry promotion measures, often with Japanese and other assistance, and accumulated rich experiences of both successes and failures. As a latecomer industrializing country in ASEAN, Vietnam should learn intensively but selectively from their past and present experiences to formulate its own policy for supporting industry promotion.

Industrial policy makers of Vietnam, including key officials at MOIT and MPI, have come to understand the importance of supporting industry promotion. However, we cannot yet say that this recognition is widely shared by Vietnamese leaders and officials or the local business community at large. Even the concept of supporting industries is relatively new in Vietnam[2]. It is important to publicize this concept and its significance as widely as possible as a precondition to conduct effective industrial policies.

Vietnam and Japan initiated a joint effort to draft the supporting industry action plan in early 2008. A preliminary action plan matrix was proposed in June 2009, which was subsequently discussed and commented on. This work should be accelerated to generate visible results as soon as possible. The Vietnam Development Forum (VDF) has participated in this work from its early stages and hopes to contribute more. This JICA report has been prepared in close cooperation with this official effort and intends to provide useful ideas for finalizing and implementing supporting industry promotion actions in Vietnam.

2. Vietnam's Current Status

Despite rapid growth in the last two decades, industrialization in Vietnam is still quantitative, with value added growing less rapidly than gross industrial production. Simple processing and assembly still dominate, and international competitiveness of garment, footwear, handicrafts, agro-products and seafood is more dependent on relatively cheap labor than quality performance. In this early stage of industrialization, development of supporting industries also remains highly limited.

2.1. Underdevelopment of supporting industries

Part and component suppliers in Vietnam, both FDI and local, are few and scattered in comparison with Malaysia and Thailand. Moreover, there is no comprehensive data on supporting industries. Fragmentary data are available from Vietnam Chamber of Commerce and Industry (VCCI), Ministry of Planning and Investment (MPI), Japan External Trade Organization (JETRO), business associations, private consultation companies, and so on. The Ministry of Industry and Trade (MOIT) is also building a

[2] The term supporting industries (or susono sangyo) was invented by Japanese firms and officials in the 1980s to point out the general lack of part and component producers in ASEAN. For details on alternative definitions of supporting industries and related policy measures in ASEAN, see Nguyen Thi Xuan Thuy (2007).

website for supporting industries but the number of entries is still small. Most directories include basic information such as the name, contacts, business type, product mix, and so on, of each company without providing information on quality, capacity, markets, customers, technology and equipment which is essential for choosing business partners. This makes the search for suppliers extremely costly and exhausting in Vietnam.

JETRO exhibitions, where assemblers and suppliers meet and discuss their needs and capabilities, have been held annually in Hanoi or Ho Chi Minh City since 2004. While the number of Japanese participants (assemblers) increased from 20 to 62 during 2004-2008, the number of Vietnamese participants (suppliers) increased from 50 to only 53. Demand for local procurement seems to be rising faster than Vietnam's ability to supply required parts and components.

Underdevelopment of supporting industries has much to do with demand size. According to the data provided by Industry Policy and Strategy Institute (IPSI) of MOI, one Japanese motorcycle assembler operating in Vietnam had a localization ratio of 76% in 2008 because domestic demand for motorcycle was sufficiently large. In the same year, one Japanese automotive assembler had a localization ratio of only 9% because domestic demand for automobiles was too small for efficient operation.

Another IPSI survey on the capability of local suppliers conducted in 2008 revealed that foreign assemblers and local suppliers shared similar views. For example, they agreed that:

(i) A large number of relatively "easy" parts and components made of cast iron, steel or plastic continue to be imported because no local company can supply them.
(ii) Engineering and technical capabilities of domestic suppliers are generally low and without ability to perform required QCD (quality, cost and delivery).
(iii) Capacity to supply large quantities with stable quality is low.
(iv) Too much attention is placed on the cost of materials while far less attention is paid on costs associated with wastes, defects, inventories and uneven quality of inputs.
(v) Local producers under cost cutting pressure are unable to invest in necessary human and physical capital for becoming viable part manufacturers.

Additionally, foreign assemblers noted that "very important" factors in choosing suppliers were on-time delivery (92%), product quality (82%), reasonable cost (75%) and homogeneous quality across batches (70%). Meanwhile, 60% of the FDI respondents considered the ability to self-design and innovate as "not really necessary" for suppliers. In their opinion, Vietnamese entrepreneurs are not active or skilful in approaching and communicating with customers. Another problem of communication between assemblers and local enterprises was a language barrier.

Marketing technique of Vietnamese enterprises is seriously underdeveloped. In an IPSI survey conducted in 2009, an overwhelming majority replied that the most effective way to develop business linkage was staying with existing customers (86%), followed by self-effort (37%) and introduction by other companies (35%). Meanwhile, most

enterprises (51%) rarely used internet, telephone or directories, and similarly large numbers of respondents were doubtful about the effectiveness of fairs and exhibitions (50%) and business associations (48%). Desire for monopoly and self-contained production is still alive in many Vietnamese enterprises which hinders healthy development of internationally popular marketing and matching methods such as SME database, trade fairs and intermediation by public organizations or business associations.

2.2. Some achievements

Among various sectors, the supplier system for motorcycle assembly is most developed in Vietnam. This is due to large domestic demand as well as the past policy of the Vietnamese government. Large volume allows assemblers to invite foreign suppliers to come to Vietnam as well as cooperate with local firms to improve skills and become their suppliers. In the process of cooperation, technology and know-how are transferred from foreign assemblers to Vietnamese suppliers. Examples of successful cooperation leading to the emergence of local suppliers include Tan Hoa, Chain & Freewheel Dong Anh and Hanoi Plastic Company.

In the case of Hanoi Plastic Company, marketing campaigns of the past ten years yielded many positive results. Starting with Honda Vietnam, it developed increasingly wide links with other motorcycle assemblers and also began to supply large-size or precision plastic parts for home appliances such as washing machines and air conditioners. Recently it invested in a 1,500 ton injection machine to expand the customer base even more.

Meanwhile, some local companies develop reasonable (if not global competitive) skills and technology without establishing close linkages with FDI giants. Xuan Kien Automotive Company was started by a former engineer at state mechanical companies. Using second hand machines imported from Taiwan, Xuan Kien initially focused on producing mechanical parts with high market demand. The company eventually became one of the leading domestic automotive enterprises in Vietnam with about 3,000 workers. However, Xuan Kien's investment in technology was still based on self-effort on available equipment, which reduced costs and enhanced the skills of engineers and workers. Other local companies which took similar incremental approaches include Hoang Phat and Tan Hoa Mechanical Company. These enterprises supply mechanical parts that satisfy the standards set by Japanese and Taiwan motorcycle assemblers and can also produce simple parts for local automotive assemblers such as Xuan Kien and Truong Hai. This relatively "easy" and less costly way of levelling up on spontaneous local effort and agglomeration, not often seen in Malaysia and Thailand, seems to be working in Vietnam. Whether this path leads to further development or an insurmountable wall remains to be seen.

In the long run, Vietnam will continue to offer two advantages to domestic and foreign investors, namely, increasingly large domestic demand and relatively hard-working population, provided that economic growth continues and wage increase is contained below productivity improvement. These will be underlying conditions that can strongly

support Vietnam's industrialization in general and development of supporting industries in particular. To accelerate this process, however, significant reform of industrial policy formulation is in order.

2.3. Shortcomings in the policy framework

In Vietnam, the only official document that directly addresses the problems of supporting industry development is the Master Plan of Supporting Industries in Vietnam until 2010, Vision of 2020 approved in 2007. But this master plan has much room for improvement. For one thing, the definition of supporting industries is too broad, encompassing almost the entire value chain from materials to marketing which cannot be tackled quickly with Vietnam's limited experience and resources. Moreover, supporting industries are listed for each sector without considering overlaps and linkages among parts makers. Inclusion of garment and footwear industries with specific material needs along with such mechanical industries as electrical and electronics (E&E) and automotive further increases the difficulty. It is also noticed that the chapter on E&E does not discuss plastic parts and components. MOIT is currently drafting a new decree for developing supporting industries to partly correct these problems.

There is also a mindset problem. While supporting industry firms are usually of small to medium size, Vietnamese authorities at both central and local levels often prefer large enterprises to fill industrial zones. This bias has a negative effect on inviting small but high-tech FDI supplier firms. For example, Clinroom, a Malaysian company producing factory equipment with very clean environment, tried to invest in Hanoi to respond to a large order by a Japanese customer. It took eight months to find a suitable site because industrial zones only had large plots of over 1,000m2 although Clinroom needed only 300-500m2. But if it chose a location outside an industrial zone, quality standards could not have been met. While neighboring countries strongly welcome such FDI, Vietnam discourages their entry by giving them unnecessary inconveniences.

Vietnam is without an incentive scheme for parts and component manufacturers. Most tax privileges are reserved for "high-tech" producers (for which most suppliers do not qualify), exporters or investors in far and remote areas. Meanwhile, supporting industries are highly subject to scale economy (the more you produce, the lower the unit cost will be). When an industry is small and in an early stage of development, parts cost tends to be high either because local parts producers cannot operate at an efficient scale or because parts must be imported with high logistic cost in the absence of local suppliers.

To overcome this disadvantage, most countries give tax breaks to parts manufacturers, without which domestic suppliers can hardly survive, let alone grow. Many automotive and home appliance assemblers in Vietnam complain that they do not have any motive to increase local procurement because import tariffs on parts and components are very low or even nil, while Vietnam does not offer any tax incentive when parts are produced domestically. Even Toyota Vietnam, producing 1,300 units of Innova per month in 2008, could not invest in component production or invite suppliers from abroad due to

small production volume, unlike Toyota Indonesia which produced 5,000 units of Innova per month and had lower parts, logistic and tax costs than Vietnam.

In addition, there is no financial mechanism specially targeted to supporting industries. SMEs in general and suppliers in particular still face enormous difficulties in securing commercial bank loans. Finally, in TVET, a number of technical and management training courses and consultation activities are available in Vietnam but the number of local firms participating in these programs is still small relative to overall needs.

It is clear that Vietnam lags far behind its neighbors, such as Malaysia and Thailand, in the design and implementation of supporting industry promotion measures. This also means there is much to be learned from their experiences.

3. Key Findings from International Comparison

By studying the past and current experiences of Malaysia and Thailand, the following seven issues have been identified for Vietnamese policy makers' attention. This section discusses them broadly and briefly while details of each country will be presented in subsequent sections.

3.1. Crises and necessity as policy accelerators

Industrialization is a long-term process and proceeds under sometimes unstable political and economic conditions. Malaysia, Thailand and other ASEAN members have been frequently affected by national, regional and global crises. They also occasionally enjoyed externally created booms. Naturally, good times see faster industrialization whereas bad times cause large setbacks in production and employment.

What is more important is how policy reacts to such socio-economic fluctuations. In Malaysia and Thailand, a large inflow of foreign giant assemblers in E&E and automotive sectors, which was good for industrialization, exposed the thinness of capable domestic part suppliers, without which assemblers could not compete effectively. This occurred especially in the late 1980s when Japanese manufacturers poured into ASEAN4, prompting both local and Japanese ("New Asia Plan") efforts to develop local suppliers and/or invite foreign suppliers to come to the country. The effort to create a strong supporting industry base has continued to date, albeit with different degrees of urgency across countries.

Crises often provided opportunities to re-examine existing policies, identify emerging problems and launch new actions. The post second oil shock recession of the early 1980s, the Asian Financial Crisis of 1997-98, the semi-conductor recession of the early 2000s, and the Global Financial Crisis of 2008-09 negatively affected the macroeconomic performance of Malaysia and Thailand. But in their aftermath, new policy directions were often set and existing policies were further strengthened. In this sense, crises had some positive impacts on policy formulation.

At present, Malaysia is seriously worried about having been trapped in middle income, which is a chronic disease and not an acute crisis. Vietnamese leaders have also begun to take note of the possibility of the middle income trap in the future. But whether chronic problems such as this are powerful enough to push policy makers into bold action remains to be seen.

3.2. Interaction of national and foreign interest under globalization

Development of supporting industries is an important policy objective of developing countries, but its success also greatly benefits foreign assemblers producing in those countries. In Malaysia and Thailand, strong policy initiatives were created when national and foreign interests coincided. Japanese players, both private and public, were particularly important as cooperation partners as well as beneficiaries of better business environment. Supporting industry promotion is a political as well as economic endeavor, in which due diplomatic consideration must be given for effective design and execution. It must also be noted that this policy has a positive spillover effect on all producers regardless of nationality.

As globalization and regional integration deepens, a new configuration of mutual benefits must be constructed. When tariffs disappear, logistic cost is lowered and business procedures are harmonized, building the same supporting industry base in every ASEAN country will not make sense. The problem of overlapping and excess competition among suppliers across borders must be solved. Supporting industry promotion must be a regional effort, with ASEAN becoming an integrated factory with each member specializing in some crucial processes. Selectivity, not comprehensiveness, must rule. How state and market should be combined and which countries should take the lead in such an effort are sensitive matters that must be carefully studied. Japan's role in the integration and reorganization of ASEAN production must be redefined. And all this must proceed by ensuring the benefits of all parties involved.

3.3. Definition and scope of supporting industries

Definitions and scope of supporting industries become important in two instances: determining the eligibility of investment incentives and determining the beneficiaries of targeted policies with limited duration.

In both Malaysia and Thailand, approval of tax and non-tax incentives for individual companies is based on two steps: published lists and organizational judgment. Proposed investment must be in the list of priority activities published by the agency responsible for issuing investment licenses (MIDA in Malaysia and BOI in Thailand). The list is uploaded in the web and updated as necessary. When applications are filed, they are reviewed internally within that agency. Approval is not automatic and depends on whether proposed investment satisfies the objectives defined by the national development policy such as innovation, linkage and value creation. Negative factors such as environmental concern, overcrowding of the domestic market and trading and brokering without creating much value can be a reason for rejection. In both countries, investment

licenses and incentives are uniformly processed by a central agency without delegating approval authority to localities.

For more ad hoc projects aimed at human resource development, improved standards and testing, management and technical consultation, and the like, permanent definitions are not necessary because target groups are defined more flexibly and operationally subject to policy objectives and budget constraint of each project. However, the common feature of supporting industry promotion projects, especially in Thailand but also in Malaysia, is that they are exclusively targeted to the suppliers of automotive and electrical and electronics (E&E) industries. A long list of targeted products and processes is included in the Thai supporting industry master plan, for instance, but this is a checklist for policy makers to find and fund new projects and does not imply that all items must be simultaneously promoted. In neither country, the term supporting industries is extended to include non-mechanical industries such as textile and garment, leather and footwear and food processing.

Definitions of SMEs also exist for policy purposes, but they do not coincide with the definitions of supporting industries.

3.4. Policy measures and organization

In both countries, policy capability is highly developed. The broad menu of supporting industry promotion is basically the same between Malaysia and Thailand. They include strategic definitions, supporting laws, master plans and action plans, university education, technical training, management consultation, incentives, tax and tariff structure, finance, matching and linkage, business associations, public private partnership, international and regional cooperation, and constant organizational reform for effective policy design and implementation. Similar items are also covered in the action plan matrix proposed for Vietnam by Japanese businesses, experts and officials.

But emphasis and methods in executing these measures differ across countries. Malaysia uses explicit and well structured procedures, targets and allocation of responsibilities while policy making of Thailand is less formal and more flexible and pragmatic. Policy implementation is still under strong state guidance in Malaysia while it is more “privatized” in Thailand.

Policy organization for supporting industries and SMEs is diversified across many ministries and agencies, but the industry ministry (MITI in Malaysia and MOI in Thailand) carries the main responsibility. In both countries, strengthening SMEs and industrial human resource is the core component of industrialization strategy. For prioritization and effective coordination, a high level committee headed by the prime minister has been established in Malaysia, and both countries are reorganizing and upgrading the hub agency for SME promotion (SME Corp in Malaysia and OSMEP in Thailand). In both countries central government administers supporting industry and SME policies without delegating authority to local governments.

Despite high importance attached to SMEs and supporting industries, both countries are undergoing budget cuts for more efficiency (Malaysia) or for shifting the responsibility of implementation to the private sector (Thailand).

3.5. Open promotion vs. forced promotion

Another salient difference can be seen in the basic thrust of industrial policy between the two countries. Thailand fully embraces markets and globalization, tries to build an open and liberal business environment, welcomes foreign MNCs to form the industrial base and does not have a strong desire to create national brands. In contrast, Malaysia more often utilizes directives and administrative measures to guide the private or foreign sector toward certain directions, which includes creation and promotion of national brand products. This tendency is stronger in the automotive sector than in the E&E sector. Malaysia's revised National Automotive Policy restricts entry and tries to merge vendors for scale economy, collects special auto registration fees to support ethnic Malay firms, and protects Proton's brand name and its domestic market share in seeking an international strategic partner. Whether such a forceful approach is effective and consistent with accelerating integration is an open question.

3.6. Translative adaptation

In promoting supporting industries, many tools and systems must be imported from advanced countries. 5S, QCC, TQM, benchmarking and the shindan system are some examples. In transplanting foreign models onto new soil with different social and cultural backgrounds, the original model must be modified and often simplified to fit the needs and capabilities of the receiving country. This must be done consciously by development officials to maximize effectiveness and minimize systemic friction. Such an effort to introduce foreign elements with deliberate adjustment to fit the local situation is called translative adaptation (Maegawa, 1998).

In Thailand, the shindan system (enterprise diagnosis and advisory system) originating from early postwar Japan has been introduced since 1999 and produced several hundred Thai shindanshi (enterprise advisors). But the Thai shindan system in its embryonic form is without nationally unified curriculum or exams, official registration, an effective shindanshi association, or government support. While such weaknesses are expectable for a newly established system, the Thai government hopes to strengthen and institutionalize the system as one of the key tools for building local capabilities. At the same time, the Japanese model is selectively adopted by allowing more specialization of Thai shindanshi, and importing basic curriculums used in the 1960s as the current Japanese model is too advanced.

With such conscious effort in translative adaptation, mindless imposition of the original can be avoided while the scope of international learning can be significantly broadened.

3.7. Remaining interest in supporting industry promotion

While both countries are deeply and increasingly committed to SME promotion in general, the remaining interest in bolstering supporting industries differs significantly between Malaysia and Thailand. In Malaysia, the frontline concern of policy makers has moved to the fostering of innovative and high-tech SMEs independent of MNCs as expressed in New Economic Model of Prime Minister Najib. Although the Industrial Linkage Program which encourages production cooperation between FDI and local firms still exists, the term supporting industries is rarely heard except at agencies directly responsible for it. Although E&E remains the largest export sector of Malaysia, policy enthusiasm to further develop this sector was never heard at mainstream SME organizations during our mission.

By contrast, the traditional strategy of inviting as much manufacturing FDI as possible and forging domestic linkages with them is still alive and well in Thailand. In fact, the continued upgrading of the automotive cluster, which is the largest in ASEAN, remains the principal pillar of Thai industrial policy. For this purpose, the Automotive Human Resource Development Project is in progress with strong assistance from four big Japanese automotive companies. Building on past achievements, Thailand adopts the two-pronged approach of developing the old industrial base and seeking new sources of growth simultaneously.

Malaysia is betting on leapfrogging while Thailand is staying on the old incremental path. Both hope to escape from the middle income trap but the way each has chosen to attain this goal is quite different.

4. Malaysia

4.1. Background

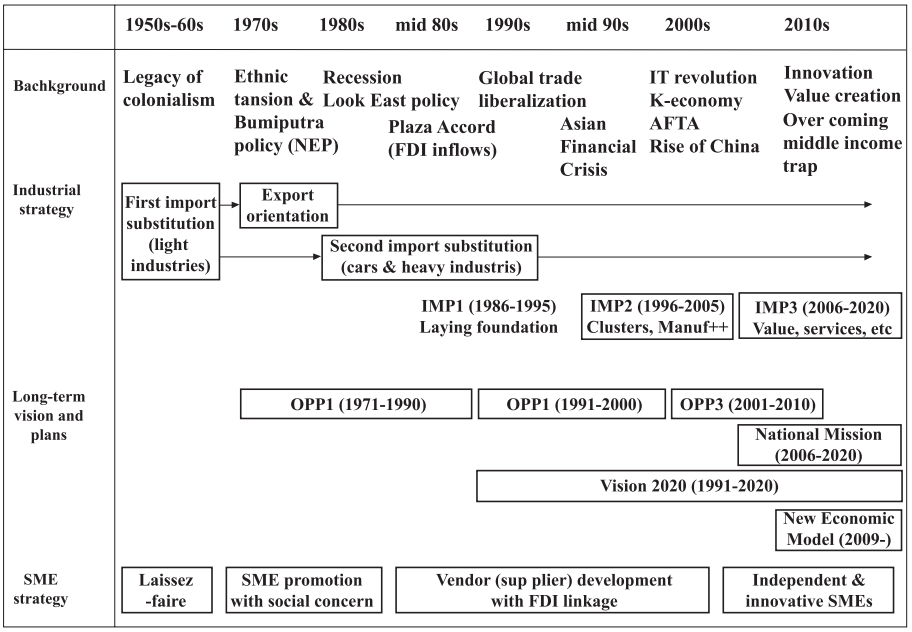
As an emerging industrial economy in Southeast Asia, Malaysia has such unique features as relatively small population (28.3 million as of July 2009), ethnic balance among Malays, Chinese and Indians as a vital national concern, and relatively high policy competency.

Since independence in 1957, Malaysia has successfully and dramatically transformed its economic structure from resource-based to manufacturing-based[3]. Per capita GDP in 2009 is estimated to be USD 7,750 which puts the country comfortably in the upper middle income group.

The industrial policy of Malaysia has gone through several stages as illustrated in Figure 1.

[3] In 1960 the export share of rubber, tin, timber, palm oil and crude oil combined was 80.1%. After 40 years, the share of manufactured exports rose dramatically to 82.9% by 2000 but declined to 70.0% by 2008. In 2008, electronic and electrical goods accounted for 54.9% of manufactured exports.

Figure 1. Malaysia: Evolution of Industrial Policy



Source: Ide (2004) with further revisions and updates by authors.

In the early years of independence the main objective was diversification of economic structure. The World Bank Report on the Economic Development of Malaysia (1955) advised diversification by developing additional primary commodities and/or industrial products. For this purpose, pioneer industries status was introduced in 1958 which exempted corporate income taxes for 2 to 5 years to eligible firms. Most of the approved pioneer industry firms belonged to import-substituting consumer goods sectors. During this period, the free market principle was in place with little government intervention.

In the 1970s two major changes were made in industrial policy orientation. First, the policy focus shifted from import substitution, which was deemed unsuccessful due to the limited size of the domestic market, to export orientation based on manufacturing FDI which conducted assembly and processing for export. For this purpose, the Investment Incentive Act (1968), the Free Trade Zone (FTZ) Act (1971), and the Licensed Manufacturing Warehouse (LMW) system were introduced. The first act gave the pioneer status and other incentives to export-oriented industries. The second act exempted tariffs on imported inputs and allowed 10-year tax breaks (12 years for electronics) for firms in FTZs exporting 80% or more of their products. LMW further expanded these privileges even to companies located outside FTZs. Armed with these incentives, Penang started to attract global semi-conductor firms while Klang Valley in the vicinity of Kuala Lumpur saw the arrival of foreign electronic and electrical (E&E) firms, many of which were Japanese. The high wage policy of nearby Singapore also pushed labor-intensive manufacturers to relocate to Malaysia.

The second important policy shift of the 1970s was the adoption of Bumiputra policy which administratively set quotas for the employment and firm ownership in favor of

ethnic Malays. This affirmative action policy was triggered by the May 1969 ethnic riot between economically powerful Chinese and poor but more populous Malays. The Second Malaysia (5-year) Plan 1971-1975 set out these rules which were called the New Economic Policy (NEP).

In the 1980s, under the leadership of Dr. Mahathir (prime minister 1981-2003), heavy industrialization was initiated along with continued export orientation. At the same time, Look East Policy (learning from Japan and Korea) was also launched. Heavy industrialization was carried out with strong official intervention. The Heavy Industries Corporation of Malaysia (HICOM), a state-owned conglomerate, was established in 1980. Proton, a national car maker[4] , was set up as a joint venture with Japan's Mitsubishi group in 1983. Promotion of national cars was driven by the economic motive of creating a broad industrial base as well as the social motive of assisting Malay workers and Bumiputra firms. National car production was heavily protected with import tariffs of 140-300% (passenger cars), 42-200% (commercial vehicles), 42-80% (CKD passenger cars) and 5-40% (CKD commercial vehicles). In 1988, the Proton Component Scheme was introduced to increase parts procurement from Bumiputra supplier firms, which later developed into the Vendor Development Program (VDP). A mandatory local procurement program was installed in 1991 (but abolished by 2004 under WTO trade liberalization negotiation).

At about the same time, the First Industrial Master Plan (IMP1) 1986-1995 recognized the weaknesses of Malaysia's industrial sector such as excessive reliance on foreign semi-conductor giants for export and the lack of linkage between FDI and local firms. One of the key thrusts of IMP1 was outward-looking industrialization which targeted exports, modernization of ancillary firms [supporting industries], and strengthening of industrial linkages. A number of liberalization measures were adopted including allowance of 100% foreign ownership to enterprises exporting at least 50% of products (instead of previous 80%) or hiring at least 350 regular employees, and counting sales to FTZs and LMWs as exports. The large appreciation of the Japanese yen following the Plaza Accord in September 1985 stimulated Japanese manufacturing FDI into ASEAN, which greatly expanded the industrial base of Malaysia[5] . In this way, heavy intervention (mainly for automobiles) and liberalization (mainly for E&E) proceeded in parallel.

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[4] Proton began to produce Saga, a 4-door sedan modeled after Mitsubishi Lancer, in 1985. Subsequently, Produa (1994, with Daihatsu), Modenas (1996, motorcycles with Kawasaki), Naza (2003, with Kia), and Inokom (1997, with Hyundai) were added as national automotive producers. In 2008, national car makers (mostly Proton and Produa) occupied 60.9% of the domestic car market while other producers, including Toyota, Nissan, Honda and Ford, sold 39.1%.

[5] The number of Japanese firms operating in Malaysia increased from 477 in 1986 to 1,070 in 2005. During the same period, those belonging to the electronics and electrical firms increased from 30 to 244. In this period, parts procurement was mainly attained by bringing Japanese suppliers to Malaysia or buying from already established local suppliers. FDI firms did not have sufficient time or resources to find or promote new local suppliers.

In 1991, Prime Minister Mahathir announced *Vision 2020*, an aspiration to become a fully developed country by 2020 based on nine principles such as ethnic equity and economic dynamism. Since then, Vision 2020 has become the overarching national goal of Malaysia. In ethnic balance policy, a new objective was added to create the Bumiputra Commercial and Industrial Community (BCIC) so that Malays themselves would become the creators of value rather than just receiving privileges. Under these circumstances, supporting industry promotion saw two evolutions in the 1990s: the expansion and concretization of promotion measures and using these measures as one component of Bumiputra policy to strengthen Malay suppliers (especially in the automotive sector).

The Second Industrial Master Plan (IMP2) 1996-2005 was guided by two key ideas of *cluster-based industrial development* and *manufacturing plus plus*. The first broadened the concept of an industry to include not just supporting industries but also supporting services, R&D, human skills, infrastructure, institutions, and so on. The second expressed the desire to enhance capability of industries both horizontally and vertically (including more processes and improving productivity of each process) along the value chain. These ideas were uniformly applied to eight target industries: E&E, textiles and apparel, chemicals, resource-based industries, food processing, transportation equipment, materials, and machinery and equipment (Ohno, 2006).

Since the late 1990s, several developments have been observed externally and internally. The emergence of China (later also Vietnam and India) as a manufacturing competitor and an attractor of FDI called for policy re-consideration. Malaysia also had to cope with a series of economic downturns associated with the Asian Financial Crisis (1997-98), the global semi-conductor recession (around 2001), and the Global Financial Crisis (2008-09). The E&E sector dominated by foreign giants continued to be the major exporter whereas internal value creation and the development of industrial clusters were less than IMP2 anticipated. The protected automotive sector faced the challenge of globalization in addition to the small home market. Meanwhile, the policy interest of the Malaysian government seems to have shifted from building linkages around the existing E&E and automotive sectors to the creation of innovative SMEs independent from multi-national corporations (MNCs) or government- linked corporations (GLCs). Terms like K-economy, ITC, e-commerce, biotech and branding became popular.

The current Third Industrial Master Plan (IMP3) 2006-2020 seeks holistic development. Services, especially high-value services and industry-supporting services, have been added to the policy menu along with traditional manufacturing[6]. Emphasis is placed

[6] There are 20 targeted sectors: six non-resource based manufacturing industries (E&E, medical devices, textiles and apparel, machinery and equipment, metals and transport equipment); six resource based manufacturing industries (petrochemicals, pharmaceuticals, wood products, rubber products, palm oil products and food processing); and eight service subsectors (ICT, construction, education and training, healthcare, tourism, distributive trade, logistics and business and professional).

on value-added, technology, knowledge, human resources, logistics, and so on. Unlike IMP2, IMP3 is equipped with explicit annual monitoring and evaluation mechanism. As such, the policy scope of IMP3 is even broader and more ambitious than IMP2. IMP3 is the last industrial master plan that will guide Malaysian industries toward Vision 2020.

The National Mission 2006-2020, which replaces previous Outline Perspective Plans (OPPs) and covers overall development orientation, sets five key thrusts for attaining Vision 2020:

(i). Moving the economy up the value chain

(ii). Raising the capacity for knowledge and innovation, and nurturing "first classmentality"

(iii). Addressing persistent socio-economic inequalities constructively and productively

(iv). Improving the standard and sustainability of the quality of life

(v). Strengthening the country's institutional and implementation capacity

Malaysia's current industrial policy basically continues along these lines. Since the arrival of Prime Minister Najib Tun Razak in April 2009, policy orientation has been more clearly defined and some concrete actions have been taken[7]. Mr. Najib's economic management stresses value creation based on more liberalization and open competition. While Bumiputra policy will certainly not be dismantled any time soon, emphasis will be shifted from administrative quotas to equal opportunities among all ethnicities.

Prime Minister Najib is seriously concerned with the problem of the Middle Income Trap[8] into which Malaysia seems to have fallen and wants to mobilize policies and resources to overcome it. This concern is reflected in New Economic Model whose document is in final preparation at the time of this writing. Unlike Malaysia Plans or IMPs, this model is not a plan with fixed cycles but an expression of Mr. Najib's economic policy direction. To promote economic growth and structural change, it sets five thrusts under which many sub-issues are identified (Figure 2).

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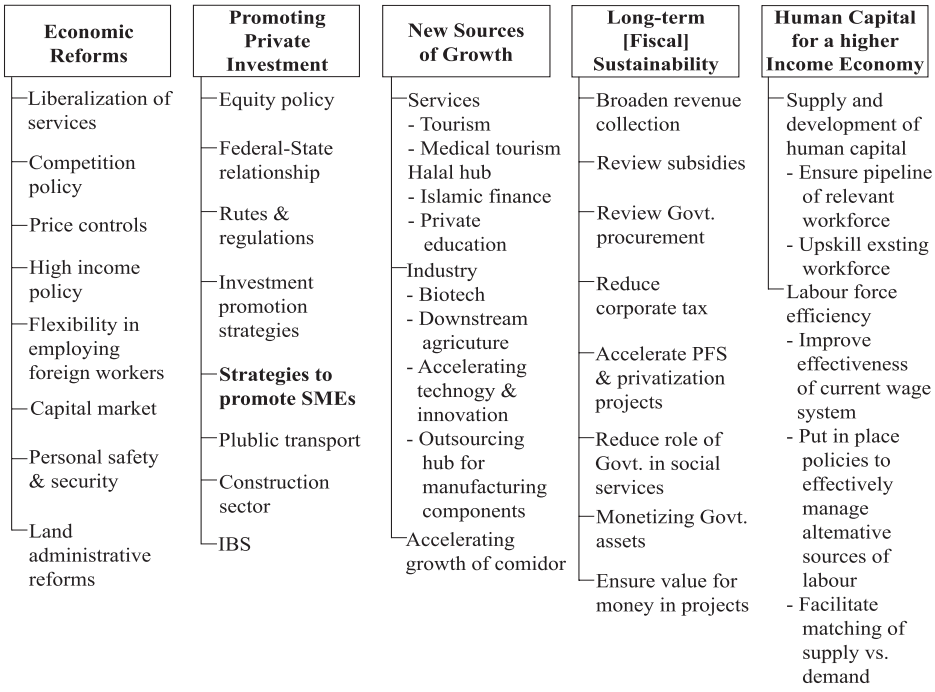
[7] In 2009, 27 service subsectors, belonging to health and social services, tourism, transport, business services and computer services, have been deregulated from ethnic equity constraints. Although these did not include such key and controversial areas as finance, telecom and distribution, the move clearly signaled new policy direction. Transactions of properties and stocks by foreigners were also liberalized. At the same time, however, a number of measures that inconvenienced investors were also introduced in 2009, including the mandatory quality examination of steel imports, a freeze on the employment of foreign workers, and a move toward unilateral introduction of minimum wages.

[8] The World Bank report (2009) prepared by Mr. Philip Schellekens has raised concern on the Middle Income Trap among Malaysian officials and especially with Mr. Najib.

Figure 2. Malaysia: New Economic Model



Source: Economic Planning Unit.

In fostering innovation, the Malaysian government places high hope and expectation on the strong emergence of independent and innovative SMEs. For this reason, SME promotion has effectively been upgraded to become the central pillar of industrial policy formulation in recent years, and responsible organizations have been restructured and integrated for efficient coordination (see below). SME sectors expected to emerge are not only manufacturing but also high-value tourism, medical services, finance, education, biotech, logistics and distribution, halal products, and so on. At the same time, policy interest in more traditional supporting industry promotion, such as vendor development and FDI-local linkage, seems to be waning. Although the E&E and automotive sectors still receive attention among departments and agencies responsible for them, it is no longer a frontline concern of the Malaysian government. Most officials do not deny their importance but merely state that they also have to climb up the value chain as other sectors.

Another important element in the current policy matrix is "corridor" development which is a strategy for comprehensive regional development. This idea was introduced by the initiative of the Economic Planning Unit (EPU) of the Prime Minister's Department in the Ninth Malaysia Plan 2006-2010. Five regions have been identified and focal sectors for each have been decided[9]. Like SME promotion, the corridor approach

[9] Five corridors are Northern, East Coast, Iskandar, Sabah, and Sarawak. Among these, Iskandar in the southern part of Johor State has so far been most successful. The highly developed area of Kuala Lumpur and Selangor is not included.

has the double purposes of economic development and social equity (narrowing gaps among regions as well as among ethnicities).

