"Status of Technology Transfer in the ASEAN Region" (Japan's Technology Transfer in Asean : Some Issues on the Effective Transfer and Management Style)*

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I. Introduction

Technology transfer by Japanese firms operating in ASEAN countries is an old issue. The issue has been discussed since the 1970s, and a substantial number of studies has been undertaken.[1)] Yet, technology transfer is still an area of conflict between ASEAN and Japanese firms. ASEAN scholars and other opinion leaders continue to complain that Japanese firms are not willing to transfer technology to their countries.

This paper has two purposes: First, it attempts to provide an analytical framework to discuss technology transfer through foreign direct investment (FDI) by multinational corporations (MNCs). Here, the concepts of technology and the *effective* transfer of technology will be explored, and a working hypothesis on the behavior of MNCs will be set out. Second, management style will be introduced into the framework of technology transfer as an explanatory factor and the effectiveness of the Japanese management style in the

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technology transfer from Japan to Southeast Asian nations will be discussed.

The paper attempts to show that the transfer of technology at the factory level has gone smoothly so far, but technology at the head office, mostly the human-embodied management knowhow, has not been transferred at a pace which satisfies the host countries. The reasons for this sluggishness, include problems within the host countries and problems with the behavior of Japanese firms. However, the paper will focus on the second aspect, particularly on the Japanese style of management.

In the remainder of the paper, Section II will discuss the basic concepts of technology and technology transfer as well as the hypothesized behavior of an MNC regarding transfer of technology. Section III will provide some evidence on how Japanese firms transfer technology to ASEAN and attempt to clarify areas of conflict between the two parties. In addition to evidence from a number of previous surveys, we will introduce the case of the synthetic fiber industry in Thailand, which has received substantial FDI from Japan in its development process. Section IV will provide a preliminary discussion on the Japanese mamagement style which seems to influence

the pattern of technology transfer by Japanese firms. The final Section summarizes our findings and raises some issues which merit futher investigation.

II. Technology and the effective transfer of technology: A conceptual framework

1/ Concepts of technology and technology transfer

Technology can be defined as the scientific knowledge or methods used to realize or improve the production and distribution of commodities and services. Such knowledge and methods show us how to integrate various production factors, such as labor and capital, in the production process.

In practice, there are a number of ways to categorize technology.

a/ The forms in which technologies are embodied:

The *machinery and equipment-embodied technology* is a major form. This type of technology can be transferred by many channels including trade, plant export, licensing agreement, FDI and others.

The *manuals and other written documents-embodied technology* is another major form. This is information on how to operate machinery and equipment, and the source of knowhow regarding factory administration or the management of various operations of the firm.

Another form is *human-embodied technology*. The human

resources in which technologies are embodied are usually engineers, experts, managers and top management. The dispatching of personnel from one country to another involves the international transfer of technology. FDI generates more of this type of technology than licensing agreements and other channels.

b/ Three levels of technology transfer through FDI

FDI is the channel which involves the most intensive transfer of technology since, it generates a transfer of a package of managerial resouces, including production technology and management knowhow. With other factors being equal, FDI can also be expected to bring about a more effective transfer, than other channels since it involves a sustained relationship between the transferer and transferee.

