Section 3　Advantages to domestic business by Japanese companies expansion in East Asia

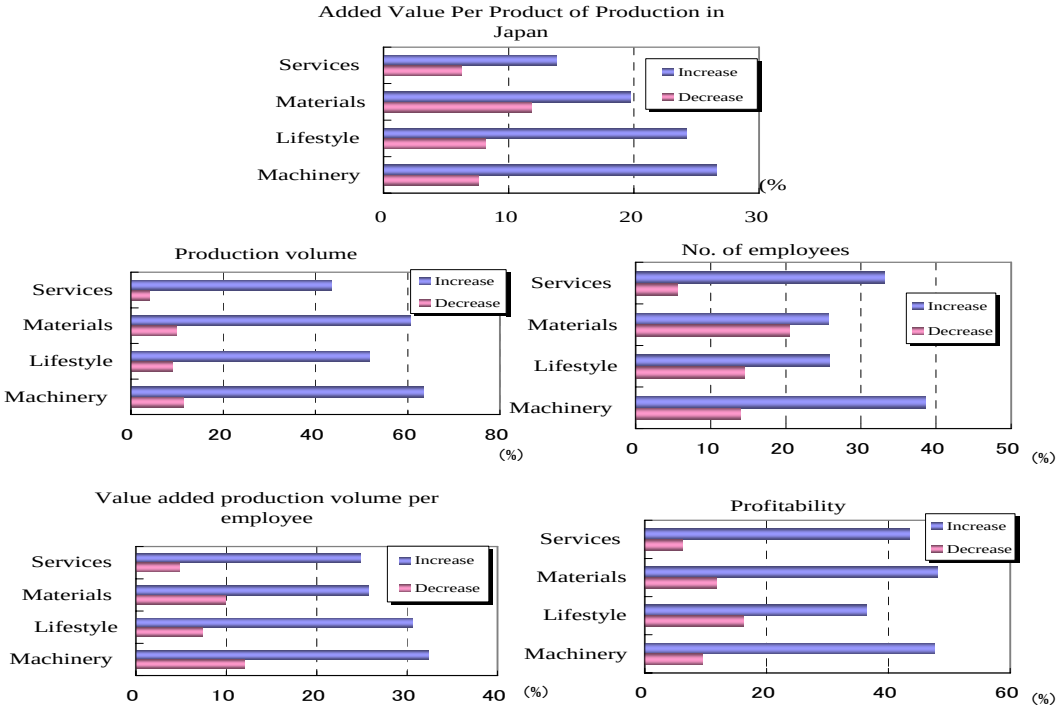
Up to now the discussion has focused on the development of production and sales networks by Japanese companies in East Asia, but what impact has this overseas expansion had on the overall business development of Japanese companies? This section will examine the influence exerted by Japanese companies' East Asian expansion.

1. Effects brought by overseas business development

(1) Impact of business development in East Asia

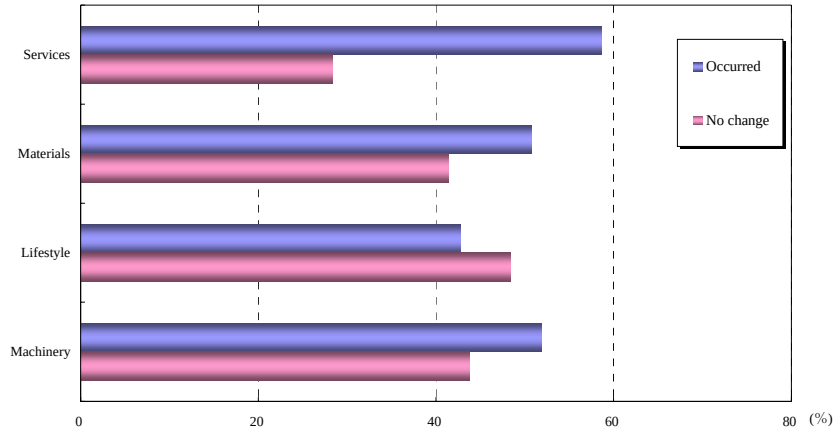
In a questionnaire survey of Japanese companies that have expanded into East Asia concerning the impact that overseas development has had on their domestic business, companies responded that it has generally had a favorable impact, such as increased production (Figure 2-3-1). Most likely these companies have achieved larger production output, increased the number of employers, and improved profitability in their domestic operations through market expansion made possible by the development of sales channels overseas, increased exports of comparatively high-level intermediate goods from Japan, and specialization in high value-added products in Japan. The results of the survey indicate that the increase in added value per product manufactured domestically and the amount of added value per employee is especially prominent in the machinery manufacturing sector. In the service sector, the greater facility with which companies can now ascertain overseas market needs has led to expanded business opportunities.