According to the 2005 census, the SME sector accounting for 99.2% of business establishments contributed to 32% of GDP, 56.4% of employment and 19% of exports. The official targets for 2010 are to raise these figures to 37% of GDP, 57% of employment and 22% of exports.

4.2. Policy organization and stakeholders

At present, Malaysia's supporting industry policy is part of the overall SME strategy. As noted above, supporting industries no longer receive special treatment relative to other SMEs. While the development of SMEs is becoming an increasingly important agenda, the development of supporting industries carries an increasingly smaller weight within that agenda.

In 1996, the Small and Medium Industries Development Corporation (SMIDEC) was established by upgrading the Small Industries Department of the Ministry of International Trade and Industry (MITI) to serve as a central coordinating agency for SME policy as well as a dispenser of grants and soft loans to eligible SMEs. A new policy instrument created at that time for SMIDEC was the Industrial Linkage Program (see below) to facilitate cooperation between FDI and local firms. The Small and Medium Industries Development Plan 2001-2005 was prepared by SMIDEC as the first five-year plan document with clear focus on SME promotion. However, SME policy implementation continued to be fragmented across 16 agencies, including SMIDEC, with significant overlaps.

To further integrate SME policy and provide holistic support, the National SME Development Council chaired by the prime minister was established in 2004 as the highest body to direct Malaysia's SME policy. Fifteen ministries and more than 60 government agencies were brought under this Council. Initially serving as the Secretariat to the Council, Bank Negara Malaysia (central bank) set the three key strategic thrusts of enabling infrastructure, capacity building and access to financing. SMIDEC was further elevated to become SME Corporation Malaysia (SME Corp) which provided central coordinating functions with greater authority and effectiveness, and also took over the Secretariat role from Bank Negara.

Under the new arrangement, policy formulation was strengthened and new policy tools were added. The Annual SME Integrated Plan of Action became the key document for policy design, monitoring and assessment, while the Council's Annual Report served as the official vehicle for information dissemination. The common SME definition was adopted across the country, and improvements were made to SME information services and analyses through the National SME Database, SMEinfo Portal, technology road mapping, and the SME Competitiveness Rating for Enhancement (SCORE). These will be discussed in detail below.

Among the government agencies, several agencies under MITI deserve special mention. They provide different functions of industrialization in general and SME promotion in particular:

SME Corporation Malaysia (SME Corp)—SME one-stop service as mentioned above

Malaysian Industrial Development Authority (MIDA)—investment promotion

Malaysia Productivity Corporation (MPC)—research, training, consultation

SME Bank—SME finance and training

Malaysian Industrial Development Finance Berhad (MIDF)—policy finance

Malaysia External Trade Development Corporation (MATRADE)—trade promotion

Many of the policy measures discussed in section 4-4 below are administered by these agencies. Most of the Malaysian SME-related agencies remain under the direct control of the government or wholly owned by the government. Their budgets and loan funds also depend heavily (SME Bank) or even entirely (MIDF) on the government. In fact, the fund raising of MIDF, which used to be partly market-based, was re-nationalized in 2006 in view of high importance of policy loans. In this sense, SME policy in Malaysia is less "privatized" than in Thailand.

Although SME policy organizations have been restructured in steps for effectiveness, there are still overlapping functions among various implementation agencies. However, Malaysian agencies we interviewed all stated that cooperation and exchange among them was close and that any services desired by customers but not offered by the present agency would immediately be arranged and provided by relevant agencies to minimize the customers' trouble and delay. MIDA, for example, boasts to be a one stop center for investors by internally housing dispatched officials of six agencies (immigration, customs, environment, energy, telecom and labor) and having close service providing relations with eight other agencies. Similarly, SME Bank in its official vision is set to become an SME Hub by 2010 by not only offering finance, training, consultation and rental factories but also collaborating tightly with other strategic partners (public agencies, commercial banks and academic institutions) to provide a comprehensive support package to SME customers.

If this system works as it is claimed, any agency could serve as a one-stop center and SMEs could approach any of them to get full information and support. Overlapping functions among agencies or missing functions of any particular agency would pose no problem as they would be collectively filled by the entire system of SME promotion.

4.3. Definition and scope of supporting industries

Malaysia adopts a common definition of SMEs across various sectors and subsectors as well as for different policies and programs. An enterprise is considered an SME in each of the respective categories if it satisfies either the annual sales turnover criterion or the number of full-time employees criterion (Table 1).

Table 1. Malaysia: Definition of Small and Medium Enterprises

By Annual Sales Turnover (AST) and Full-time Employees (FTE)

Sectors	Micro enterprises	Small enterprises	Medium enterprises
Manufacturing, manufacturing-related services, and agro-based industries	AST less than RM250,000; or FTE less than 5	AST from RM250,000 but less than RM10 million; or FTE between 5 and 50	AST between RM10 million and RM25 million; or FTE between 51 and 150
Services, primary agriculture, and information & communication technology (ICT)	AST less than RM200,000; or FTE less than 5	AST from RM200,000 but less than RM1 million; or FTE between 5 and 19	AST between RM1 million RM5 million; or FTE between 20 and 50

Source: SME Corporation Malaysia. In February 2010, one USD exchanged for about 3.43 Malaysian Ringgit.

Thus, when the policy target is specified simply as "SMEs," eligible enterprises are those with annual sales turnover not exceeding RM25 million or full-time employees not exceeding 150 for the first group; and those with annual sales turnover not exceeding RM5 million or full-time employees not exceeding 50 for the second group.

The Malaysian Industrial Development Authority (MIDA), established in 1967, is an agency responsible for issuing investment licenses and providing investment incentives. The main incentive schemes of MIDA include pioneer status (PS; corporate income tax exemption ranging from 70% to 100% of statutory income for 5 to 10 years); investment tax allowance (ITA; 60% to 100% of qualifying capital expenditure for 5 to 10 years can be offset against 70% to 100% of the statutory income); and reinvestment allowance (RA; 60% of qualifying capital expenditure can be offset against 70% to 100% of the statutory income). Initial investors can choose either PS or ITA but not both. In addition, import duty and sales tax exemptions are available for imported raw materials, components and machinery and equipment vis-à-vis manufacturing firms but not for trading ones.

These incentives are administered by the combination of the published eligibility list and case-by-base organizational judgment. To receive any incentive, activities or products must be included in the list but this is only the necessary condition. Whether incentives are actually given depends on the result of deliberation by MIDA's weekly committee.

As for the eligibility list, MIDA publishes and updates the list of promoted activities and products in its website as well as in the investment promotion package in five languages (English, Japanese, Chinese, Arabic and Malay). Eligible items are quite diverse. For example, the list of promoted activities and products for the manufacturing sector

as of January 2010 consists of (i) general; (ii) manufacturing related activities; (iii) high technology companies; (iv) Industrial Linkage Program; and (v) small scale companies. Among these, for example, the list of "(i) general" is divided into 26 groups with 298 promoted activities and products, which are sometimes further subdivided. Groups XIV to XX in this list are closely related to supporting industry promotion. Table 2 summarizes this list and gives the full details on eligible supporting products and activities (for full information consult the MIDA website).

Table 2. Malaysia: List of Promoted Activities and Products for Manufacturing (General)

(A) Summary

I. Agricultural production (20)	XI. Manufacture of clay-based, sand-based & other non-metallic products (34)	**XVIII. Manufacture of professional, medical, scientific & measuring devices /parts (6)**
II. Processing of agricultural produce (15)	XII. Manufacture of iron & steel (12)	**XIX. Manufacture of photographic, cinematographic, video & optical goods (4)**
III. Forestry & forestry products (3)	XIII. Manufacture of non-ferrous metals & their products (10)	**XX. Manufacture of plastic products (7)**
IV. Manufacture of rubber products (7)	**XIV. Manufacture of machinery & machinery components (10)**	XXI. Miscellanous (25)
V. Manufacture of oil palm products & their derivatives (10)	**XV. Manufacture of transport equipment, components & accessories (29)**	XXII. Hotel business & tourist industry (6)
VI. Manufacture of chemicals & petrochemicals (16)	**XVI. Supporting products/ activities (17)**	XXIII. Film industry (2)
VII. Manufacture of pharmaceutical & related products (6)	**XVII. Manufacture of electrical and electronic products & components and parts thereof (19)**	XXIV. Manufacturing related services (9)
VIII. Manufacture of wood & wood products (6)		XXV. Manufacture of kenaf based products (1)
IX. Manufacture of pulp, paper & paperboard (11)		XXVI. Protective equipment & devices (3)
X. Manufacture of textiles and textile products (10)		

Note: numbers in parentheses indicate the number of items included in each group. Some items are further divided into sub-items.

(B) Details of "XVI. Supporting Products/Activities"

XVI. Supporting products/activities

1. Metal casting
2. Metal forgings
3. Metal surface treatment/finishing
4. Machining
5. Moulds, tools and dies
6. Powder metallurgical parts (sintering of metal parts)
7. Heat treatment
8. Mould texturing
9. Irradiation service
10. Gas sterilization service
11. Overhaul, repair, reconditioning, modification or servicing and testing of turbine engines
12. Advanced composite materials
13. Mould designing
14. Advanced surface treatment or finishing for precision engineering plastic parts
15. High purity gas piping system system & parts thereof
16. Metal stamping
17. Galvanizing, shearing or slitting of metal sheets or other related engineering services (*)

(*) -- Incentives provided in promoted areas only (Sabah, Sarawak, Perlis, Kelantan, Terengganu, Pahang & the district of Mersing in Johor)

Source: Malaysian Industrial Development Authority, January 2010.

As for organizational judgment, manufacturing industry applications seeking tax incentives are first reviewed by MIDA's relevant industrial divisions[10], whose results are reported to MIDA's weekly Action Committee on Industry headed by the Director General for deliberation and evaluation on a case-by-case basis. The approval is not automatic as the Committee places importance on whether the applicant is truly engaged in manufacturing and not just trading, whether the activity creates value, and whether it promotes technology or industrial linkage. Licenses and tax incentives for manufacturers are given by this Committee while import licenses and service licenses are handled by other MIDA committees.

When new products or components emerge, or when existing products or components become obsolete, MIDA adds or deletes them from the eligibility list through announcement in the official gazette.

4.4. Policy measures

According to *SME Annual Report 2008* (latest and actually published in 2009) by the National SME Development Council, the total number of SME development programs in 2008 was 202 with a financial commitment of RM3 billion with special emphasis on capacity building (72%). In 2009, 174 programs were planned with a financial commitment of RM3.04 billion. Following the prime minister's instruction to stress outcome-based support, programs are being streamlined and the budget is scrutinized for cost effectiveness. For financial support, relative weights are shifting from grants to soft loans and result-based awards. For 2009 only, 17 stimulus programs were additionally budgeted for RM11.9 billion to ease the difficulties of SMEs in global recession.

Policy measures available from the Malaysian government in support of SMEs in general and for supporting industries in particular are discussed below. Various measures for supporting industries are usually embedded in the system of general support for SMEs. Due to the existence of and overlapping functions among many implementation agencies, the Malaysian system of enterprise promotion is quite complex. Here only major policy instruments are selectively explained.

4.4.1. Incentives

Tax incentives for manufacturers consist of partial or total relief from corporate income tax for a specified period as well as exemptions from import duty, sales tax and excise duty. The basic incentive schemes in Malaysia are pioneer status and investment tax allowance administered by MIDA. A system of incentives for manufacturers is classified into 18 incentive groups and many subgroups which are variations or more generous versions of one or the other of these basic schemes. These incentives are provided for in the Promotion of Investment Act (1986 - main document), Income Tax

[10] MIDA has the following industrial divisions: ICT and electrical; electronics; transport industry; machinery and engineering supporting industries; textiles and non-metallic minerals; food; chemical; life sciences industry; wood and paper; and metal and fabrication.

Act (1967), Customs Act (1967), Sales Tax Act (1972), Excise Act (1976), and Free Zones Act (1990). The approval process of these incentives was already explained in section 4.3 above.

Pioneer status (PS)-launched in 1958, this is the oldest incentive scheme in Malaysia. A company granted this status shall enjoy a 5-year 70% exemption (pay only 30%) of the corporate income tax which is normally levied at 25% of the statutory income (defined as gross income minus revenue expenditure and capital allowances). The exemption period begins from its "production day" defined as the day the production level reaches 30% of capacity. Unabsorbed capital allowances and accumulated losses incurred during the pioneer period can be carried forward and deducted from the post pioneer income.

Investment Tax Allowance (ITA)-As an alternative to pioneer status, a company may instead choose ITA which entitles it to an allowance of 60% on its qualifying capital expenditure (structure, machinery and equipment) used for the approved project incurred within five years from the date when the first qualifying capital expenditure is incurred. The company can offset this allowance against 70% of its statutory income for each year. Any unused allowance can be carried forward to subsequent years until fully utilized. The remaining 30% of the statutory income shall be taxed at the prevailing tax rate.

For both PS and ITA, even greater tax exemption or capital allowance of 100% (instead of 70%) is available to investors in the following projects, products or geographic areas provided that they are listed as qualifying investment in respective documents.

Investment in promoted areas (the States of Perlis, Sabah and Sarawak and the designated areas of Eastern Corridor of Peninsula Malaysia; this provision is effective until December 31, 2010)

Relocation to promoted areas

High technology

Strategic projects

SMEs

Strengthening industrial linkages

Machinery and equipment industry

Automotive component modules or systems

Utilization of oil palm biomass

Additional incentives such as reinvestment allowance, accelerated capital allowance, maintenance of quality of power supply, security control equipment, and so on, are also available, again provided that they are listed as qualifying investment.

4.4.2. Matching and linkage

Malaysia in the past made much effort to foster local component suppliers and strengthen domestic industrial linkages between large corporations (MNCs and GLCs) and local component suppliers. The principal programs for this purpose were the Vendor Development Program (VDP) introduced in 1988 and the Industrial Linkage Program (ILP) introduced in 1995-96.

VDP was initiated as the Proton Component Scheme (PCS) in 1988 to encourage the emergence of Bumiputra suppliers to Proton, a national car maker established in 1983. The buyer assembly company (Proton) was called the "anchor firm," which was obliged to purchase as many components as possible from qualified Bumiputra SMEs (called the "vendors"), provide technical assistance to them, and become the agent of providing government loans to them. In 1992 two more electronics firms were added as anchor firms as the target industries were expanded from automotive to E&E (and later to other industries such as furniture, construction materials, shipbuilding, and so on). MITI acted as the coordinator between anchor firms and vendors, whose network was later expanded to the tripartite cooperation among anchor firms, vendors and financial institutions.

As of 2002, the total anchor firms counted 85. Among them, 3 belonged to automotive and 41 belonged to E&E. By nationality, 46 were Malaysian firms, 28 were Japanese, and 5 were American. Also as of 2002, the number of vendors was 296, of which 32 were engaged in metal stamping and processing, 27 in plastic part production, 24 in automotive components and 10 in mould and die. While Proton had 56 participating vendors, MNC anchors usually worked with only one to five vendors. Most of the foreign assemblers continued to have low local procurement ratios, typically below 50%, for the reason that local firms did not possess sufficient technology. They participated in VDP mainly because they were requested to do so by the Malaysian government (Ide 2004). It can be said that VDP achieved only partial success in the automotive sector driven by such government-owned firms as Proton and Produa while vendor development in other sectors, including E&E, was less successful.

ILP was established as a new policy instrument to carry out cluster-based industrial development of IMP2 1996-2005 along with the creation of Small and Medium Industries Development Corporation (SMIDEC) in 1996. ILP has three services of (i) financial incentives, (ii) business matching, and (iii) a support package of factory site provision, R&D, technology upgrading, export market development, etc. Matchmaking was organized by SMIDEC and approved vendors were given pioneer status with 5-year income tax exemption or 60% investment tax allowance. Anchor firms could also apply for allowances for training and technical assistance to SMEs. Unlike VDP, ILP was available to non-Bumiputra SMEs so long as their Malay capital was 60% or more. As of 2002, 953 SMEs were registered in ILP. These SMEs belonged to E&E (50.1%), automotive (14.8%), machinery and engineering (24.8%) and resource-based industries (24.8%) according to the 2000 data.

The most recent ILP eligibility list is shown in Table 3.

Table 3. Malaysia: Eligible Activities and Products in Industrial Linkage Program

I. Manufacture of rubber products (2) II. Manufacture of plasitic products (1) III. Manufacture of clay- based, sand-based & onther non-metallic mineral products (4) IV. Manufacture of textiles and textilel products (1) V. Manufacture of iron and steel (2) VI. Manufacture of non ferrous metals and their products (3) **VII. Supporting products/ services** 1. Metal castings 2. Metal forging 3. Plating 4. Macchining 5. Moulds, tools or dies 6. Heat treatment 7. Mould texturing	8. Metal stamping 9. Industrial seals or seal materials 10. Power metallurgical parts (sintering of metal parts) 11. Maintenace, repair, overhaul, modification, servicing or testing or turbine engines, components or subassemblies 12. Maintenance, repair, overhaul, modification, servicing or testing or aircraft, aircraft components or subassemblies 13. Maintenance, repair, overhaul, modification, servicing or testing or ship components or accessories **VIII. Manufacture of transport equipment, components and accessories** 1. Parts and components for bicycles or tricycles	2. Parts and components for pleasure crafts, hydrofoils or hovercrafts 3. Parts, components or accessories for moto vehicles 4. Aircraft equipment, components, accessories or parts thereof **VIII. Manufacture of machinery and machinery components** 1. Machinery components **IX. Manufacture of electrical and electronic products and components and parts thereof** 1. Computer peripherals 2. Alarm equipment/system or devices 3. Parts, sub-assemblies or accessories of consumer or industrial electric products

Source: Malaysian Industrial Development Authority, January 2010. This is the latest list published in January 2009. Categories I-VI show group titles only with the number of sub-items in parentheses. For categories VII-X, all sub-items are indicated.

Other than VDP and ILP, Malaysia's SME agencies such as SME Corp, MIDA, SME Bank and MATRADE offer a wide array of marketing and matching services including trade fairs, global service networks, trade and investment missions, and consultation services for individual FDI firms wishing to procure domestically. In recent years, MIDA has also begun to promote outward FDI (Malaysian firms investing abroad) in addition to incoming FDI.

Regarding the database for matching, Malaysia has the National SME Database and SMEinfo Portal (www.smeinfo.com.my), a website based on self-registration and self-updating by SMEs. However, as with many such databases, its usage by targeted firms is not as active as SME Corp hopes.

As a new project started by SMIDEC in 2007, there is SME Competitiveness Rating for Enhancement (SCORE), which is a methodology to assess and rate SMEs based on their performance and capabilities. There are several evaluation models for different sectors. For manufacturing and manufacturing related services, seven parameters of business performance, financial capability, management capability, production capacity, quality system, technical capability and innovation are evaluated. Based on that, each

company is given a rating of 0 to 5 stars, the results are illustrated in a radar diagram, and the strengths and weaknesses of each company are tracked over time. The internal staff of SME Corp are responsible for collecting data and evaluating SMEs. At present, a "very small number" of people are engaged at the local (state) level and only a few people are checking the overall results at the central level. Although the system is still in the process of development, SME Corp wants to promote it as a tool not only for monitoring and evaluation for policy purposes but also for government procurement and loan appraisal by financial institutions.

4.4.3. Capacity building

A variety of training and consultation are offered by a collection of SME supporting agencies centrally coordinated by SME Corp. The three strategic focuses of SME Corp are enabling environment, capacity building and finance, among which capacity building is currently the most important concern. For SME participants in training, grants that cover 80% of the tuition fee are provided. Key directions set by the new prime minister are further streamlining of programs and projects as well as outcome-based awards rather than unmonitored grants.

There are 41 skills training centers belonging to SME Corp and many others run by other ministries, agencies and donors. At SME Corp, training courses are given by registered "training providers" (private consultancy or training companies) on such standard subjects as management, computer, technical skills and accounting. The contents are discussed and approved by SME Corp. As of January 2010, SME Corp uses 41 training providers whose list is constantly adjusted.

Among other public sector training organizations, Malaysia Productivity Corporation (MPC) under MITI, established in 1962 and having 193 management and professional staff as of March 2009, is the leading institution providing productivity and quality short-term training and consultancy as well as related services such as research, databanks, country ranking, systems development, best practices and promotion. It is also the only institution in Malaysia that officially certifies 5S practices at companies (called "Quality Environment" at MPC). MPC's training is centered on management rather than specialized technical skills.

In 2009, MPC trained 20,836 participants who came from the public sector (43%), SMEs (33%), other local firms (15%) and MNCs (9%). In that year, 155 short-term courses lasting 1 to 3 days were offered at its headquarters in Petaling Jaya or four regional offices. Training programs are conducted basically by MPC's professional staff, which currently number 193 and 55% of them hold master degrees or above. The strategic focus of MPC expanded over time with the country's development, starting from the core mission on management, training and advisory services (1960s) to include research and systems development (1990s), productivity and efficiency (mid 1990s), benchmarking and best practices (2000s) and competitiveness and innovation (now).

In productivity and quality management systems development, MPC also offers a broad menu of consultation ranging from ISO to QC circles (called "Innovative and Creative Circle" or ICC), TQM, 5S, TPM, benchmarking, balanced scorecard, productivity measurement, productivity-linked wage system, customer satisfaction measurement, and employee satisfaction measurement.

Another public organization that actively offers advisory services to SMEs is SME Bank, established in 2005 with 100% state ownership (held by the Ministry of Finance) and also reporting to MITI. It boasts 1,025 employees and 19 branches all over Malaysia as of end 2009. Its SME Bank Advisory Center (SAC) is a platform to deliver structured and integrated programs with seven modules (performance and growth, human management, market development, business planning and financial management, resource planning and operations, branding and promotion, and customer management). These modules are taught by a network of service providers (business consultants) including SME Bank's professional staff, partners and third party experts. SAC also provides additional services such as business planning, information services, business matching, and so on.

One of the remarkable things about Malaysia is that there seems to be an unknown but relatively large number of competent experts ("financial planners" or "business counselors") in both public and private sectors who can offer business consultation or management courses to SMEs. At the same time, it is also surprising that none of the officials we met at SME Corp, MPC or SME Bank, who explained their SME advisory and evaluation services to us, ever heard of the Japanese shindan system which was being transplanted to other countries. The term shindan or shindanshi is not as popular as in Thailand although what these government organizations were doing was similar to what shindanshi would do in Japan and elsewhere.

4.4.4. Finance

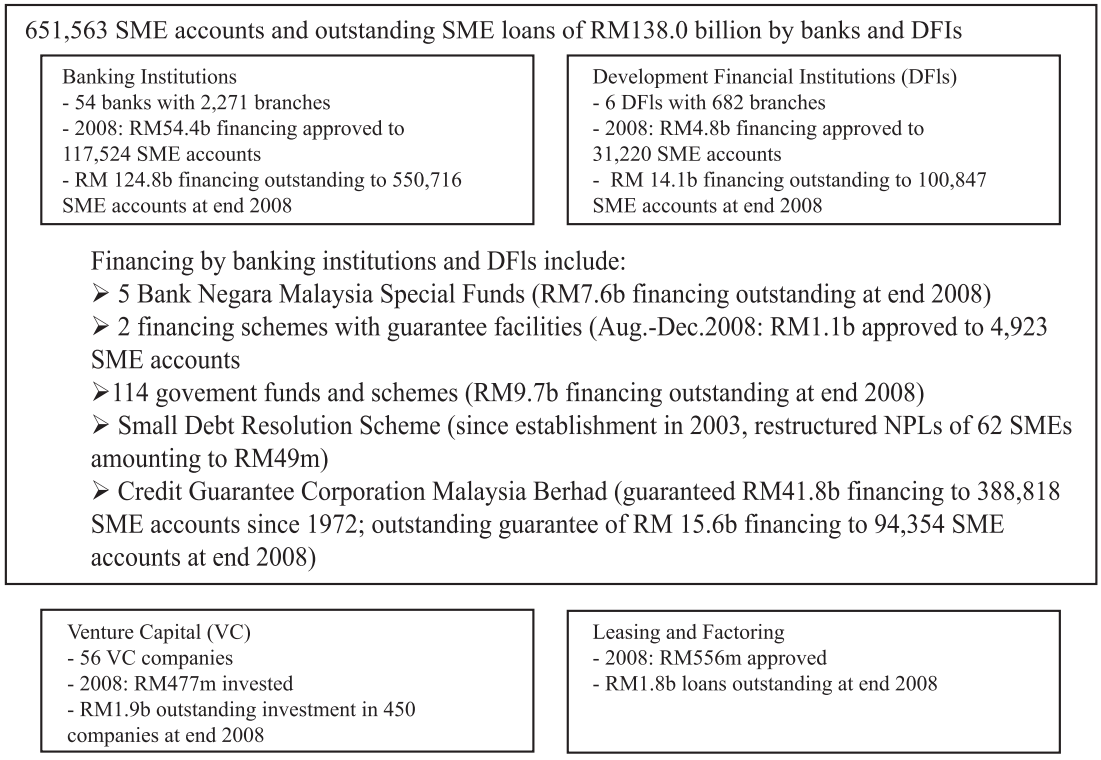
Besides private financial institutions, Malaysia has a broad menu of publicly sourced and operated schemes and programs to assist in SME finance for startups, business expansion, outward FDI and rehabilitation. Like other support measures, responsibility for SME finance is distributed across many agencies and financial institutions (Figure 3).

The main vehicle for SME finance (nearly 90% of total) is the banking sector which had outstanding SME loans of RM124.8 billion at end 2008. With respect to sectoral distribution of SME bank loans, services occupied the largest share of 50.8% followed by manufacturing (24%), construction (12.4%), agriculture (5%) and others (8%) at end May 2009. Additionally, Development Financial Institutions (DFIs, specialized financial institutions to support strategic sectors) had outstanding SME loans of RM14.1 billion, venture capital companies had outstanding investment of RM1.9 billion, and leasing and factoring companies had outstanding loans of RM1.8 billion at end 2008. According to the government, SMEs can avail themselves to these various sources of financing and choose the most appropriate ones to suit their needs.

Bank Negara (central bank) has introduced a number of special funds including New Entrepreneurs Fund 2, Fund for Small and Medium Industries 2, Fund for Food, Bumiputra Entrepreneur Project Fund and Micro Enterprise Fund, with the total outstanding loans of RM7.6 billion at end 2008. It also has guarantee schemes, namely, SME Assistance Facility, SME Modernization Facility and SME Assistance Guarantee schemes.

Separately, the Malaysian government operates a large number (114) of funds and schemes for SMEs which include grants, equity, soft loans, venture capital and loans and equity initiatives. These funds and schemes are aimed at encouraging innovation, technology upgrading, marketing and strategy making (economic purposes) as well as development of Bumiputra SMEs and providing employment for the youth and new graduates (social purposes).

Figure 3. Malaysia: Financing Landscape for SMEs



Source: National SME Development Council, SME Annual Report 2008, p.132.

SME Bank, mentioned above, is a development finance institution created by a merger of two banks at the initiative of the National SME Development Council. It started operation in 2005 as one of the many "SME hubs" in Malaysia with the paid-up capital of RM1.35 billion. It provides financing and advisory support to SMEs involved in manufacturing, services and construction sectors with emphasis on the development of the Bumiputra Commercial and Industrial Community (BCIC). It has five loan products of "startups," "professional," "franchise," "procurement" (for vendors) and "global" covering both conventional and Islamic loans as well as equity and investment. Loan processing and project evaluation are basically done by SME Bank professional staff.

Its funding comes from various government and Bank Negara related sources mentioned above as well as foreign sources including JICA (for TA) and JBIC. It does not raise funds by accepting deposits or going to commercial markets. While it is the largest SME financing institution, it is not very large compared with other non-SME DFIs and its outstanding loans are relatively small (RM 1 billion).

Besides loans, SME Bank provides other services such as business assessments, business matching, SME Advisory Center (mentioned above) and entrepreneurial training. It works closely with strategic partners (other public agencies, business associations, universities, and commercial banks) to extend services which are not provided by itself.

One program worthy of policy attention is the SME Bank Factory Scheme, a rental factory program with subsidized rent and comprehensive support for Bumiputra firms only. Renting firms can enjoy additional services such as financing, training, matching and advisory and technical support. This Factory Scheme, initiated in 1984, now has 422 factory plots (900-7,300 square feet) all over the country which are 94% occupied (Table 4). Its priority sectors are food, chemicals and engineering (including Proton vendors). One firm can occupy up to three plots and stay up to nine years. SME Bank considers this as a temporary support for SMEs to grow and encourages exit after initial success is achieved. So far, 60 firms have graduated (moved out) from this scheme.

Table 4. Malaysia: SME Bank Factory Scheme

Location	Factory Scheme	Number of plots	Type					Plot area (sq ft)
			1 floor	1.5 floors	2 floors	Semi-detached	Bangalow	
Kota Bharu	Pengkalan Chepa 1, Kelantan	23	17	6				1,000-1,800
	Pengkalan Chepa 2, Kelantan	20		16		4		4,400-6,500
Kuantan	Bandar Pusat Jengka, Pahang	20	20					900-4,500
	Gebeng II Kuantan, Pahang)	20		16		4		4,960-7,300
K. Terengganu	Chndering, Kuala Terengganu	26		26				1,800
	Kampung Raja, Besut, Terengganu	15	15					1,800-2,700
	Mergong Barrage, Alor Star, Kedah	17	17					1,800
Alor Setar	Sungai Petani, Kedah	18				16	2	3,500
Johor Bahru	Tampoi, Johor Bahru, Johor	22	22					1,800
	Sri Gading II, Batu Pahat, Johor	20		16		4		4,200-6,250
Ipoh	Menglembu, Perak	29				29		1,750
Seremban	Seremban, Negeri Sembilan	22				22		1,690
Bandar Bayan Baru	Seberang Prai, Pulau Pinang	17		17				1,800-3,200
	Simpang Ampat, Pulau Pinang	12				12		3,000
	Bayan Lepas, Pulau Penang	4		4				2,303
Kangar	Kuala Perlis, Perlis	15		11		4		1,800-3,200
Bandar Melaka	Telok Mas, Melaka	18		18				1,800-3,200
Shah Alam	Shah Alam, Selangor	38		38				2,000-5,040
	Sungai Buloh, Selangor	3			3			4,500
	Sunway Damansara, Selangor	14				14		3,700-4,800
Kuala Lumpur	Batu Caves, Selangor	23		23				3,336-4,410
Kota Kinabalu	Lak Kawi, Sabah	15		15				2,500
Kuching	Kota Padawan, Kuching, Sarawak	6				6		2,275
	Muara Tabuwan, Sarawak	5				5		3,200-3,800
TOTAL		422	91	206	3	120	2	

Source: SME Bank.

Malaysia Industrial Development Finance Berhad (MIDF) is another DFI which has eight soft loan schemes including "Small and Medium Enterprises" (most popular), "ICT Adoption," "International Branding," "Automation and Modernization," "Factory Relocation," "Automotive Development," "Terengganu-based SME," and "Services Capacity Development." Established in 1960 under World Bank initiative, MIDF has provided loans to support shifting objectives in five-year plans from job creation to import substitution (1960s), E&E promotion (1970s), heavy industrialization (1980s), manufacturing industries (1990s), and services (2000s). At present 80% of loans go to manufacturing and 20% to services. Annually MIDF provides loans totaling RM50 million to about 50 SMEs with the average loan size of roughly RM1 million. Before 2006, MIDF could raise funds through markets and lend overseas. In 2006, the government decided to de-list and re-nationalize MIDF with smaller operation size and an exclusive focus on domestic SMEs. At present, all funding of MIDF comes from the government budget. The portfolio of MIDF as of end January 2010 stood at about RM1.1 billion.

Credit Guarantee Corporation (CGC), established in 1972, has so far extended guarantees for RM42 billion worth of financing to about 390,000 SMEs with insufficient collateral. Since 2005, CGC has embarked on new initiatives to depend more on capital markets and less on government assistance in fund raising, adopt a more proactive investment approach, improve its loan quality management and introduce more products and services. One significant initiative of CGC, together with Dun and Bradstreet (a global provider of SME credit information), in 2008 was the establishment of the SME Credit Bureau. The Bureau offers credit reports and credit ratings as well as SME and industry reports. Its reports are valuable inputs to financial institutions and trade creditors while SMEs can build their financial track records through the Bureau which ensures better access to financing.

4.4.5. Japanese cooperation

There are two ongoing Japanese cooperation projects in Malaysia which aim to strengthen SMEs in general and supporting industries in particular. Both of them were initiated as the follow-up projects of the Japan-Malaysia Economic Partnership Agreement (JMEPA) which was concluded in December 2005 and took effect in July 2006.

The Malaysia-Japan Automotive Industry Cooperation (MAJAICO) is a comprehensive five-year support package which started in late 2006 for the automotive industry consisting of 10 components (Table 5).

For example, among MAJAICO components, A1 is targeted at production improvement at local vendors for national car companies. There are about 220 such vendors and the project intends to cover all vendors above certain size and capability. In each phase, fifteen Japanese technical experts are mobilized to coach approximately 20 participating companies on lean production for six months. Some companies showed significant improvements. One aluminum parts manufacturer reduced painting defects from 42% to 8%, another company reduced inventory by 90%, and still another raised labor

productivity by 48%. Many companies come back to take additional courses for improvements in other production lines and processes, which is a good sign that this project is attracting much interest, but this also means that these companies have not learned how to apply lean production to other processes by themselves.

Table 5. Malaysia: MAJAICO Project Components

	Component	Modality	Malaysian side	Japanese side
A1	Automotive Technical Experts Assistance Program	Dispatch Japanese experts to vendors	SMIDEC	JODC
A2	Enhancement of Mould and Die Center in Malaysia	Dispatch Japanese experts to train SIRIM staff	SIRIM	JODC
A3	Capacity Building for Auto Parts Suppliers in the area of VTA	Establishment of vehicle type approval system facility	Road Transport Department	METI
B	Automotive Skill Training Center in Malaysia	Develop 171 modules for specialized training course	Mini. of Human Resources	JETRO
C	Automotive Skill Training Center in Japan	Dispatch auto company staff to Japan	Mini. of Human Resources	AOTS
D	Establishment of a Components and Parts Testing Center in Malaysia	Improve SIRIM capacity through mutual dispaches	SIRIM	JICA
E	Business Development Program	Exchange of trade missions in both countries	MACPMA	JETRO
F1	Cooperation in Automotive Market Information	Regular and ad hoc exchange of industry information	MIDA	JAMA
F2	Consultation in Jiont-Venture Contracts	Assist Malaysian company to form JV	MIDA	JAMA
F3	Cooperation in Auto Exhibition for Malaysian Auto Manufacturers	Trade exhibitions and seminars in both countries	MATRADE	JETRO

Abbreviations: SMIDEC (Small and Medium Industries Development Corporation), SIRIM (Standards and Industrial Research Institute of Malaysia), MACPMA (Malaysian Automotive Component Parts Manufacturers), JODC (Japan Overseas Development Corporation), METI (Ministry of Economy, Trade and Industry), JETRO (Japan External Trade Organization), AOTS (Association for Overseas Technical Scholarship), JICA (Japan International Cooperation Agency), JAMA (Japan Automobile Manufacturers Association).