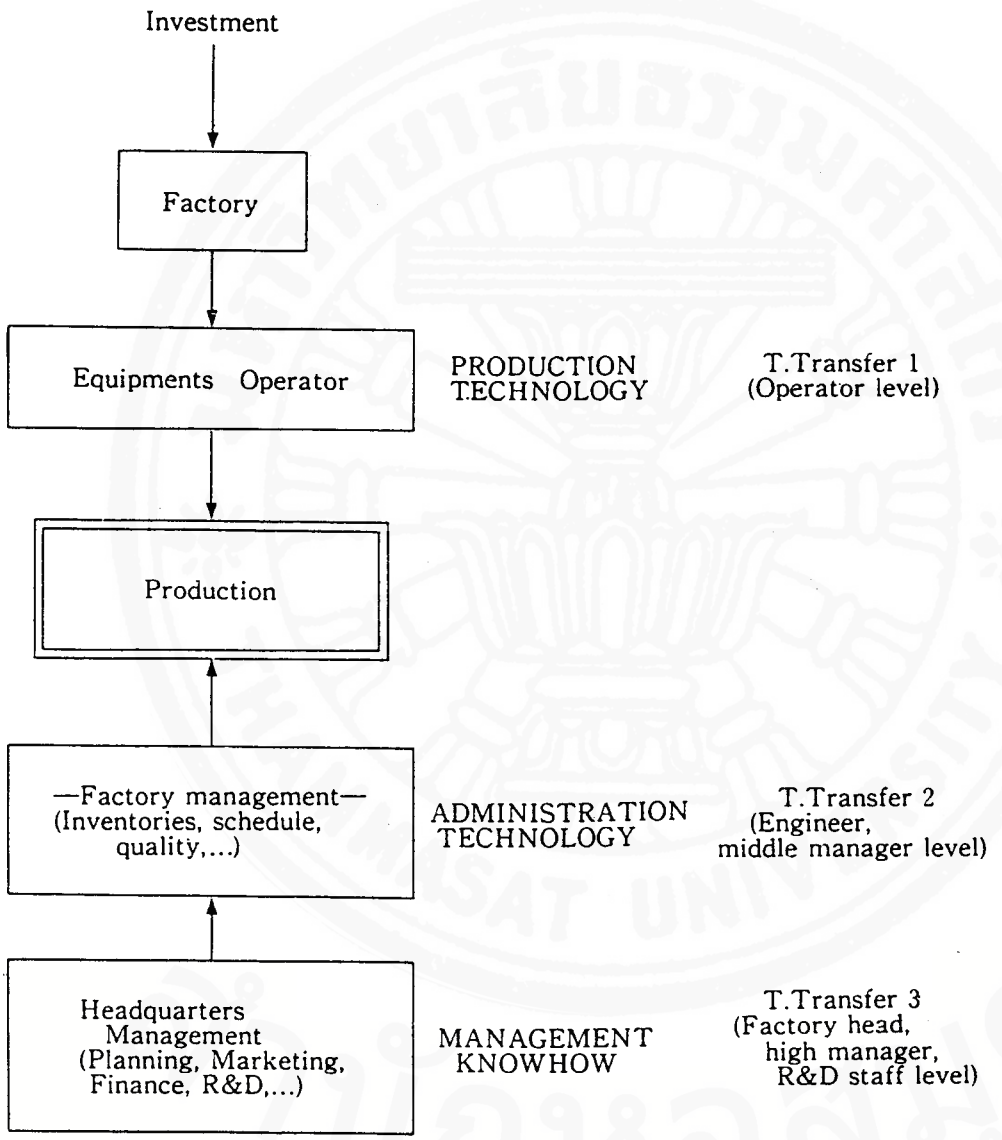
Figure 1 illustrates the concrete forms of technology and technology transfer accompanied by a FDI project. It shows three types of technologies: *production technology, administration technology and management knowhow.* Accordingly, we may divide technology transfer into three levels (see Fig. 1). Suppose a MNC undertakes a direct investment project in a developing country to produce a manufactured

product. First, a factory is built. The *factory* is a form which embodies both production technology and administration technology. Production technology is the combination of equipment and operators. The transfer of this technology requires the transfer of equipment as well as the knowledge and methods to operate it. This involves the training of local operators.

In the production process, there are many forms of administration: inventories, quality control, schedule control, facility administration and so on. The transfer of these administration technologies involves the training and education of engineers and managers at medium levels (section chief, head of department, etc.).

The third type of technology is the management knowhow which is embodied in the *head office* or headquarters. Head offices are usually located in the capital of the host country and manage the operations of a factory or a number of factories, as well as conduct strategies related to planning, marketing, financial and other activities. High-level managers at the head office have to follow the trends in the markets of products, in technological and other changes, and undertake strategies which will aid in

Fig. 1 A Conceptualized Framework of Technology Transfer



Note: This figure is based on Ogawa (1976), with revisions.
"T" denotes technology.

coping with new situations. The transfer of such management knowhow requires the training of high-level managers, who are gradually allowed to replace the top class managerial posts initially held by staff from MNC's home country.