Figure 2-3-1　Impact of expansion into East Asia on domestic business



Notes: 1. This survey includes "no change" responses, and also non-responses (n=581).
2. The industrial classifications are: materials (mining and textile industries (excluding textile products), chemicals, petroleum, coal products, plastic products, rubber products, ceramic and earthenware products, steel, non-ferrous metals, metal products); machinery (general machinery, electrical machinery, ICT machinery, electronic components and devices, transportation equipment, precision and medical equipment); lifestyle (food products, apparel and other textile products, wood and wood products, furniture and accessories, pulp, paper and processed paper products, printing, and leather goods)
Source: *SEICHO WO TOGERU CHUGOKU-INDO KEIZAI NO GENJOBUNSEKI TO SERVICE SANGYO WO FUKUMU WAGAKUNI KIGYO NO KAIGAITENKAI NI KANSURU CHOSA KENKYU. (JIPRI)(2007).*

Figure 2-3-2 Impact on Business Development of Expansion into East Facilitated Understanding of Overseas Market Needs



Notes: Same as for Figure 2-3-2-1.
Source: SEICHOU WO TOGERU CHUUGOKU/INDIA KEIZAI NO GENJOU BUNSEKI TO SERVICE-GYOU WO FUKUMU WAGAKUNI KIGYOU NO KAIGAI TENKAI NI KANSURU CHOUSA KENKYUU(J IPRI(2007))

(2) Overseas business development leads to a refocusing of business by domestic divisions

The shift to high added-value in domestically-manufactured products spurred by companies' expansion into East Asia as indicated in the above questionnaire survey was most likely prompted by the division of labor with overseas subsidiaries. As Japanese companies began to manufacture low-priced products overseas, they shifted the production in their domestic divisions, changing the overall composition of their principal products and manufacturing higher-value, higher-priced versions of existing products.[37]

Now, it will be examined whether in fact there has been a significant change in the products Japanese companies manufacture domestically due to the shift to low-priced products overseas and the manufacture of high added-value products in Japan that has accompanied overseas expansion. An analysis[38] was performed concerning the correlation between the probability of a change in the products principally manufactured at domestic facilities (probability of product change)[39] and the ratio of product change in the field of intermediate goods, such as electrical equipment, IT, electronic parts and devices which have actively pursued production and intra-regional trade in Asia. It was found that the ratio of production in Asia has a significant positive effect on changing the products manufactured at domestic facilities, and that there is a positive correlation between both. In other words, there appears to be a trend among companies toward changing the principal products manufactured domestically due to the international division of labor, such as a shift in the emphasis of business to high added-value products as the ratio of production in Asia increases (Table 2-3-3).

[37] Although the impact on companies due to overseas expansion is not limited to changes in product mix or the manufacture of higher added-value versions of existing products, these two business reorganization processes are considered here since they have been verified by Census of Manufactures and other data.
[38] The analysis covers the period between 1995 and 2003.
[39] Here, "product change" refers to instances where, from term t-1 to term t, the industry classification of an existing business has been changed (i.e., a change in the 4-digit industry classification code). For example, it would indicate the case where, at a given point in time, an industry classification code is changed from "electronic parts and devices" to "electrical machinery."

Table 2-3-3 The effect the production rate in Asia has on product conversion in domestic companies （Regression analysis results）(1995~2003)

Since regression coefficients are positive and significant, increasing the production ratio in Asia can be thought to promote domestic product conversion.

	Industry type		
	Electrical machinery	nformation communicatio	Electric parts/devices
Regression coefficient	1.431	1.961	1.479
[z-ratio]	[2.67]***	[2.79]***	[3.03]***

Notes 1. Calculation was done by a logit model, using converting products or not (product converting dummy) as explaining variables. For details see Appendix 2-3.

