Chapter III

Technical Assistance to Japanese Affiliates
---The Case of the Autoparts Industry in Thailand---

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Introduction

This chapter deals with the role of public technical assistance programs for firm-level Human Resource Development (HRD) among Japanese autoparts manufacturers in Thailand. The focus is on two organizations, the Japan Overseas Development Corporation (JODC) and the Association for Overseas Technical Scholarship (AOTS), working under the umbrella of the Ministry of International Trade and Industry (MITI), Japan. Specifically how JODC and AOTS have contributed to the improvement of production control activities and identified remaining problems in several firms.

Many governments in developing countries, including Thailand, regard the automobile industry as a strategic target, because of large backward linkage effects. In particular, the development of an autoparts industry has been emphasized because it occupies a considerable part of the value added by the whole automobile industry. The Thai autoparts industry is advanced in respect to its ability to take part in global competition, compared with the same industry in other developing countries. Therefore, it can be examined as a useful case for considering the topic of industrial development.

During the development process of the industry, local firms were not capable of supporting car assemblers fully and dominant Japanese assemblers preferred Japanese affiliates coming to Thailand. Consequently, Japanese affiliates have had a large

presence in the industry. In accordance with liberalization and assemblers' production shift to exports, they are now, more than ever, required to improve the level of quality, cost, delivery (QCD) through employee training. As a result, intra-firm technology transfers among Japanese autoparts manufacturers are an indispensable method for HRD which is required for industrial development. Since the economic crisis, MITI has begun to emphasize assistance to Japanese affiliates in the whole industrial sector, and has tried to revitalize HRD by promoting the JODC and AOTS schemes.

Implementing technical assistance that conforms to the promotion of firm-level HRD helps to bring about productivity improvements. It promotes the flow of new direct investment, as well as maintaining and expanding an existing firm's investment which leads to industrial development. This promotion effect is desirable to make a contribution to strengthening the industrial base in recipient countries. This paper attempts to clarify the role played by technical assistance by examining how firms utilize the technical assistance scheme, and by considering the kinds of HRD needs and requests there have been through the schemes.

Section 2 deals with characteristics of the Thai autoparts industry, its present condition and its ability to face global competition by liberalization and shifting production towards exports. Section 3 explains the technical assistance schemes of JODC and AOTS, especially at the point at which they came to take Japanese affiliates more seriously after the crisis. Section 4 summarizes the results of the case studies, including business conditions before and after the crisis, HRD practices, and suggested improvements to the schemes. Section 5 examines the significance of the public support to Japanese affiliates and considers policy implications for the APEC process.

1. The Industry to Face Global Competition

1.1 Characteristics of the Industry

The important characteristics of the Thai autoparts industry can be summarized in the following three points.

1. It is said to be the top runner within the ASEAN region both in terms of quantity and quality.
2. It still lacks competitiveness, compared with advanced countries.
3. Japanese capital is very influential.

Table 1. Autoparts Manufacturers in ASEAN Countries

	Thailand	Malaysia	Indonesia	Philippines	Singapore
Total	750 ～800	200 ～250	150 ～200	150 ～200	About 50
JV with Japanese	209	61	82	54	―

Source: FOURIN (1998)
Notes: The figures includes both Original Equipment Manufacturing (OEM) and Replacement Equipment Manufacturing (REM). The survey was done in January 1998.

FOURIN (1998) showed that, in January 1998, the number of Thai autoparts manufacturers was 750-800. The figure was much bigger than that of all other ASEAN countries (Table 1). Sato (1997) suggested the following reasons for this accumulation: Thailand is the biggest automobile market in the ASEAN region, it has flexible economic policies, incentives are offered to attract autoparts manufacturers, and there is a step-by-step and steady national contents policy. The Thai autoparts industry surpasses others not only in quantity but also in quality. Previous research which compared ASEAN trade specialization indices[1] showed that Thailand surpassed all other ASEAN countries (JICA (1995), JICA, Ministry of Trade, Indonesia (1997), Kawano (1997)).