Another Japanese cooperation worthy of mention is the Development of Human Resource for Small and Medium Industries Project. From 2006 to 2009, this project produced 68 “SME counselors” through JICA’s technical cooperation scheme. The trainees were all incumbent public servants including 57 SMIDEC officials and 11 officials from other government organizations. Since the trainees could not stay away from their duties for an extended period of time, the course was given in five 6-month batches with each batch containing five teaching units lasting two weeks. Six Japanese instructors were mobilized to offer these teaching units as short-term experts. The curriculum of this course is shown in Table 6.

Table 6. Malaysia: Curriculum for Training SME Counselors

Subject	Units	Evaluation
Basic method of SME counseling	2	Term paper
Management straregy	4	Term paper
Tax	4	Term paper
Finance and accounting	10	Written exam
Production management	10	Written exam
Marketing	10	Term paper
Enterprise diagnosis	20	Evaluation by instructor
Total	60	

Source: Japan International Cooperation Agency.
Note: One unit consists of lecture (morning session) and practice (afternoon session). To graduate, participants must complete all subjects with the minimum points of 60 out of 100.

When compared with the shindanshi training program of the Thai-Nichi Institute of Technology in Thailand (section 5-4-4), common features are combination of theory and practice and emphasis on basic subjects such as finance, production management and marketing. However, since this program (unlike at Thai-Nichi) is targeted at current officials rather than university students, the shorter hours of instruction and the deletion of such subjects as personnel management or introduction of IT which have little relevance to administrative officials are understandable. This program is now in the second phase with the purpose of selecting 10 best-performing trainees in the first phase to receive further instructions to become the trainers of SME counselors.

4.5. National Automotive Policy

National Automotive Policy was announced in March 2006 and further reviewed (revised and elaborated) by MITI in October 2009. These two documents set Malaysia's automotive policy thrusts to cope with the limited size of the domestic market, accelerating globalization and regional integration, and an insufficient level of local competitiveness.

Key policy directions and measures in these documents are as follows.

First, the Malaysian automotive sector shall strive for economic scale, industry linkage and value creation. The numbers of vehicle models and platform portfolio shall be reduced and existing vendors should be merged to produce sufficient scale and cost effectiveness. Exports, R&D and latest technology such as hybrid and electric cars are encouraged. Malaysia aims to become a regional manufacturing and assembly hub with a focus on market niches.

Second, to solve the problem of overcapacity, new entry of assemblers shall be permitted only for those types of vehicles which do not further crowd the market or compete with national car makers.

Third, national car makers shall be promoted and Bumiputra enterprises shall be given financial support. Proton's brand name and its domestic market share must be preserved.

Fourth, FDI and joint ventures with foreign partners are welcome as long as they contribute to the above objectives. A strategic partnership between Proton and a globally established producer shall be encouraged.

Fifth, a policy package consisting of various administrative carrots and sticks shall be used to achieve these objectives. This includes the limited issuance of Manufacturing License (ML) and the Approved Permit (AP) system[11] . Pioneer status of 100% corporate income exemption for 10 years, Investment Tax Allowance of 100% for five years, grants and soft loans and other tax and import duty privileges are offered to producers engaged in promoted activities.

Sixth, to ensure quality and prevent inflows of substandard vehicles and components, Vehicle Type Approval (VTA), gazetted prices of new and used imported vehicles, mandatory standards of parts and components, vehicle end-of-life policy, fuel standards and gradual phase out of imported used parts and components and used commercial vehicles will be used.

Seventh, commitment to globalization and regional integration, including ASEAN CEPT, shall be maintained.

These measures collectively show Malaysia's resolve to upgrade the domestic automotive industry through a strong hand of the state which is quite different from a more market-oriented approach of the Thai automotive industry. Whether they can produce visible results remains uncertain. Questions may arise regarding the possibility of weak private and foreign response to highly interventionist policy, the wisdom of reducing the number of models or vendors rather than expanding the entire market to achieve scale, and consistency of this policy with the past and current supporting industry promotion measures including Japanese assistance mentioned above.

4.6. Policy impact and performance

The definitions, numbers and key performance indicators of SMEs in general are regularly reported in Malaysia but information on supporting industry enterprises is less systematically collected. Most of the public organizations we visited did not have the statistics at hand and advised us instead to contact relevant industry associations. Due to time and budget constraints, our team could not visit such associations and therefore is unable to consistently produce or analyze supporting industry data, including localization ratios, across sectors and time.

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[11] A charge of RM10,000 for each Approved Permit required for each vehicle is levied to finance a fund to assist Bumiputra automotive firms. The Open AP system will be terminated at end 2015 and Franchise AP will be phased out by end 2020.

Table 7 shows fragmentary information on the numbers of both local and foreign establishments operating in Malaysia which is reported in two MIDA brochures. The two columns are slightly different and no classification according to size, competence, sectors they service (E&E, automotive, machinery, etc.) and nationality (local, JV and FDI) is given. Information on establishments performing more than one process is also unavailable.

Table 7. Malaysia: Number of Supporting Industry Establishments

	Source: MIDA(1)	Source: MIDA(2)
Machining	170	150
Mould and die	400	350
Metal stamping	300	300
Metal casting	70	--
Heat treatment	20	--
Surface treatment and plating	40	35
Metal fabrication	2,000	--

Sources: MIDA (1): Malaysia's Machinery and Equipment Industry, July 2009; MIDA (2): Malaysia's Engineering Supporting Industry, July 2009.

Additionally, MIDA's other brochure *Malaysia's Automotive Industry*, July 2009, states that there are more than 690 automotive component manufacturers. Electronic media (NNA.Asia, November 4, 2008) reported that the number of local vendors producing parts and components for national car companies was 220. Without proper analysis, it is difficult to attribute the growth up to now to different causes such as large inflows of FDI assemblers (external market factor), good policy and international cooperation especially by Japan.

It is very likely that the majority of supporting industry firms in Malaysia are supplying to E&E and/or automotive sectors. The E&E sector in Malaysia is large and has long been the top exporting sector dominated by MNCs (semi-conductors in Penang and consumer electronics in Shah Alam or Johor Baru). However, localization of electronic parts and components seems quite limited even today. As Malaysian policy thrust is moving away from labor-intensive assembly and toward high value creation, the existing electronic agglomeration in Malaysia may have to dissolve or transfer to another country unless it succeeds in climbing up the value chain curve, a feat which remained largely unattainable in the last few decades even with the support of VDP and ILP.

The automotive sector, which consists of national car companies and foreign giants, has hitherto been heavily protected under the strong guidance and promotion of the government. Supporting industry firms, especially Bumiputra ones, have been given

generous financial, technical and management support. Japanese cooperation has also been directed to automotive vendors. As a result, some agglomeration of automotive supporting industries has occurred. However, it is still small in size and low in competitiveness in comparison with similar agglomerations in other countries. The small domestic market is often blamed, but Korea, faced with an equally small domestic market, took no more than 11 years from the production of first domestic cars (Hyundai Pony in 1975) to the huge marketing success in the US market (Hyundai Excel in 1986). Whether National Automotive Policy, explained above, can surmount these problems is yet to be seen.

Malaysia adopted two contrasting policy stances in fostering its two key manufacturing industries. For E&E, like Thailand, aggressive absorption of FDI was pursued under a relatively free market environment. For automotive, strong state intervention was used to create national car companies. In both cases, the growth of supporting industries so far has not been strong enough to overcome the accelerating globalization pressure.

4.7. Issues for Malaysia

In policy formulation and implementation, Malaysia uses a fairly complex system of multiple decision-making layers and a large number of ministries and agencies with overlapping duties. In a normal country, such complexity often leads to waste, delays, sectionalism and an overall bureaucratic breakdown. In Malaysia, however, there are proper leadership, coordination mechanisms, transparent procedures and constant review of objectives and measures which collectively minimize the risks associated with multiple channels. In fact, it can be said that Malaysia is quite successful in providing comprehensive and proactive support to its prioritized sectors. This is true not only with the drafting of IMP3 or strengthened coordination of SME policy but also in all other aspects of policy making.

Regarding policy quality, it can also be said that Malaysia's achievement is remarkable. The policy menu available to investors, SMEs, high-tech companies, supporting industries, and so on, is broad and clear. Customer support is good and information dissemination in websites, slide presentations and investor kits is effective. Constant monitoring and evaluation is embedded in the policy process which enables policy makers to execute flexible revisions and improvements. All these reflect the relatively high quality and discipline of Malaysian leaders as well as public officials. In this sense, the content and methodology of Malaysian industrial policy can serve as a best-practice model for many other developing countries.

Despite good policy, Malaysia is in the Middle Income Trap. Prime Minister Najib clearly recognizes the fact that Malaysia has not attained the high level of income which Korea and Taiwan, among others, have already attained although all started to industrialize around the same time (1960s). He correctly identifies innovation, technology and value creation embodied in human capital as the key to break the trap. In his initiative called New Economic Model (section 4.1), he proposes to reinvigorate private

sector investments under a more liberalized economic environment. In this Model, however, supporting industry promotion is not highlighted in the strategies to create new sources of growth. Current policy attention is more on finding new growth engines such as biotech, high value tourism, solar energy, and so on, and less on bolstering the existing industrial agglomerations such as E&E and automotive-a policy which is considered to have been less than effective despite the long period of promotion. Goals are revised and new approaches are proposed not on the cumulative successes of past policies but by giving up and moving away from them. In this sense, Malaysia is betting its future on the possibility of leapfrogging rather than incrementalism.

A number of issues can be raised for further consideration.

First, as before, success depends not so much on policy quality, which is already high, but on whether domestic private investors respond strongly to good policy. Without conjuring up private dynamism, there is a risk of policy perfection becoming the end in itself with a broadening gap between what policy makers want and what the private sector can deliver. What is required is not better SME policy but a new strategy to wake up sleepy private investors, which is a problem of an entirely different dimension. For this purpose, a more down-to-earth and close-to-genba (factory floor) approach is needed. What local firms feel and need must be understood by sharing their experiences and problems deeply and in substance, not just by imposing such general frameworks as the competitiveness principle, result-based awards, an SME competitiveness rating system, and the like.

Second, there may arise a conflict between the government's desire to continue to intervene in the market on the one hand and increasing emphasis on innovation, private investment and globalization on the other. If the government wishes to activate private dynamism, it should refrain from dictating priority activities and products too strongly because investors generally abhor intrusive governments. Whether Malaysia should develop solar energy, electric cars, or something else, should in principle be left in the hands of private investors who themselves take risks. This does not mean that the government should adopt a laissez-faire stance. But it must reconsider the concrete form and means of policy intervention to support rather than irritate private investors. Proactive industrial policy is a very subtle thing that must be designed with utmost care.

Third, the leapfrogging approach is risky because the possibility of success for each project starting from scratch is usually slim and the gestation period is long even if it is successful. A more balanced and safer approach would be to purse two tracks by expending a large amount of the nation's wisdom and resources to promote the existing industrial base (E&E and automotive) for incremental improvements while experimenting entirely new industries on the margin. If Malaysia does not succeed in building new engines of growth as rapidly as the existing industries shrink and decline, it will face the danger of de-industrialization. IMP2 1996-2005 did not produce spectacular results in value creation of the targeted eight industrial clusters including E&E and automotive.

Malaysia should not abandon this path but continue to try to attain this goal with different and better approaches.

5. Thailand

5.1. Background

Starting from an economy in which agriculture dominated, Thailand has come a long way to transform its economic structure and increase income. In 1960 agriculture was 84% of total export while manufacturing's share was only 2%. By 2007, agriculture shrank to 17% of export while the share of manufacturing rose greatly to 76%. In 2009, per capita income was at the middle income level of $3,973 (preliminary IMF data).

The fact that agriculture became relatively small in the national economy does not mean that it played no role in industrialization. Since the 1970s agriculture has contributed significantly to economic development through the strong emergence of agro-processing industries such as frozen chicken meat, shrimp farming and canned fish and pineapples. In view of this fact, Suehiro (1993) called Thailand a Newly Agro-industrializing Country (NAIC). In the late 1980s, agro-industry led industrialization was followed and quantitatively overtaken by FDI-driven growth in the automotive and electrical and electronics (E&E) sectors, which became the mainstay of Thai industrialization.

Economic planning in Thailand began with the establishment of the National Economic Development Board in 1959 and the implementation of the first six-year plan 1961-1966. The Board was subsequently renamed to the National Economic and Social Development Board (NESDB) and the plan cycle was changed to five years. The main features of each plan are shown in Table 8.

Table 8. Thailand: Evolution of Five-year Plans

Plan	Period	Annual growth (%)		Main features
		Target	Actual	
First	1961 – 1966	5.2	7.2	Private sector driven, infrastructure, agriculture
Second	1967 – 1971	8.5	7.2	Public spending, agriculture, employment and education
Third	1972 – 1976	7.0	6.2	Lower population growth, rural development, heavy industries
Fourth	1977 – 1981	7.0	7.3	Equity and justice, poverty, environment, agro-industries
Fifth	1982 – 1986	6.6	4.4	Efficiency and equity, SOE reform, Eastern Sea Board
Sixth	1987 – 1991	5.0	10.5	Quality of growth, agro and labor-intensive industries, SMEs
Seventh	1992 – 1996	8.2	8.2	Macro and financial stability, regional quality, quality of life
Eighth	1997 – 2001	8.0	-0.6	Human development, regions and rural areas, economic competitiveness
Ninth	2002 – 2006	4.0-5.0	5.7	Social foundation, governance, economic restructuring
Tenth	2007 – 2011	3.0	(4.1)	Knowledge based economy, immunity and risk management, fair competition

Source: NESDB and Suehiro (1993) with authors' updates. Actual for the tenth plan is the average for first three years only.

However, it should be noted that NESDB's five-year plans were not strictly followed. They defined national goals and targets but authority for implementation was not with NESDB. Annual budgets and concrete projects were in the hands of relevant ministries where the (sometimes political) priorities of ministers and deputy ministers intervened. Thai plans also lacked a formal mechanism to monitor and evaluate performance. Five-year plans were important guidelines, but it did not tightly bind budgets or programs.

Regarding supporting industry promotion, it is noteworthy that the Industrial Development Program of the Sixth Plan 1986-1991 selected three priority sectors for product diversification, one of which was engineering industries (the others were agro-processing and rural SMEs). This plan encouraged the development of engineering industries, such as metal processing and parts and components, which would support export-oriented electronics and telecom. Another purpose of this strategy was to ameliorate the balance-of-payments pressure resulting from large imports of parts and components used by FDI assemblers in Thailand. This policy met with great success in attracting foreign manufacturers because the plan period coincided with the large inflow of FDI from Japan and Taiwan (see below) and the increase of Thai competitiveness vis-à-vis more advanced countries in East Asia such as Korea, Taiwan and Singapore.

Important factors that have conditioned Thai industrialization in general and supporting industry promotion in particular are as follows.

First, geographically, Eastern Seaboard (ESB) Development was a very important national project entailing great financial risks during construction but producing immense benefits after completion. ESB was started in 1981 following the discovery of commercially viable natural gas wells in the Gulf of Thailand. ESB also intended to create a new industrial area in the southeast of the overcrowded Bangkok metropolitan area. The project was a huge one consisting of two industrial complexes, two deep seaports and associated infrastructure requiring a large expenditure and effective inter-sectoral and inter-ministerial coordination. The execution of such a complex project was a challenge for the Thai government, but political and bureaucratic barriers were overcome with strong leadership, competent technocrats and specially created mechanisms. In the mid 1980s Thailand entered a recession and the World Bank criticized this mega project for the lack of economic rationale. However, the second half of the 1980s saw a recovery accompanied by a large influx of FDI. The area encompassing Bangkok and ESB became the largest industrial area of Thailand as well as the home of automotive and E&E assemblers and part and component manufacturers. As it turned out, ESB was a great success contributing significantly to Thai industrialization.

Second, another important accelerator of Thai industrialization, which is already mentioned, was a large inflow of Japanese manufacturing FDI especially in automotive and E&E sectors in the second half of the 1980s following a sharp appreciation of the Japanese yen which made Japan a costly place to produce industrial goods. At the same time, Thailand also successfully absorbed Taiwanese companies which relocated

overseas in great numbers. This external factor pushed up industrial growth and transformed the economic structure decisively from agro-based to manufacturing-based.

Third, FDI-led industrialization was pursued with open access, increasing liberalization and improving business environment. Unlike Korea or Malaysia, Thailand did not avail itself of highly administrative methods or harbor the desire to create national brand cars. Emphasis was placed on inviting foreign manufacturers in great numbers and encouraging local enterprises to work closely with them to absorb skills and knowledge. Human resource development and supporting industry promotion are key strategies for this purpose. This strategy is basically in tact with the Thai Ministry of Industry even today.

Fourth, the Thai authorities have improved policy capability over time with regards to the quality of development strategies as well as dealing with FDI and ODA partners. Thailand can now offer reasonable policy direction, investment promotion, customer response and services, and other proactive industrial actions. Policy makers have good interaction with foreign and local producers and can mobilize international cooperation strategically. With respect to planning and inter-ministerial coordination, however, Thailand is not as good as Malaysia especially without a strong top leader.

Fifth, social consideration is an important factor in development. Traditionally the most highlighted gap in Thailand has been a geographic one of Bangkok versus the rest of Thailand. Unlike Malaysia, ethnic division is not a serious problem because Chinese population in Thailand has already assimilated to Thai culture and language.

5.2. Policy organization and stakeholders

For a long time, Thai politics has been unstable with riots and demonstrations, military coups and frequent changes of government. Top leaders have been usually weak and key decisions were made by the so-called Bureaucratic Polity (the coalition of bureaucrats, military and police). Occasionally, strong leaders such as Prem (in power 1980-1988) and Thaksin (in power 2001-2006) emerge to break the usual political pattern. Overall, however, Thai policy formulation is less structured and more flexible with respect to organization and procedure in comparison with Malaysia. For the same reason, Thai industrial policy has been less interventionist than in Malaysia.

Despite chronic political instability and weak institutionalization of policy formulation, Thailand maintained long-term growth. There were also intermittent crises such as the deep recession after the second oil shock (early 1980s), the Asian Financial Crisis (1997-1998) and the Global Financial Crisis (2008-2009), which hit the Thai economy very severely. But the long-term growth trend was uninterrupted by these short-term hardships. Macroeconomic stability was restored relatively soon and industrial development continued except for the crisis years.

Good economic performance in the face of unstable politics and intermittent crises can be explained by the fact that certain key organizations of the government have been staffed with competent technocrats who conducted consistent policies even when

politics became a problem. In addition to NESDB mentioned above, the Bank of Thailand generally provided sound macroeconomic management except in the 1997 Baht (or Tom Yam Kung) Crisis, and the Board of Investment continuously improved business and investment climate.

SME promotion is currently by far the most important policy objective of the Thai Ministry of Industry (MOI). Regarding supporting industry promotion, the Department of Industrial Promotion (DIP) of MOI carries main responsibility. In 1988, under the DIP/MOI, the Metal-working and Machinery Industries Development Institute (MIDI) was established with JICA assistance in 1988 as a specialized agency to implement promotion measures for metal-related supporting industries. In 1996, MIDI was upgraded to the Bureau of Supporting Industries Development (BSID) with a higher organizational status and a broader scope (including plastic, packaging and linkage), focusing on the three aspects of people, technology and linkage. With available national budgets and international support, BSID has created projects that were useful for the above purposes and promoted business service markets, technology transfer, and technical training and consulting. It targeted SMEs, entrepreneurs, supporting agencies and service providers (training and consultation experts and companies).

Organizationally, BSID has one administrative section and four technical divisions whose main responsibilities are listed in Table 9. Our mission met with the heads of all the divisions who stated that the division of labor within BSID was based more on the availability of professional staff and less on logical necessity.

Table 9. Thailand: Bureau of Supporting Industry Development, MOI

(Main Responsibilities of Four Technical Divisions)

Division	Main responsibility
Basic Manufacturing Division (BMD)	■ Machinery and Metal Work Industry Development Project 2007-2011 ■ Casting, heat treatment and coating ■ Integration projects with institutes and associations ■ Technology transfer, training, R&D, seminars, industrial services and technological consulting on related machinery and metal fields
Advanced Manufacturing Division (AMD)	■ Hydraulic and pneumatic training and consulting ■ CAD/CAM/CAE training and consulting ■ Mould and die industry training and consulting ■ Technology transfer, training, R&D, technology services and technological consulting on plastic injection moulding
Applied Technology Division (ATD)	■ Rapid prototype service ■ CAD/CAM/CAE training and consulting ■ Technology transfer, training, R&D, technology services and technological consulting on manufacturing and product design
Supporting Industry Technology and Standardization Promotion Division (SITSPD)	■ Mechanical and material property laboratory testing ■ Technical Service Network Center (TSNC) ■ Technology transfer, training, R&D, technology services and technological consulting on automobile manufacturing and air conditioning fields

Source: Bureau of Supporting Industry Development, Ministry of Industry.

However, the BSID budget has been on a declining trend in the last ten years and its operation has been significantly downsized. When MIDI was established in 1988, it had 110 staff. Now BSID has 50 staff and the number continues to decline. Existing staff are reassigned from Bangkok to rural areas to take up other responsibilities. Shrinking resources are a problem not only with BSID but also with other related organizations such as OSMEP (see below). The budget cuts reflect economic crises and political instability in recent years as well as shifting emphasis from direct public support to private sector initiatives. Many officials noted that Thai supporting industries and their needs have grown so much that it was impossible for the government alone to assist them all.

Another important bureau of DIP/MOI for the purpose of supporting industry promotion is the Bureau of Service Provider Development (BSPD)[13] responsible for producing management and technical consultants and shindanshi (see below) using private consultants.

BSID and BSPD cooperate closely with semi-public institutes such as Thailand Automotive Institute (TAI), Electrical and Electronics Institute (EEI), Iron and Steel Institute (ISI) and Thai-German Institute (TGI). These were initially established by government budget or foreign aid but are currently required to operate as autonomous, non-profit and financially self-supportive organizations. TAI, EEI and ISI are some of the several institutes established after 1993 and especially after the Asian Financial Crisis of 1997-98 (other institutes cover food, textiles, productivity, ISO and SMEs). MOI is a policy making organization while these institutes are implementation agencies.

As explained later, TAI, established in 1999, plays a particularly active role in c oordinating the tripartite stakeholders of automotive firms, government and experts, as well as drafting and implementing automotive master plans.

EEI, established in 1998, promotes product testing, technological and product development, R&D and training related to E&E. It also conducts related studies and implements technical standards and factory inspection.

TGI, located in AMATA Nakorn and with a branch in Ayutthaya but serving all nation, is a German assisted technical training institute for incumbent engineers and technicians (not students) created at the request of the Thai government and starting operation in 1999. Based on a needs survey, it initially focused on automation, CNC, CAD/CAM and mould and die technology. In 2004, Dr. Narong Varongkriengkrai, who was involved in the establishment of TGI from the beginning, became the Director. The mission of TGI has shifted from mastering existing technology to development of Thai own technology. New scopes of design, development and testing have been added. TGI currently has 80 Thai trainers and no foreign teachers. It is self-financing, raising most of its funds through prototyping and model production to buy additional equipment

[13] BSPD is currently headed by Mr. Panuat Triyangkulsri, who previously worked in MIDI then directed BSID.

each year. It cooperates with MOI, TPA (which is strong in management training) and Japan's JODC and AHRDP (see below).

Additionally, Thailand has a rich array of business membership organizations including:

Thai Automotive Industry Association

Thai Automotive Part Manufacturer Association (TAPMA)

Thai Subcontracting Promotion Association

Thai Tool and Die Industry Association

Thai Machinery Association

Thai Packaging Association

Thai Foundry Association

Hazardous Substances Logistics Association

Thai Micro-Nano Manufacturing Club

They also cooperate with official bodies. Almost all of these associations are housed in the same plot in Klong Toey, Bangkok where BSID, TAI and ISI are also located.

For SME promotion in general, Thailand established the Office of SME Promotion (OSMEP) in 2000 which started operation in 2002. Previously, SME promotion was the responsibility of DIP/MOI and its focus was on industry only. In order to have a broader and more integrated SME policy, the SME Promotion Act was issued in 2000 to designate the newly created OSMEP as the central agency for SME promotion which covered trade, service and commercial agriculture in addition to industry. The main responsibilities of OSMEP are (i) drafting SME master plans; (ii) development of a national SME database[14]; (iii) coordination of SME promotion projects and programs; and (iv) monitoring and following up of action plans. As such, OSMEP is an agency responsible for drafting and monitoring plans and project coordination, not an implementing agency such as BSID. At present, OSMEP is under restructuring to merge and streamline various related functions[15].

In Thailand, cooperation between authorities and producers is going relatively well, especially in the automotive sector, even though some producers may at times have different priorities from the government. One of the Japanese car component manufacturers operating in Thailand stated that it was satisfied with the open and supportive business environment that the Thai government offered and it had no intention of leaving Thailand in the future. There are many foreign car assemblers and part

[14] In the past, the industry database did not distinguish between large corporations and SMEs. OSMEP is developing an SME database with primary data obtained by SME census (costly and infrequent) supplemented by selective surveys.

[15] The establishment of OSMEP in Thailand and SME Corp in Malaysia shared similar motives. However, the latter seems to have greater mandate (including implementation) and more effective operation based on the previous SMIDEC functions.

manufacturers assisting the development of Thai supporting industries by dispatching their professional staff as lecturers and trainers, offering machinery and equipment, providing scholarships and internship, and so on. In addition to private assistance, Japanese ODA is also mobilized for the development of Thai industries.

Among projects and programs which have received direct or indirect Japanese assistance, the following are particularly noteworthy.

Technology Promotion Association (TPA) is a local NPO established in Bangkok in 1973 by Thai returnees who studied science and technology in Japan. It has long provided management and technical education and training, language courses and related publication before establishing Thai-Nichi Institute of Technology (TNI), a private university to teach Japanese style manufacturing in both theory and practice with strong emphasis on the latter, in 2007. TNI was financed by TPA's accumulated profits and a bank loan. Japan has assisted TPA and TNI from the sideline by dispatching experts, keeping close ties with Japanese businesses, providing equipment and so on. The Japan-Thailand Economic Cooperation Society (JTECS) was the organization established in Tokyo to coordinate and provide private and public assistance to TPA. However, management and financial resources of TPA and TNI were local with strong Thai ownership.

King Mongkut's Institute of Technology Ladkrabang (KMITL), established in 1961 as a small telecommunications training center with 23 students, has developed into a leading engineering research and education university in Thailand, especially in the field of ICT. Japan's comprehensive cooperation, both public and private, in four phases over 40 years was critical to its creation and growth, which included technical cooperation agreements (1978, 1987, 1992 and 1997), academic exchange agreements (1977, 1992 and 1997), scholarship system (1971), practical factory-based training (1977), construction scholarship system (1989) as well as campus expansion, human resource development, research promotion and bilateral joint research and education via satellite. KMITL now has seven faculties of engineering, a graduate school, some 22,000 students and around 1,000 teachers. KMITL actively accepts students from neighboring countries including Cambodia, Laos, Myanmar and Vietnam.

AMATA Nakorn Industrial Park is a Thai-owned private industrial estate in Chonburi Province in the southeast of Bangkok adjacent to Eastern Seaboard (ESB) Development with easy access via expressway to Laem Chabang Deep Seaport and Suvarnabhumi International Airport. Built in 1989, it has been operated and expanded by AMATA Corporation[16] . It has grown in nine phases into a complete city equipped with its own infrastructure services such as condominiums, commercial areas, logistic support, financial services, schools and kindergartens, a medical center and a golf course. Major customers of AMATA Nakorn are manufacturing firms from Japan (60%), Thailand

[16] AMATA means "never die" in Sanskrit. AMATA Corporation, established with Thai initiative with Japanese help, also operates AMATA City in Rayong Province, also adjacent to ESB, and AMATA Bien Hoa in Dong Nai Province of Vietnam. AMATA was partly owned by Itochu Cooperation until recently.

(17%) and Europe (7%) by nationality, and automotive (33%), steel, metal and plastic (26%) and electronics (14%) by sector. It is the largest agglomeration of supporting industries as well as a critical part of the automotive and E&E production hub of Thailand, together with assembler firms scattered around Bangkok and ESB areas.

One project of interest within the seventh phase of AMATA Nakorn is Ota Techno Park (OTP), a rental scheme of small factory space for Japanese SME suppliers initially from Ota Ward of Tokyo but now accepting any Japanese SMEs with high technology. In 2006 OTP built six units of rental space (320m2 each) with administrative support in Japanese language. It is now in the second phase expansion with the total units of 17 (one company can rent more than one unit). For this project, Ota Ward of Tokyo provided matching support but no financial support. OTP is intended to be a temporary factory for Japanese SMEs which are expected to move out of OTP once initial success is attained.

Overall, in Thailand, private and non-government stakeholders play relatively large roles than the Malaysian approach which is more government-led.

5.3. Definition and scope of supporting industries

The definition of small and medium enterprises in Thailand is shown in Table 10.

Table 10. Thailand: Definition of small and Medium Enterprises

Type	Micro	Small		Medium	
	Employees	Employees	Fixed capital excl. land(million baht)	Employees	Fixed capital excl. land (million baht)
1. Manufacturing	Less than 5 employees	Not more than 50	Not more than 50	51-200	51-200
2. Service		Not more than 50	Not more than 50	51-200	51-200
3. Trade					
Wholesale		Not more than 25	Not more than 50	26-50	51-100
Retail		Not more than 15	Not more than 50	16-30	31-60

Source: Presentation by SME Development Bank of Thailand, January 2008. In February 2010, one USD exchanged for about 33 Thai Baht.

The definition of supporting industries as targeted for promotion programs is flexible and pragmatic in Thailand. There are general statements of what supporting industries mean and lists of parts and components, but exactly what products and activities are eligible for promotion depends on each program and budget allocation. When asked about the definition, both BSID and BSPD gave general answers. BSID leaders stated that supporting industries were parts producers for automobiles and E&E and gave a number of examples such as metal working, plastic injection, mould and die, foundry, testing and so on (but glass was not included because BSID had no expertise). The only common feature in Thai definitions of supporting industries, also duplicated in the Supporting Industry Master Plan, was that they targeted part and component manufacturers and processors in the *automotive* and *E&E sectors*.

The Supporting Industry Master Plan of 1995, discussed in section 5.4.1 below, contain checklists of parts and components for automotive and E&E sectors and policy measures to raise local procurement. These lists serve as general guidelines for concerned officials, non-government leaders and producers. These do not give sufficient details on how priorities should be set, how each item should be promoted, or how much budget should be allocated. Such details are decided annually in light of resource availability, global and regional trends and the interests of automotive and E&E producers and international cooperation partners.

Apart from individual programs financed by the national budget or international support with limited duration, the Board of Investment (BOI) offers tax and non-tax incentives for investments included in BOI's eligibility lists. More information on this is given in section 5.4.2 below.

5.4. Policy measures

Supporting industry promotion in Thailand has the following general features.

First, it provides an open and free business environment. Thailand accepts globalization and the market mechanism, seeks no national-brand products, and realizes that selectivity is needed in industrial promotion under international division of labor. Unlike Malaysia, linking to the large agglomeration of FDI remains a very important objective of industrial policy.

Second, it is based on flexible project formulation. Key persons or organizations take the lead in creating and executing appropriate projects with annually available budget and resources instead of following strict rules, targets or procedures determined in advance.

Third, policy emphasis has shifted from government-led promotion to private sector-driven one as the number and size of supporting industries grew.

Fourth, participation and contribution of multiple stakeholders are sought. The government has stressed cooperation with FDI and local firms, business associations, NPOs, academic institutions and aid donors for designing and executing industrial policies.

Fifth, cooperation with Japan and learning from Japanese models and experiences, with proper modifications, are actively sought and practiced. Japanese terms like *kaizen*, *shindan, monozukuri, genba,* and so on, are well understood by policy makers.

5.4.1. Master plans and action plans

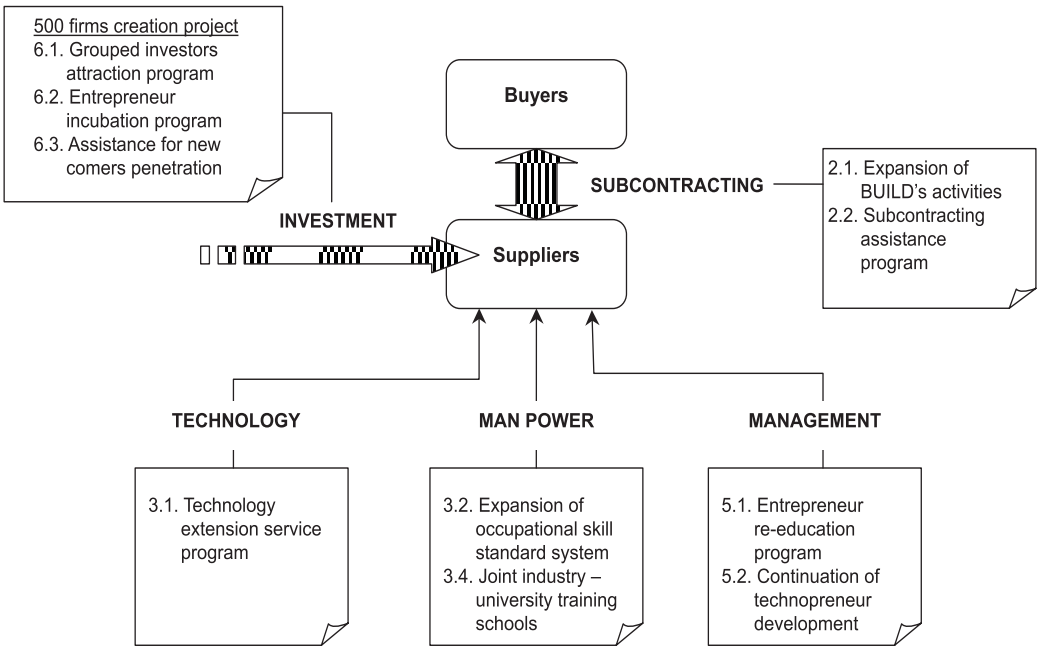
The two key master plans for supporting industry promotion are the Supporting Industry Master Plan of 1995 and the Automotive Industry Master Plan 2007-2011.