2.***,**,* show that their significant level are 1%、5%、10%.

3. Other explaining variables are calculated by yearly dummy, corporation size dummy 100-299 people, corporation size dummy 300-999 people, corporation size dummy more than a 1000 people, business size dummy 100-299 people, business size dummy 300-999 people, business size dummy more than 1000 people, business age, wage rate, labor factor productivity, import penetration ratio, and European production ratio.

4. Lag is taken from all explaining variables except the yearly dummy.

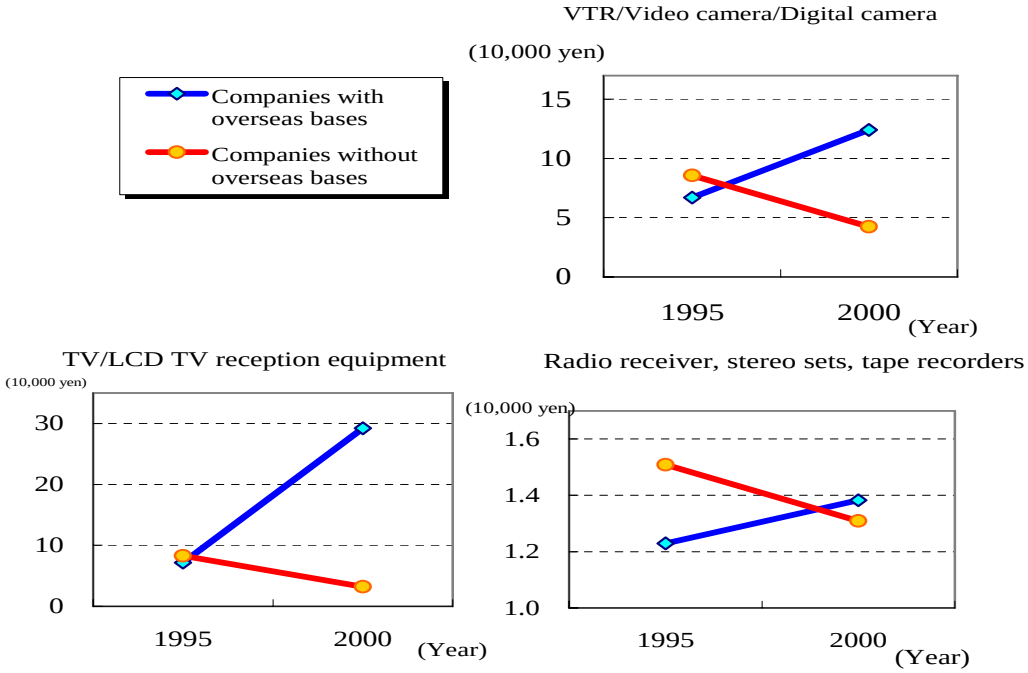
5.For the z-ratio, if the absolute value of z is greater than 1.96, there is a 5% significance level, greater than 1.64, a 10% significance level, and greater than 2.57, a 1% significance level. It can be concluded from these explaining variables that they indicate a power of explanation.

Quoted by: Fujisawa, Matsuura, Motohashi,（2007）.Realignment of "*Basic (Trend) Survey of Overseas Business Activities", "Census of Manufactures", "Basic Survey of Japanese Business Structure and Activities"* (METI).

Next is to examine whether the domestic divisions of companies expanding overseas have shifted their production of the same type of product with higher-price and higher added-value rather than switching into a different product. The analysis here seeks to determine whether there has been a change in the relationship between the unit prices of products manufactured in Japan by companies which expanded their business overseas between 1995 to 2000 and companies which did not.[40] The analysis focused on a few product areas of machinery manufacturing industries that have actively engaged in overseas production in Asia. It was found that companies that had expanded overseas raised their unit prices by a considerable degree (Figure 2-3-4). Among companies which did not expand overseas during this period, some experienced healthy business development, including success in increasing the added value of their products by utilizing to the greatest extent the advantages of having their production facilities in Japan. But, in general, the unit prices either leveled off or declined among companies that did not expand overseas. In contrast, companies that did expand overseas tended to concentrate on producing high added-value products in Japan by shifting the production of relatively low-priced products overseas.

[40] This analysis was performed through cooperation between Kwon Hyeong Ug of College of Economics ofNihon University, and Trade Policy Bureau of METI.