However, across research for all areas, indices of more than half the parts were negative. This indicated that the Thai autoparts industry was superior only to other ASEAN countries and wasn't yet competitive in the global market.

According to FOURIN (1998), Japanese affiliates occupy around 30% of the total number of firms (Table 1). As the sum includes many replacement equipment manufacturing firms, the ratio of Japanese affiliates among the original equipment manufacturing firms seems to be much higher[2]. In Thailand's case, non-Japanese foreign affiliates numbered only 21. Japanese affiliates were the dominant presence

[1] Trade specialization indices＝(export－import)／(export＋import). The value varies from 1 to –1. The closer to 1, the more competitiveness for export the case has. The closer to –1, the more dependent upon import it is.
[2] After the economic crisis, Japanese investors increasingly added to their holdings. In the case of comparatively old and big firms such as Siam Cement Group and Somboon Group, Thai stakeholders who had cash management difficulties, handed over stocks to Japanese. As a result, the Thai side had a reduced say in management. Consequently, Japanese capital increased its influence.

among foreign affiliates.

In terms of transaction values, the influence of Japanese affiliates is clearer. Higashi (1995) analyzed the transactions between a Japanese automobile assembler and its suppliers (p.41). He investigated transactions by the following types of suppliers:

1. fully Japanese-owned or Thai-Japanese joint ventures;
2. local firms which cooperate with Japanese firms for technology; and
3. other local suppliers.

According to the research, in terms of transaction values in fiscal year 1994, type 1 was 60%, type 2 was 25%, and type 3 was only 15 %. Although this represents the data for only one assembler, it can be said that Japanese assemblers deal with firms which have business relations with Japanese firms in capital and/or technology[3].

1.2 "New Import Substitution" Based on Liberalization

In the middle of the 1980s, the Thai government maintained protection measures. As a result, competition in the industry wasn't severe and productivity remained relatively

Table 2. Automobile Production and Sales in Thailand

	Production	Sales
1984	111,037	113,468
1985	82,106	86,099
1986	74,155	78,481
1987	98,148	101,360
1988	154,183	146,480
1989	213,536	208,243
1990	305,145	304,062
1991	283,115	268,560
1992	323,961	362,987
1993	419,861	456,468
1994	433,326	485,678
1995	525,680	571,580
1996	559,428	589,126
1997	360,303	363,156
1998	158,130	144,065
1999	327,233	218,330

Source: Thai Automobile Industry Association

[3] According to Maruhashi's survey in 1994, four automobile assemblers anticipated that procurement from the Japanese autoparts manufacturers would increase, while that from the fully Thai owned firms would decrease (Maruhashi 1995, p.62).

low. Consumers had to buy high price products to compensate for the high cost. As shown in Table 2, automobile sales were stagnant at around 100,000 units per year. In addition, as assemblers produced many types of cars which have different technical standards, the scale of economies didn't work well in the automobile and autoparts industry. It remained inefficient.

However, rising per capita income lead by export expansion in the late 1980s enhanced the purchasing power of consumers. In the 1990s, the domestic car market expanded drastically. Its scale reached the point where firms were able to produce more competitive products, provided they made the effort required to improve productivity. Consequently, protection measures have been gradually abolished (see Table 3), competition among firms has emerged, and consumers are now able to purchase products of reasonable quality, corresponding to the price. During this period, the

Table 3. Policy Liberalization in the Thai Automobile and Autoparts Industry

Year	Contents
1990	Abolition of the restriction on the number of Automobile series (42 types)
1991	Removal of the ban on import CBUs (less than 2300cc passenger cars) Decision made on cutting import tariffs for CBU and CKD parts Import tariffs (6 kinds) for major raw materials for autoparts cut
1993	Decision made on removal of the ban on new passenger car assembly factories Abolition of regulation on foreign capital ratio
1994	Approval of new passenger car assembly factories Resumption of investment promotion to car assembling (tax incentives for remote location and export orientation) Investment promotion to supporting industries (14 categories)
1995	Exemption from import tax for raw materials
2000	Abolition of the regulation on local contents

Source: FOURIN (1993), Sakura Sogo Kenkyusho (1996), IRC (1997), Higashi (1998)

government promoted “New Import Substitution” not by conventional protection measures, but through the changeover to the liberalization policy (Higashi 1998)[4].