The first two types of technology are referred to as *technologies at the factory level*, while the third type is called *technology at the head office level*. Corresponding to the three forms cited above, production technology is machinery and equipment-embodied technology, administration technology is written materials as well as human-embodied technology. Management knowhow is mainly human-embodied technology, but sometimes includes some written materials-embodied technology.

2/ The effective transfer of technology

We have so far categorized various types and various levels of technology. In fact, when those technologies move from one country to another, the international transfer of technologies occurs. However, whether such transfer is *effective* or not is another problem. Considering the case of FDI, the effectiveness of technology transfer can be defined by the following two situations:

a/ The efficient movement of the technology or

efficient change in the location of the technology:

This indicates the efficient use of the technology in the host country without considering the localization aspect discussed below. Let us take an example in which an MNC undertakes a FDI project to develop a new industry in a developing country. The transfer of technology can be seen as efficient if the industry can be developed successfully. The successful development of an industry can be defined as a process of gaining international competitiveness over time, first within the domestic market and then in world markets. International competitiveness within the domestic market enables the industry to efficiently realize the import substitution stage of its development process. International competitiveness in world markets enables the industry to efficiently move up to the export stage.

Note that such an efficient process of transfer can be carried out entirely under the management or control of MNCs. As discussed below, the MNC may localize the technology at the factory level due to cost considerations, but will not necessarily localize at the head office level which embodies management knowhow.

b/ The efficient localization of the technology:

It is the issue of this efficient localization that generates conflict between MNCs and developing host countries. For most developing countries, the effective transfer of technology must eventually result in the localization of human-embodied technology, especially technology at the head office level. In other words, the local firm or local personnel should eventually not only be able to handle, digest and modify the production technology, but they should also be able to manage the operation of the factory and the foreign-related firm as a whole.

This issue, however, is not a simple one. Uneffective transfer may stem from the transfer behavior and strategy of MNCs, but it can also be attributed to the attitude of the government and firms of host countries. A clear framework is necessary for analysing these problems and for suggesting policies or strategies to promote the efficient localization of technology.

Such a framework can be set out by discussing the processes of technology development capabilities of host countries.

According to Lall (1985), technology development in

a manufacturing industry can be defined to encompass four processes. The *know-how* is the gaining of the operating knowledge of how to carry out manufacturing activity; knowledge of how to operate the technology imported. This corresponds to the production technology and a part of administration technology as illustrated in Fig. 1.

The next stage of technology development is the *know-why* capabilities. This involves the understanding of the nature of the underlying process and product technologies, and leads to their substantial adaptation, improvement, and even replacement by new processes or products. This development of know-why capabilities arises partly as a natural extension and deepening of know-how capabilities, and partly as a result of conscious efforts to develop design, testing, pilot-plant and the like. According to Lall, these efforts correspond to the 'development' part of the R&D activities of industrial enterprises. In the context of our above-cited conceptualization, this development of technology corresponds to a part of administration technology and mostly to technology at the head office levels as shown in Fig. 1.

The know-why development is followed by *applied research*. This is the application of a given body of

scientific knowledge to the process of commercialization. The final stage of technology development is the ability to undertake *basic scientific research* which aims to contribute to the expansion of the frontiers of knowledge without considering specific commercial application.

In the context of international technology transfer, the final stage is not relevant. The applied research stage is also not important yet. The central issues of technology transfer from MNCs to a developing host country are mainly concerned with the first two stages of Lall's categorization.

Baranson and Roark (1985) analyse three levels of capabilities as the processes of technology transfer, namely, operational capability, duplicative capability and innovative capability. *Operational* capability theoretically permits the recipient to make a product equivalent to that produced by the technology supplier, though in practice the production efficiencies and quality levels achieved vary widely. *Duplicative* capability enables the recipient to acquire design and engineer knowhow sufficient to reproduce an entire plant or separate components. Technology transfer that results in *innovative* capability allows the recipient to go beyond

duplication to alter transferred products and processes in response to changing resources and market demands.