The Supporting Industry Master Plan, entitled *An Overview: Supporting Industries in Thailand*, is an extract of the larger *Report on Industrial Sector Development: Supporting Industries in the Kingdom of Thailand* prepared jointly by DIP/MOI and JICA during 1993-1995. This bilingual executive summary in Thai and English was published in October 1995 by DIP/MOI with JETRO's financial support. It provides a concise

overview of Thai automotive and E&E sectors, lists of parts and components in these sectors with the current status (whether imported or localized), and summary tables of proposed measures. This is the latest supporting industry policy document in Thailand. Although data and analyses in this document are over 15 years old, Thai officials continue to use it to guide their projects "because this plan has not been fully achieved." The above-mentioned joint report also recommended the upgrading of MIDI to BSID, which took place in 1996.

Figure 4 and Table 11, expressing the policy measures to be taken in alternative forms, are the essence of this master plan which are still referred to by policy makers.

Figure 4. Thailand: Master Plan for Development of Supporting Industries



Financial support	Technical institutions	Legislation	Government
4.1. Improvement of SME financing schemes 4.2. Assistance for SME in machinery leasing	3.3. Public technical center activation program	1.1. Basic law for SME 1.2. Law of subcontracting promotion	1.3. Restructuring of DIP for SMEs & SI promotion 1.4. Preparation of industrial statistics

Table 11. Thailand: Proposed Programs in the Supporting Industry Master Plan 1995

Proposed program	Objectives	Supporting Measures	Operational Institutions
1. Policy & legislation			
1.1. Basic law of SME development	Unification of SME policy.	Establishment of basic law.	Parliament, DIP
1.2. Law of subcontracting promotion	Subcontracting promotion and protection of subcontractors.	Establishment of basic law.	Parliament, DIP
1.3. Restructuring of DIP for SME & SI promotion	Centralization and reinforcement of SME policy implementation.	Establishment of basic law and department for SMEs.	Parliament, DIP
1.4. Preparation of industrial statistics	Basic data preparation for industrial development.	Build up data base system.	DIP & concerned
2. Market development			
2.1. Expansion of BUILD activities	Subcontracting intermediation.	Information supply, trade fair, visiting parent enterprises regularly, etc.	BOI, DIP (NSDP)
2.2. Subcontracting assistance program	Subcontracting business promotion.	Mediation of financial services, exemption of company tax.	BOI, DIP (NSDP), FTI
3. Technology upgrading			
3.1. Technology extension service program	Improvement of soft wares in production & quality control skill.	Traveling clinic service.	DIP, FTI
3.2. Expansion of occupational skill standard system	Upgrading of occupational skill and development of human resources.	Expansion to part industries, favorable salary system and consignment testing system.	DSD
3.3. Public technical center activation program	Improvement of public services for industrial testing, R&D, etc.	Consigned management of institutions to NGO.	DIP, TISI, FTI, etc.
3.4. Joint industry-university training schools	Fostering of skilled workers working in factories.	Providing of investment privileges.	University, Private sectors, Industrial estates
4. Financial support			
4.1. Improvement of SME financing schemes	Expansion of financial service network for regional SMEs.	Promoting of loan agents network.	SIFC, IFCT, etc.
4.2. Assistance for SME in machinery leasing	Financial support for SMEs by a leasing system.	Interest subsidizing system, payment guarantee for leasing.	Leasing companies, Fiscal Policy Office
5. Upgrading of management			
5.1. Entrepreneur re-education program	Improvement of management skill in manufacturing.	Teaching management by cost analysis method.	DIP
5.2. Continuation of technopreneur development project	Entrepreneurship education for new comers.	Continuation of KMITNB Program (TDP).	KMITNB, DIP
6. Investment promotion			
6.1. Grouped investors attraction program	Investment attraction of foreign SMEs.	Assistance & incentives for grouped SMEs investors.	BOI, DIP
6.2. Entrepreneur incubation program	Extension of the foundation of part industry by Thai capital.	Supporting for establishing new company with leasing system.	DIP
6.3. Assistance for new comers' penetration	Extension of foundation of Thai part industry.	Promoting technical collaboration with foreign companies.	BOI, DIP (NSDP)

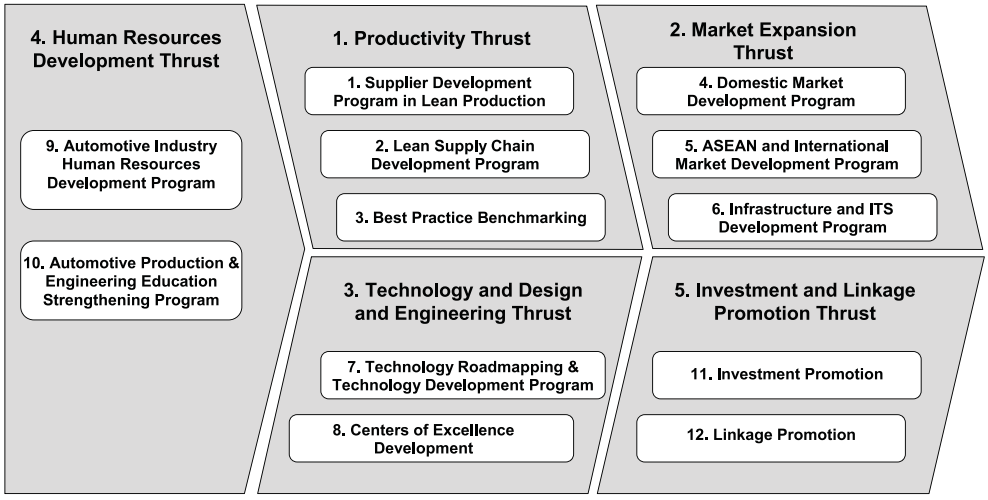
Source: Department of Industrial Promotion, Ministry of Industry, *An Overview: Supporting Industries in Thailand*, October 1995.

The Automotive Master Plan 2007-2011 (Executive Summary) is worthy of careful study because it effectively directs the development of the Thai automobile industry which has so far been successful despite two major macroeconomic shocks in 1997-98 and 2008-09 which severely reduced car sales at home and abroad. The policy formulation and implementation process is competently coordinated by Thailand Automotive Institute (TAI) with close-knit networking among all stakeholders through the automotive master plan committee, focus groups, and CEO Forum. The essence of the master plan has a lean and simple structure as follows[17] :

Vision 2011 ➔ 4 objectives (success indicators) ➔ 5 strategies ➔ 12 action plans

The executive summary, which is essentially the same as chapter 8 of the full-version Thai document, presents this policy structure in the first four pages while the remaining pages are devoted to the explanation of the 12 "Action Plans" one by one[18]. The five strategies and twelve action plans are compactly summarized in Figure 5 below.

Figure 5. Thailand: Five Strategies and Twelve Action Plans in the Automotive Sector



Source: Thailand Automotive Institute, The Automotive Industry Master Plan 2007-2011 Executive Summary, p.4.

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[17] Vision 2011 is "Thailand is the automotive production base in Asia which creates more value added to the country with strong automotive parts industry." This vision remains unchanged from the previous Master Plan 2002-2006. Note that "Action Plans" here are policy thrusts and not a detailed action plan matrix with concrete performance criteria, designation of implementers and deadlines.

[18] The rest of the original document contains frameworks, situation analysis, policy making organization, and so on. In Thailand, the full text of an industrial master plan is prepared in Thai while the executive summary is often produced in both Thai and English, either in one volume or in separate volumes, and uploaded in the web. Stakeholders often use executive summaries for reference and discussion. Thai officials seem to prefer a portable checklist of needed actions and a diagram to explain relationship among these actions rather than a thick document containing many supplementary materials.

As noted above, TAI adopts the process-oriented action mechanism to execute these strategies and action plans. Various projects supported by the state budget or international cooperation are approved and mobilized to attain them. Since available funds fluctuate from year to year, the exact size and scope of support measures cannot be decided in advance.

An important initiative in the Thai automotive industry at present is the Eco-Car Project. Eco-cars are defined to be vehicles using any technology that satisfy (i) fuel efficiency of 5 liters per 100km; (ii) emission standard of EURO4 or higher with CO2 emission of less than 120 grams per km; (iii) safety with full front- and side-impact protection based on UNECE specifications; and (iv) displacement of less than 1,300cc for gasoline engines and less than 1,400cc for diesel engines. There are also requirements as to the manufacturing of key parts, minimum investment of THB5 billion and production capacity of over 100,000 units per year from the fifth year of operation. Producers satisfying these conditions are given exemption from import duties on machinery, exemption from income tax for up to 8 years, and excise tax of 17% (instead of 30%). Seven producers have applied for the Eco-Car Project and six of them have been approved.

Additionally, Office of SMEs Promotion (OSMEP) has produced the SME Master Plan (The Second Master Plan of Thailand's Small and Medium Enterprises Promotion 2007-2011). Akin to SME Corp in Malaysia, OSMEP provides central planning and coordinating functions for SME policy in general. This plan covers SMEs broadly and does not exclusively target supporting industry SMEs with high engineering capability. It has six strategic pillars of (i) new entrepreneurs and capability; (ii) manufacturing SMEs; (iii) trading sectors; (iv) service sector; (v) regional and rural SMEs; and (vi) business environment and enabling factors. The second pillar of manufacturing SMEs target both indigenous industries and "new wave" industries, and the former includes engineering industries (steel and alloy, machinery, mould and die, electrical appliances and electronics) along with light industries and natural resource-based industries. The direction for manufacturing SMEs is creation of value added and differentiation based on original design and brands, but this may not tightly fit the features of part and component industries with which we are concerned. Prescription of concrete measures for supporting industry promotion is not handled by OSMEP but by DIP/MOI, TAI and other organizations associated with automotive and E&E sectors.

5.4.2. Incentives

The Board of Investment (BOI), the Thai counterpart of Malaysia's MIDA, is responsible for approving and providing investment incentives. Approval procedure and promoted activities are published in BOI announcements and uploaded in the website. BOI offers two kinds of incentives, tax incentives and non-tax incentives, based on the zone system. Tax incentives are exemption or reduction of import duties on machinery and raw materials as well as corporate income tax exemptions. Non-tax incentives include

permission to hire foreign workers, own land and bring or remit foreign currency abroad. Key BOI announcements are described in Table 12 and some details of priority activities in machinery and E&E are shown in Table 13.

Table 12. Thailand: Key Incentive Policies of the Board of Investment

Document	Project type	Rights and benefits
BOI Announcement No.1/2543 (Zone system)	Zone 1: 6 central provinces with high income and good infrastructure	- 50% reduction of import duty on machinery - Corporate income tax exemption for 3 years - Exemption of import duty on raw or essential materials used for export products for 1 year
	Zone2: 12 provinces	- 50% reduction of import duty on machinery - Corporate income tax exemption for 3 years (5 years for projects located within industrial estates or promoted industrial zones) - Exemption of import duty on raw or essential materials used for export products for 1 year
	Zone 3: Remaining 58 provinces with low income and less developed infrstructure	- Exemption of import duty on machinery - Corporate income tax exemption for 8 years - Exemption of import duty on raw or essential materials used for export products for 5 years
BOI Announcement No.4/2549	Electronics and electrical appliance industry: Production of all electronics, electrical appliances, andparts specified by BOI	- Exemption of import duty for machinery in all zones - Exemption of corporate income tax for 5 years for projects in Zone 1; 6 years in Zone 2, and 7 years for projects located in industrial estates or promoted industrial zones; and 8 years in Zones 3 - Others are according to BOI Announcement No. 1/2543
BOI Announcement No.10/2552	Priority activities: Activities within 7 sectors classified by BOI as having priority: agriculture (21), mining (19), light industry (16), **machinery (20), E&E (9)**, chemicals (16) and services (28)	- Exemption of import duty on machinery regardless of zone - 8 year corporate income tax exemption regardless of zone - Others shall be granted according to BOI Announcement No.1/2543
	Special importance and benefits to the country: Activities classified by BOI as important and beneficial to the country	- Exemption of import duties on machinery regardless of zone - 8 year corporate income tax exemption regardless of zone, NOT subject to the corporate income tax exemption cap - Others shall be granted according to BOI Announcement No.1/2543

Source: Board of Investment website. For more details of priority activities in machinery and E&E, see Table 13.

Table 13. Thailand: Priority Activities in Machinery and E&E

Metal Products, Machinery and Transport Equipment	Electronic Industry and Electrical Appliance
1. Manufacture of hand tools and measuring tools	1. Manufacture of electrical equipment for industrial
2. Manufacture of machinery, equipment and parts	2. Manufacture of electrical products
3. Manufacture of metal products, including metal parts	3. Manufacture of parts or equipment used for electrical products
4. Surface treatment or anodized surface treatment	4. Manufacture of electronic products
5. Heat treatment	5. Manufacture of electronic parts and/or equipment or parts and/or equipment used for electronic apparatus
6. Building or repair of ships	6. Manufacture of material for microelectronics
7. Manufacture of electric-powered vehicles	7. Electronic design
8. Manufacture of trains or electric trains or equipment or parts (only for rail system)	8. Software
9. Manufacture, repair or conversion of aircraft, including aircraft parts and equipment or onboard equipment	9. e-commerce business
10. Manufacture of vehicle parts	
11. Manufacture of motorcycles	
12. Manufacture of automobile	
13. Manufacture of multi-purpose engines and equipment	
14. Manufacture of natural gas vehicles and machi-nery and equipment that use natural gas	
15. Manufacture of fuel cells	
16. Repair of vehicle parts, electrical or electronic equipment	
17. Repair of industrial machinery or equipment	
18. Manufacture, repair or maintenance of containers	
19. Fabrication of metal structure products or platform repair	
20. Manufacture of Completely Built Units (CBU) or Completely Knocked Down (CKD) of houses	

Source: Board of Investment Announcement No.10/2552. This table shows two of the seven sectors within which priority activities are designated. Listed items are large categories under which more detailed items are specified.

For any company applying for incentives, the approval process is as follows. The first step is to contact the investment center or any regional or overseas office of BOI to gather information on potential benefits and receive an application form. Completed application should be submitted to the Secretary's Office or one of the regional or overseas offices of BOI. Within 10 days of receiving the application, BOI will set up a meeting between its official and the representatives of the company.

The subsequent procedure depends on the size and type of proposed projects (in the following paragraphs "Office of BOI" means the administrative organization and "BOI itself" means the decision making body headed by the prime minister).

(i) For projects with an initial investment of THB80 million or less, the Office of BOI will make a decision within 40-60 days of receiving completed application.

(ii) For projects with an initial investment between THB80-750 million or projects that export 80% or more of its products with an investment of over THB750 million, a sub-committee of BOI itself will decide within 40-60 days of receiving completed application.

(iii) For projects targeting the domestic market with an initial investment of over 750 million, the decision will be made by BOI itself and notification will be given within 90 days of receiving completed application.

As in Malaysia, approval is not automatic but must pass the deliberation by the Office of BOI or BOI itself. It is also noteworthy that the decision is made at a higher level if a large investor is targeting the domestic market rather than the export market.

Like Malaysia but unlike Vietnam, investment approval and incentives in Thailand are centrally administered by BOI. Authority to approve projects and provide incentives is not given to local authorities to prevent excessive competition among localities and the undue loss of tax revenues. Favorite treatment of less developed regions is also centrally controlled through the zone system.

5.4.3. Matching and linkage

The Board of Investment (BOI), previously under the Office of Government and now under MOI, plays the key role in matching and linkage between local firms and MNCs in Thailand. BOI has two specific programs for this purpose: the Skills, Technology and Innovation Program (STI) and the BOI Unit for Industrial Linkage Development (BUILD).

STI provides incentives to foreign companies that invest in activities that enhance human resource capacity or facilitate specific technology transfer to local firms. BUILD is an integrated capacity building mechanism established in 1992 within BOI with the goal of identifying the needs of manufacturing assemblers and matching them with local suppliers. Some of the programs of BUILD include:

(i) *Vendor meet customers program*—this program, focused on automotive and E&E sectors, stimulates more procurement of local parts by matching buyers (assemblers) and vendors (local parts manufacturers). It first identifies the parts and components needs of assemblers along with required quality specifications. BUILD staff then contact local manufacturers that produce requested parts and bring them to the assembly plant to meet the potential client and understand the quality requirements. Such on-site visits take place about 12 times a year. If parts manufacturers are unable to satisfy the quality requirement, BUILD will work with them to overcome the problem.

(ii) *BUILD marketplace*—this is a monthly one-stop shop for parts and components where assemblers and local parts manufacturers can discuss the details of parts specifications required.

(iii) *BUILD sourcing program*—this program arranges subcontracting seminars that bring together companies looking to source parts and components in Thailand. MNCs present their specifications, volume requirements, and so on to 40 local suppliers, followed by one-on-one meetings to assess each other's needs and potentiality.

(iv) *ASEAN Supporting Industry Database (ASID)*—this is an information service provided by ASEAN to assist supporting industries in member countries. BUILD is responsible for developing this database in Thailand, consolidating and updating information on the internet to permit global access. For each company, the database includes company profile, investment profile and information on employment, customers, products, capacity, processes, raw materials, and machinery and equipment.

5.4.4. Capacity building

Improving the capabilities of Thai enterprises and Thai human capital remains a central objective of Thai industrial policy. Among various institutions and projects for this purpose, Thai-German Institute (TGI), Technology Promotion Association (TPA), Thai-Nichi Institute of Technology (TNI), and King Mongkut's Institute of Technology Ladkrabang (KMITL) were already mentioned in section 5-2. There are also Japanese supported programs such as AHRDP and JODC and JICA expert dispatches, as explained below.

In this subsection the TVET activities at TPA and TNI as well as the effort to establish the shindan system in Thailand are selectively discussed.

Technology Promotion Association (TPA) was created in Bangkok as a new form of Japan-Thailand cooperation with human focus and sufficient private initiative to ameliorate the anti-Japanese sentiment brewing in ASEAN in the early 1970s. Under

the guidance of the Japanese Ministry of International Trade and Industry (MITI), Association for Overseas Technical Scholarship (AOTS) and Asian Students Cultural Association (ASCA), a new NPO, Japan-Thailand Economic Cooperation Society (JTECS), was established in 1972. Through JTECS, Japanese private and public support was mobilized for TPA which was established in 1973.

TPA's activities included (i) management and technical training courses; (ii) language education (Japanese, Thai and English); and (iii) publication and translation of management and technical books. It was run by returning Thai students from Japan. From the outset the creation of a technical university was intended but financial resource required was too large to put this plan into practice any time soon. While Japanese ODA partly financed its activities and membership fees were collected, profits from TPA's own activities had to be secured with new ideas and programs. A slow and steady approach was taken to accumulate internal profits in the face of fierce competition and occasional economic crises. The self-finance ratio gradually rose from 0% (1973) to 25% (1985), 50% (1987), 75% (1998) and finally 100% (2009). Training course participants increased from several hundreds per year in the early years to as many as 68,000 in 2007. Publications also rose from less than 10 books per year to 30-40 books per year by the 2000s. Expansion of premises, the opening of Technology Promotion Institute, training missions of TPA staff to Japan, cooperation with Japanese universities, addition of testing and calibration, and so on, strengthened the economic viability of TPA operations.

After 34 years of waiting, TPA finally implemented the original plan of establishing a private technical university with emphasis on both theory and practice in monozukuri (Japanese style production). Thai-Nichi Institute of Technology was opened in 2007 with top management coming from former returnees from studies in Japan and former TPA management. It was financed by TPA's accumulated profit and bank loans. TNI has three undergraduate departments of Engineering, Information Technology and Business Administration as well as MBA courses in Industrial Management and Executive Enterprise Management. By 2011 it expects to reach the full student capacity of 3,000. Besides emphasis on the practical knowledge of monozukuri, TNI also stresses the importance of enterprise internship, Japanese language and culture, close cooperation with Japanese FDI and local companies, and academic linkage with Japanese universities.

The shindan system, a Japanese SME management diagnosis and advisory system dating back to the late 1940s, was introduced to Thailand as part of an economic recovery package of the Japanese government for Thailand in the aftermath of the Asian Financial Crisis of 1997-98. From 1999 to 2004, a total of 115 Japanese experts were mobilized by JICA and JODC to produce about 450 Thai shindanshi (management consultants) in a one-year course of over 1,000 hours which was repeated five times. The term shindan was used to recognize Japan as the origin of this system.

After 2004 when Japanese assistance ended, shindan courses were liberalized and began to be offered by various universities and TVET institutions for commercial tuition. Unlike in Japan, these courses did not require approval of the Thai government and did not have nationally unified curriculum or officially sanctioned examination and registration mechanisms. Courses were often shortened to 600, 300 or even 60-70 hours for students' convenience and modularized into special fields[19]. Shindan graduates belong to enterprises, universities and financial institutions and conduct various activities such as business consultation for profit and participating in official training programs as lecturers. They mainly offer diagnosis in their specialized fields rather than integrated diagnosis and advice from a broad perspective as done in Japan. Since the shindan system is new to Thailand and institutionalization has not occurred, it is natural that its adoption is selective and smaller in scope than the original model.

DIP/MOI considers the shindan system as one of the industrial policy tools to activate private initiative. It wants to strengthen, institutionalize and broaden the scope of the existing system by adopting the simpler model as it existed in Japan in the 1960s rather than the current highly advanced model. To suit Thai reality, specialized shindan is acceptable and a greater private role is expected in training shindanshi while the government provides necessary institutions and coordination. The presently weak linkage between shindan and SME finance must also be constructed.

5.4.5. Finance

In Thailand there are four financial institutions for SMEs: SME Development Bank of Thailand (SME Bank), Bank of Agriculture and Agricultural Cooperative (Rural Development Bank), Government Savings Bank (People Bank), and Export-Import Bank of Thailand (Exporters' Bank). Technical and management training and consultation supervised by MOI is not closely integrated with SME finance.

SME Bank, established in 2002, is jointly supervised by the Ministry of Finance (MOF) and MOI, with MOF owning 97% of this bank. As of end 2006, SME Bank had the total assets of THB55.7 billion, total loans outstanding of THB44.3 billion, 15,195 loan customers with the average loan size of THB3.7 million (about USD110,000), 19 regional offices and 90 service centers.

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[19] Thai-Nichi Institute of Technology is one of the key institutions to offer shindan courses in its two-year MBA program in Executive Business Management. Its curriculum includes finance and accounting, strategic marketing, production management I and II, personnel management, IT, case study analysis, pragmatic enterprise diagnosis (shindan practice), pragmatic strategic management, and a thesis or a term paper. A number of factory visits are also built into the program.

One of SME Bank's innovative products is OTOP (one village, one product) loans which support and encourage groups of individuals to develop businesses in villages. The total allocation for OTOP loans is THB5 billion (about USD150 million) with maximum loan per person of THB1 million (about USD30,000). Another innovative product is Asset Capitalization Programs which review low-income people's tangible and non-tangible assets to see if they can be used as collateral if certain institutional infrastructure is established. Examples include loans for public land tenants, machinery capitalization and intellectual property capitalization. In each case, central repository for registering specific assets (land lease rights for small shops, machines, patents, trademarks and copyrights) is established to allow collaterization. These loans can be used for starting new businesses or as working capital.

5.4.6. Japanese cooperation

Japan's cooperation for supporting industry development in Thailand is broad and has a long history. As noted above, TPA has received Japanese private and public support through JTECS since 1972. The establishment of MIDI in 1988 and its upgrading to BSID in 1996 were recommended by joint Japan-Thailand reports. Japan also introduced the shindan system to Thailand in 1999-2004. The so-called Mizutani Report on SME policy in 1999 was instrumental in establishing OSMEP in 2000. Apart from these, there are constant flows of Japanese expert dispatches, Thai people visiting and studying in Japan, and Japanese firms assisting Thai engineers on the factory floor.

At present the most visible Japanese cooperation for Thai supporting industries is the Automotive Human Resource Development Program (AHRDP) which improves the QCD (quality, cost and delivery) performance of 100% locally owned suppliers through human resource development especially by training trainers (Table 14). This is a private sector driven project in which four major Japanese auto assemblers are responsible for assisting in four different objectives. Public organizations support them by bearing the cost of company expert dispatches (JETRO), equipment provision (JICA) and other current expenditures (Thai government). The first phase (Jan.2006-Dec.2008) was completed and the second phase (Jan.2009-Dec.2010) is in progress.

Denso is in charge of instructing the right objectives and attitudes for the three fundamental factors of production, namely, management, employees and production facilities. Honda is to improve die and mould technology which consists of design, CAD/CAM, machining and finishing through theory and practice. Nissan builds the skill certification examination system with 17 skill categories. Toyota teaches the Toyota Production System in 4 steps over 4 months. Together the program aims to improve the skills of mangers, supervisors and manufacturing workers.

Table 14. Thailand: Automotive Human Resource Development Program

Working Group	Japanese side	Thai side	Curriculum	Actual Results			Up to May 2009		
				Phase I (Jan.2006-Dec.2008)			Phase II (Jan.2009-Dec.2010)		
				Examiners	Trainers	Trainees	Examiners	Trainers	Trainees
WG-1	Denso	TAI	Mind Management and Manufacturing Skill	–	31	450	--	15	334
WG-2	Honda	TGI	Mould and Die	–	26	823	--	--	227
WG-3	Nissan	TAI	Skill Certification System	59	101	85 (cert.17)	--	--	26 (cert.6)
WG-4	Toyota	TAI	Production System (TPS)	–	24	787	--	Training 12	163 (training 140)
				81 SMEs developed			18 SMEs developed (17 being developed)		
Total				59	182	2,145	--	15	750
				241			15		
				250 trainers, 2,895 trainees, 23 skill cert., 99 SMEs with TPS					

Source: JETRO Bangkok.

Organizationally, AHRDP is managed by the Steering Committee and the Coordinator Group which include concerned organizations such as MOI, TAI, TAPMA, etc. on the Thai side and JETRO, JICA, AOTS, and the Japanese Chamber of Commerce, Bangkok (JCCB) on the Japanese side. Four working groups listed in Table 14 operate under them.

Separately, JODC is currently dispatching three Japanese experts to six technical universities in Thailand to give lectures on the Japanese production system and the monozukuri spirit behind it, which is combined with enterprise internship and job fairs, for the purpose of turning out excellent engineering students and facilitating their employment at Japanese companies. Additional JODC experts are dispatched to Thai-Nichi Institute of Technology for curriculum development and training of trainers. JODC also recently mobilized one expert in the area of die and mould technology.

JICA mobilizes four Japanese senior volunteers to teach and train trainers at Thai-Nichi Institute of Technology in production engineering, business administration, computer engineering and production engineering. Another cooperation program of JICA explores the possibility of activating the SME shindan system and strengthening the rural network of related organizations through pilot projects in Chiang Mai and Surat Thani.

A Thai industrial official notes that Japanese reports and policy recommendations are most effective and welcome when proposed actions coincide with the intention of MOI on the Thai side. In such circumstances, Japanese advice has strong impact on many ministries and organizations which MOI alone cannot reach or convince. Another official states that nation-level thinking is no longer viable in the age of FTAs and EPAs. Thailand is willing to cooperate as one production partner in the integrated ASEAN economy by, for example, investing in Vietnam to form a supporting industry agglomeration there and even assisting Vietnamese suppliers to improve capabilities based on Thai experience. In that case also, Japanese initiative in ASEAN integration and cooperation as the top manufacturing investor and the holder of most advanced technology in the region is effective in striking new deals than direct bilateral negotiation between, say, Thailand and Vietnam.

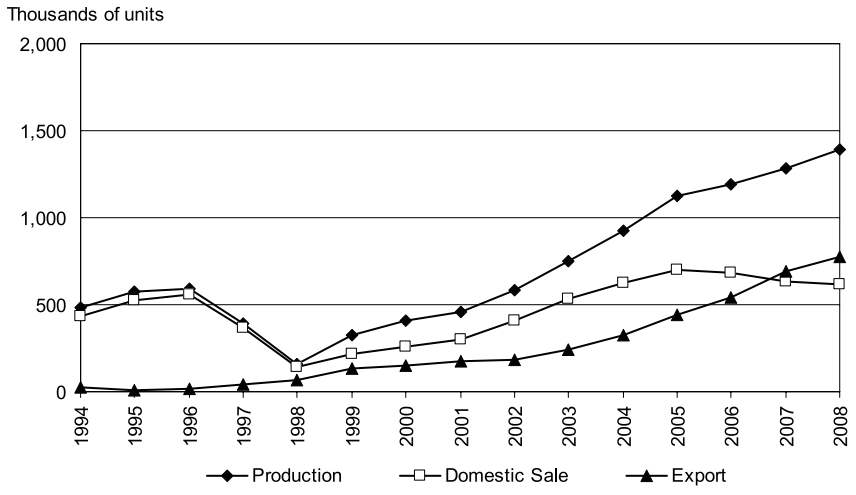
5.5. Policy impact and performance

According to OSMEP, in 2008, there were 2.37 million SMEs and micro enterprises (99.4% of total) as opposed to 12,477 large enterprises in Thailand. In employment, the SME and micro enterprise sector contributed 12.2 million (76.0%). The sector's shares in GDP and export were 38.8% and 28.9%, respectively. The number of manufacturing SMEs is about 900,000.

The automotive industry is the leading manufacturing sector in Thailand, producing 10.5% of GDP in 2008. Thailand is the largest auto producer in ASEAN and the world's second largest producer and market of pickup trucks. Thai officials' main interest is also directed to further developing this sector. In 2008, domestic sales were 615,270 units of which passenger cars were 226,805 units (Toyota 47%, Honda 36%, others17%) and commercial vehicles were 388,465 units (Toyota 40%, Isuzu 34%, others 26%). In the same year, automotive exports were 775,652 units (Toyota 41%, Mitsubishi 18%, Mazda 15%, Isuzu 12%, Honda 9%, Nissan 5%, others 0%). In 2009, the total of 16 auto assemblers produced 1.8 million units of which 56% were exported. Export markets for passenger cars are concentrated in Asia and Oceania while export markets for pickup trucks are highly diversified among Middle East, Oceania, Europe, Latin America, Asia and Africa.

Thai automotive production and sales faced serious setbacks in 1997-98 and 2008-09 due to regional or global crisis, but production recovered strongly and relatively quickly. In fact, after the 1997-98 crisis, the industry greatly increased competitiveness and began to export in significant volume (Figure 6). As discussed earlier, Thailand is now trying to build a production base for Eco-Cars. From these facts, it can be safely said that Thai effort to develop the automotive industry has been successful.

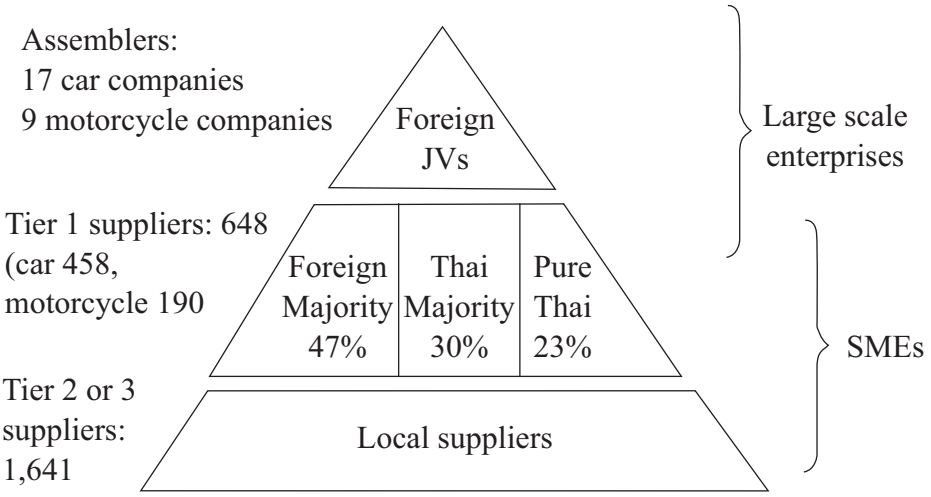
Figure 6. Thailand: Production, Domestic Sales and Export of Automobiles



Source: Thailand Automotive Institute.

According to DIP/MOI, there are at present nearly 2,300 auto-parts manufacturers in Thailand (more precisely, 648 firms in the first tier and 1,641 companies in the second and third tiers, with a total of 2,289 firms). The total job creation of the automotive industry is over 300,000 and the local content ratio is 80-90% for pickup trucks and 30-70% for passenger cars. The structure of the Thai automotive industry is illustrated in Figure 7

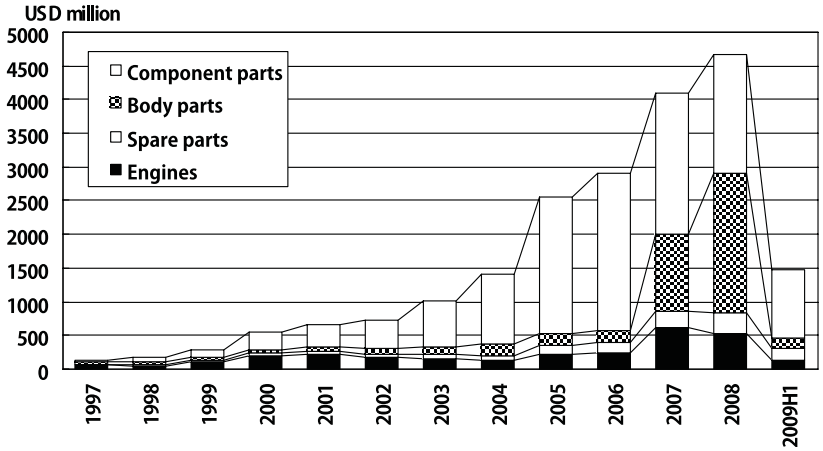
Figure 7. Thailand: The Structure of Thai Automotive Industry



Source: Presentation by DIP/MOI, October 2009.

Export of automotive parts and components grew strongly after the Asian Financial Crisis and reached USD4.7 billion in 2008 as shown in Figure 8. This means that leading automotive manufacturers now regard Thailand not only as the export base of completed passenger cars and pickup trucks but also as the production base of parts and components, including some key ones, to their factories all over the world.

Figure 8. Thailand: Exports of Automotive Parts and Components



Source: Thailand Automotive Institute, August 2009.

Leading official and non-official organizations of the Thai automotive industry, including DIP/MOI and TAI, continue to be focused on bolstering the industry's competitiveness in general and promoting the capability of supporting industries in particular. Unlike Malaysia whose interest has moved to fostering new SMEs independent from MNCs, traditional interest in shindan and other Japanese models, linkage with and learning from FDI manufacturers and building local engineering capabilities in die and mould, machining and other basic processes is still alive and well among Thai industrial officials.