It is said that the automobile and autoparts industry tracked out a different development process from that of the electrical/electronics industry, although foreign capital was the main actor in both industries. The Department of Industial Promotion (1995) summarized the main differences between the two industries as follows (pp.E-1 – E-2).

(1) Export ratio of finished goods

Exports of automobiles account for less than 1% of domestic automobile production in terms of total value. On the other hand, around 70% of electrical/electronic equipment is exported.

(2) Restriction on import of parts

The automobile industry can import a limited variety of components and parts under local content regulations[5].

(3) International competitiveness

The automobile industry lacks international competitiveness because:

1. production of many models for the limited domestic market prevents a large volume of production,
2. the use of heavier equipment and larger components requires a larger degree of investment,
3. automobiles use less common components and parts.

(4) Requirements for technology

Automobile production is characterized by high safety requirements that preclude the use of low-cost, low-end components and parts.

[4] Higashi (2000) emphasized that private enterprise and pressure from outside facilitated the liberalization process. Active expansion of business by private enterprises caused expansion of and structural change to the national economy, and forced the government to implement new industrial policies corresponding to the new conditions. Pressure from outside in this case refers to rescue loans from the IMF and structural adjustments made by the World Bank in the 1980s and after 1997, as well as trade and investment liberalization agreed to under the General Agreement on Tariffs and Trade (GATT), which has since evolved into the World Trade Organization (WTO). They played a significant role in the industrial policy making process of the Thai government (p.121).

[5] JETRO's survey of Japanese manufacturers in Thailand reveals a decline in their local procurement ratio between 1987 and 1996. The decline demonstrated local suppliers' failure to fully meet the growth of demand and led to a massive influx of Japanese manufacturers. Electrical machinery and electronics makers have made less progress in local procurement compared with transport equipment makers. One reason, which has been identified, is that electrical/electronic manufacturers maintain tighter quality requirements because they are more oriented towards export markets (Itoga 1999, p.4).

Aside from industry specific conditions ((3)-2, (3)-3, (4)), liberalization in the automobile industry didn't force assembling and parts production to face global competition. Import substitution-type production were not changed and the regulation of local contents remained. Although a certain level of productivity improvement could be observed, it didn't reach the point where the industry could be competitive in the global market. Office of the Board of Investment (BOI) (1995) emphasized,

> "Yesterday's 'infant industries' had, by the 1990s, evolved into 'aging infants' long on experience operating in the protected environment but short on qualitative advancement (p.12)".

Table 4. Diffusion Indices of the Automobile and Electrical/Electronic Industry ("business condition turning up" －"turning down")

Industry	Result							Forecast	
	96 Ⅰ	96II	97I	97II	98 Ⅰ	98II	99I	99II	2000
Transportation Machinery	27	▲43	▲36	▲94	▲44	65	95	71	82
Electrical/Electronics Machinery	15	5	20	▲33	▲32	▲ 2	56	39	49
Whole Manufacturing	11	▲12	1	▲33	▲21	9	55	52	67

Source: Japanese Chambers of Commerce in Bangkok

Note: ▲ stands for minus.