Figure 2-3-4 Comparison of changes in domestic product unit price for companies with or without overseas base



Source: Kwon, H. (forthcoming)(2007), *Realignment of "Census of Manufactures" and "Basic Survey of Japanese Business Structure and Activities" of METI* , (Research through cooperation between Kwon Hyeong Ug of College of Economics of Nihon University, and Trade Policy Bureau of METI).

(3) **Impact of overseas business expansion on productivity (TFP)[41] in Japan**

Now the impact of companies' overseas business expansion has had on their domestic productivity will be examined. Looking at the types of changes in the domestic productivity[42] that occurred following companies' overseas business expansion indicates that productivity increased significantly for both manufacturing and non-manufacturing industries (Table 2-3-5).[43]. It can be concluded from this result that companies that have expanded overseas have increased production at domestic facilities through specialization in high added-value products accompanying the transfer of production of low value-added products and labor-intensive products overseas.[44]

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[41] Here, "productivity" refers to Total Factor Productivity (TFP). TFP is not productivity measured by means of single production factors such as labor productivity or capital productivity; rather it indicates the relationship with production output weighing in all factors, including labor and capital.

[42] This refers to changes between 1980 and 2005.

[43] This analysis represents the results of research conducted with the cooperation of Yukiko Ito,College of Economics of Tokyo Keizai University, and Trade Policy Bureau of METI. .

[44] In addition, by analyzing differences in performance between companies with similar corporate characteristics that either had not expanded overseas or had expanded overseas eliminating the effects due to various other factors and isolating the pure effects of overseas expansion, it was found that increases in production output and staff levels along with increases in productivity had been achieved through overseas expansion. (Refer to Appended Note 2-5 concerning the method of estimation used by Hijzen,A,T.Inui and Y.Todo (2007).

Table 2-3-5 Changes in domestic total factor productivity after overseas expansion

	Changes in domestic total factor productivity after t years to +1 year of overseas	
	Service (n=2,090)	Manufacture (n=6,233)
Effects on TFP	0.0132 [22.71]***	0.0093 [47.81]***
Effects on TFP[Discrepancy from average by industry, Fisical year）	0.0020 [3.90]***	0.0002 [2.02]**

For example, in the manufacturing industry, for every year after overseas development, the

Notes: 1.*** is 1% significance level, ** is 5% significance level.
2. The number of years after overseas development, profit margin on sales, number of workers, research and development profit ratio of sales, dummy year, are used as explaining variables. For details, see appendix 2-4.
3.The number in [] is the Z-ratio (if the absolute value of z is greater than 1.96, there is a 5% significance level, greater than 1.64, a 10% significance level, and greater than 2.57, a 1% significance level. It can be concluded from these explaining variables that they indicate a power of explanation).

Source: Ito(forthcoming)(2007),*KAIGAITENKAI NO SENTAKU TO SONOGO NO SEISANSEIHENKA*

2. Spawning innovation and securing talent capable of working in a global setting through expansion into East Asia

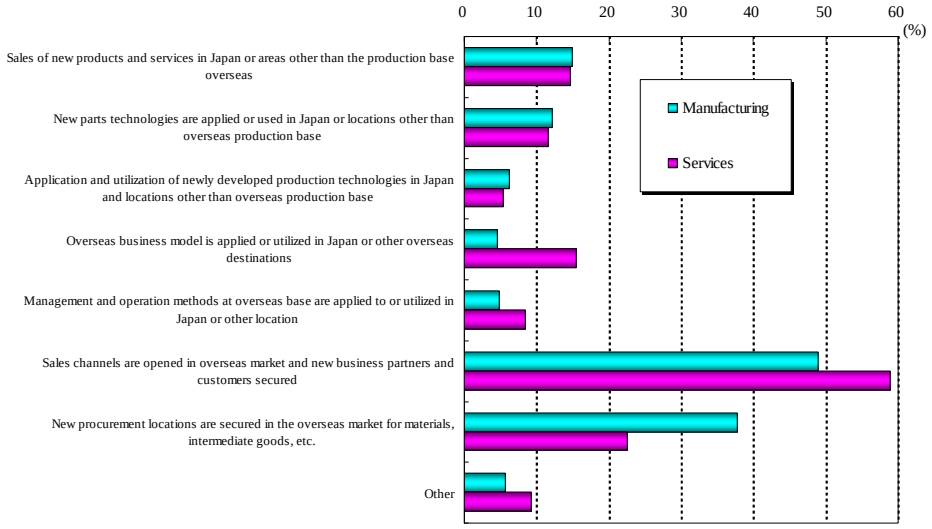
(1) Innovation through expansion of business into East Asia