The first two levels closely correspond to the first two technology development processes mentioned by Lall.

The essence of the efficient localization of technology is a smooth shift from know-how to know-why, or from operational capability to duplicative capability.

To my knowlege, there have been almost no systematic and comprehensive empirical studies on effective technology transfer. Operational indicators are needed for such studies. The main operational indicator may be the steady substitution of local human resources for foreign human resources in various levels of technology, particularly the head office level. The major point here, however, is that the efficient operation of the factory or the firm as a whole will remain unchanged, or will be further improved, even under such substitution. This point is in contrast to the case in which host governments try to obligatorily localize human-embodied technologies without considering the efficient operation of MNCs's subsidiaries or joint ventures.

3/ MNCs and effective technology transfer: A Hypothesis

We have discussed the correspondence and relationship between Fig. 1 and other approaches regarding the concepts of technology and technology transfer. For simplicity, this section will refer only to Fig. 1.

The behavior of MNCs regarding the transfer of three types of technologies discussed in Fig. 1 can be hypothesized as follows:

In terms of production technology and administration technology, MNCs have incentives to transfer to the host country for two reasons: First, since large numbers of employees and staff are required during these stages, most of them should be recruited from the local labor market, and only a few, if any, sent from the MNC's home country, except during the initial stage of the operations. Second, in order to run the affiliated firm efficiently, MNCs have to train employees and middle managers so that they can operate or manage the factory smoothly. In addition, for improving quality and productivity over time, and for reducing wage costs at the high managerial levels, not only knowhow but also some know-why at the factory level should be transferred. Transfer of management

knowhow is more complicated. The persons in charge of planning or conducting financial and marketing strategies must have high levels of managerial knowledge and sometimes must be aware of both the affiliated firm's strategies and the global strategy of the MNC as a whole. These persons therefore are frequently in contact with the headquarters, and their ability to communicate with the headquarters, in terms of languages and professional knowledge, is essential. If these conditions are not met, MNCs have an incentive to send staff from the parent headquarters to hold the top managerial posts of the affiliates. However, MNCs have to transfer these posts to local staff if their equity ownership declines. In practice, top management staff of the affiliates are usually members of the Board of Directors and the composition of this Board is proportional to the ownership structure.

III. Technology transfer by Japanese firms in ASEAN: Issues and Evidence

1/ Issues and some general evidence

In ASEAN, Japan-affiliated firms have been criticized regarding the transfer of technology.[2] They have often been charged with being reluctant to train local employees so that technology has not been

transferred smoothly. Japan allegedly tends to send too many Japanese managerial staff to its affiliates, giving no opportunity for local staff to access management knowhow. As a result of this behavior, many local partners have not been able to set up their own business even after many years of joint investments with Japanese firms. [3)]

Such claims are sometimes confusing due to the lack of a clear definition of technology transfer, and therefore, in many cases, the friction resulted from perception gaps. In terms of the conceptual framework provided in Section II, I have conducted a study on the technology transfer from Japan in the development process of the synthetic fiber industry of Thailand, Indonesia, Taiwan and South Korea. The case of Thailand will be discussed below. [4)]

According to a survey by JETRO, in 1985, there were 72,143 Thai employees and 586 Japanese expatriates working in Japanese affiliated manufacruring firms. The ratio of Japanese to Thais was 0.81%. The survey by the American Chamber of Commerce in Thailand showed that in the same year, the respective figures for American affiliated firms were 20,600, 25 and 0.12%. [5)] The two surveys suggest that Japanese firms have had a higher contribution in the generation of

employment, but at the same time tended to send more expatriates to Thailand than American firms.

The recent survey by MITI (1989, pp.21-22), on an overall basis, shows that, in the Japanese affiliated firms in Asia, there has been a substantial reduction in the number of Japanese staff at middle management levels, but not at higher levels.