5.6. Issues for Thailand

Compared with Malaysia, Thai industrial policy is less structured or institutionalized. This has both merits and demerits. The merits are greater flexibility and pragmatism when situations change, and less time and energy expended for formal procedure, deliberation and monitoring and evaluation. The demerits include the lack of transparency and coordination, especially when no leader or lead organization takes the responsibility to accelerate or adjust policies as necessary. Overall, Thailand has been successful in industrialization based on this soft and resilient policy mechanism. Despite chronic political instability at the top, severe economic crises and budget cuts, Thailand continued to rebound from difficulties and achieved long-term growth. It has made slow but steady progress driven by enthusiastic leaders at various operational levels, some of whom were quoted in this report, and functional organizations such as DIP/MOI, BOI, BISD, TAI, TGI, TPA, TNI and so on.

Thai industrial policy has also been characterized by open-market orientation which accepts FDI giants and globalization pressure not as problems but opportunities to learn and improve. Traditional interest in building FDI linkages, upgrading manufacturing skills and expanding the already large automotive and E&E clusters is alive and well several decades after the efforts started. Instead of giving up on old industries and jumping to new ones, Thailand pursues the double-track strategy of developing old industries while finding new sources of growth, which is safer and more practical.

Thai industrial leaders also explicitly recognize the contributions made by Japanese private and public sectors over the years to Thai industrialization. Many of our interviewees spoke fluent Japanese, and all deeply knew Japanese concepts like kaizen and shindan. They are generally very keen to maintain and strengthen cooperation with Japanese strategic partners.

Overall, the direction of Thai industrial policy has been appropriate. The remaining problem is that achievements have been good but not as spectacular as some ambitious Thai leaders hoped. Korea, Malaysia and Thailand all started to make serious effort at industrialization in the early 1960s. By now Korea is a global industrial leader with very high income. Malaysia feels trapped at upper middle income. Meanwhile, Thailand is still moving from lower middle to upper middle income. If Thailand wishes to climb up more strongly, it needs to discover the cause(s) of this relatively slow progress and come up with corrective actions. The problem may stem not from general policy

orientation, which is basically sound, but from concrete details of implementation or the lack of strong response from the Thai private sector.

Another issue for Thailand is how to take full advantage of accelerating regional integration as AFTA is completed and FTAs and EPAs proliferate. The new policy initiative should be built on the foundation of the existing model of openness and FDI-led industrialization rather than switching to an entirely new model. Deeper regional integration means that ASEAN must now be regarded as an integral unit of production rather than a collection of independent producers competing with each other. As tariffs, procedural differences and logistic time and cost come down, mindless pursuit of localization or duplication of the same supporting industries across borders (except when bulkiness, just-in-time delivery or quick customer response justify this) should be avoided. Industrial policy of one country must be consistent with those of neighboring countries, and selectivity rather than comprehensiveness must be the rule in building the national industrial base. Deeper regional policy coordination must be sought without suppressing market forces.

In this connection, the supporting industries of Thai automotive and E&E sectors may have to redefine their promotion targets. The possibility of large outward investments of Thai suppliers to other Asian countries, including Vietnam, without causing de-industrialization in Thailand, should be studied from a strategic viewpoint. The political and economic roles of Japanese government and MNCs in further ASEAN integration must also be discussed.

6. Policy Implications and Conclusion

The review of supporting industry policies of Malaysia and Thailand has shown sharp differences between them. Malaysia has higher income and better structured policies than Thailand, while the latter is driven more by the judgment and enthusiasm of key officials and private leaders. However, each in its own way has established a highly advanced method of industrial policy formulation. Although both countries have problems in getting strong private sector response to "good" policies, the details of how they conduct industrial policies can offer valuable lessons for other latecomer countries to learn and emulate, with selectivity and modification to suit the reality of each country.

The policy menu for supporting industry promotion is fairly common across countries. It includes strategic definitions, a strong legal base, master plans and action plans, high quality university education, technical training for engineers and workers, management consultation, incentives, proper tax and tariff structure, finance, matching and linkage, full use of business associations, public private partnership, international and regional cooperation, and constant organizational reform to revitalize and coordinate various policy elements. Industrial policies of Malaysia and Thailand cover all of these items although each has its own way and emphasis.

Compared with Malaysia and Thailand, Vietnam's industrial policy in general and supporting industry promotion in particular remains rudimentary. At present, Vietnam's policy response to these menu items is either ineffective or non-existent. The first step for Vietnam, therefore, is to prepare to build foundations of these policy areas so that complete mechanisms can be installed in the future. Priorities, speed and sequencing must be considered carefully given the limited expertise and resources. Alternative possibilities, as revealed by the comparison of Malaysia and Thailand, should be studied. International and regional cooperation must also be sought strategically.

In mapping out the future path for supporting industry promotion in Vietnam, the following suggestions are made.

First, Vietnam must start with setting the proper mindset toward the problem. Currently, the interest, ownership and knowledge of industrial officials and private leaders with regards to supporting industries are very weak. The two countries studied in this report have set the development of SMEs, supporting industries and industrial human resource at the core of their industrial strategies for several decades. The same must take place at Vietnam's Ministry of Industry and Trade, which is the most natural ministry to take up the issue.

Second, between the FDI-led strategy accompanied by industrial linkage building and the leapfrogging strategy of creating independent high-tech SMEs without such linkage, Vietnam should opt for the former (or at least the mixture of both strategies with emphasis on the former). Vietnam has received a large volume of manufacturing FDI which can serve as a potential base for further industrialization. Vietnam has not even started to seriously build industrial linkage, and this strategy should not be abandoned without even trying. Creation of innovative and independent SMEs is a difficult task even for Malaysia at the upper middle income and with significant industrial experience. Vietnam at the early stage of industrialization should not adopt it as the main industrial strategy.

Third, a radical organizational reform within the Vietnamese government is needed to initiate supporting industry promotion. In any country, responsibility for supporting industry or SME promotion rests with a ministry in charge of industry, such as Malaysian MITI and Thai MOI. Since efforts cover many areas, an industry ministry usually sets up several agencies under it to carry out various tasks and must also coordinate with many other ministries. To prioritize and coordinate these scattered activities, a national committee headed effectively by a top leader is created, a hub organization is reorganized and upgraded, and officials are constantly trained for better services. In Malaysia and Thailand, these movements are clearly visible. But in Vietnam, the initial process of conferring main authority to MOIT and building necessary mechanisms is just beginning. Budgeting and staffing of the newly created Supporting Industry Enterprise Development Center at MOIT remains very modest in comparison with the two countries.

Fourth, to implement such organizational reform and supporting industry policies, the crucial role of leaders at all levels cannot be over-emphasized. As mentioned above, the development of local SMEs and industrial human resources, rather than management of big projects and industrial estates, is the core of industrial policies in Malaysia and Thailand. Without someone who constantly push projects and overcome difficulties, a new policy priority cannot be installed. Leadership at the top levels of the Party and the government as well as at ministerial and operational levels is required for supporting industry promotion, which is a new policy objective in Vietnam.

Fifth, when political commitment and organizational arrangement are secured, Vietnam should embark on the formulation of concrete plans and actions with prioritized road maps and budgetary and staffing mechanisms. At present, Vietnam seriously lacks implementation mechanisms which results in a high ratio of non-implementation of approved master plans. As Malaysia and Thailand show, there are different ways to ensure implementation, either by spelling out actions, performance criteria, timing and organizational responsibilities in detail and in advance, or improvising as you go with annually available resources. Vietnam can choose one or the other, a mixture of the two, or even an entirely different mechanism to fit Vietnam's administrative capability.

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APPENDIX 1

VDF-UNIDO Research Mission to Thailand
2-6 November 2009

Meeting Summary

Note: this mission was co-organized by VDF and UNIDO Vietnam prior to the JICA project.

1. Thai-Nichi Institute of Technology (TNI), Part 1

Date and time: 9:00, 2 Nov. 2009

Location: TNI meeting room, 5th floor, 1771/1, Pattanakarn Rd, Suan Luang, Bangkok, 10250

TNI participants:

Dr. Krisada Visavateeranon, President

Dr. Porn-anong Niyomka Horikawa, Vice President

Dr. Bandhit Rojarayanont, Vice President

Mr. Sozo Yamamoto, TNI/Japan-Thailand Economic Cooperation Society (JTECS)

Mr. Hiroyuki Okubo, Lecturer & International Relations

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Mr. Junichi Mori, UNIDO

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Do Thi Dong, VDF

Received:

- PPT presentation of TNI
- TNI brochures

TNI is a newly established private university with Thai ownership with the main purpose of teaching theory and practice of manufacturing and engineering based on Japanese monozukuri (making things). TNI received the certificate from the Ministry

of Education in September 2006 and opened in June 2007. It took 36 years for Technology Promotion Association (TPA), an NPO offering training courses mainly for company employees, to realize the idea of establishing a university. TNI does not receive any special financial support from the Thai government. The number of enrolled students was 433 in 2007, 1,234 in 2008, and 2,035 in 2009. TNI targets 3,000 annual enrollments in 2011.

TNI provides Monozukuri courses based on the "learning by doing" approach. It emphasizes importance of practice in workshops. TNI members and students visited Tokyo Metropolitan University for studying its production management course in October 2009.

In the history of TPA, the mother organization of TNI, a critical time was around 1997 when the Asian Financial Crisis broke out and its financial situation worsened. But TPA overcame it by maintaining earning through training and publication. This was possible because TPA had already been well recognized by enterprises. Another challenge was the establishment of TNI. For this, TNI needed to borrow around THB 120 million from commercial banks. In the future, it should be able to maintain financial sustainability because the number of students is increasing as scheduled in the business plan. The upcoming challenge will be how the first batch of graduates from TNI will be evaluated by enterprises. Since TNI is a new private university, it is not yet well recognized by society and the business community compared with other famous national universities.

Cooperation with enterprises is vital for TNI. Students are required to go through 4-month internship at enterprises in their 4th year. This will give them confidence to work in enterprises after graduation. TNI has a strong network with enterprises and the Japanese Chamber of Commerce (JCC) acts as an interface between TNI and Japanese enterprises. TNI receives contribution for scholarship from 235 companies thanks to JCC. Scholarship is a very important incentive for good students to join TNI. In addition, the curriculums are designed in consultation with enterprises. The connection with Japanese SMEs is getting stronger. They have provided even more training equipment than large companies.

TNI also receives temporal lecturers from industry. Additionally, it receives 4 senior volunteers from JICA as lecturers. There are also visiting lecturers from Japanese universities. TNI has partnership with about 16 universities in Japan.

With regards to the SME Shindan (enterprise consultation) System, there is no officially managed system for shindanshi (enterprise consultants) in Thailand yet. The education and training of shindanshi is conducted without state guidance or authorization. TNI, which has Shindanshi classes in its MBA course, is among the leading institute to produce shindanshi. Students who enroll in these classes are required to conduct two or three case studies by visiting SMEs. Instructors who teach them are required to pass TPA's Shindanshi course.

2. Technology Promotion Association (TPA), Part 1

Date and time: 13:30, 2 Nov. 2009

Location: Meeting room, TPA, 5th floor, 534/4, Soi Pattanakarn 18, Pattanakarn Rd, Suan Luang, Bangkok, 10250

TPA participant:

Mr. Pornchai Pornchai Yongwattanasoontorn, Division Manager of Enterprise Diagnosis and Consultancy Department

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Mr. Junichi Mori, UNIDO

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Do Thi Dong, VDF

TPA is an NPO founded by former Thai students who received scholarship to study in Japan. The organization was established in 1973 with the objective of transferring technical knowledge to Thai companies. Since the President was the Minister of Finance in Thailand, the association received a good support from the Japanese Government. However, in early 2009 the Japanese Government ended financial aid to TPA while continuing non-financial aid.

TPA's activities are classified as follows: (i) education and training, including language training; (ii) publication; (iii) calibration service and environment analysis; (iv) consultancy and diagnosis; (v) web-based business development.

In the past, the headquarters of TPA was in Soi Sukhumvit 29. The building then became a language and culture course center where many language courses including Japanese, Chinese, Korean, etc. were offered. TPA's current headquarters is in Pattanakarn Road near TNI. TPA has three offices and 2,000 members. The TPA membership fee is 3,000 THB per year. In Mr. Pornchai's opinion, this fee is rather small and only covers the cost of sending out its monthly newsletters.

As an NPO, TPA saved its earnings year by year to several hundred million THB. In 2002, TPA decided to formulate a plan to establish a university of technology. In 2007, Thai- Nichi Institute of Technology was officially established.

In Thailand the concept of shindanshi is different from a business consultant. Shindanshi is a person who diagnoses the situation of the enterprise and identifies problems. He or she is not required to propose solutions which are considered to be the task of other experts, whereas business consultants are normally expected to suggest solutions for improvement.

In 1997-98, Thailand suffered serious damage from the Asian Financial Crisis. It subsequently received a large amount of aid from the Japanese Government. One of the supporting measures from Japan was helping to produce Thai experts who could conduct shindan. The Thai Ministry of Industry chose TPA to be the partner in deploying this system. The five-year shindanshi training project was implemented from 1999 to 2004. After 5 years, it produced 450 shindanshi.

In 2004, the Japanese Government ended this project and let Thailand run the shindan system by itself. Since the Thai Government did not institutionalize this system, it was in effect "liberalized." The training program was often shortened from 1,044 hours to 600 and even 300 hours for the convenience of trainees. Some training organizations conducted short specialized courses such as shindan in marketing management and shindan in financial management. The Ministry of Commerce conducted similar specialized courses such as shindan in retail business, shindan in administration, local government course, etc.

In Thailand, training organizations providing shindan courses do not need permission from the state. Any organization can provide them based on their own criteria and curriculum. There is no examination or registration mechanism for shindanshi either. The only common criterion for the applicants of shindan courses is that he or she must possess a bachelor degree. Other selection criteria depend on the discretion of each training organization. Graduates of shindan training programs are not organized into professional associations.

Another problem in shindanshi work comes from Thai business culture. Many Thai companies keep two accounting books, one for internal use with true numbers and another for external use. It is difficult for shindanshi to get accurate business data because many enterprises do not trust them.

The Thai Government perceives the importance of the shindan system for the development of the business community and has the plan for improving the system with the support from the Japanese Government through JICA, JETRO, and so on. One important proposal is the creation of "Shindan House" which will be in charge of conducting the registration and examinations of shindanshi, setting the standards for training, certification of qualified learners, and organizing training courses in both theory and practice.

3. UNIDO Regional Office in Bangkok

Date and time: 16:30, 2 Nov. 2009

Location: UNIDO, 5th floor, Department of Industrial Works Building, 57 Phra sumen Road, Banglamphoo Pranakorn, Bangkok, 10200

UNIDO participants:

Ms. Ayumi Fujino, Representative

Mr. Kittipong Pimarran, National Programme Officer

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Mr. Junichi Mori, UNIDO

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Do Thi Dong, VDF

Received:

- Contact information of relevant government organizations

The capacity of the Thai Government to implement policies is limited. The market system penetrates deeply into village communities, but the Government does not have capacity to collect information necessary for policy design and implementation. The stimulus package to respond to the financial crisis does not cover local SMEs and foreign-invested companies which are also important players in the Thai economy. The budget of the Office of Small and Medium Enterprises Promotion (OSMEP) is expected to be cut by 70%, which will worsen the situation. The concept of industrial cluster, promoted by the Government, may not be effective because most enterprises are not interested in it.

4. Japan External Trade Organization (JETRO) Bangkok Center and Japan Overseas Development Corporation (JODC) Bangkok Office

Date and time: 9:00, 3 Nov. 2009

Location: JODC, Nantawan Building, 16th floor, 161 Rajdamri Road, Pathumwan, Bangkok, 10330

JETRO participants:

Mr. Shigenori Hata, Deputy Chief Representative

JODC Participants:

Mr. Hideyasu Tamura, Chief Representative

Mr. Tsuyoshi Nakasai, Deputy Chief Representative

Mr. Yoshihito Nishimaki

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Mr. Junichi Mori, UNIDO

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Do Thi Dong, VDF

Received:

- Basic Data of Thailand's Automobile Industry
- Automotive Human Resource Development Program
- JODC: Dispatch of experts to higher educational intuitions
- JODC projects to base up industrial human resources

The Thai economy hit the lowest point in June 2009 and is gradually recovering. The export of automobiles to the Middle East is increasing although the export to the US and European markets has not come back to the previous level. The total production in 2009 was about 940,000 cars, a decline of 33% compared to the previous year. Regarding the electrical and electronics sector, the export of hard disks is recovering very quickly and there is a symptom of labor shortage. Meanwhile, the credit crunch caused by the financial crisis damaged the rural economy.

Japanese automotive companies have diverse opinions about the Thai Government's Eco-Car Project. While one company thinks it inappropriate to promote one specific product segment, others have more positive attitudes. Taking advantage of this policy, one company is planning to enter the Eco-Car market for the first time. Recently, the Minister of Industry visited Japan and to attract investments in Eco-Car production including electric vehicles and hybrid cars. The Ministry of Energy is promoting E-85 fuel (Ethanol 85%) but the Ministry of Industry is more cautious. The bottleneck of Thai industry is immature material supply including iron and steel.

The Automotive Human Resource Development Project (AHRDP) conducted by Japanese automotive companies aims at improving the QCD (quality, cost, delivery) capacity of local suppliers in four fields: (i) management mindset and manufacturing skills; (ii) training in mold and die production; (iii) skill certification system; and (iv) production system. The first phase was implemented from January 2006 to December 2008. The second phase started in January 2009 and will last until December 2010. This project is part of Japanese cooperation under the Economic Partnership Agreement (EPA) between Thailand and Japan.

The number of good Thai auto parts suppliers is still small in Thailand. For example, while Toyota's local procurement ratio on pick-up trucks reached about 95%, most part suppliers are Japanese companies in Thailand. In order to improve cost competitiveness, the capacity of local suppliers must be developed. Large companies such as Toyota and Honda have established R&D Centers in Thailand to increase local procurement. The true local procurement ratio of Toyota's pick-up truck may be around 60% if it imported materials to produce local parts are excluded. Thailand does not have blast furnaces. It is said that metal parts made in India is cheaper than those made in Thailand.

One of the purposes of AHRDP is to introduce 17 skill tests developed by the Japan Vocational Ability Development Association (JAVADA). Japan is negotiating with the

Ministry of Labor for making these tests recognized as quasi-national tests. However, only 17 people have passed exams until now. Possible reasons for this modest outcome are that not many people take the exams, exams are too difficult for them, and company managers do not fully understand the importance of skill tests. Some company managers are afraid that, if their employees get skill certificates, they may easily move to other companies.

Thai counterparts should lead the AHRDP project and the role of Japanese economic cooperation or development aid agencies should be supportive. JETRO is dispatching some experts and JICA is providing necessary equipment. However, in reality, Thai counterparts tend to rely heavily on the Japanese side, although some of them such as Thai Auto-parts Manufacturing Association (TAPMA) are very active.

With respect to other Japanese cooperation with Thai-Nichi Institute of Technology, JODC has sent one expert, a former engineer of Denso, to TNI. He is assisting the revision of syllabus and curriculum of Automotive Technology Course (Mar. 2009-Mar. 2010. In addition, JODC provided one engine dynamometer to TNI. JICA is sending 4 senior volunteers to TNI as lecturers.

Besides these, JODC sent one expert for mold and die industry capacity development, which was planned and run by the Ministry of Industry (Oct. 2008-Nov. 2009). He visited companies with Thai instructors of mold and dies and provided practical advice on basic business requirements of Japanese enterprises and production management system such as database for quality improvement. Since this activity was highly appreciated by the Thai side, JODC is planning the second phase.

The Board of Investment (BOI) is the organization responsible for investment licenses and tax incentives. Definitions of priority industries are not given in excessive details and they even do not sometimes list the names of parts. BOI uses its own judgment in granting tax preferences upon receipt of applications from enterprises.

Regarding the division of labor in ASEAN countries, it might be possible to shift some manufacturing bases from the Philippines to Vietnam.

5. Japan International Cooperation Agency (JICA)

Date and time: 14:00, 3 Nov. 2009

Location: JICA Thailand Office, 31st floor, Exchange Tower, 388 Sukhumvit Road, Klongtoey, Bangkok 10110

JICA participants:

Ms. Nishitani Chisako, Project Formulation Adviser, JICA Thailand Office.

Mr. Onishi Yasunori, Chief Representative, JICA Thailand Office

Mission members:

Prof. Kenichi Ohno

Mr. Junichi Mori

Ms. Nguyen Thi Xuan Thuy

Ms. Do Thi Dong.

Documents received:

- JICA activities in Thailand

JICA is implementing an SME promotion project in Thailand. One component of the project is improvement of consulting capability. Thai people do not yet understand the importance of consultancy service. JICA is planning to conduct a survey in two provinces of Chiang Mai and Surat Thani. With the sample size of 50, JICA uses interview technique to collect information on both demand and supply sides of SME consultancy. After the survey, training courses and seminars will be conducted to improve the capability of consultants. After the results of pilot projects in Chiang Mai and Surat Thani are out, it is expected that support will be scaled up to other provinces in Thailand.

6. Office of Small and Medium Enterprises Promotion (OSMEP)

Date and time: 9:30, 4 Nov. 2009

Location: OSMEP Office, 21 TST Tower, Viphavadi-Rangsit Road, Chomphon, Jatujak, Bangkok, 10900

OSMEP participants:

Ms. Pairin Yamchinda, Deputy Director, SMEs Macro Strategies Department

Mr. Wannawat Opasvadhana, Policy Evaluation Section.

Mission members:

Prof. Kenichi Ohno

Mr. Junichi Mori

Ms. Nguyen Thi Xuan Thuy

Ms. Do Thi Dong

Documents received:

- OSMEP Annual Report 2007
- The 2nd Master Plan of Thailand's Small and Medium Enterprises Promotion 2007-2011 (executive summary)
- Thailand's SME Promotion Plan 2007-2011
- Action Plan for Thai SMEs Promotion

OSMEP is a state management organization in charge of SME promotion in industrial and commercial sectors. OSMEP was established eight years ago by the Small and Medium Enterprises Promotion Act promulgated in 2000. OSMEP is a unit under the Ministry of Industry (MOI). It has four functions including (i) formulating SME Promotion Master Plan and Action Plan; (ii) developing SME database; (iii) coordinating SMEs promotion activities; and (iv) following up and evaluating the implementation of master plans and action plans.

OSMEP has formulated two SMEs promotion master plans which went in line with the national economic and social development plans drafted by the National Economic and Social Development Board (NESDB) every five years. These master plans were approved by the Board of SME Policy and became a framework for the formulation of action plans and budget allocation. Each master plan has a focal point and several strategies. The second master plan focuses on strengthening productivity, innovation and R&D in SMEs. It sets six strategies to achieve this goal. To realize these strategies, OSMEP designs annual action plans which include concrete targets and key performance indicators. Based on these targets and indicators, public and private implementing agencies will propose projects to OSMEP to get budget allocation for implementation of action plans. OSMEP officials screen them and submit selected applicants to the Sub-committee of OSMEP, the Executive Board of OSMEP, and finally the Board of SMEs Policy, for approval.

The global economic downturn and uncertain political situation were negative factors during the period of the second master plan 2007-2011. OSMEP had to add supplementary measures to help SMEs for survival, including (i) special financial support by SME Development Bank, Government Saving Bank, Eximbank and State Bank Credit Guarantee; (ii) soft loans and extension of payment periods for heavily affected sectors such as tourism, construction, electronics and auto parts. To evaluate the recession's impact on SMEs, OSMEP conducts monthly "health check of business" and early warning surveys.

In the next five years, the master plan will continue to focus on productivity and innovation capability. To upgrade productivity of SMEs, cost reduction will be the main target. To improve the innovation capability of SMEs, bio-tech programs and building of creative economy building are emphasized.

7. Association for Overseas Technical Scholarship (AOTS) Bangkok Office

Date and time: 14:00, 4 Nov. 2009

Location: AOTS, 14th Floor, SSP Tower 3, 88 Silom Road, Suriyawong, Bangkok, 10500

AOTS participant:

Mr. Toshiki Sadatani, General Manger

Mission member:

Mr. Junichi Mori, UNIDO

Received:

- List of relevant persons
- AOTS brochures
- AOTS Training Proposal "The Program on Production Management for the Thai Auto Industry and its Supporting Industries (from 30 Nov. – 9 Dec. 2009)"
- AOTS Program Outline & Participation Requirements of the Program on Production Management for the Thai Die and Mold Industry (10-23 Feb. 2010)
- A paper by Prof. Akio Nishizawa, "Formulation of Technology Management Center in Thailand and Challenges"

AOTS, a Japanese institution assisting technical training, contributes to Automotive Human Resource Development Project (AHRDP) by providing training courses in Japan in production management focusing on mold and die. It also plans to offer a course in "Production Management for the Thai Auto Industry and its Supporting Industries" from 30 Nov. to 9 Dec. 2009 in cooperation with Thailand Automotive Institute (TAI). The course will teach Toyota Production System and other subjects. SMEs in Thailand, which are the key pillar of supporting industries, are now in transition in the sense because founder generation will retire soon. The current managers of SMEs would like the next generation to study how Japanese SMEs manage their business operation. Moreover, AOTS will offer a course in "Production Management for the Thai Die and Mold Industry" from 10 to 23 Feb. 2010 in cooperation with Thai Mold and Die Industry Association. AHRDP is studying the feasibility of establishing the "AHRD Institute" in order to strengthen the R&D capacity of local suppliers.

Regarding Thai-Nichi Institute of Technology (TNI), in 2007 AOTS provided TNI's master-level students with training courses in Japan. The students participated in practical skill training at the Monozukuri Center in Osaka University of Industry which has simulation production lines.

TNI has a very strong connection with Japan Chamber of Commerce (JCC) in Bangkok, which hosts the TNI sub-committee inside. TNI is not as famous as well-established national universities such as Chulalongkorn University and King Mongkut's Institute of Technology. How TNI graduates will be perceived by enterprises will be the key for its future success.

In the past, Thammasat University offered a Japanese-style Monozukuri course, but it seems that the courses did not go as expected. It is important to combine the teaching of Japanese language and culture with technical courses.

It seems that supporting industries are developing steadily in Thailand. In particular, Thai Auto Parts Manufacturers Association (TAPMA) and Thai Die Industry Associa-

tion (TDI) are active. This may be because these business associations are represented by general directors of private enterprises.

AOTS also cooperates with Electric and Electronics Institute (EEI) and provides training on (i) green productivity; (ii) designing of home appliances; (iii) business strategy in the post-financial crisis period. AOTS is considering the provision of ASEAN regional training on life cycle assessment and training for compliance with international chemical regulations in cooperation with the National Metal and Materials Technology Center (MTEC).

It seems that the Thai German Institute (TGI) is also providing good practical training. TGI is an AOTS' partner for the provision of training. TGI recently opened a training center in Ayutthaya.

8. Technology Promotion Association (TPA), Part 2

Date and time: 14:00, 4 Nov. 2009

Location: TPA, 534/4, Soi Pattanakarn 18, Pattanakarn Road, Suan Luang, Bangkok, 10250

TPA participants:

Mr. Pornchai Yongwattanasoontorn, Division Manager of Enterprise Diagnosis and Consultancy Department

Ms. Sariya, part-time employee of TPA

Mission member:

Ms. Do Thi Dong, VDF

Received:

- TPA brochures

The shindan training program normally covers five areas of general management, marketing, production, human resource management, and financial management. There are some shindan training programs provided in Thailand. At TNI, for example, the shindan program requires 42 credits in total. Learners can choose either Plan A (thesis program) with 10 subjects (30 credits) and one thesis (12 credits) or Plan B (term paper program) with 13 subjects (39 credits) and one term paper (3 credits) which is a smaller paper than a thesis. The 10 compulsory subjects are managerial accounting and finance, strategic marketing, production management 1, production management 2, human resource management, information technology, business case study analysis, practical enterprise diagnosis and development (shindan), practical strategic management, and a thesis or a term paper. In addition to that, there are some elective courses such as business counseling, Toyota Production System, venture business planning, business development and evaluation, and overseas seminars.

At TNI, entrance requirements for shindan learners include (i) bachelor's degree in a relevant field; (ii) working experience of at least two years; (iii) at least 25 years of age; (iv) financial ability to pay tuition; and (v) sufficient time available for study. Each learner has to go to a total of four to six factories for seven to ten 10 days each of on-the-job training. Performance evaluation depends on each subject. For example, for the shindan class, each learner is evaluated by the result of the mid-term exam, data collection skill, analysis skill, suggestion skill, report and presentation skill, teamwork, and satisfaction evaluated by factory side. The shindan training course is a relatively difficult one to learn but it is very useful for learners. Most customers of Ms. Sariya, a part-time TPA consultant, are satisfied with the results of her consultation and she is also satisfied with her career.

In order to identify the unique problems of each company, shindanshi needs to analyze the balance sheet, the profit and loss statement, and the manufacturing cost statement. Whenever one shindanshi diagnoses a company's situation, he or she need to find out wastes. There are seven kinds of wastes which are over-production, over-inventory, transportation, motion, process, waiting, and defects.

To respond to the request by a customer company, Shindanshi's must perform five tasks consists of: (i) collecting reports; (ii) studying the overview of industry in Thailand, (iii) taking a field trip to the factory, (iv) analyzing data; and (v) giving suggestion.

Shindanshi and consultants are different in Thailand. Shindanshi must be qualified to know five areas as mentioned previously but he or she does not have to be concerned about solutions for improvement whereas a consultant may know only one area such as marketing, production, etc. In other words, we can say that shindanshi is like a medical doctor with broad knowledge while a consultant is like a surgeon.

The shindan system in Thailand has some shortcomings: (i) the size of training classes is too large; (ii) time for practical training in factories is not enough; (iii) the lack of training courses to improve the capability of existing shindanshi, (iv) lack of official certification; (v) the training time is insufficient for learners to be consulting experts; and (vi) theoretical and practical training courses have not been integrated.

9. Bureau of Supporting Industries Development (BSID)

Date and time: 14:00, 4 Nov. 2009

Location: BSID, Soi Trimitr, Kluaynamthai, Rama IV Road, Klongtoey, Bangkok, 10110

BSID participants:

Mr. Watchara Kanitthabutr, Director of Basic Technology Division

Mr. Wijak Ratanasuwan, Director of Advanced Manufacturing Technology Division

Mr. Wuttichai Pracharpon, Director of Supporting Industry Technology and Standardization Promotion Division

Mission members:

Professor Kenichi Ohno

Ms. Nguyen Thi Xuan Thuy

Other participant:

Mr. Kittipong Pimarran, National Programme Officer of UNIDO Bangkok

Received:

- Bureau of Supporting Industries Development
- Supporting Industries in Thailand (Sep. 1994 document)
- An Overview: Supporting Industries in Thailand (Executive summary of the Master Plan on Supporting Industry Development, Oct. 1995)

BSID was established in 1996 by replacing the Metal-working and Machinery Industries Development Institute (MIDI), which was founded in 1988 under the supervision of the Department of Industrial Promotion (DIP) of the Ministry of Industry. BSID used to be a policy making and implementing agency. But increasingly it is becoming a project owner/designer as the role of policy implementation is transferred to private organizations. It has five divisions that mainly design and provide short-term training courses and consulting services.

BSID has expertise in the field of metal works. Main activities of BSID are providing training courses and consulting services in casting, heat treatment, CAD/CAM/CAE, mould and die, welding, and so on and conducting R&D in Fe-Mn alloy, zero defect-HPDC and so on. Previously, all training courses and consulting services were conducted by BSID staff. Due to the Government administration reform, the size of BSID staff was reduced dramatically in last ten years from 110 to 50, causing the shortage of manpower to conduct training and consultant projects. As a result, BSID has to outsource human resource from partners and alliances, which are public and private organizations to carry out the projects.

According to BSID, supporting industries are defined as those industries that supply raw materials, products or services to other manufacturing industries. Examples include automotive parts and components, machinery parts, CNC, welding, foundry, heat treatment, coating, mould and die, and material testing. In 1995, JICA supported MOI's Department of Industrial Promotion to produce a report on supporting industries in Thailand. Based on this report, DIP drafted An Overview on Supporting Industries which was focused on supporting industries for automotive and electronic industries. This is regarded as a master plan for development of supporting industries in Thailand. The master plan proposed six programs including (i) policy and legislation; (ii) market development; (iii) technology upgrading; (iv) financial support; (v) upgrading management; and (vi) investment promotion. Supporting measures and responsible organizations were clearly identified for each program.

Unlike other sectoral master plans, this master plan was not synchronized with the national economic and social development plan. DIP still uses this 1995 document as a policy checklist and has no plan to revise or update. Among supporting measures proposed in the six programs mentioned above, many have already been realized such as the promulgation of SMEs Promotion Act, establishment of OSMEP, restructuring of DIP, establishment of SME Bank and a credit guarantee institution. But some have not been implemented yet-e.g. the shindan system and the supporting industry database.

10. National Metal and Materials Technology Center (MTEC)

Date and time: 16:45 – 17:30, 4 Nov. 2009

Location: MTEC, Ministry of Science and Technology, 75/6 Rama VI Road, Ra jathevee, Bangkok

MTEC participants:

Dr. Nudjarin Ramungul

Dr. Apinya Panupat

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Mr. Junichi Mori, UNIDO

Ms. Nguyen Xuan Thi Thuy, VDF

Received:

- MTEC's brochure and CD-ROM

MTEC is specialized in R&D in such areas as metallurgy, mold and die casting, nano technology, energy-related materials, and coating and erosion. MTEC is also selected as a Center of Excellence for die-casting. In recent years MTEC also provides technical advice and testing services for industry in life-cycle assessment, eco-products, environmentally friendly materials, and hazardous substance free technology. Although MTEC has competent testing facilities, it feels that providing appropriate advice before testing is more important. In case that MTEC staff cannot answer questions from enterprises, they will be able to refer to external experts.

11. Thailand Automotive Institute (TAI)

Date and time: 9:00, 5 Nov. 2009

Location: TAI, 4th floor, BISD Building, Soi Trimitr, Kluaynamthai, Rama IV Road, Klongtoey, Bangkok, 10110

TAI participants:

Mr. Vallop Tiasiri, President of TAI

Ms. Rachanida Nitipathanapirak, Manager, Automotive Business Analysis, TAI

Ms. Siriwan Sriborpitpaisan, Executive Secretary, President Office, TAI

Mission members:

Professor Kenichi Ohno

Mr. Junichi Mori

Ms. Nguyen Thi Xuan Thuy

Ms. Do Thi Dong

Received:

- Executive Summary: The Automotive Industry Master Plan 2007-2011
- The Automotive Industry Master Plan 2007-2011 (full text in Thai)
- Thailand Automotive Institute (slides)

TAI is an autonomous organization established in 1998 under the joint effort of all stakeholders from the automotive industry. It was set up for the purpose of promoting and developing the Thai automotive industry to be competitive in the global market. TAI acts as a coordinator that links all stakeholders such as government, industry and academics in order to create common understanding, vision and action plans so that Thailand should become an automotive manufacturing hub of Asia. Besides this, TAI conducts research on automotive market and policy and provides testing service. The staff size of TAI is less than 100. A half of them work in testing services and another half do policy research.