Table 5. Automobile Export from Thailand

	Passenger Cars	Commercial Vehicles	Total
1993	3,892	8,459	12,351
1994	1,437	6,930	8,367
1995	1,665	7,094	8,759
1996	1,238	15,090	16,328
1997	6,407	41,568	47,975
1998	—	—	68,575
1999	—	—	125,702

Source: Department of Business Economics, Various Issues;
Thai Automobile Industry Club

1.3 Production Shift to Exports

The steep expansion in automobile production mentioned in the previous section, came to an end during the recession, following the monetary crisis in July 1997. In 1998, automobile sales fell below 150,000 units. This represented one fourth of the sales in the peak year. Capacity utilization of assemblers dropped to about 15% in the first half of 1998. Table 4 shows that the impact from the recession was bigger in the automobile industry than in the electrical/electronics industry which is much more export-oriented.

Assemblers who proceeded into expansion, anticipating a further dilation in the domestic market, found a means of survival through exports. Entire car exports from Thailand increased rapidly, mainly through a shift in production from Japan to Thailand. In 1999, 125,702 units were shipped to foreign countries (Table 5). In 2000, both export and production are forecast to increase. The take-off in the shift of production to export lead most enterprises to evaluate (or forecast) that business conditions have been (or will be) turning up since the second half of 1998 till 2000 (Table 4).

The liberalization process has progressed even further. The Thai government abolished local contents regulations on automobile production, in accordance with the WTO's removal of Trade Related Investment Measures (TRIM) in January 2000, which aimed at liberalization. In the case of pick-up trucks, which occupy two-thirds of total automobile production, this meant that the regulation requiring 60-70% local contents ratio and an obligation to use domestic engines, no longer applies[6]. In other words, Thai autoparts manufacturers are required to take part in the same game as global players, although they are given slightly better odds through the remaining tariffs. The condition has changed drastically, compared with the isolation from outside competitors that existed before the abolition of the local contents policy.

The above-mentioned structural differences between the automobile and electrical/electronic industries have diminished drastically since the economic crisis.

(1) Car assemblers were forced to export their products because of a plunge in the domestic market.
(2) The regulations regarding local contents have already been abolished.
(3) Under the excessive level of production capacity, firms have no other way to survive than by being internationally competitive.

The Thai autoparts industry has fully embraced the liberalization age. Consequently, suppliers might lose out to competitors anywhere in the world who are superior in QCD,

[6] In connection with this, the government addressed a rise in the import duty to alleviate the influence of liberalization and a reduction in the commodity tax in April to alleviate the influence of the rise in import duty to the domestic market.

notwithstanding their past record of supplying to certain assemblers[7].

When production was oriented to import substitution, domestic market expansion inevitably brought about an increase in the entire production of cars and autoparts. However, from now on domestic market expansion cannot be connected directly with car production as a whole. There can be no guarantee that an increase in car production will result in an increase in autoparts production. On the other hand, the growth of autoparts exports could yield an increase in autoparts production, which would not rely upon domestic car production. In any case, the growth of the autoparts industry depends upon its own efforts to improve QCD at the whole industry level.

As for the future of the automobile and autoparts industry, recently, an optimistic outlook has begun to emerge. According to the Automotive Industry Institute, the combined capacity of local automobile parts producers is sufficient for the assembly of 600,000 units per annum. Therefore, Thailand needs to increase its production capacity of car parts to serve the localization policy of assemblers and to fill the growing demand as domestic production is forecast to reach the one-million-mark by 2005 (The Nation, February 9, 2000).

Even if car production actually reaches 1,000,000 units in 2005, domestic autoparts manufacturers are not certain to win the competition against importers. If they lose, they will not be able to exploit the bigger domestic market. Our previous remarks should be regarded as showing potential possibilities for the industry's future development that may stem from the demand side, and is subject to improving QCD.

2. Japanese Technical Assistance after the Crisis

2.1 Focusing on Japanese Affiliates

This section deals with technical assistance schemes by JODC and AOTS[8]. Since the economic crisis in the East and Southeast Asian region, the two organizations have focused more on Japanese affiliates. This reflected a policy change by MITI. They are

[7] The progress of information technology also promotes this inclination. Assemblers intend to utilize databases which would allow them to procure parts on-line with the best conditions from anywhere in the world. This type of database is arranged to show the list of suppliers' name and the price by products.