The significance of companies' overseas expansion is not limited solely to capturing markets and reducing production costs; it also promises to stimulate corporate innovation through the utilization of personnel, technical knowledge, and new ideas acquired in the overseas location of operations. Japanese companies expanding into the East Asian region, which is growing remarkably as a production base and consumer market, are expected to acquire new products, services and business models by adapting to diverse markets unlike Japan's and utilize new production processes developed by adapting to different production environments.

In other words, innovation is likely to originate not only at the parent company in Japan but also to the entire company as new achievements in the overseas location of operations are reflected throughout.[45] Although the importance of company management and technological development will be maintained in Japan, it is important that companies generate the potential to grow in a sustainable way by discovering innovative techniques that do not exist in Japan and utilizing and reflecting these innovations to the head office and to other facilities outside of the overseas location of operations. A questionnaire survey of Japanese companies which have expanded into East Asia showed that innovations spawned in the country or region overseas are utilized at facilities elsewhere (Figure 2-3-6).

[45] Asakawa (2003) divided global innovation into the following four categories.
I. Center for Global Innovation (use of the country's knowledge and superiority)
II. Local-for-Local Innovation (product development aimed at local markets, local procurement)
III. Local-for-Global Innovation (use of results of innovations generated locally in the company as a whole)
IV. Global-for-Global Innovation (use of the innovations generated by all local overseas corporations in the company as a whole)
This section discusses innovations generated by new measures implemented locally and applied and utilized in the head office or in other local corporations.

Figure 2-3-6 Ripple effect of entry into East Asia



Notes: n=500, multiple responses.
Source: *SEICHO WO TOGERU CHUGOKU-INDO KEIZAI NO GENJOBUNSEKI TO SERVICE SANGYO WO FUKUMU WAGAKUNI KIGYO NO KAIGAITENKAI NI KANSURU CHOSA KENKYU, (JIPRI)(2007).*

Specifically, there have been examples where, as a result of expansion into East Asia, products and services developed in the overseas location of operations have been sold in other countries and the new technologies have been applied and used, indicating that local business expansion is driving corporate innovation.

The following are examples where Japanese companies that have expanded into East Asia have achieved innovation through the use of results obtained in the overseas location of operations.

The case of an automobile parts manufacturer Company A (example of low cost production processes in East Asia):

Company A is a manufacturer of hydraulic machine parts that expanded into Vietnam in 2003. Although the company had automated its production plant in Japan, it only introduced machinery and equipment and did not automate its production facility in Vietnam due to the low labor cost. Rather, the company assigned workers individually to each step in the production process, achieving the "one-piece flow" technique of production.[46] As a result, Company A succeeded in keeping capital investment costs down and reducing process cycle time. The company subsequently introduced this "one-piece flow" method of production developed at the Vietnam plant to Japan, which until then had carried out production by lot. By using this method, the company improved its domestic production division by, for example, substantially reducing its in-process inventory.

The case of an automobile parts manufacturer Company B (example of low-cost production processes

[46] This refers to a method of producing many product varieties in small lots as required by orders. In this method, a number of varieties of products are sent into production, processed one-by-one in sequence, and then sent one-by-one to the next step. This method helps to reduce the number of products that do not complete manufacturing.

in East Asia)

Company B has established a number of local corporations and plants in Thailand since 1972. In its auto parts production operations in Japan, the company uses an automated transportation system between facilities plus three employees. In its Thai plant, on the other hand, the company handles the transporting process manually in order to take advantage of the low labor costs, and has established a production system staffed by 20 employees. The use of manual processes has resulted in low-cost production by reducing the expenses associated with the installation of machinery.

This low-cost production system developed by cutting back on automation and using employees instead can be used in other regions where labor costs are low. Hence, Company B introduced this low-cost system developed in Thailand to its plant in China, where it is now producing automobile parts.