2/ The Case of Thailand's Synthetic Fiber Industry

The synthetic fiber industry is the upstream stage of the textile complex. That produces polyester and nylon fibers which will be fabricated into synthetic yarns and fabrics (the mid-stream) of which apparel and other final textile products (the down-stream) are made. Around 1960, Thailand started to produce synthetic fabrics by importing fibers from Japan. In the mid-1960s, fibers also became the country's import substitution industry. In this context, Toray and Teijin, the biggest fiber producers of Japan, began to undertake a large number of direct investment projects and thus became pioneers in the development of Thailand's synthetic fiber industry. In the 1970s, new entries, which involved no Japanese interests, appeared, but, as seen below, they still have by now held only a marginal position in the industry.

Table 1 summarizes sources of technology and forms

of its importation in Thai fiber producers. Except for Orient Fiber and Hantex, relatively small firms set up by Chinese-origin Thais, all major firms are joint ventures between local and foreign capital. As indicated in Table 2, the affiliated firms of Teijin, TPL, and Toray, TNT, still enjoy dominant market shares in terms of production capacity. For example, in 1986, the combined share of TNT and TPL were closed to 70% in polyester filament, and the single TPL dominated nearly the same level in polyester staple.

Table 1 Source of Technologies Imported by Thailand's Synthetic Fiber Industry

	Supplier	Year of Input	Year in which Production Started	Form of Imported
Polyester				
Teijin Polyester (TP)	Teijin	1969	1970, 1971	Joint Venture
Toray Nylon Thai (TNI)	Toray	1970	1971	Joint Venture
Thai Melon	Rhone Poulenc	1972	1976	Joint Venture
Orient Fiber	Inventa	1974	1977	Turnkey
Nylon				
TNI	Toray	1963	1967	Joint Venture
Asian Fiber	Taiwan	1970	...	Joint venture
Hantex	Chemtex	1973	1976	Turnkey

Source: Field Survey by the author.

Table 2 Production Capacity of Thai Synthetic Fiber Industry

(tons/month, %)

	1974	1977	1980	1983	1986
Polyester Filament					
Teijin Polyester (TPL)	564*	1,200	1,200	1,200	1,200
	(52.3)	(46.7)	(46.2)	(45.3)	(43.2)
Toray Nylon Thai (TNT)	497*	600	600	650	740
	(47.7)	(23.1)	(23.1)	(24.5)	(26.6)
Thai Melon (THP)	—	600	600	600	600
		(23.1)	(23.1)	(22.6)	(21.6)
Orient Fiber (OFC)	—	200	200	200	240
		(7.7)	(7.7)	(7.5)	(8.6)
TOTAL	1,043	2,600	2,600	2,650	2,780
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
Polyester Staple					
TPL	1,710	2,600	2,600	3,400	3,800
	(100.0)	(63.4)	(63.4)	(65.4)	(67.9)
THP	—	1,500	1,500	1,800	1,800
		(36.6)	(36.6)	(34.6)	(32.1)
Total	1,710	4,100	4,100	5,200	5,600
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
Nylon Filament					
TNT	450	450	450	550	570
	(50.0)	(35.7)	(35.7)	(37.9)	(37.0)
Asian Fiber	450	450	450	550	570
	(50.0)	(35.7)	(35.7)	(34.5)	(37.0)
Hantex	—	360	360	400	400
		(28.6)	(28.6)	(27.6)	(26.0)
Total	900	1,260	1,260	1,450	1,540
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Note: (1) Figures in parentheses are share of each firm.

(2) Asterisk (*) shows estimate.

Source: Same as Table 1

By the early 1980s, the synthetic fiber industry in Thailand had almost completed its import substitution stage. However, by now it has not shifted yet to the export stage. But it should be noted that, in the textile industry, Thailand tend to export fabrics and apparel which are labor intensive and which are thus Thailand's comparative advantage. Fibers are produced to supply to the mid-stream. stage.