[8] Both organizations are government-affiliated corporations under the Ministry of International Trade and Industry and aim at providing technical assistance to private enterprises in developing countries. JODC was founded in 1970. Its main program is to dispatch experts to developing countries. AOTS was founded in 1959 and mainly arranges and coordinates the training of employees from developing countries who work for Japanese related companies.

providing more technical assistance to improve the productivity of Japanese affiliates through the training of local employees in developing countries. Itoga (1999) pointed out that behind this move is the realization that Japanese manufacturers have already come a long way in completing their Asia-wide production network, which cannot be given up because of the current crisis (p.9). The logic is as follows: the Recession has influenced the business of Japanese affiliates greatly and without the Japanese government's support, they may be forced to scale down or close their businesses altogether.

In fiscal year 1997, JODC sent 172 experts to local enterprises and 76 to Japanese affiliates. The ratio of the latter was around 30%[9]. Therefore, it tried to promote utilization of their technical assistance schemes by Japanese affiliates. In the same year, AOTS received 3,127 trainees from Japanese affiliates, and 1,820 from non-Japanese affiliates. Compared with JODC, the scheme focused more on Japanese affiliates. However, as mentioned later, implementing the large-scale local training scheme was a first-time approach. Therefore, it can be regarded as the new scheme for the Japanese affiliates.

2.2 Schemes of Two Organizations

2.2.1 JODC

The official name of JODC's expert dispatch scheme is JODC Expert Service Abroad (JESA) Program. Between April 1979 and March 1999, 3,293 experts were sent to developing countries. About half of them were long-term appointments of more than one year. 17% of JODC experts were dispatched to Thailand. This makes it the third largest recipient among developing countries, after Indonesia (25%) and China (20%).

The program consists of two types of services. One is the JESA-I Program for business improvement. Companies who are recipients must pay 25% of the total cost. Japanese affiliates may only apply to this service. Previously, when experts were sent to Japanese affiliates, 37.5% of the cost was absorbed by JODC, 37.5% by Japanese parent companies, and 25% by Japanese affiliates. On the other hand, in new JESA-I since 1999, JODC bears 75% of the total cost and Japanese affiliates pay the rest. The condition is the same as that of local enterprises[10]. As for the contents of training, the

[9] The definition of local enterprise is as follows. ①No investment from Japanese companies (enterprises which received investment from Japanese affiliates are classified as local.) ②No technical cooperation relationship with Japanese companies ③ Transactions with Japanese companies must be less than 50% of the total.

[10] The other is JESA-Ⅱ(Program for industrial restructuring). Recipients don't need to pay anything for the service. Local companies can apply to this service.

following are supposed to be implemented: ①Training for improving cost, productivity and quality, ②Training for improving technology and equipment, ③Training for product development and market cultivation, ④Training for improving management. Comparatively, the major emphasis is on production and technology. The tenure can be decided at the recipient firm's request, for a minimum of two weeks up to a maximum of two years. Expatriates who have work experience in the recipient companies can be experts, as well as those newly dispatched from Japan.

MITI (1999) required its technical assistance organizations to diversify the formula of dispatch. That is,

> "a broad range of dispatch measures should be considered. For instance, seminars on the scene and peripateric training by Small and Medium Enterprise (SME) Management Consultants can contribute to improving productivity of the SMEs and promoting the build-up of supporting industry."

JODC's new expert dispatch scheme for the affiliates of Japanese SMEs was designed, based on the recommendation as the measure in the supplementary budget. In addition, given that all the cost is supplied, one expert can go to several companies for training during his/her tenure. As the scheme was very convenient for the target companies, demand was greater than anticipated.

In Thailand, inquiries from Japanese affiliates increased rapidly regarding the whole range of JESA programs. Between April and December 1999, the number of applications doubled compared with the same period in the previous year.