The case of a ceremonial event services Company C (example of labor management in East Asia)

Company C is involved in the provision of various ceremonial event services, including ceremonies overseas, but also manufactures wedding-related products such as wedding dresses and photo albums.

In order to reduce production costs, Company C established a plant in Shanghai in 1993 and begun manufacturing wedding dresses. At this production plant, the company did not apply the same labor management principles as those applied in Japan and considered a system that would raise the motivation of its local employees. As a result, rather than practicing labor management using the standard working hours of its plant in Japan, Company C used a scheme whereby standard working hours were determined by the time required to complete the product. Because of this scheme, the working hours could be reduced if the products were completed early; each team made continuous efforts to manufacture products in a shorter period of time, thereby improving the plant's production efficiency.

In addition, when Company C expanded into Vietnam in 2005, the Chinese staff of the local corporation in Shanghai were put in charge of starting up the plant. At the Vietnam plant, production management know-how, including the labor management techniques developed in Shanghai, were introduced. The Chinese staff provides training in sewing and other techniques to the Vietnamese employees, which fosters favorable plant operation. Some of this technical training at the plant in Vietnam is provided in Chinese.

The case of a general machinery and appliance manufacturer Company D (example of development and utilization of new products and technology)

Company D manufactures electrical discharge machines, such as metalworking machinery used in metal mold manufacturing. In 1991, the company expanded into Shanghai. At that time, there was no reliable production facility in China to produce metal moldings, a base for virtually all industrial parts. Thus there was an urgent need to raise the level of metal molding technology. To address this need, the company conducted joint research with the Shanghai Jiao Tong University, which had well-known researchers in the field of cybernetics (i.e., automatic control engineering study which fuses

telecommunications engineering with control engineering that applies cross-cutting studies such as physiology and systems engineering). At that time in Japan, research in this field was focused on fuzzy control. By using electric discharge technology and machine control systems—Company D's strengths—and the university researchers' knowledge of cybernetics, advancements in fuzzy control were achieved, leading to the development of a neuro-fuzzy machine control system which, by means of computers, could reproduce the technique of a skilled craftsman. The development of these systems has led to the development of electric discharge-processed products which have enhanced the competitiveness of the head office in Japan and of Company D as a whole.

Chemical industry Company E (example of the development and marketing of new products using knowledge originating in East Asia)

Company E produces cosmetics and other beauty-related products.

Anticipating the market growth, the company commenced operations in China in 1981 (in 2002, it established a China research institute in Beijing). Applying China's wealth of knowledge in herbal remedies (crude drug) based on traditional Chinese medical science, the company developed medicinal skin toners and lotions that contained natural medicines with moisturizing effects and supplements containing beauty-enhancing tea. By expanding the sale on the Japanese market of cosmetics and supplements based on the approach of traditional Chinese medical science, Company E is considerably enhancing its product development capabilities. At present, the head office is collaborating with Chinese research institutes and is developing products not restricted to the Chinese market, with product and prescription supervision provided by Chinese physicians based on traditional Chinese medical science.

(2) Securing staff able to work effectively in a global setting such as East Asia

In East Asia, where there is an abundance of human resources, Japanese companies must secure and utilize competent local staff experienced in production, sales and management geared to a developing country. Acquiring such talent would be desirable for a major contribution to the development of efficient international business operations by Japanese companies, including not only the management of local corporations in East Asia but also the development of business in other regions.

The case of a metal products manufacturer Company F

The metal products manufacturer Company F started up a production plant in Singapore in 1978. At that time, Company F brought a number of Singaporeans to Japan to undergo training. In the short, half-year training period, the company managed, through various techniques, to convey the necessary technical skills to these employees. More specifically, by systematizing the necessary skills and technological know-how and by practicing the strict time management, the company passed along mature technical skills in a shorter period of time than was required before, thereby realizing efficient human resources development.

Upon their return to Singapore, these employees were central to the start up of the company's

plant. Subsequently, Company F continuously accepted trainees in turns from the Singapore plant, who were then assigned to the start-up of plants in Malaysia (1990), Thailand (1998), Shanghai (2001) and Dongguan in China's Guangdong Province (2002). Thus, the Singaporean employees trained in Japan fulfilled a central role. At the local corporation in Dongguan, China, a Singaporean who worked for the Singapore corporation now serves as president. In addition, at the time of start-up of the company's Hanoi plant in Vietnam in September 2006, employees received training at the Thailand plant.