The achievement of import substitution ususally results from one of the following two factors or the combination of the two factors: The policy measures protecting the domestic products against imports, and the cost efficiency, i.e., the steady improvement of production costs which enables domestic products to be increasingly competitive to imported ones. In the case of Thailand's synthetic fabrics, the mid-stream of the textile complex, studied by Yamazawa and Tanbunlertchai (1984), the import substitution was realized by protection policies, but the industry turned to the export stage due mainly to cost efficiency and increasing non-price competitiveness. In the case of fiber industry, imports have also been restricted by high tariffs and non tariff measures. It seems therefore that government protection has been the major factor for the import substitution of this

industry. However, the evaluation on the social cost and benefit of such protection is beyond the limit of this paper. What we are concerned here is to confirm the role of Japanese direct investment and technology transfer in the development process of this industry. The discussion so far has shown that Japanese firms were pioneers in the development of the industry, playing major role in the supply of technology, and, still holding leading position in the industry. We now turn to the issue on how Japanese firms have conducted technology transfer to Thailand and how to explain the pattern of their behavior in that context.

First, let us examine the case of Toray Nylon Thai (TNT). Set up in 1963, TNT started to produce nylon filament in 1967 and polyester filament in 1971. Changes in the Japanese ownership are shown in Table 3. Equal partnership between Japanese and local interests had been established in the initial stage, but due to the government guideline in 1984 which encouraged the majority for local partners, the Japanese share has been reduced to 49% since then. However, other subsidiaries or joint ventures of Toray, as Thai entities, hold most of local share so that, in practice, Toray can still control TNT.

Toray used its existing plants in Japan as models

when setting up nylon producing factory (1963) and polyester production lines (1971) for TNT. The most modern technology was transferred but in the TNT plant, it was adapted to be more labor intensive than the one used in Japan.. When the factory started operation in 1967, TNT had 59 employees including top managers, of which 9 were Japanese expatriates. In 1975, the respective numbers peaked at 842 and 22. In 1986, employees and managers decreased by 15% to 706 but the number of Japanese expatriates showed a sharp decline to only 6. This suggests a substantial replacement of Japanese expatriates by Thai people. The pattern of such replacement, however, is completely different between the factory and the head office. At the factory level, the replacement has been fast, but not so at the head office level. Around 1971, at the factory, the number of Japanese were 15, occupying most managerial posts., from section chiefs to the highest post (factory director). By 1982, however, most managerial posts at the factory had been transferred to local employees. Only two Japanese remained, one is the factory director, the other is technical advisor.

Such rapid transfer of posts has been realized as a result of constant transfer of operative knowlege and

Table 3 Japanese Ownership in Thai Fiber Industry

	Share of Investment Fiber Firm	Share of Other Japanese Firms	Total Japanese Share
Toray Nylon Thai(TNT)			
1963～73	26.7	23.3	50.0
1974～83	30.3	20.0	50.0
1984～	30.0	19.0	49.0
Teijin Polyester(TPL)			
1969～73	61.0	30.0	91.0
1974～76	50.0	0.0	50.0
1977～	44.8	0.0	44.8

Source: Survey by the author

administrative knowhow to local people through on-the-job-training (OJT) and off-the-job-training. The off-the-job-training program includes practice and study at Toray's factories in Japan.

At the head office of TNT, the number of Japanese has not shown any significant change. The number peaked at 5 in 1975 but it is still 4 presently. President, Vice-President, accounting manager and sale manager are Japanese. Of course, through these expatriates, various knowhow (accounting, marketing, administrating,...) have been transfrred to local

people. However, the slow reduction in the number of Japnese staff suggests that, at high managerial levels, the transfer has not been smooth. This is in contrast with the situation at the factory level. The reason for this will be discussed below, after examining one more case.

That is the case of Teijin Polyester (TPL). Set up in 1968, TPL is the distant largest polyester producer in Thailand (Table 2). The best technology at the time was introduced but in order to fit the factor endowment in Thailand, some automation equipment was removed and periphery operations such as package, conveyance have tended to use more labor than the operations in Japan. According to my field survey (1987) at the factory, in 1971, one year after the production started, the factory as a whole, has been about 30% more labor intensive than Teijin's polyester factory in Japan. Due to the subsequent rapid automation in Japan, however, the factor intensity gap between Thailand and Japan has expanded to 200% by 1987.