TAI is the main drafter of the automotive master plan and action plans. The first master plan (2002-2006) was produced in 2001, and the second (2007-2011) was completed in 2006. TAI is now preparing to draft the third (2012-2016). Mr. Vallop does not want master plans to specify action plans in detail, but by the request of MOI the previous automotive industry master plan included action plan matrices. The typical structure of the master plan includes (i) vision; (ii) objectives/success indicators; (iii) strategies, and (iv) action plans.

The master plan is drafted as follows: (i) a CEO Forum that includes key members of industry and government is established; (ii) the steering committee is created for drafting the master plan; (iii) strategies are identified and "area" committee studies corresponding to these strategies are conducted; (iv) "area" committee study groups work together to finalize the content and actions plans; (v) all this while, TAI acts as a secretariat to the steering committee, organizes public hearings, regularly reports to the Government, and produces the draft of the master plan.

The second (current) automotive master plan defines five strategies (thrusts) that are closely related: (i) productivity; (ii) market expansion; (iii) technology and design and engineering; (iv) human resource development; and (v) investment and linkage promotion. The logic of these thrusts can be summarized as follows: the automotive industry can grow if the market expands and investment increases, which requires improvement of productivity and capability in design and engineering that are supported by human resource development. In the master plan, pickup trucks, Eco-Cars, and high quality motorcycles are identified as key products of the Thai vehicle industry. Thailand aims to have economic scales and sustainable environment for the development of the automotive industry, and any technology or any size of cars can be mobilized for this purpose.

According to TAI, supporting industries in the automotive industry mean the processes of producing auto parts and components. In Thailand, both FDI and local companies participate in supporting industries. However, FDI suppliers cluster in high-tech fields and local companies are concentrated in the second and third tier of suppliers. To become suppliers for Japanese auto makers, QCD (quality, cost, delivery) is no longer enough. Engineering and management (E&M) capability is an additional requirement today, which is the critically weak point of local firms.

In ASEAN, five countries have automotive industries at different levels of development. It is difficult for a latecomer like Vietnam to develop a sustainable automotive industry. ASEAN countries should cooperate rather than compete with each other in order to cope with China and India, the first and the second largest auto makers in the world

12. Office of Industrial Economics (OIE)

Date and time: 14:00 5 Nov. 2009

Location: OIE, 75/6 Rama VI Road, Rajadhevi, Bangkok, 10400

OIE participants:

Mr. Nattapol Rangsitpol, Expert, Bureau of Sectoral Industrial Policy

Mr. Ausein Wirojtacha, Plan and Policy Analyst, Bureau of Macro Industrial Policy

Mission members:

Professor Kenichi Ohno

Ms. Nguyen Thi Xuan Thuy

Ms. Do Thi Dong

Other participant:

Mr. Kittipong Pimarran, National Programme Officer of UNIDO Bangkok

Received:

- OIE brochure

OIE was established in 1991. The office is an industrial planning and policy initiative unit, which has the status equivalent to a department of the Ministry of Industries (MOI). OIE has about 150 staff and is divided into seven divisions: (i) bureau of administration; (ii) center for industrial economics information; (iii) bureau of macro industrial policy; (iv) bureau of sectoral industrial policy 1; (v) bureau of sectoral industrial policy 2; (vi) bureau of industrial economics research; and (vii) bureau of international industrial economics. Main tasks of OIE are to formulate industrial development policies, strategies and action plans; to gather industrial information; to provide industrial economics statistics and analyses; and to establish advanced and reliable warning systems for Thai industry.

In Thailand, OIE is one among several organizations that conduct surveys and provide statistics and forecast information. Data provided by OIE are related to manufacturing and consist of industrial census, monthly, quarterly, and yearly production data, productivity movement, and industrial human resource. OIE publishes monthly and annual reports in the website, which provides data on production, domestic sales, export, and trends in all industrial sectors. In addition, learning from the Asian Financial Crisis in 1997, OIE periodically monitors industrial development, forecasts trends and develops warning systems for the overall industrial situation. Eight industrial indexes that it publishes are manufacturing production index, shipment index, finished goods inventory index, capacity utilization index, consumer confidence index, Thai industries sentiment index, leading economic index, and coincident economic index.

The main difference between OIE and DIP is that OIE provides industrial statistics and analyses and draws up industrial development plans while DIP focuses on designing and monitoring actions and projects to achieve targets in industrial master plans.

According to OIE, the uncertain political situation does not affect industrial policy much, but the domestic economy suffers from domestic political instability and the global economic downturn. Many investment projects have been postponed, and local industries are facing excess capacity because of declining exports and domestic demand. Real GDP growth in 2009 is expected at about 3.0-4.0%, lower than in 2008 (4.5%).

13. Thai-Nichi Institute of Technology (TNI), Part 2

Date and time: 15:00, 5 Nov. 2009

Location: TNI, 5th floor, 1771/1, Pattanakarn Road, Suan Luang, Bangkok, 10250

TNI participants:

Mr. Koichi Mizutani, Lecturer

Mr. Sozo Yamamoto, TNI/Japan-Thailand Economic Cooperation Society (JTECS)

Mission members:

Mr. Junichi Mori, UNIDO

Received:

- TPA's history (slides)

The establishment process of TNI and its linkage with Japanese companies were explained in detail.

Income from membership fees, at THB3,000 per year, is about 6% of total income of TPA. If TPA sets a higher membership fee, enterprises will certainly demand more from TPA. Currently, revenue shares of TPA are as follows: training (50%), publication (25%), and language and culture courses (25%).

Management-level staff at TPA are always requested to think of new business ideas in order to get more stable income. TPA has always faced competition, because it is not able to monopolize any of the services it provides. To come up with new ideas, TPA staff studied business and technology trends of Japanese companies by receiving information and references through JTECS.

TPA management had a solid and conservative business orientation enabling TPA to accumulate sufficient internal reserves, which became the capital to establish TNI. At first, TPA bought land (about 148,500m2) in Nakhon Nayok in 1980 and planned to establish TNI. However, they reconsidered and concluded that it was better to establish a university in Bangkok, because not many people will come to a new university located far from Bangkok. However, the land is still kept and TNI plans to have a satellite campus there in 20 years.

TPA faced difficulty around 1997 at the time of the Asian Financial Crisis which coincided with the opening of its Technology Promotion Institute. However, the number of students in Japanese language courses slightly increased while the number of trainees decreased. TPA management kept its solid management style in the booming years as well as in a difficult time.

The distance learning course in cooperation with the Sanno Institute of Management, Japan achieved less than expected. One reason would be that TPA could issue only a training certificate, not academic diploma as the Sanno Institute of Management could. Another reason would be that Thai life style did not match with distance learning; many people spent much time in commuting and with family after coming home. In retrospect, it would have been better to have a satellite office to offer a distance learning course.

Many Japanese SMEs send their employees to TPA. In the mean time, large Japanese enterprises were not interested in TPA previously because they had good internal training systems. It is only recently that large Japanese companies also became active members of TPA.

Many members of the Japanese Chamber of Commerce (JCC), Bangkok are large Japanese companies who provide TNI with scholarship amounting to about THB8 million per year. TNI receives scholarship support from 235 companies. Firms that provide schol-

arship are allowed to receive tax exemption, which makes them to be more generous.

However, it is not easy to ask enterprises to accept interns. This may be partially due to the currently unfavorable economic situation, but the main reason seems to be that it costly and time-consuming for enterprises to modify their production systems to create meaningful jobs for temporary student interns.

One enterprise stated that it was interested only in the top layer of students whose academic performance was on a par with famous national universities. However, for educational purposes, a university needs to take care of all levels of students and must teach some subjects which may not be directly linked to the skills required by enterprises. In this regard, TPA is more flexible than TNI to provide training customized to the needs of each enterprise.

TNI also considered the possibility of scholarship which tied students to certain enterprises when they enter the university. However, implementation was difficult because the decision to join a company must come at the end of university education and not at the beginning. Also, enterprises would not be able to decide recruitment in advance.

TNI's team for building enterprise partnership consists of Japanese and Thai staff. General Directors of Japanese enterprises may be Japanese, but managers of human resource department are likely to be Thai. The team may need five people (two Japanese and three Thai). Since Japanese executives at Japanese companies often rotate after a few years, it is important to visit enterprises frequently. It is important to issue monthly newsletters to enterprises. Even if it is one-way communication, frequent dissemination of information is still useful.

However, it is unthinkable that all graduates will be recruited by famous Japanese companies. Although one of the strengths of TNI is technical education in Japanese language, some large companies prefer students who speak fluent English than Japanese because their internal correspondence is conducted in English. On the other hand, Japanese SMEs may want Japanese-speaking students. Especially among Japanese SMEs, there is high expectation on TNI. Around 50 enterprises have provided equipment to TNI and the number is on the rise. The optimal distribution of graduating students to different types of companies may be discovered gradually after TNI produces the first few batches of graduates. How graduates will be evaluated by enterprises will be critical for TNI. There is already strong pressure on the first batch of students, and they are working hard because they are aware that their performance will affect future TNI students.

TNI tries to have dialogue with enterprises for curriculum development. As a result, it was decided to offer a course in Toyota Production System (TPS), and it also plans to introduce material science or CNC operation upon enterprises' demand. However, TNI can only teach introductory courses, not advance ones.

TNI had regular meetings with enterprises during its foundation period, but this practice has been terminated. Even when TNI staff ask for comments on its syllabus upon visiting companies, it is difficult to solicit useful response. Currently, TNI gathers information from enterprises through both formal and informal channels, including the President's personal relationship.

JCC has a TNI subcommittee chaired by the general director of Toyota Thailand. The subcommittee has a regular meeting every three months and TNI must submit a progress report twice a year. JCC has helped TNI greatly in collecting scholarship funds. TNI has conducted a survey on enterprise needs in 2006, but the response ratio was about 20%. TNI sends an advisor to some industrial parks once a month to have a regular dialogue with enterprises. TNI has not established industry-university partnership for R&D. In the future, it may be possible to do practical research such as development of Eco-Car standards tailored to Thai situations.

14. Amata Corporation PCL

Date and time: 9:00, 6 Nov. 2009

Location: Amata Office, Amata Nakon Industrial Estate, 700, Km.57, Bangna-Trad Road, Muang, Chonburi, 20000

Amata participants:

Mr. Hironobu Suzuki, Executive Advisor

Mr. Yasuo Tsutsui, Marketing Manager

Mr. Chaichana Chanpattananun, Manager, Human Resources and General Affairs Department

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Mr. Junichi Mori, UNIDO

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Do Thi Dong, VDF

Received:

- Amata brochure

Amata Nakorn Industrial Estate was established in 1989. At present 518 factories are located here, of which 60.44% are Japanese companies and 32.89% are in the automotive sector. Amata Nakorn is close to Suvarnabhumi International Airport (42km) and Laem Chabang Deep Sea Port (46km). Amata Nakorn also has good access to major automotive assemblers since it is connected to two highways. It has a power generation plant, waste water treatment facilities, and ready-made factories (rental factories).

YMCA, a high school, residential buildings and a golf course are also in the estate, with the concept that Amata Nakorn is made to be a city, not just an industrial park.

15% of electricity generated by its power plant is supplied to factories in the industrial estate, and the rest is sold to the Government. Since demand for industrial estates will be saturated sooner or later, Amata is expanding its business to utility and services such as rental factories and logistics.

The idea of Ota Techno Park (see below) was originally proposed by Mitsubishi Corporation, but it was not realized immediately. One Japanese real estate company introduced Amata to Ota Ward Industrial Promotion Organization in Tokyo. OTP was built with financial resources of Amata, while Ota Ward Industrial Promotion Organization provided support to attract investment from SMEs in Ota Ward. Because it is difficult to attract many SMEs from only Ota Ward, OTP recently started to contact with SMEs in other areas in consultation with Ota Ward Industrial Promotion Organization. One company from Hiroshima Prefecture will come to OTP soon.

Amata Nakhon has no official cooperation with TNI so far, although TNI is visiting individual enterprises in Amata Nakorn. Amata is interested in strengthening the cooperation with TNI and other schools.

15. Ota Techno Park (OTP)

Date and time: 11:00, 6 Nov. 2009

Location: Lot No. G735, Amata Nakon Industrial Estate, 700, Km.57, Bangna-Trad Road, Muang, Chonburi, 20000

Amata and OTP participants:

Mr. Hironobu Suzuki, Executive Advisor

Mr. Hisao Tsuzuki, Factory Manager/Director, FISA Thai Techno Co., Ltd.

Mr. Nobuyasu Watanabe, General Manager, FISA Thai Techno Co., Ltd.

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Mr. Junichi Mori, UNIDO

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Do Thi Dong, VDF

Received:

- OTP brochure

Amata considers OTP, a rental factory scheme for high-tech Japanese suppliers, as a place where SMEs stay in the short- to mid-term. It hopes that SMEs will expand their

business and build larger factories in the Industrial Park outside. OTP will be happy to see a high turn-over ratio of its resident SMEs. JETRO Bangkok Center provides temporary office space for SMEs that visit Thailand to study business opportunities. If they decide to invest, OTP can be the next place for these enterprises after the JETRO office. Mr. Hashimoto, Governor of Osaka Prefecture, visited OTP. He was interested in promoting investment of SMEs in Higashi-Osaka to OTP. Many Japanese SMEs are under pressure to relocate manufacturing operation abroad due to economic situations, shifting supply chain and the succession problem.

Current OTP resident companies are as follows:

Nambu CYL (Thailand) Co., Ltd. (main products: special oil hydraulic cylinders)

Daiwa Harness (Thailand) Co., Ltd. (main products: harnesses for automobiles)

Nishii Fine Press (Thailand) (main products: reflectors for digital cameras, precision molds for metal press parts)

Shinko Wel-Tec Service Co., Ltd. (main products: electrodes for spot welding)

Ezaki Industrial (Thailand) Co., Ltd. (main products: oil pipes for diesel engines)

FISA Thai Techno Co., Ltd. (main products: plagate system)

OTP Administration Office takes care of resident SMEs by providing various advice on business operation and introducing appropriate experts upon request. According to Administration Office, Thai workers are sensitive to salary levels. There are cases of job hopping attracted by higher salaries, but also cases of good staff with good potentiality staying with the company. Standard monthly salaries are THB5,000-6,000 for middle school graduates, THB7,000-8,000 for high school graduates, and THB10,000 for university graduates. One way to decrease job hopping is to develop employees' royalty and attachment to the company. SMEs may be in a better position to do this because distance between the general director and employees is short. FISA has sent two Thai technicians to its factory in Gunma Prefecture, Japan. They are very serious and hard working.

16. Thai-German Institute (TGI)

Date and time: 14:00, 6 Nov. 2009

Location: TGI, 700/1 Moo 1, Amata Nakon Industrial Estate, 700, Km.57, Bangna-Trad Road, Muang, Chonburi, 20000

TGI participant:

Mr. Narong Varongkriengkrai, Director

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Mr. Junichi Mori, UNIDO

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Do Thi Dong, VDF

Other participant:

Mr. Hironobu Suzuki, Executive Advisor, Amata Corporation

Received:

- TGI brochure

With support from Germany, TGI was established in 1995 for the purpose of increasing the supply of skilled workers. At the outset, German experts conducted needs survey and proposed TGI to focus on three areas: (i) automation; (ii) CAD/CAM; and (iii) mold and die manufacturing. Subsequently, TGI expanded training fields by adding mechatronics and product design. Currently, TGI has four technology centers: (i) automation; (ii) mound and die; (iii) production technology development; and (iv) industrial service and development technology.

TGI does not receive any financial support from the German government anymore. It is now an NPO under the Ministry of Industry (MOIT). After the financial support from MOI for six years, TGI is now required to be financially self-sustaining. The largest revenues come form model production and proto-typing rather than training itself. TGI is located in Amata Nakhon because Amata Corporation offered free land to TGI when it was established.

TGI recently opened a training center in Ayutthaya. TGI trains around 4,000 workers and students per year with 80 trainers. Short-term courses are about 3-5 days long and long-term courses can last one year. Recently TGI provided full-time training on mechatronics for 20 technicians from Daikin for 14 months. TGI also provides training for fresh graduates. TGI offers scholarship for college students.

Most clients of TGI are relatively large enterprises from surrounding areas, not just enterprises in Amata Nakorn Industrial Estate and include GM, Daikin, Canon, Panasonic, Siemens and Nissan. TGI has good relationship with many enterprises. Some companies provide machines for TGI. The steering committee of TGI consists of representatives from government and industry. TGI received two JODC mold and die experts as part of activities under AHRDP.

While TPA focuses more on management issues, TGI focuses on technology. For example, TGI can provide mold and die training for all processes with sufficient number and types of equipment (manual milling machine, CNC milling machine, electro discharge machine, wire cut, plastic injection machine, and heat-treatment facility). Thai SMEs specializing in mold and die were sent to Hanoi and HCMC under JETRO's mission.

The operation rate of TGI was around 50-60% on the day of our visit. Thai enterprises are not fully aware of importance of skill development. Some top managers are afraid that workers will leave the company for better salary if they encourage training.

17. Y.M.P. Thailand Co., Ltd.

Date and time: 15:30 – 16:30, 6 Nov, 2009

Location: 700/153 Moo 1, Amata Nakon Industrial Estate, 700, Km.57, Bangna-Trad Road, Muang, Chonburi, 20000

YMPT participant:

Mr. Masayoshi Onuki, General Manager, IT & Network Department

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Mr. Junichi Mori, UNIDO

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Do Thi Dong, VDF

Received:

- YMPT brochure

YMPT was originally the industrial machinery division of Mitsui Cooperation and was established as its subsidiary in 1989. The founder strongly wished to contribute to the development of supporting industries in Thailand. YMPT produces and sells a broad range of products such as press machines, press parts, press mold and dies, jigs, cutting tools, machine tools, industrial furnace, air conditioner parts, cleaning equipment, and IT network. Technology transfer will happen only after a few years of intensive on-the-job training by Japanese engineers. YMPT has a Japanese engineer in each division.

The automotive business in Thailand was lowest from Nov. 2008 to March 2009. It is recovering, but orders have not returned to the previous volume. YMPT has high expectation on TNI and is building good mutual relationship. YMPT made huge investments in Thailand and cannot easily move to other countries. In order to have a sustainable business, high-quality human resources are necessary. Therefore, YMP contributes to TNI by providing scholarship and equipment such as a CAD/CAM system produced by its subsidiary. YMPT has also provided training for two professors at TNI on the use of the CAD/CAM system. YMP wants students with good processing skills. It hopes to hire excellent TNI students in automotive technology.

In general, university graduates have very high pride and quit a job soon. On the other hand, there are some Thai people who can be good managers at production sites. Reputation for college graduates is not so bad in Thailand.

YMPT receives 3 to 4 interns per year, but they mainly work in administrative departments such as accounting. It is not easy to assign interns to production because the company does not want students to have accidents. The company has no special feeling about the Government's policy to promote supporting industries. All it can say is that the Government is at least not disturbing the business of this company.

VDF-MOIT Research Mission to Malaysia

17 – 23 January 2010

Meeting Summary

1. Japan External Trade Organization (JETRO) Kuala Lumpur

Date and time: 9:00, 18 Jan. 2009

Location: 9th Floor, Chulan Tower, No. 3, Jalan Conlay, 50450 Kuala Lumpur.

JETRO Participant:

Ms. Emi Teshima, Director, Research & Information Service

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

The financial crisis of September 2008 started to affect the Malaysian economy from December 2008. After the New Year of 2009, a large number of enterprises had to shut down; many Japanese affiliated companies that used to operate 24/24 hours every day had to close during weekends. Fortunately, when stimulus packages were introduced in many countries, enterprises received orders again, especially in the electric & electronic (E&E) sector, and their operation recovered gradually. It is forecasted that enterprises in Malaysia would do well in 2010.

The Malaysian government desires to level up the economy from labor intensive to value creation, and aims to liberalize the economy to encourage high income and high value added industries, such as high quality service, solar energy, bio technology, and so on. Since April 2009, the Malaysian government allowed 100% FDI projects in 27 service sub-sectors in order to attract more FDI into the service sector. As a result, in 2008, Germany and USA became the largest and the second largest investors in Malaysia because of their investments in solar energy projects. In 2009, Japan ranked first thank to a project of solar power's materials.

However, Investment environment in manufacturing deteriorated due to the policy intervention in the labor market and the requirement of quality certificates for steel imports. Malaysia now faces labor shortage since local people do not want to work in 3D industries (dangerous, dirty, and difficult). On the other hand, the Malaysian economy still depends heavily on manufacturing, which uses foreign labor from Indonesia and other neighboring countries. When the government tightened foreign labor policy last year, at the beginning, manufacturing firms were not affected because their operation

was low, but when their operation recovered in mid 2009, they experienced difficulties in recruiting workers. Wages in Malaysia are higher than in other countries, with the average wage of a worker is about RM600 to RM1,000, and that of a manager is from RM2,000 to RM3,000.

According to JETRO's judgment, although becoming a high labor cost country, Malaysia is still an attractive country for investors because of its strong supporting industries, political stability, comfortable living conditions, and good infrastructure (transportation, seaports, customs, power supply, etc.)

The Malaysia Japan Automotive Industries Cooperation (MAJAICO) Project started in 2006 under the framework of the Malaysia-Japan Economic Partnership Agreement (EPA). It aims to improve competitiveness of the Malaysian automotive industry. This is a five-year project that helps Malaysia's automotive industry in different fields from technical issues and business negotiation. The main responsibility of JETRO Malaysia is to support Japanese affiliated enterprises to do business in the host country. However, JETRO also supports local enterprises to improve their capability, and MAJAICO is such a program in Malaysia. JETRO is responsible for 3 projects within MAJAICO: (i) automotive skill training center in Malaysia (project B), (ii) business development program (project E), and (iii) cooperation in exhibition (project F3).

2. Malaysia Institute of Economic Research (MIER)

Date and time: 9:00, 19 Jan. 2010

Location: Level 2, Podium City Point, Kompleks Dayabumi, Jalan Sultan XHishamuddin, P.O. Box 12160, 50768 Kuala Lumpur.

MIER Participant:

Dr. Shankaran Nambiar, Senior Research Fellow.

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

Received:

- MIER Annual report 2008
- Third quarter 2009 Malaysian Economic Outlook

Malaysian Institute of Economic Research (MIER) is an independent, non-profit organization devoted to economic, financial and business research that serves as a think-tank for government and the private sector. Research activities of the Institute are organized into four research divisions, namely, Macroeconomic Surveillance and Forecasting, Policy Studies, Industry Studies, and Area Studies. The Institute is being re-

structured to expand into other research areas such as commodities, petroleum, banking and financing, etc. and to broaden partnership with government linked companies. However, the majority of research projects undertaken by the Institute remain applied and policy-oriented in nature.

When VDF visited Malaysia in early 2006, emerging issues included creating internal value, brain drain, and improvement of human resource. According to MIER, these problems remain to be important after several years. Malaysia has not moved up along the value chain, and still depends on advantages in labor intensive industries. For instance, Penang, an active industrial province, has failed to attract more FDI because of a shortage in engineers and the low quality of part suppliers. The hollowing-out of manufacturing is another emerging issue in Malaysia. Local investors are moving out of the country because of a number of reasons including rising labor cost, low labor quality, limited market volume, and policy uncertainty.

The "middle income trap" has been discussed since the time of the Mahathir government but currently the issue has become more critical, especially in the context that China and India, which used to be far behind Malaysia a decade ago, are now catching up with Malaysia. To avoid a middle income trap and become a high income country, the Najib government wants to liberalize the economy and focus on increasing internal value, skilled labor intensive industries, high value-added sectors, and improving productivity. It seems that the Najib government knows the direction that Malaysia should follow, but it is not clear to see how the government realizes the vision.

3. Ministry of International Trade and Industry (MITI)

Date and time: 14:00, 19 Jan. 2010

Location: 15th Floor, Block 8, Government Office Complex, Jalan Duta, 50622 Kuala Lumpur.

MITI Participants:

Mr. Hairil Yahri Yaacob, Director, Policy and Strategy Division

Mr. Haji Zakaria Jaafar, Director, Service Sector Development Division

Ms. Sophia Cheang, Assistant Director, Policy and Strategy Division

Ms. Ho Yok Leng, Principal Assistant Director, Policy and Strategy Division

Mr. Eunice Yeo Huan, Principal Assistant Director, Investment and Industrial Policy Division

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

Received:

- Briefing to delegation of VDF - Introduction on MITI and IMP3 (slides)
- Third Industrial Master Plan (IMP3) 2006-2020

The Ministry of International Trade and Industry (MITI) has functions that cover all aspects of industrialization. Seven agencies under MITI perform these functions, namely, Malaysia Industrial Development Authority (MIDA, investment), Malaysia External Trade Development Corporation (MATRADE, trade), Malaysia Productivity Corporation (MPC, productivity and competitiveness, training, and consultation), SME Corporation Malaysia (SME Corp, SME policy), Malaysia Industrial Development Finance Berhad (MIDF, policy finance), SME Bank (SME finance), and Halal Industry Development Corporation (HDC, halal industry). In the third Industrial Master Plan 2006-2020 (IMP3), services, especially high-value services and industry-supporting services, have been added to the policy menu along with traditional manufacturing.

In IMP3, there are 12 targeted manufacturing industries including 6 non-resource based industries (electrical and electronics, medical devices, textiles and apparel, machinery and equipment, metals, transport equipment), 6 resource based industries (petrochemicals, pharmaceuticals, wood based products, rubber and rubber products, oil palm based industry, food processing) and 8 targeted services sub-sectors (ICT, construction, education and training, healthcare, tourism, distributive trade, logistics, and business and professional).

Unlike IMP1 and IMP2, IMP3 has a mechanism for monitoring and evaluation. Progress of IMP3 is officially reviewed every five years. In addition, monitoring and evaluation are undertaken more frequently (half year progress assessment in every August, and annual progress assessment in every February). A comprehensive information and data system, including indicators on performance and benchmarking as well as a communication module of electronic reporting, is established. Two senior officers and one assistant at MITI are responsible for monitoring about 600 strategic thrusts.

Regarding the mission's concern about government's waning interest in the manufacturing sector, especially E&E and adverse labor policy, MITI responded that the manufacturing was not neglected and that the government emphasized the services sector with an expectation that it would develop to meet higher service requirements of manufacturing and to support E&E to move up on the value chain. It was also noted that the current tightening of foreign labor policy was for dealing with illegal labor in the short run and the Ministry of Human Resource was currently discussing with relevant stakeholders to formulate the long term foreign labor policy.

4. Economic Planning Unit (EPU)

Date and time: 9:00, 20 Jan. 2010

Location: Parcel B, Block B6, Level 4, Federal Government, Administrative Center, 62502 Putrajaya.

EPU Participant:

Mr. Abdul Halim Bin Abdul Aziz, Deputy Director II, Manufacturing Industry Science and Technology Section.

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

Received:

- Malaysia development policy and strategy (slides)

The Economic Planning Unit (EPU) is a principal government agency responsible for preparation of development plans for the nation. EPU was established in 1961. In the 43 years since its establishment, EPU's functions have remained primarily the same although the Unit has taken on additional functions in consonance with the changing emphasis of the government's development policy.

The Ninth Malaysia Plan 2006-2010 (MP9) is the first of three Malaysia Plans that would cover the final 15 years of achieving the National Mission and Vision 2020. Average growth of real GDP in 2006-2008 was 5.6%, which fell short of the period target of 6%, The average growth rate of the entire Plan period will be lower than targeted since growth in 2009 was forecasted at -4 to -5%. PPP GNP per capita achieved USD 15,032 in 2008, surpassing plan's target of 13,878 in 2010. Export is targeted to grow at the rate of 8.5% per year but the growth in 2006-2008 reached only 7%.

The economy has been transformed from an agro-based to a manufacturing- and service-based one. In 2008, services represented 55% of GDP, manufacturing accounted for 29% while agriculture's share was only 8%. Manufacturing plays a significant role in export. In 1970, its share in total export was only 11.9%, but in 2008 this figure rose to 74.1%.

The 10th Malaysia Plan (MP10) is now being drafted. It will be finalized for submission to the Parliament in June 2010. All programs in MP10 must go in line with the five key thrusts of the National Mission and the New Economic Model.

The term "middle income trap" attracts more and more attention from policy makers, and the New Economic Model, initiated by the Prime Minister, was introduced as a principle solution to overcome this problem. MP10 and other projects are designed to realize this solution. The Model's goal is promoting economic growth and structural change, which will be achieved by five thrusts, namely, (i) economic reforms, (ii) promoting private sector investment, (iii) promoting new sources of growth, (iv) long-term fiscal sustainability, and (v) providing adequate skilled workers.

Malaysia has a large advantage in the E&E industry, which used to be the main focus of industrial policy in the 1980s, but recently this sector seems to be largely out of pol-

icy focus. Its importance is no longer mentioned in policy documents. In previous MPs, E&E clusters were established with an expectation of creating spillover effects from FDI to local firms, as well as strengthening industrial linkage between them, but in reality this expectation was not satisfied. According to the government, most E&E firms are still at assembly production and have not move up to either end of the value chain such as design or R&D. For this reason, the government wants to introduce industries that can be new sources of growth with no existing competitors ("blue ocean") rather than leveling up old ones with fierce global competition ("red ocean"). New industries are being selected in the New Economic Model, which may include services (tourism, medical tourism, halal hub, Islamic finance, private education, etc,) and industries (biotech, downstream agriculture, etc.)

5. SME Corporation Malaysia (SME Corp)

Date and time: 14:00, 20 Jan. 2010

Location: Level 20, West Wing. Menara MATRADE, Jalan Khidmat Usaha, Off Jalan Duta, 50480 Kuala Lumpur.

SME Corp Participants:

Ms. Karunajothi Kandasamy, Senior Director, Economic and Planning Division

Ms. Kausalya Gopal, Senior manager, Economic and Planning Division

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

Received:

- SME Annual Report 2008: Rising to meet global challenges

SME Corporation (SME Corp), established in 2007 by upgrading the Small and Medium Industries Development Corporation (SMIDEC), is an agency under MITI that acts as the Secretariat for the National SME Development Council chaired by the Prime Minister. It is a central coordination agency, and a central point of reference for information and advisory services for all SMEs in Malaysia.

SME development programs implemented by various ministries and agencies are based on three main strategic thrusts coordinated by SME Corp: strengthening infrastructure, building capacity for domestic SMEs, and enhancing financial accessibility for SMEs. SME Corp cooperates with 41 training centers to provide training courses on basic subjects such as management, technical skills, and accounting. To improve effectiveness of enterprise financial support, the policy is gradually shifted from grants to soft loans;

grants are provided only at the last stage of loans based on the performance of SMEs. SME Corp uses a diagnostic tool to rate SMEs, which is called SME Competitiveness Rating for Enhancement (SCORE). Each company is given a rating of 0 to 5 stars on each of the different aspects. The results are illustrated in a radar diagram, and the strengths and weaknesses of each company are tracked over time. Based on these ratings, SME Corp can provide appropriate support for SMEs in training, consultation, and finance to enhance their competitiveness.

As a central point of reference for information, SME Corp runs SME Info Portal, which is a one-stop information portal. It provides information on all aspects of SME development, including financing, advisory services, training programs, business and networking opportunities as well as other SME development programs and initiatives by the government and the private sector.

6. Malaysia Productivity Corporation (MPC)

Date and time: 8:30, 21 Jan. 2010

Location: P.O. Box 64, Jalan Sultan, 46904 Letaling Jaya, Selangor Darul Ehsan.

MPC Participants:

Mr. Mohd Razali Hussain, Director General

Mr. Mustapha Sufa'at, Director P&Q Promotion Division

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

Received:

- MPC initiatives towards enhancing Malaysia's competitiveness (slides)
- MPC Annual Report 2008

Malaysia Productivity Corporation has developed in the course of nearly a half century. Established in 1962 under the name of the National Productivity Center, it was upgraded in 1966 to the National Productivity Council and became an autonomous body. In 1991, the Council was renamed as the National Productivity Corporation, and from February 2008 it was officially called Malaysia Productivity Corporation (MPC). MPC is a federal statutory body under MITI. It has 6 regional offices and 329 employees, of which management and professional workforce consists of 193 persons (59%).

MPC is a service provider, and its changing strategic focuses are consistent with national economic development. In the 1960s and 1970s, the focus was management training

and advisory service, which changed to research and systems development in the period of 1990-1995, productivity and efficiency enhancement in 1995-2000, benchmarking and best practices in 2000-2005, and competitiveness and innovation in 2005 – 2010.

Current core activities of MPC include research, training, systems development, best practices and promotion. Since 1994, MPC has published Annual Productivity Reports, in which productivity performance at the national, international, and sectoral levels are reported.

MPC has seven training and system development programs, including (i) leadership and management development, (ii) quality management systems, (iii) process improvement; (iv) innovative small group activities, (v) training management; (vi) customer excellence, and (vii) strategic and excellence performance. All training courses are short-term, ranging from 3 days to a week, and all trainees are employees working in public and private sectors. In 2009, 20,836 people attended MPC's training programs. Among these, 43% were from the public sector, 33% from SMEs, 15% from local large firms, and 9% from multinational companies. Frequently requested programs are ISO, innovation, TQM, and Q&M (5S). Among these, Q&M is the most popular course. SMEs can receive incentives for using MPC's services. For SME participants, training programs are charged only 20% of listed prices, and in-house programs and consultancy fees are charged only RM1,000 instead of at least RM2,500.

Benchmarking and best practices programs offered by MPC include benchmarking online networking database (BOND), e-benchmark system, best practice net, process improvement for excellence (PRIME), and Malaysia benchmarking index (MBI). MBI is a business performance diagnostic tool which enables companies to compare their performance with over 100,000 participating enterprises. MBI focuses on 7 main areas of sales and profit, market growth, value creation, customers, employees, supplier management, and future growth.

In 2004, MPC launched Innovative and Creative Circle (ICC), which is a small group of workers who form a team to add value to their daily activities and overcome problems faced on the shop floor by using quality improvement tools, with the aim to transform QCC into an innovation driven circles. Since then, MPC organizes Annual National ICC Conventions. 640 ICCs have participated in these conventions between 2004 and 2007. Throughout the years, the circles have shown progress in problem solving and creating more value and breakthroughs using various innovative and creative solutions.