The case of an automobile parts manufacturer Company G

Automobile parts manufacturer Company G expanded into Thailand in 1962 and, subsequently, into Vietnam, Indonesia and India. In Thailand, the company put particular effort into developing and utilizing human resources as it acquired the capability to design and develop products aimed at East Asia.

When a new product model was developed, the Thailand company would often be assigned to study production methods, and based on the results, Thai employees would be dispatched to plants in other countries to provide training in these production methods. In recent years, the company has been standardizing the knowledge content of its training at its various bases in order that production of uniform quality can be carried out, and some of its Thai employees now are training to become instructors. These instructors provide training in Thailand to personnel of the various bases in East Asia.

The Thai staff of the Thai corporation also provides guidance in production management and logistics and performs management for a local corporation in Laos which was entrusted to produce automobile wire harnesses. It has led to the development of an efficient production system.

The case of a textiles manufacturer Company H

A manufacturer of clothing and other textile products, Company H expanded into Thailand in 1989. In order to transfer their production technology and know-how to Thailand, the company brings Thai employees to Japan every year for training. As a result, the local corporation in Thailand is now able to manufacture products of the same quality as in Japan, and one-sixth of the employees of the Thai local corporation can now speak Japanese.

At the Thai plant, a technology transfer team was assembled consisting of one Japanese and eight Thais, which provides training in production technology, machinery maintenance and plant operation at production bases in Indonesia, Vietnam and other countries. When Company H expanded into Laos in 2006, it dispatched a dozen or more Thai employees to fulfill leadership roles up until the start-up of the plant. At present, these employees serve as the deputy plant managers and division managers of the local corporation, and the Thai staff are effectively in charge of business development in Laos. Thanks to the linguistic and cultural similarities between Laos and Thailand, business operations are executed in a smooth manner.

Companies F, G and H, were able to reduce coordination costs associated with labor management

and other areas at their new overseas bases by dispatching and utilizing staff with similar linguistic and cultural backgrounds, which proved highly significant to the development of efficient overseas business operations.

The case of a transportation machinery and equipment manufacturer Company I

As it expanded its production bases in various countries and regions, transportation machinery manufacturer Company I encountered some difference in the way human resource development proceeded. For this reason, the company believed that in order to manufacture products with world class quality as a global company, it must rapidly spread the principles and techniques of manufacturing to its overseas production bases. As a result, in 2003, the company established facilities in Japan for developing the personnel of its various production bases. Furthermore, since it was urgently necessary to make its independent production bases in Asia and Oceania, the company established in 2005 a human resources development base in Thailand, which had been playing the key role in production in this region. Since 2006, the company has implemented human resources development aimed not only at employees in Thailand but also employees of its production bases in the region.

In these activities, Thai trainers provide lectures and practical training at work sites concerning the basic technical skills of production and maintenance using visual manuals so as to develop trainers for each of the various production bases in the region.

(3) Strengthening competitiveness of Japanese companies through use of global production networks

An effective strategy for Japanese companies to achieve growth would be to generate innovation through using the resources and knowledge available not only in Japan but also from overseas. Innovation originating from countries where Japanese companies have set up operations is not limited to developed countries. The use of the special characteristics of East Asia, such as diverse markets and abundant human resources, will generate new business models, products and services. Japanese companies can and must achieve sustainable growth by seeking such innovations in East Asia.

In addition, to build efficient business networks in East Asia, it is essential to employ globally-minded people who can contribute to this effort. As shown in the questionnaire survey in the preceding section, there are rising expectations regarding R&D personnel in India, and acquiring and utilizing these highly talented people is becoming increasingly important. It is hoped that Japanese companies work actively to ensure that the human resources of East Asia and other countries and regions can be utilized effectively.

Achieving innovation and utilization of global human resources in East Asia as outlined above will require not only management efforts on the part of Japanese companies but also the support for the policies aimed at developing a regulatory environment, including the protection of intellectual property rights and harmonization of labor-related systems, to facilitate the creation of more active R&D and business networks. With sustained effort in these areas, East Asia will fulfill its promise as a base of innovation.