The employees and staff of TPL peaked in 1975 at 1082 and the number of Japanese expatriates were 25, in which 16 were at the factory and 9 at the head office. All sections chiefs and higher managerial

posts at the factory were held by Japanese. However, due to the OJT and off-the-job training, including the dispact of qualified Thai employees to practice and study at Teijin factories in Japan, local people have steadily replaced Japanese in the supevising and managing posts at the factory. By 1985, the number of Japanese expatriates at the factory has been reduced to only 4. One of the two Deputy Directors of the factory is Thai.

However, at the head office, during the same period, the reduction in the number of Japanese staff was not so substantial, from 9 in 1975 to 6 in 1985. Aside the case of TNT, the transfer of technology in TPL has also been smoothly rapid at the factory level, but not so in the head office.

The two cases introduced so far suggest the followings: First, in the fields of production and administration technologies, Japanese firms have been active in training local employees, for example by sending middle managers to Japan on training courses, by conducting on-the-job traing (OJT) and other activities. With these efforts, the transfer has been quite smooth. The number of Japanese staff at various managerial levels in the factory has been reduced steadily without interruption or major trouble in the

operations. Second, in the case of management knowhow, however, the transfer has not shown significant progress. Only marginal transfer of high level managerial posts has been undertaken.[6)]

What are the reasons for the difference in the factory (transfer of production and administration technologies) and the head office (transfer of management knowhow)?

3) Some preparatory explanations:

The quick transfer of production and administration technologies can be explained by costs and efficiency considerations of MNCs as discussed earlier. The slow transfer of managerial posts may be attributed to the following four factors:

First, as noted earlier, communication between affiliated firms and the parent headquarters must be conducted smoothly. Due to language barriers, Japanese firms are reluctant to give high level managerial posts to local staff.

Second, one of the major features of Japanese management style is to limit managerial promotions mainly to those employees who, entering the company as university graduates, have experienced various positions within the company for many years. Under this system of intra-firm training and promotion, it

takes about twenty years or more for a new employee to be promoted to a high managerial post.

Third, when Japanese firms modify their management style and are willing to recruit qualified persons from the local labor market, it is essential that the supply side of that market must be abundant enough to meet the demand. In many developing countries, however, the shortage of qualified high-level managers is still a serious problem.

Fourth, in some Asian countries, the catching-up efforts (in the replacement of foreign maangerial resources by local resources) by local partners in the joint ventures with Japan have been weak. In many cases, the motivation of local shareholders is just to maximize the dividends from the joint ventures and thus discourage the localization of management since local managers are usually thought to be less efficient than Japanese ones.

In the case of Korea and Taiwan, the third and fourth factors have been small, i.e., local supply of human resources has expanded overtime, and local catching-up efforts in the managerial resources have been strong (Tran 1988). In addition, due to historical reasons, Japanese language is quite knowledgeable among Korean and Taiwanese of elder

ages. This point, together with many common cultural values in Far East Asia, has been able to lower the communication barriers between Japan and the two Asian NIEs. For these reasons, so long as FDI are undertaken, the transfer of management knowhow from Japan to Korea and Taiwan has been considerable. It is interesting to note that the claims that Japanese firms undertake FDI but do not transfer technology (management knowhow) have been heard from Southeast Asian countries but almost unheard from Asian NIEs.

From these possible reasons, the remainder of this paper will discuss at length the second reason, i.e., effect of the Japanese management style on the transfer of technology by Japanese firms in South East Asian countries.

IV. Japanese management style and technology transfer in Asia

1/ The essence of the Japanese management style

The Japanese management style can be characterized by three aspects: The management system, the "management logic" , and the basic structure of management. (See Kagono, 1988, for example)

a/ The management system

In this respect, the first basic feature of

Japanese firms is *growth oriented* (market share is emphasized). This behavior is in contrast to the US firms which maximize profit in the short-run and maximize the market value of the firm in the long-run. The US firms thus behave along with the principles of economics.

The second feature is *production oriented*. Japanese firms tend to emphasize production strategy (improvement of productivity and quality, maintaining the flexibility of production process). They also emphasize the accumulation and formation of managerial resources from a long-term perspective.