MPC is directly involved in quality-based audit programs, such as Certification in Quality Environmental Practices (5S certification), Quality Management Excellence Award (QMEA), and Productive Award (PA). QMEA was launched in 1990 by MITI as one of the industry excellence awards; this award is not just an acknowledgement but a journey for organizations reaching the peak of excellence. PA, introduced in 1999, is a program that acknowledges excellent organization in productivity management prac-

tices and continuous improvement initiatives. In 2009, MPC audited about 1,000 firms, and 405 firms got 5S certifications from MPC.

7. Malaysia Industrial Development Authority (MIDA)

Date and time: 10:30, 21 Jan. 2010

Location: 3rd Floor, Block 4, Plaza Sentral, Jalan Stesen Sentral 5, Kuala Lumpur Sentral, 50470 Kuala Lumpur.

MIDA Participants:

Mr. Victor Hoo, Director, Foreign Investment Promotion Division (Asia Oceania)

Mr. Tan Chee Chai, Senior Deputy Director, Cross Border Investment Promotion Division

Mr. Haffizam Abu Seman, Assistant Director, Investment Promotion Division (Asia Oceania)

Mr. Mohd Erfian Bin Johari, Assistant Director, Investment Promotion Division (Asia Oceania)

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

Received:

- MIDA's functions in the promotion of the manufacturing and services sector in Malaysia (slides)
- Malaysia: the premier investment destination

As an agency under MITI, the Malaysian Industrial Development Authority (MIDA) is in charge of promotion and coordination of industrial development in the country. This is the first point of contact for investors who intend to set up projects in the manufacturing and services sectors in Malaysia. MIDA performs functions of investment/service promotion; evaluation of licenses and incentives; research and planning; and follow-up and monitoring. To become a "one-stop center" for investor, MIDA has officials dispatched from six agencies (immigration, customs, environment, energy, telecom, and labor) to MIDA and also has close service providing relations with eight other agencies.

Malaysia's investment policies include (i) manufacturing licenses, which are provided for manufacturing companies with shareholders' funds of RM2.5 million and above or hiring 75 or more full-time employees; (ii) equity ownership, which allows 100% foreign ownership irrespective of the level of exports; and (iii) employment of expatriate personnel.

There are three major incentives for the manufacturing sector, namely (i) pioneer status (PS), providing income tax exemption ranging from 70% to 100% of statutory income for 5 to 10 years; (ii) investment tax allowance (ITA), providing allowance of 60% to 100% of qualifying capital expenditure for 5 to 10 years that can be offset against 70% to 100% of the statutory income for each year of assessment; (iii) and reinvestment allowance (RA), providing RA of 60% of qualifying capital expenditure. Initial investors can choose either PS or ITA. Besides, import duty and sales tax exemptions are available for imported raw materials, components, machinery and equipment. These incentives are administered by the combination of the published eligibility list and case-by-base organizational judgment. To receive any incentive, activities or products must be included in the list but this is only the necessary condition. Whether incentives are actually given depends on the result of screening by MIDA's weekly Action Committee of Investment.

8. Malaysian Industrial Development Finance Berhad (MIDF)

Date and time: 13:30, 21 Jan. 2010

Location: Level 15, Menara MIDF, 82 Jalan Raja Chulan, 50200 Kuala Lumpur.

MIDF Participants:

Mr. Fadzlan Abu Bakar, Head Marketing, Development Finance Division

Mr. Leong Kin Choong, Manager & Head, Product Development & Insurance, Development Finance Division

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

Received:

- Brochures of MIDF's soft loan schemes

Malaysian Industrial Development Finance Berhad (MIDF) was established in 1960 with an objective to promote the manufacturing industry in Malaysia through the provision of medium and long-term loans. This includes financing of fixed assets for new industrial ventures as well as existing enterprises undertaking modernization, expansion and/or relocation.

MIDF is one of the development finance institutions (DFIs) designated by the government to manage and disburse funds under eight special loan schemes, including (i) ICT adoption, (ii) factory relocation, (iii) SMEs, (iv) international branding, (v) automation and modernization, (vi) automotive development, (vii) Terengganu-based SMEs, and (viii) service capacity development. Funds for these schemes are channeled from the

Malaysian government via the Ministry of International Trade and Industry (MITI). Companies that are eligible to get loans under eight schemes must be incorporated under the Corporate Act of 1965, operating in the manufacturing or service sector, and have at least 60% equity held by Malaysian. Being SMEs is additional requirement for schemes (i), (ii), (iii) and (vii).

Since independence in 1957, Malaysia implemented industrial policy to attract FDI and established joint-ventures and vendors to create jobs and substitute imports in the 1960s, and concentrated on E&E as a key industry in the 1970s. From the mid 1980s, national car and heavy industries became the most important industries in Malaysia. In the 1990s, key industries were export-oriented manufacturing. At present, industrial focus is shifting to high tech and services industries. Malaysia's industry is now facing the problems of labor shortage and outward investment of the manufacturing industry (hollowing-out effect).

To avoid risks in providing loans, MIDF uses firms' credit assessments reported by the SME Credit Bureau, which was established in 2008 by the Credit Guarantee Corporation Malaysia Berhad (CGC), a premier SME credit organization since 1972. CGC is a subsidiary of Bank Negara Malaysia (Central Bank of Malaysia).

9. SME Bank

Date and time: 15:00, 22 Jan. 2010

Location: Menara SME Bank, Jalan Sultan Ismail.

P.O. Box 12352, 50774 Kuala Lumpur

SME Bank Participants:

Mr. Salim Saparman, Vice President/Head of Entrepreneur Development

Mr. Hamdan Modh Habibollah, Assistant Vice President/Head of Corporate Planning

Ms. Saripah Radziah Binti Sayed Hamid, Manager/Head of Corporate Communications

Mr. A. Bakar Bin Attan, Manager/Head of Operation I Business Development

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

Received:

- 2008 Annual Report

- Brochures of SME programs: SME global, SME procurement, SME franchise, SME professional, and SME start up.
- Presentation on corporate briefing.

SME Bank was established in 2005 as a one-stop SME financial service center. It is 100% owned by the government through the Ministry of Finance. It is incorporated with authorized capital and paid-up capital of RM5.0 billion and RM 1.35 billion respectively. As of December 2009, SME Bank had 1,025 employees and 19 branches all over the country. It is allowed to conduct financing and advisory activities for SMEs involved in manufacturing, services, and construction sectors, with emphasis on Bumiputra entrepreneurs.

SME Bank has five strategic products, namely, (i) SME start-ups for new businesses, entrepreneurs and start-ups; (ii) SME professional for professional and all services; (iii) SME franchise for established or differentiated business with franchise potential or franchisees; (iv) SME procurement for vendor/contract businesses supporting GLC/MNC supply/procurement chains; and (v) SME global for companies with growth or growth potential in the domestic and/or export markets.

SME Bank provides other services such as business assessments, business matching, business dialogue and conference, knowledge sharing, SME Advisory Center (SAC), entrepreneurial development, and SME Bank factory scheme. SAC was set up as a platform to deliver integrated services to SMEs across industries and phases of growth. The Center offers eight services in business planning, information services, business matching, business acceleration, business promotion, training and development, business performance evaluation, and industry expertise. The SME Bank factory scheme is a rental factory program with subsidized rent and comprehensive support for Bumiputra enterprises, which started in 1984. Renting firms can use services such as financing, training, matching, and advisory and technical support. The program focuses on food, chemicals, and engineering sectors, and has 422 factory plots in the country with 94% occupied. One firm can rent up to three plots and stay for nine years at the maximum.

10. Japan International Cooperation Agency (JICA) Malaysia Office

Date and time: 17:30, January 22, 2010

Location: Suite 29.3, Level 29, Menara Citibank, 165 Jalan Ampang, 50450 Kuala Lumpur

JICA Participants:

Ms. Suzuki Noriko, Chief Representative

Mr. Takahashi Masatoshi, Senior Representative

Mr. Hayashi Masayuki, Representative

Mission members:

Prof. Kenichi Ohno, GRIPS/VDF

Ms. Nguyen Xuan Thi Thuy, VDF

Ms. Truong Thi Chi Binh, IPSI, MOIT

Received:

- Minutes of Meeting between the Japanese Terminal Evaluation Team and the Authorities Concerned of the Government of Malaysia for the Development of Human Resources for Small and Medium Industries Development Corporation

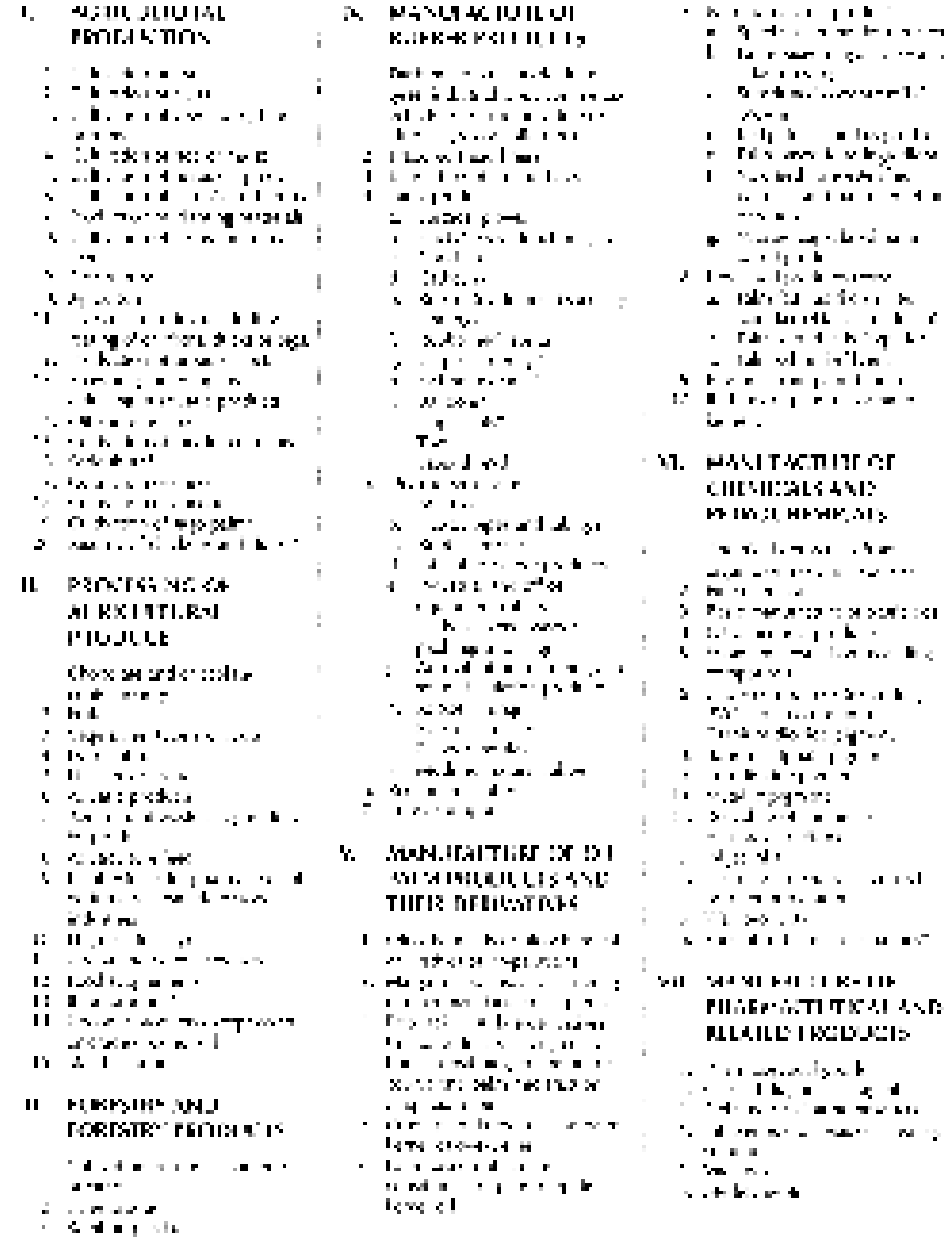
The Project Development of Human Resources for Small and Medium Industries Development Corporation (SMIDEC) was a JICA's technical cooperation project that supports SMIDEC to develop capacity of advisors for small and medium industries from May 2006 to March 2009. Phase 2 of the project, which aims to develop in-house trainers among SME Corp's officials (SMIDEC was transformed into SME Corp in 2007), was launched in November 2009. In the second phase, an international seminar on "SME counselors" will be held in the first quarter of 2010 to share information and experiences in SME consulting activities among ASEAN countries.

The results of the first phase are currently under evaluation. This phase had two components, namely, development of the training program which was conducted in the first five months of the project, and implementation of the training program in the following two years and a half which consisted of five training courses for a total of 68 participants. Each course lasted six months and entailed 180 hours of learning. Six main topics were covered: (i) basic knowledge on SME counseling (18hours), (ii) financial management and accounting (30 hours); (iii) tax laws and tax management (12 hours); (iv) production management (30 hours); (v) marketing (30 hours); and (vi) corporate diagnosis (60 hours).

APPENDIX 2
(MALAYSIA)

List of Promoted Activities and Products which are Eligible for Consideration of Pioneer Status and Investment Tax Allowance under the Promotion of Investments Act 1986

List of Promoted Activities and Products – GENERAL



VIII. MANUFACTURE OF WOOD AND WOOD PRODUCTS

IX. MANUFACTURE OF PULP, PAPER AND PAPERBOARD

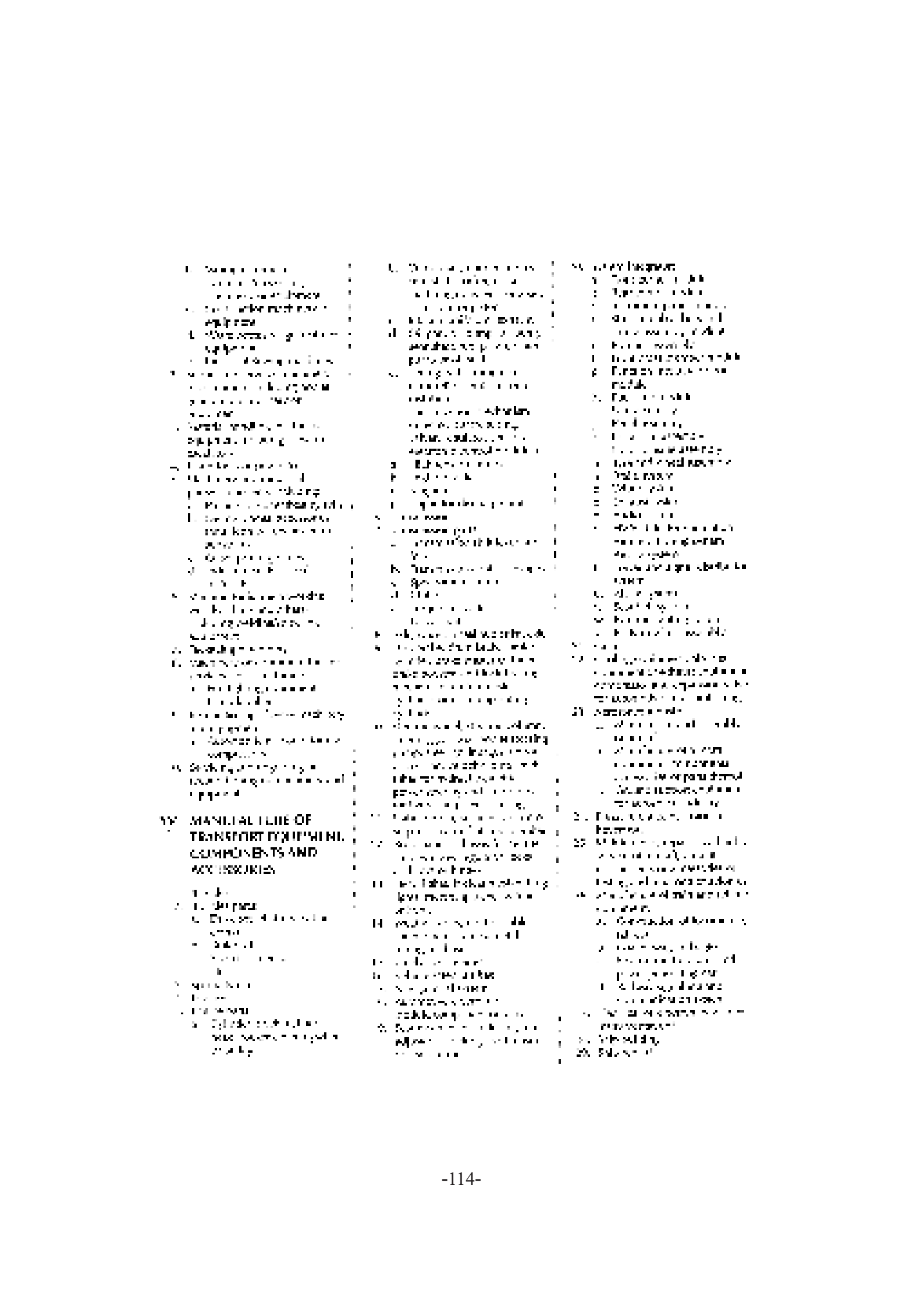
X. MANUFACTURE OF LEATHER AND LEATHER PRODUCTS

XI. MANUFACTURE OF CLAY-BASED NON-REFRACTORY AND OTHER NON-METALLIC MINERAL PRODUCTS

XII. MANUFACTURE OF IRON AND STEEL

XIII. MANUFACTURE OF NON-FERROUS METALS AND OTHER PRODUCTS

XIV. MANUFACTURE OF MACHINERY AND MACHINERY COMPONENTS



XVI. SUPPORTING INDUSTRY ACTIVITIES

XVII. MANUFACTURE OF ELECTRICAL AND ELECTRONIC PRODUCTS AND EQUIPMENTS AND PARTS THEREOF

XVIII. MANUFACTURE OF PROFESSIONAL, MEDICAL, SCIENTIFIC AND MEASURING DEVICES/PARTS

XIX. MANUFACTURE OF PHOTOGRAPHIC, CINEMATOGRAPHIC, VIDEO AND OPTICAL GOODS

XX. MANUFACTURE OF PLASTIC PRODUCTS

XXI. MISCELLANEOUS

XXII. HOTEL BUSINESS AND TOURIST INDUSTRY

XXIII. FILM INDUSTRY

XXIV. MANUFACTURING RELATED SERVICES

XXV. MANUFACTURE OF METAL BASED PRODUCTS

XXVI. PROTECTIVE EQUIPMENT AND DEVICES

List of Promoted Activities - MANUFACTURING RELATED SERVICES

1. Operational Headquarters
2. Regional Distribution Centres
3. International Procurement Centres
4. Regional Offices
5. Representative Offices
6. Research and development (R&D)
7. Design and prototyping
8. Technical or vocational training
9. Integrated logistic services
10. Integrated market support services
11. Integrated centralised utility facilities
12. Total chemical management system
13. Cold chain facilities and services for food products
14. Environmental management
    - (a) Energy conservation/efficiency services
    - (b) Energy generation activities, using renewable energy sources (biomass, hydro power, solar power)
    - (c) Storage, treatment and disposal of toxic and hazardous waste
    - (d) Waste recycling activities
    - (i) agricultural waste or agricultural by-products
    - (ii) recycling of toxic and non-toxic wastes.

List of Promoted Activities and Products -- HIGH TECHNOLOGY COMPANIES

I. ADVANCED ELECTRONICS

1. Design, development and manufacture of:
   a. computer or peripheral
   b. microprocessor application
2. Development and production of communication equipment
3. Design and production of integrated circuits (ICs)
4. Development and production of cathode ray tubes and advance displays
5. Design, development and manufacturer of printer heads, head gimbals/head carriages, headstacks, magnetic heads, voice coil motors and actuators
6. Development and production of advanced connectors
7. Development and manufacturing of high density interconnect printed circuit boards (PCB) excluding rigid single-sided PCB
8. Design, development and manufacture of printer mechanism
9. Development and production of surface mount components
10. Design, development and manufacture of electro-magnetic interference (EMI) shielding products
11. Design, development and manufacture of contra rotator washing machines
12. Development and production of digital audio/video products

II. EQUIPMENT/ INSTRUMENTATION

1. Design, development and manufacture of:
   a. medical equipment
   b. medical implant or devices
   c. scientific equipment
   d. cyclonic separation equipment
2. Development and production of high pressure water cutting equipment
3. Design, development and manufacture of air flow equipment and related products
4. Development and production of high voltage busbars, auto transfer switches and dry type distribution transfomers

III. BIOTECHNOLOGY

1. Development, testing and production of:
   a. pharmaceuticals
   b. fine chemicals
   c. food or food ingredients
   d. feed or feed supplements
   e. biodiagnostics
   f. horticultural products
2. Development and production of:
   a. cell cultures
   b. biopolymers
   c. biomaterials
3. Development and production of biotechnology processes for waste treatment

IV. AUTOMATION AND FLEXIBLE MANUFACTURING SYSTEMS

1. Development and production of:
   a. computer process control systems/equipment
   b. process instrumentation
   c. robotic equipment
   d. computer numerical control (CNC) machine tools

V. ELECTRO-OPTICS AND NON-LINEAR OPTICS

1. Development and production of:
   a. optical lenses
   b. laser application equipment
   c. fibre-optic communication equipment
2. Design, development and production of cameras including lens units, lens barrel units and view finder units

VI. ADVANCED MATERIALS

1. Development and production of:
   a. polymers or biopolymers
   b. superconductors
   c. fine ceramics or advanced ceramics
   d. high strength composites
   e. pigments
2. Nano particles and their formulations thereof

VII. OPTOELECTRONICS

1. Development and production of:
   a. optoelectronics systems components
   b. optical systems components
   c. photo-couplers
   d. semiconductors lasers

VIII. SOFTWARE ENGINEERING

1. Development and production of:
   a. neural networks
   b. pattern recognition systems
   c. machine vision
   d. fuzzy logic systems

IX. ALTERNATIVE ENERGY SOURCES

1. Development and production of:
   a. fuel cells
   b. polymer batteries
   c. solar cells
   d. renewable energy
   e. floating energy power system

X. AEROSPACE

1. Design or development and production or assembly of:
   a. aircraft
   b. aircraft equipment, components or accessories or parts of aircraft
2. Modification and/or conversion of aircraft
3. Refurbishment or re-manufacture of aircraft equipment, components or accessories or parts of aircraft

XI. FOOD PRODUCTION AND FOOD PROCESSING

1. Food production using emerging technologies and advanced farming systems.
2. Development, testing and manufacturing of food products using emerging technologies and advanced manufacturing systems

XII. ENGINEERING SUPPORT INDUSTRIES/SERVICES

1. Design or development and manufacture of:
   a. trim and form dies
   b. semiconductor cavity/encapsulation moulds
   c. suspension tooling for hard disk drive parts
   d. progressive tooling for lead frames
   e. fibre optic connection tooling
   f. moulds, tools and dies for automotive industry
2. Design, development and manufacture of advanced toolings and equipment for the production of precision components/parts for industrial applications
3. Development and production of precision machined and die cast parts using advanced manufacturing systems
4. Design and development including prototyping

XIII. WOOD PROCESSING

1. Development, testing and processing of engineered wood products

XIV. IRON AND STEEL

1. Super fine spring wire of diameter 2.0mm and below

List of Promoted Activities and Products – INDUSTRIAL LINKAGE PROGRAM

I. MANUFACTURE OF RUBBER PRODUCTS

1. Moulded rubber products
2. Conveyor belts, transmission belts, V-type belts or rubber beltings

II. MANUFACTURE OF PLASTIC PRODUCTS

1. Plastic products for engineering use

III. MANUFACTURE OF CLAY-BASED, SAND-BASED AND OTHER NON-METALLIC MINERAL PRODUCTS

1. Ceramic components or parts for electrical, electronic or industrial uses
2. Glass envelopes
3. Glass fittings
4. Advanced composite materials or products

IV. MANUFACTURE OF TEXTILES AND TEXTILE PRODUCTS

1. Elastic webbings

V. MANUFACTURE OF IRON AND STEEL

1. Wire or wire products of iron and steel
2. Steel fabricated products

VI. MANUFACTURE OF NON-FERROUS METALS AND THEIR PRODUCTS

1. Copper clad laminates and products thereof
2. Wire or wire products of non-ferrous metals
3. Fabricated products of non-ferrous metals

VII. SUPPORTING PRODUCTS/SERVICES

1. Metal castings
2. Metal forgings
3. Plating
4. Machining
5. Moulds, tools or dies
6. Heat treatment
7. Mould texturing
8. Metal stamping
9. Industrial seals or seal materials
10. Powder metallurgical parts (sintering of metal parts)
11. Maintenance, repair, overhaul, modification, servicing or testing of turbine engines, components or sub-assemblies
12. Maintenance, repair, overhaul, modification, servicing or testing of aircraft, aircraft components or accessories
13. Maintenance, repair, overhaul, modification, servicing or testing of ship components or accessories

VIII. MANUFACTURE OF TRANSPORT EQUIPMENT, COMPONENTS AND ACCESSORIES

1. Parts and components for bicycles or tricycles
2. Parts and components for pleasure crafts, hydrofoils or hovercrafts
3. Parts, components or accessories for motor vehicles
4. Aircraft equipment, components, accessories or parts thereof

IX. MANUFACTURE OF MACHINERY AND MACHINERY COMPONENTS

1. Machinery components

X. MANUFACTURE OF ELECTRICAL AND ELECTRONIC PRODUCTS AND COMPONENTS AND PARTS THEREOF

1. Computer peripherals:
   a. Drive units
   b. Keyboards
2. Alarm equipment/system or devices
3. Parts, sub-assemblies or accessories of consumer or industrial electronic products

List of Promoted Activities and Products – SMALL SCALE COMPANIES

I. AGRICULTURAL ACTIVITIES

1. Aquaculture
2. Apiculture
3. Flowers or ornamental foliages
4. Sericulture

II. PROCESSING OF AGRICULTURAL PRODUCE

1. Coffee
2. Tea
3. Fruits
4. Vegetables
5. Herbs or spices
6. Cocoa and cocoa products
7. Coconut products except copra and crude coconut oil
8. Starch and starch products
9. Cereal
10. Sugar and confectionary products
11. Plant extracts
12. Aquatic products
13. Livestock products
14. Apiculture products
15. Aquaculture products
16. Animal feed ingredients
17. Agricultural wastes and by-products

III. FORESTRY PRODUCTS

1. Rattan products (excluding pole, peel and split)
2. Bamboo products
3. Other forestry products

IV. MANUFACTURE OF RUBBER PRODUCTS

1. Moulded rubber products
2. Extruded rubber products
3. General rubber products
4. Foam rubber products
5. Inflatable rubber products

V. PROCESSING OF OIL PALM PRODUCTS AND THEIR DERIVATIVES

1. Margarine, vanaspati, shortening and other manufactured fat products
2. Oleochemical or oleochemical derivatives or preparations
3. Biomass products
4. Palm heart products
5. Palm oil/palm kernel oil wastes or by-products

VI. MANUFACTURE OF CHEMICALS AND PHARMACEUTICALS

1. Pigment preparation and dispersions or special coatings
2. Desiccant
3. Bio-resin (biopolymer)
4. Herbal medicament and preparations
5. Inkjet inks

VII. MANUFACTURE OF WOOD AND WOOD PRODUCTS

1. Decorative panel boards (excluding plain plywood)
2. Timber mouldings
3. Builders carpentry and joinery
4. Products derived from utilisation of wood waste (e.g. activated charcoal, wooden briquettes, wood wool)
5. Wooden household and office articles

VIII. MANUFACTURE OF PAPER AND PAPERBOARD PRODUCTS

1. Moulded paper products

IX. MANUFACTURE OF TEXTILES AND TEXTILE PRODUCTS

1. Batik
2. Accessories for the textile industry
3. Knitted fabrics
4. Hand woven fabrics

X. MANUFACTURE OF CLAY-BASED AND SAND-BASED PRODUCTS AND OTHER NON-METALLIC MINERAL PRODUCTS

1. Artware, ornaments and articles of ceramic or glass
2. Glass fittings for lighting purposes
3. Panels, boards, tile blocks and similar articles of vegetable fibre, straw, wood shavings or wood wastes, agglomerated with cement plaster or with other mineral binding substances
4. Abrasive products for grinding, polishing and sharpening

XI. MANUFACTURE OF IRON AND STEEL PRODUCTS

1. Wire and wire products
2. Fabricated products

XII. MANUFACTURE OF NON-FERROUS METALS AND THEIR PRODUCTS

1. Wire and wire products
2. Powder, cream or paste
3. Fabricated products

XIII. SUPPORTING PRODUCTS AND SERVICES

1. Metal forgings
2. Machining
3. Metal stamping
4. Surface treatment/ finishing
5. Moulds, tools and dies
6. Industrial seals or seals materials
7. Cutting tools
8. Metal casting
9. Powder metallurgical parts (sintering of metal parts)
10. Mould texturing

XIV. MANUFACTURE OF HAND TOOLS

1. Handtools

XV. MANUFACTURE OF TRANSPORT, COMPONENTS, PARTS AND ACCESSORIES

1. Transport components, parts and accessories

XVI. MANUFACTURE OF PARTS AND COMPONENTS FOR MACHINERY AND EQUIPMENT

1. Parts and components for machinery and equipment.

XVII. ASSEMBLY AND MANUFACTURE OF ELECTRICAL AND ELECTRONIC PRODUCTS, COMPONENTS AND PARTS THEREOF

1. Decorative lights
2. Antennae
3. Capacitors
4. Disc card players
5. Energy-saving lighting and/or display
6. Resistors
7. Power supplies
8. Invertors
9. Key pads and key switches
10. Printed circuit board assemblies using surface mount technology
11. Electronic ballast
12. Three-phase electrical accessories or devices
13. Telecommunication equipment, computer/computer peripherals and industrial electronic equipment
14. Electrical security equipment/devices, components and parts thereof
15. Measurement or scale instruments
16. Security equipment/devices, components and parts thereof
17. Testing equipment
18. Consumer electrical parts and components
19. Consumer electronics parts and components
20. Industrial electrical parts and components thereof
21. Industrial electronics parts and components thereof

XVIII. MANUFACTURE OF KITCHENWARE AND TABLEWARE

1. Kitchenware
2. Tableware

XIX. MANUFACTURE OF FURNITURE, PARTS AND COMPONENTS

1. Furniture, parts and components

XX. MANUFACTURE OF GAMES AND ACCESSORIES

1. Games and accessories

XXI. MANUFACTURE OF HANDICRAFTS AND SOUVENIRS

1. Handicrafts
2. Souvenirs, giftware and decorative wares

XXII. MANUFACTURE OF SPORTS GOODS AND EQUIPMENT

1. Sports goods and equipment

XXIII. MANUFACTURE OF JEWELLERY AND RELATED PRODUCTS

1. Jewellery
2. Processed gems

XXIV. MANUFACTURE OF PLASTIC PRODUCTS

1. Decorative panels and ornaments
2. Bathroom and kitchen accessories
3. Plastic coils/mats
4. Epoxy encapsulation moulding compound
5. Geosystem products (cellular confinement system)

XXV. MISCELLANEOUS

1. Wax products
2. Microbials and probiotics

APPENDIX 2
(THAILAND)

List of Activities Eligible for Investment Promotion and the Conditions for Promotion
(Board of Investment Announcement No.10/2552)

Section 1: Agriculture and Agricultural Products

Section 2: Mining, Ceramics and Basis Metals

Section 3: Light Industry

Section 4: Metal Products, Machinery and Transport Equipment

Section 5: Electronic Industry and Electrical Appliance

Section 6: Chemicals, Paper and Plastics

Section 7: Service and Public Utilities

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Section 4: Metal Products, Machinery and Transport Equipment

Activities	Conditions
4.1. Manufacture of hand tools and measuring tools	Rights and benefits Shall be according to the Board of Investment Announcement No. 1/2543 dated August 1, 2000
4.2 Manufacture of machinery, equipment and parts 4.2.1 Manufacture of machinery, equipment or parts that have engineering design 4.2.2 Manufacture of farm machinery or equipment and food processing machinery or equipment 4.2.3 Manufacture of energy-conserving machinery or equipment and machinery or equipment which uses alternative energy 4.2.4 Manufacture or repair of mould and die 4.2.5 Manufacture of other machinery, equipment and parts	Conditions The manufacture of energy-conserving machinery or equipment and machinery or equipment which uses alternative energy must be according to the list approved by the Ministry of Energy. Rights and benefits 1. The following activities are classified as priority activity of special importance and benefits to the country: 1.1 Manufacture of machinery, equipment and parts that have engineering design 1.2 Manufacture of farm machinery orequipment and food processing machinery or equipment 1.3 Manufacture of energy-conserving machin-

	ery or equipment and machinery or equipment which uses alternative energy 2. The following activities are classified as priority activity: 2.1 Manufacture or repair of mould and die 2.2 Manufacture of other machinery, equipment and parts
4.3 Manufacture of metal products, including metal parts	Rights and benefits 1. Shall be according to the Board of Investment Announcement No. 1/2543 dated August 1, 2000 2. The manufacture of sintered products and the manufacture of steel products or parts that contain metal casting process using induction furnace or forging process in the project are classified as a priority activity
4.4 Surface treatment or anodized surface treatment	Conditions Must use modern manufacturing process as approved by the Board Rights and benefits 1. Shall be according to the Board of Investment Announcement No. 1/2543 dated August 1, 2000 2. Projects located in industrial estates specified by the Industrial Estate Authority of Thailand shall be classified as priority activity
4.5 Heat treatment	Conditions Projects that use cyanide must be located in industrial estates or promoted industrial zones Rights and benefits Classified as a priority activity
4.6 Building or repair of ships 4.6.1 Building or repair of ships of not less than 500 tons gross 4.6.2 Building or repair of ships of less than 500 tons gross (except wooden or steel ships)	Conditions If located in zone 1, the project of any size must obtain ISO 14000 certification within 2 years from the start-up date. Rights and benefits Classified as a priority activity that
4.7 Manufacture of electric-powered vehicles (except those that cannot register under Motor Vehicle Act of B.E. 2522)	Rights and benefits Shall be according to the Board of Investment Announcement No. 1/2543 dated August 1, 2000
4.8 Manufacture of trains or electric trains or equipment or parts (only with rail system)	Rights and benefits Classified as a priority activity that has special importance and benefits to the country
4.9 Manufacture, repair or conversion of aircraft, including aircraft parts and equipment or onboard equipment	Conditions Aircraft conversion must be type-certification conversion. Rights and benefits Classified as a priority activity that has special importance and benefits to the country