The third feature is the *flexible organization structure and company-wide participation* in the decision making process. Flexible organization structure is reflected by the fact that group responsibility rather than individual responsibility is emphasized. Job description is not clear. The company-wide participation in the decision making process is reflected in the wide use of *ringi* system at the middle and top levels of management and the QC (quality control) activities at the work place (*genba*). According to Yoshino (1976, p.165), the *ringi* system is described as an approval-seeking process in which the proposal is prepared by a lower functionary,

works itself up through the organizational hierarchy, and at each step is examined by the proper officials, whose approval is indicated by the affixing of a seal. This system is group-oriented and concencus-seeking in the sense that various interest groups which may be affected by a decision, as well as those who must implement it, participate in making the decision.

b/ The "management logic":

The "management logic" is characterized by the *pattern of involvement* in the firm by employees, and by the *tacitness* in the company's communication among employees. The first feature is reflected in the wage payment system and the consciousness of managers and employees regarding the ownership of the firm. In the US, owners of the firm are thought to be only shareholders, while in Japan, managers and employees are also the owners of the firm. The tacitness indicates a type of knowledge which cannot be expressed by languages or symbols. As a result of this tacitness, in Japanese firms, the degree of formalization and manualization of administration and management knowhow is low, and human-embodied types of technology are more common than the US.

Due to this kind of "management logic", job rotation, intra-firm human development, intra-firm

promotion and seniority are important in the Japanese firms. Consequently, large scale inter-firm labor movements are rare.

c/ The basic structure of management:

Permanent (life-time) employment, seniority system of payment and promotion, and intra-firm labor unions characterize the basic structure of Japanese management. These characteristics are internationally well-known.

2/ Japanese style of management and technology transfer:

The strong international competitiveness of Japanese products have usually been attributed to the Japanese style of management. The long term relationship between employers and employees facilitates the formation of human capital, development and diffusion of technology. Moreover, life-time employment and intra-firm labor unions enable the introduction of new technology even though it is labor-saving. The Japanese style of management also facilitates the diversification of product lines which involves the shift of labor to new areas of businesses. However, whether the Japanese style of management has been transplanted in Asia and whether such transplanting has been successful are still

questions which have not been adequately dealt with, except in some case surveys.

According to Kagono (1985), the management system, the first aspect of his characterization of the Japanese style, can be transplanted overseas and in fact, has been successful, but the other two aspects should be very difficult. Yamashita (1991) also reached the same conclusions. However, it seems to me that the second aspect of the Japanese management style, i.e., the "management logic", particularly the *tacitness*, has been transferred to Japanese affiliates so that, as the previous section of this paper showed, the localization of management know-how has been difficult.

Also, if the contentions of Kagono (1985) and Yamashita (1991) were correct, our earlier preparatory conclusion that the slow localization of management knowhow can be attributed to the intra-firm promotions (the third aspect of Kagono categorization) must be reconsidered. In any case, we need more empirical studies on this issue.

V. Concluding Remarks

The transfer of technologies at the factory level seem to have been successful. But why has not the transfer of management know-how or technologies at the

head office level gone smoothly? We have discussed some preliminary reasons for that phenomenon.

However, a number of issues still need further studies: First, in order to promote the effective transfer of management know-how, how Japanese firms can adapt their management style? What is the management style of the US and Taiwanese firms operating in ASEAN? Have they been successful and why? To what extent can the slow transfer of technology at the head office level be attributed to host countries? These are the issues which merit further exploration.

NOTES

1) See, for example, Sekiguchi (1983), and Yamashita (1991), among others.

2) Criticism by ASEAN regarding Japan's affiliated firms is comprehensively introduced in Sekiguchi, ed. (1983), particularly the papers written by Chee Peng Lim and Lee Poh Ping, and Chulacheeb Chinwanno and Somsak Tambunlertchai.

3) Chinwanno and Tambunlertchai in Sekiguchi ed. (1983), p.206.

4) For other cases, see Tran (1988) and Tran (1992).

5) See Tsunekawa (1992) for more details.

6) My field surveys (Tran, 1992) On the operation of Japanese affiliates in Indonesia's synthetic fiber industry also showed the same results.

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