4.10 Manufacture of vehicle parts 4.10.1 Manufacture of vehicle parts 4.10.2 Manufacture of 4-stroke motorcycles engines 4.10.3 Manufacture of automobile engines 4.10.4 Manufacture of automobile parts for international-standard eco-cars	Rights and benefits 1. Shall be according to the Board of Investment announcement No. 1/2543 dated August 1, 2000 2. Manufacture of the following is classified as a priority activity: 2.1 ABS 2.2 Substrate for catalytic converters 2.3 Electronic fuel injection systems 2.4 Automobile transmission2.5 Battery for electric-powered vehicles 2.6 Traction motor for automobile such as hybrid or fuel cell cars 2.7 Electronic Stability Control (ESC) 2.8 Regenerative Braking System 2.9 Electric air conditioning system for automobile 2.10 Rubber tires for vehicles 2.11 Aircraft tread tires 3. Manufacture of automobile parts for international-standard eco-cars shall receive the following rights and benefits: 3.1 Exemption of import duty on machinery for the period approved by the Board 3.2 Exemption of corporate income tax for not more than 8 years, regardless of zone 3.3 Reduction of import duty on raw materials and finished parts for not more than 90 percent depending on the suitability of each type and for the period approved by the Board. 3.4 Other rights and benefits shall be according to the Board of Investment announcement No. 1/2543 dated August 1, 2000
4.11 Manufacture of motorcycles 4.11.1 Manufacture of 4-stroke motorcycles	Manufacture of 4-stroke motorcyclesConditions 1. Must be motorcycles with four-stroke engines 2. Production capacity must not be less than 50,000 units per year. 3. Thai nationals must hold shares totaling not less than 60 per cent of the registered capital. 4. Production processes must be complete from-body frame welding and painting. 5. Plan for parts production and sourcing of parts must be approved by the Board. 6. Must have plan to develop Thai parts manufacturers 7. Not entitled to additional corporate income taxexemption under the STI (skill, technology, and innovation) scheme

	Rights and benefits 1. Exemption on import duty on machinery, regardless of zone 2. Exemption on corporate income tax as follows: 2.1 No exemption of corporate income tax, if located in Zone 1 or 2 2.2 If located in Zone 3, project shall receive 3- year corporate income tax exemption.If located in Zone 3, project shall receive 5-year corporate income tax exemption in the following cases: (1) Thai nationals must hold not less than70 per cent of total shares. (2) Project must propose a plan for production and use of major parts, such as engines, transmission systems, fuel injection systems, vibration systems, and brake systems, and receive approval from the Board. 3. Other rights and benefits shall be according to the Board of Investment announcement No. 1/2543 dated August 1, 2000.
4.11.2 Manufacture of large-sized motorcycles	Manufacture of large-sized motorcyclesConditions 1. Must be 4-stroke engines with a minimum size of 500 cc. 2. Production processes must be complete from body frame welding and painting. 3. A plan for part production and sourcing must be proposed and approved by the BOI. 4. Not entitled to additional corporate income tax exemption under the STI (skill, technology, and innovation) scheme Rights and benefits 1. Exemption of import duty on machinery, regardless of zone 2. No corporate income tax exemption shall be granted unless the project includes engine production process which must start from machining of main engine parts such as cylinder heads and crank cases. In such cases, corporate income tax exemption shall be granted according to the Board of Investment Announcement No. 1/2543 dated August 1, 2000. 3. Other rights and benefits shall be granted according to the Board of Investment announcement No. 1/2543 dated August 1, 2000.
4.12 Manufacture of automobile 4.12.1 Manufacture of automobile	Manufacture of automobile Rights and benefits 1. No exemption on corporate income tax shall be granted. 2. Other rights and benefits are granted according

	to the Board of Investment announcement No.1/2543 dated August 1, 2000.
4.12.2 Manufacture of automobile (Package)	Manufacture of automobile(Package) Conditions 1. A "Package" proposal must include Activity4.12.1 Manufacture of automobile, 4.10.1Manufacture of vehicle parts and/or 4.10.3Manufacture of automobile engines, all of which support the automotive manufacturing operation. The minimum investment must not be less than 10,000 million baht excluding the cost of land and working capital. 2. Automotive manufacturing project must have a definite production and marketing plan. 3. Manufacture of vehicle parts and/or automobile engines will exclusively support the automobile manufacturing that is part of the Package. Rights and benefits 1. Manufacture of automobile: 1.1. Exemption of import duty on machinery, regardless of zone 1.2. No exemption or reduction of corporate income tax 1.3. Other rights and benefits shall be granted according to the Board of Investment announcement No. 1/2543 dated August 1, 2000. 2. Manufacture of vehicle parts and/or automobile engine 2.1 Exemption of import duty on machinery, regardless of zone 2.2 Corporate income tax incentives and other rights and benefits shall be granted according to Activity 4.10.1 Manufacture of vehicle parts and/or 4.10.3 Manufacture of automobile engines.
4.12.3 Manufacture of passenger cars	Manufacture of passenger carsConditions 1. The actual production must not be less than 100,000 units/year in any year during the first five years of the operation. 2. All production must be based on the same platform approved by the Board. 3. The total investment during the first 5 years of corporate income tax exemption must not be less than 15 billion baht, excluding cost of land and working capital. 4. An investment plan for parts production and a plan for parts utilization must be submitted and approved by the Board. 5. Not entitled to additional corporate income tax exemption under the STI (skill, technology, and innovation) scheme 6. If the projects fail to meet the minimum actual

	production required under condition No.1, the corporate income tax exemption shall be withdrawn according to the criteria set forth by the Board. Rights and benefits 1. Exemption of import duty on machinery, regardless of zone. 2. Five-year corporate income tax exemption, regardless of zone. 3. Not entitled to reduction of corporate income tax under section 35 (1). 4. Other rights and benefits shall be granted according to BOI Announcement No.1/2543 dated August 1, 2000.
4.12.4 Manufacture of new automobile models	Manufacture of new automobile modelsConditions 1. The actual production must not be less than 100,000 units/year in any year within the first five years of operation. 2. Project must contain investment in new assembly line 3. The minimum investment must not be less than 10,000 million baht excluding the cost of land and working capital. 4. Project must manufacture new model of automobile that has never been produced locally and has new technology such as Hybrid Drive, Brake Energy Regeneration or Electronic Stability Control as approved by the Board. 5. An investment plan for parts production and a plan for parts utilization must be submitted and approved by the Board. 6. No extension of project implementation period as specified in the investment promotion certificate is allowed. 7. Not entitled to additional corporate income tax exemption under the STI (skill, technology, and innovation) scheme. 8. The application must be submitted within December 31, 2010. Rights and benefits 1. Exemption of import duty on machinery, regardless of zone. 2. Five-year corporate income tax exemption, regardless of zone for project with investment of not less than 10,000 baht excluding the cost of land and working capital. 3. Six-year corporate income tax exemption, regardless of zone for project with investment of not less than 15,000 baht excluding the cost of land and working capital.

	4. One additional year of corporate income tax exemption shall be granted to project that submits the application within December 31, 2009. 5. Not entitled to reduction of corporate income tax under section 35 (1). 6. Other rights and benefits shall be granted according to BOI Announcement No.1/2543 dated August 1, 2000
4.13 Manufacture of multi-purpose engines and equipment	Rights and benefits Shall be according to the Board of Investment Announcement No. 1/2543 dated August 1, 2000
4.14 Manufacture of Natural Gas Vehicles (NGV) and machinery and equipment that use natural gas 4.14.1 Manufacture of natural gas buses and trucks 4.14.2 Manufacture of Compressed Natural Gas (CNG) containers or Liquefied Natural Gas (LNG) containers 4.14.3 Manufacture of engines, parts and equipment for Natural Gas Vehicles (NGV) 4.14.4 Manufacture of machinery or equipment for NGV service station	Conditions The manufacture of CNG containers or LNG containers, engines, parts and equipment for NGV and machinery or equipment for NGV service station must receive standard certification from related agencies. Rights and benefits 1. Manufacture of natural gas buses and trucks shall be granted: 1.1 Exemption of import duty on machinery, regardless of zone 1.2 Other rights and benefits shall be granted according to BOI Announcement No.1/2543 dated August 1, 2000. 2. The manufacture of the following shall be classified as a priority activity: 2.1 CNG containers or LNG containers 2.2 Engines, parts and equipment for NGV 2.3 Machinery or equipment for NGV service station
4.15 Manufacture of fuel cells	Rights and benefits Classified as a priority activity of special importance and benefits to the country
4.16 Repair of vehicle parts, electrical or electronic equipment	Conditions Projects must be located in IEAT Free zone, Free Trade Zone, bonded warehouse or Customs Free zone. Rights and benefits Shall be according to the Board of Investment Announcement No. 1/2543 dated August 1, 2000
4.17 Repair of industrial machinery or equipment	Conditions Must be capable of repairing essential parts of machines Rights and benefits Shall be according to the Board of Investment Announcement No. 1/2543 dated August 1, 2000
4.18 Manufacture, repair or maintenance of containers	Rights and benefits 1. Shall be according to the Board of Investment Announcement No. 1/2543 dated August 1, 2000 2. Classified as a priority activity if located inLogistics Park

4.19 Fabrication of metal structure products or platform repair	Rights and benefits 1. Exemption of import duty on machinery, regardless of zone 2. Corporate income tax exemption for: 2.1 Five years if located in Zone 1 2.2 Five years if located in Zone 2 or seven years if located in industrial estates Zone 2 2.3 Eight years if located in Zone 3 3. Other rights and benefits shall be granted according to BOI Announcement No.1/2543 dated August 1, 2000.
4.20 Manufacture of Completely Built Units(CBU) or Completely Knocked Down(CKD) of houses	Rights and Benefits 1. Exemption of import duty on machinery, regardless of zone 2. Privileges under section 36(1) and 36(2) 3. Non-tax incentives

Section 5: Electronic Industry and Electrical Appliance

Activities	Conditions
5.1 Manufacture of electrical equipment for industrial use	Rights and benefits Shall be according to investment promotion policy for electronics and electrical appliances industry
5.2 Manufacture of electrical products	Rights and benefits Shall be according to investment promotion policy for electronics and electrical appliances industry
5.3 Manufacture of parts or equipment used for-electrical products 5.3.1 Manufacture of electric lamps 5.3.2 Manufacture of batteries (except vehicle batteries) 5.3.3 Manufacture of electric wires or enamel wires 5.3.4 Manufacture of parts or equipment for other appliances	Rights and benefits Shall be according to investment promotion policy for electronics and electrical appliances industry
5.4 Manufacture of electronic products 5.4.1 Manufacture of consumers electronics 5.4.2 Manufacture of office electronics 5.4.3 Manufacture of industrial electronics 5.4.4 Manufacture of telecommunication equipment 5.4.5 Manufacture of agricultural electronics 5.4.6 Manufacture of other electronic products	Rights and benefits 1.Shall be according to investment promotion policy for electronics and electrical appliances industry 2.The manufacture of industrial electronics, telecommunication equipment and agricultural electronics shall receive the following rights and benefits: 2.1 Classified as a priority activity 2.2 Exemption of import duty on machinery according to investment promotion policy for electronics and electrical appliances industry

5.5 Manufacture of electronic parts and/or equipment or parts and/or equipment used for electronic apparatus 5.5.1 Manufacture of semiconductors 5.5.2 Manufacture of memory storage equipment(1) Manufacture of Hard Disk Drive(HDD)and Hard Disk Drive parts(2) Manufacture of other memory storage equipment 5.5.3 Manufacture of transmission cables or cable sets 5.5.4 Manufacture of parts for telecommunication equipment 5.5.5 Manufacture of parts for medical electronics 5.5.6 Manufacture of parts for agricultural electronics	Conditions 1. Investment in reconditioning machinery in the following activities shall be regarded as part of investment promoted projects. 1.1 Manufacture of Integrated Circuit 1.2 Manufacture of Hard Disk Drive and parts for Hard Disk Drive 1.3 Manufacture of media/platter for Hard DiskDrive 2. The following activities must have the manufacturing process as approved by the Board: 2.1 Manufacture of flexible printed circuit or multi layer printed circuit board 2.2 Manufacture of solar cells 2.3 Manufacture of media/platter for Hard Disk Drive 2.4 Manufacture of flat panel display
5.5.7 Manufacture of electronic parts for vehicles 5.5.8 Manufacture of flexible printed circuit or multi layer printed circuit board 5.5.9 Manufacture of other electronic parts and/or equipment or parts and/or equipment used for electronic apparatus 5.5.10 Manufacture of solar cells and raw materials for solar cells(1) Manufacture of solar cells(2) Manufacture of raw materials for solar cells i.e. solar-grade silicon (99.9999%), wafers and Transparent Conducive Oxide (TCO) coating glass 5.5.11 Manufacture of media/platter for Hard DiskDrive 5.5.12 Manufacture of flat panel display	Rights and benefits 1. Shall be according to investment promotion policy for electronics and electrical appliances industry 2. The following: 2.1 Manufacture of semiconductors 2.2 Manufacture of Hard Disk Drive(HDD)and Hard Disk Drive parts 2.3 Manufacture of parts for telecommunication equipment 2.4 Manufacture of parts for medical electronics 2.5 Manufacture of parts for agricultural electronics 2.6 Manufacture of electronic parts for vehicles 2.7 Manufacture of flexible printed circuit or multi layer printed circuit boardShall receive rights and benefits as follows: (1) Classified as a priority activity (2) Exemption of import duty on machinery according to investment promotion policy for electronics and electrical appliances industry 3. The following: 3.1 Manufacture of solar cells and raw material for solar cells 3.2 Manufacture of media/platter for Hard DiskDrive 3.3 Manufacture of flat panel displayShall receive rights and benefits as follows:

	(1) Classified as a priority activity of specialimportance and benefits to the country (2) Exemption of import duty on machinery according to investment promotion policy for electronics and electrical appliances industry
5.6 Manufacture of material for microelectronics 5.6.1 Wafer 5.6.2 Thin film technology	Conditions 1. Must have the manufacturing process as approved by the Board 2. Investment in reconditioning machinery shallbe regarded as part of investment promoted project. Rights and benefits 1. Classified as a priority activity of special importance and benefits to the country 2. Exemption of import duty on machinery according to investment promotion policy for electronics and electrical appliances industry
5.7 Electronic design 5.7.1 Micro electronics design 5.7.2 Prototype design 5.7.3 Embedded system design	Conditions Revenues derived from sales or the provision of services that are directly related to a promoted business or which are from downstream production for commercial purposes, either carried by the promoted companies or sub-contractors, will be regarded as revenue of such promoted business. Rights and benefits 1. Classified as a priority activity of special importance and benefits to the country 2. Exemption of import duty on machinery according to investment promotion policy for electronics and electrical appliances industry
5.8 Software 5.8.1 Enterprise Software 5.8.2 Digital Content (1) Animation, cartoon & character (2) Computer-Generated Imagery (CGI) (3) Web-based applications and cloud computing (4) Interactive Application (5) Games such as Windows-based, mobile platform, console, PDA, online games, massive multi-player online games(MMOG) (6) Wireless location-based service content (7) Visual effects (8) Multimedia video conferencing application (9) E-learning content via	Conditions 1. Projects must include software development processes specified by the Software Industry Promotion Agency (SIPA) 2. Project with an investment of 10 million baht or more (excluding cost of land and working capital) must obtain a quality standard certificate from SIPA or receive a Capability Maturity Model Integration (CMMI) quality standard certificate or any equivalent standard within 2years from the start-up date. If the project fails tomeet such condition, one-year corporate income tax exemption shall be withdrawn. 3. Revenues derived from sales or the provision of services that are directly related to a promoted software business shall be regarded as revenue of such promoted businesses.Rights and benefitsClassified as a priority activity of special importance and benefit to the country
5.9 E-commerce business	Rights and benefits Exemption from import duty on machinery only according to investment promotion policy for electronics and electrical appliances industry

APPENDIX 3

Lists of Auto and E&E Components Imported/Localizezd in Thailand

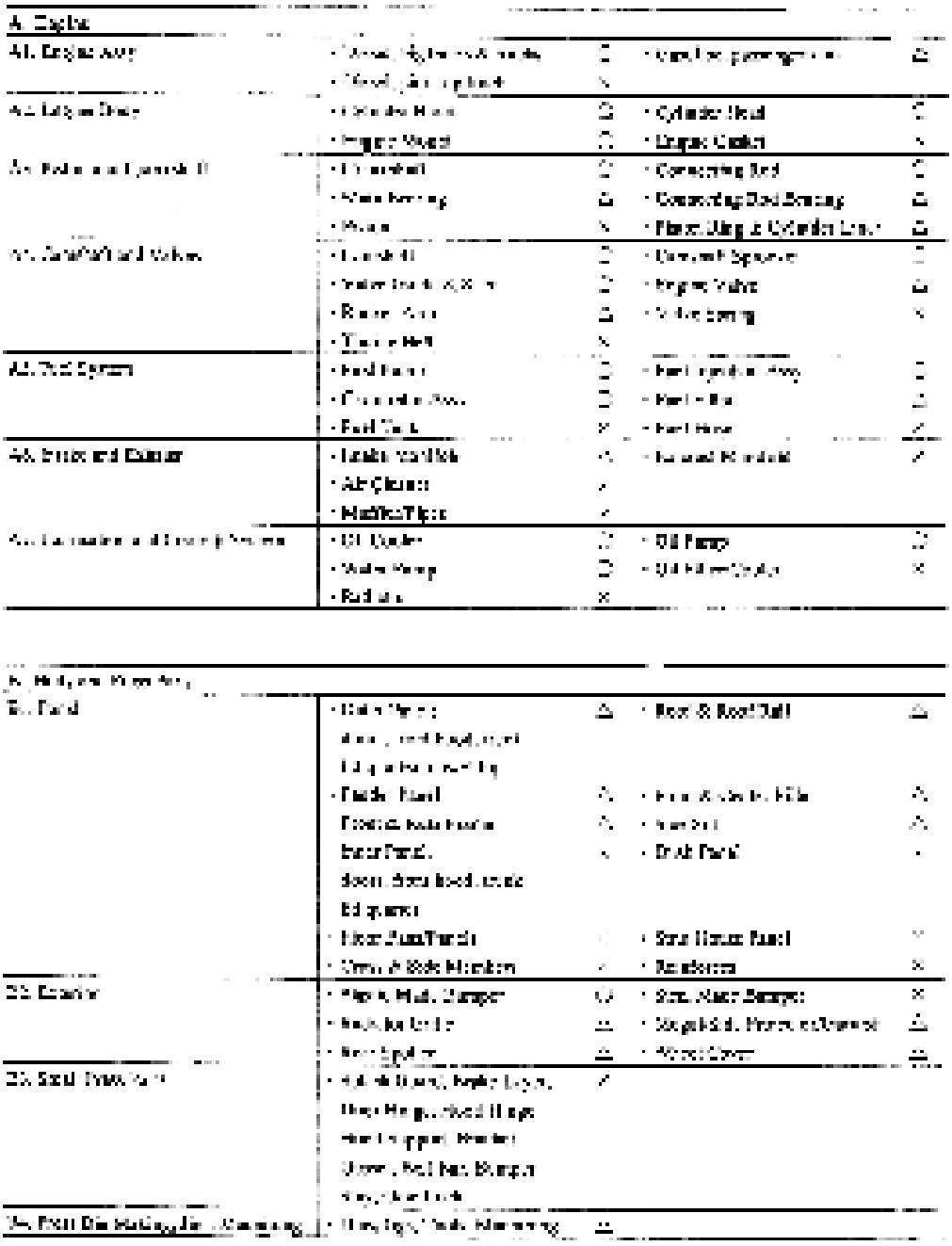
A. ELECTRICAL AND ELECTRONICS

Note: ○ Mostly imported; ✕ Mostly localized; ▲Mixture of imported and localized

Source: Department of Industrial Promotion (DIP), MOI

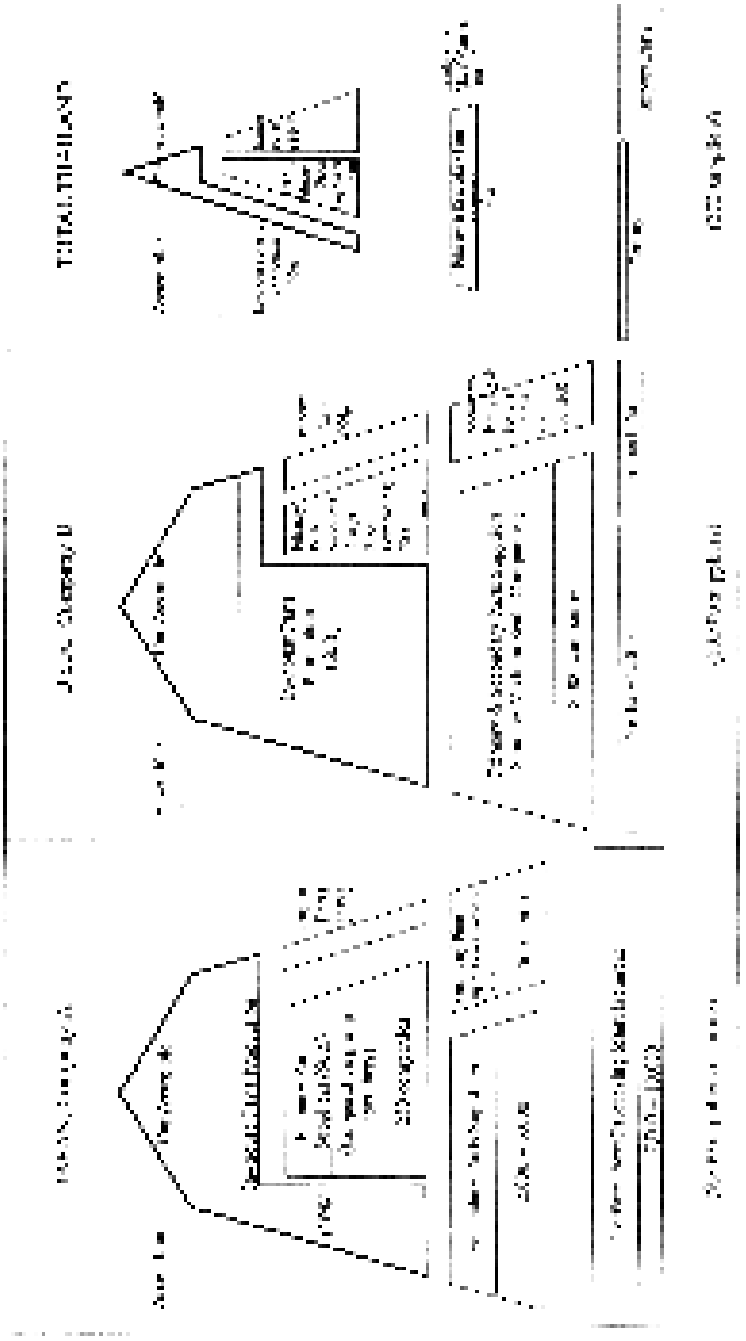
[illegible]	[illegible]	
A. Electrical Home Appliances		
Air Conditioner	[illegible]	[illegible]
Refrigerator	[illegible]	[illegible]
Washing Machine	[illegible]	[illegible]
Microwave oven	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
B. Electronic Home Appliances		
[illegible]	[illegible]	[illegible]
VTR	[illegible]	
C. Communication Equipment		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

B. AUTOMOBILE



APPENDIX 4

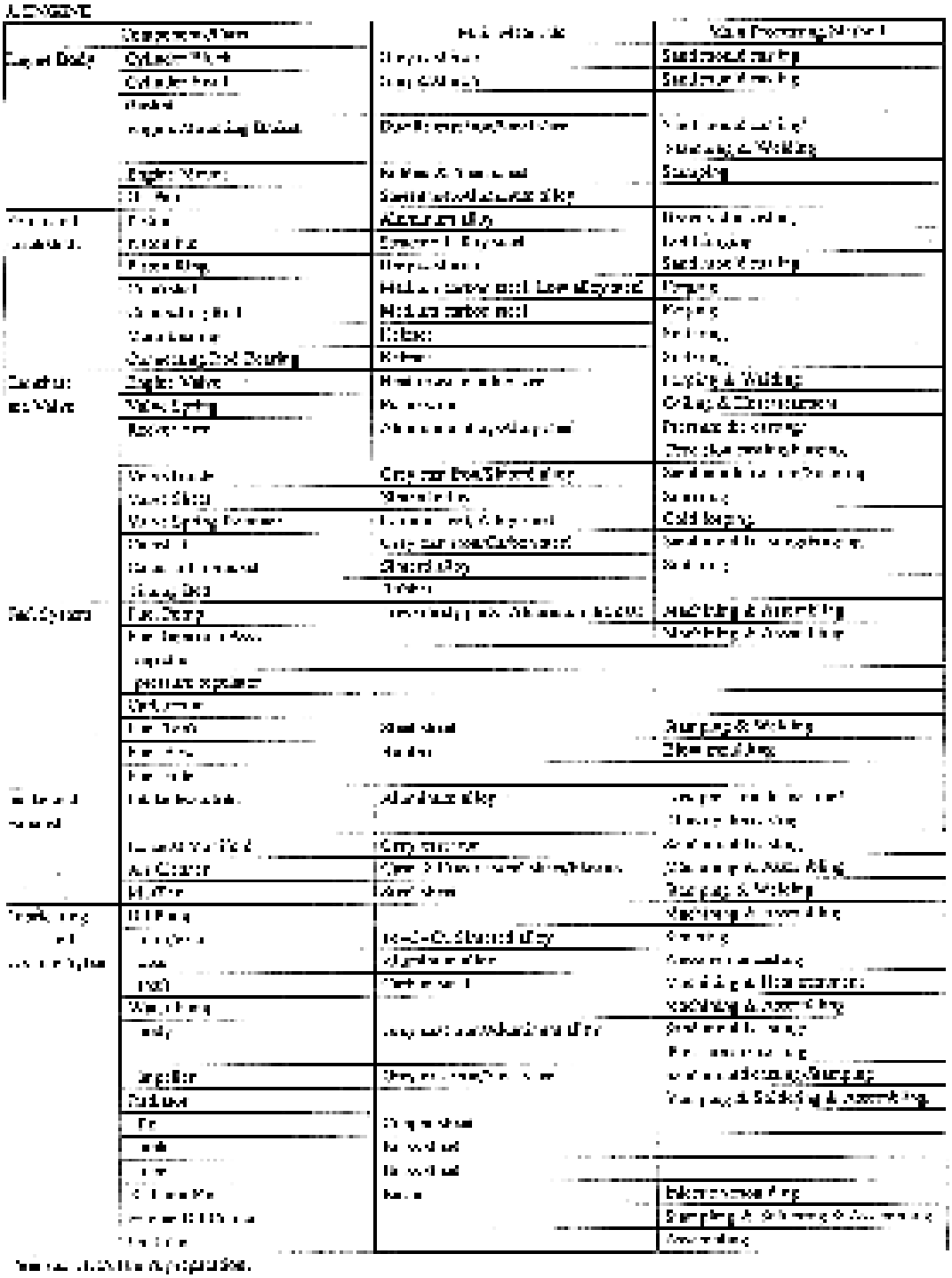
Concept of Supporting Industries in Thailand (Conceptual Drawing)



Source: Department of Industrial Promotion (DIP), MOI.

APPENDIX 5

List of auto components, their Main Materials and Main Processing Methods in Thailand



BODY

Component/Parts	Main Materials	Main Processing Method
Outer Panels		
doors		
hood (lid)		
trunk lid (gate)		
fenders		
Inner Panels		
inner structure	Almost all materials of body is steel sheet.	Almost all processing method of body is stamping.
Roof		
Headrail		
Fender Panel		
Pillars		
Front & Rear Frame		
Side Sill		
Dash Panel (Instrument Cluster)		
Seat Back Panel		
Floor Pan		
Cross & Side Member		
Front End Upper Bar		
Door Hinge Reinforcement		
Bumper Reinforcement		
Dashboard Reinforcement		

TRIM

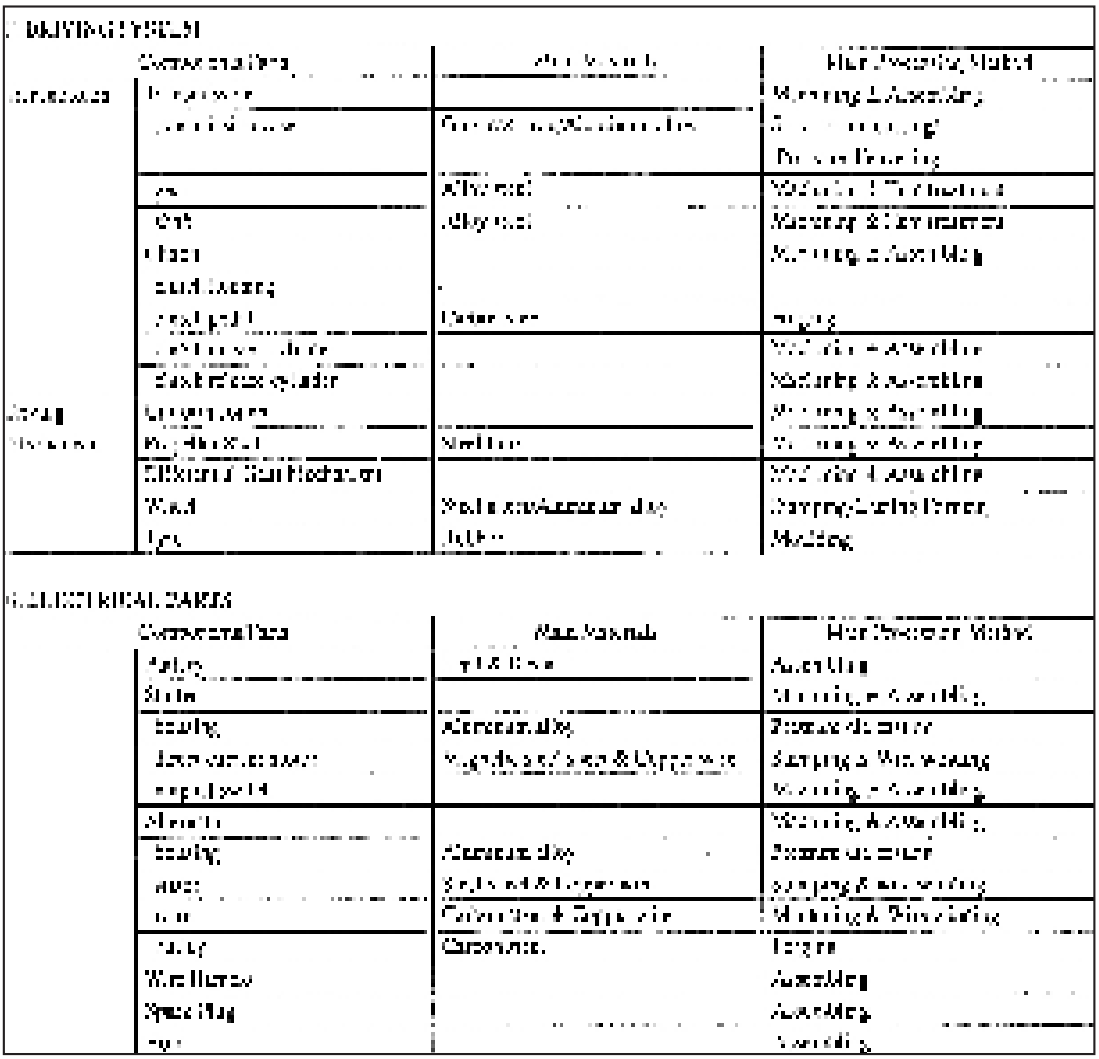
Component/Parts	Main Materials	Main Processing Method
Instrument Panel		
foundation	ABS Resin	Injection molding
cushion	Polyurethane resin	Foaming
outside	PVC Resin	
Console Box		
foundation	ABS Resin	Injection molding
outside	PVC Resin	
Seat		
seat frame	Steel sheet	Stamping
cushion spring	Spring steel	Coiling & Heat treatment
back spring	Spring steel	Coiling & Heat treatment
cushion	Polyurethane resin	Foaming
outside	Artificial leather, Fabric	
Door Trim		
foundation	Wooden fiber/Resin compound	Hot and cold compression molding/ Injection molding
outside	PVC Resin	
cushion	Polyurethane resin	Foaming
Ceiling (Formed Ceiling)		
foundation	Wooden fiber/Resin compound	Hot compression molding/ Vacuum forming
outside	PVC Resin	
cushion	Polyurethane resin	Foaming
Floor		
carpet	Fiber	
sound insulation material	Asphalt sheet	
insulator	Polyurethane resin/Felt	

1. EXTERIOR

Components/Parts	Main Materials	Main Processing Method
Bumper Fascia	Resin/Steel Sheet	Injection moulding/Stamping
Grille	Resin	Injection moulding
Spoiler	Resin	Injection moulding
Side garnish		
[illegible]		
[illegible]		
Molding	Stainless steel/Resin	Stamping
Rear Spoiler	Resin	Blow moulding/Injection moulding
Lamp		
bulb	Glass, Tungsten filament	
lens	Resin/Glass	Injection moulding
reflector	Resin/Steel sheet	Injection moulding/Stamping
body	Resin	Injection moulding
Wheel Cover	Resin/Steel sheet	Injection moulding/Stamping
Window	Glass	
front window shield		
side window		
rear window		
roof window		
mirror		Assembly

2. CHASSIS

	Components/Parts	Main Materials	Main Processing Method
Suspension	Spring	Spring steel	
	leaf spring		Stamping & Heat treatment
	coil spring		Coiling & Heat treatment
	Stabilizer	Spring steel & Structural steel	Bending, Stamping
	Arms	Steel sheet/Medium carbon steel	Stamping/Forging
	Shock Absorber	Steel tube	Machining & Assembly
Steering Axle	Knuckle	Carbon steel/Malleable cast iron	Forging/Casting and Machining
	Axle		
	front axle	Medium carbon steel	Forging
	rear axle	Medium carbon steel	Forging
	Wheel Hub	Gray cast iron/Medium carbon steel	Casting and Machining/Forging
Steering	Steering Wheel	Steel tube/Aluminum alloy	Machining & Assembling Pressure die casting
	Steering Column	Steel tube	Machining & Assembling
	Steering Shaft	Medium carbon steel	Machining & Assembling
	Steering Gear	Alloy steel	Machining & Heat treatment
	Gear Housing	Aluminum alloy	Pressure die casting
Brake	Brake Master Cylinder	Aluminum alloy	Sand mould casting Machining & Assembling
	Brake Booster		
	Brake Hose	Rubber	
	Brake Tube	Steel tube	
	Brake Wheel		
	Disc Type Brake	Ductile cast iron	Sand mould casting
	Caliper for Disc Brake	Ductile cast iron	Sand mould casting
	Brake Drum	Gray cast iron	Sand mould casting



Source: Department of Industrial Promotion (DIP), MOI.