2.2.2 AOTS

AOTS started the Asian Local Training Program for Industrial Revitalization (ALTP) in 1999. As mentioned previously, this is a training program for employees of Japanese affiliates who work in developing countries. The contents are: ①various production technologies, ②management techniques such as quality control, production control, 5S[11], small group activity, ③foreign language, trading business, financial management, cost management, control of organization, and business management. All the contents have to be related to technological knowledge or management techniques, which are necessary to maintain and upgrade the industrial base of recipient countries, to transfer to export oriented industries and to reserve core human resources in the

[11] 5S stands for seiri (arrangement), seiton (order), seisoo (clearing), seiketsu (cleanliness) and shitsuke (discipline).

enterprises.

At first, the scheme was scheduled to run for three months, but was extended for one year at the request of the target enterprises. In this scheme, AOTS supported the total cost including the personnel expenses of the trainees, the cost of the training itself[12] and expenses to bring over lecturers even from Japan. The training period was from a minimum of one week to a maximum of three months. The average was a little under two months. During the training, more than 10% of the total time allowed was alloted to lectures. The preliminary result is shown in Table 6. Initially the target was to train 10,000 persons. In fact, there were 30,000 participants in ASEAN and over 10,000 of these were in Thailand alone.

The scheme is aimed at both training local employees and conserving human resources at the same time. In practice the latter has the effect of preventing

Table 6. The Preliminary Result of Asian Local Training Program for Industrial Revitalization

Country	Trainees	Courses	Companies	Japanese Affiliates
Indonesia	6,216	288	117	95
Thailand	*12,632	487	175	156
Philippines	4,129	213	100	80
Malaysia	5,214	294	130	104
Cambodia	6	1	1	1
Laos	35	1	1	1
Myanmar	250	10	7	4
Vietnam	1,538	53	29	21
Total	30,020	1,347	**560	462

Source: AOTS

Note: * including 46 courses, 2,407 trainees implemented under the contract with Department of Industry Promotion, Ministry of Industry, Thailand

** actual number of companies will be 1,500, because, in some cases, it was counted as one even when companies participate in one course.

education and training stocks accumulated in the employees by the enterprises from being scattered and lost. Japanese affiliates in Thailand praised the scheme for enabling them to retain their employees, as they tended to be obliged to put greater consideration on their short-term problems. For instance, “We are forced to set up the work cycle of two-hour operation, one-hour lay-off and one-hour maintenance. But ALTP enables us

[12] In Thailand’s case, 1/365 of the wages paid in the past year was paid to the recipient enterprises to compensate for personnel expenses, provided that the total cost was less than 520 Baht per day. As the cost of the training, hands-on training expenses were provided. The amount was 65% of the compensation for personnel expenses.

to change to two-hour operation and two-hour training" (Japanese affiliated electric cable manufacturer). "Because of the 40% downturn of operating ratio, 24 employees were made redundant. Thanks to ALTP, we could avoid their dismissal" (Japanese affiliated engine valve manufacturer).

AOTS Bangkok Office analyzed the factors which bring about good results as follows. ① To place emphasis on on-the-job training (OJT), ② To let the enterprises make training plans independently, ③ To enable the enterprises to select either Japanese or Thai lecturers on a case-by-case basis, ④ To train mainly supervisors and group leader class employees who should be the core members to improve productivity. As for ④, the conventional schemes were intended primarily for engineers and managers. The new schemes, however, were targeted for the smallest groups' leaders and their candidates in the workplace. By broadening the scope, good result are expected in 5S, quality control and other production management measures through company-wide implementation.

The purpose of the technical assistance schemes of both organizations is to improve productivity in a broad sense, because that is one of the most important steps to upgrade the industry's international competitiveness. In the next section, the actual conditions of the public technical assistance will be explained, through an examination of case studies of Japanese affiliated autoparts manufacturers in Thailand.

Table 7. Outline of the Case Companies

	Established	Paid-up Capital (mil. Bahts)	Japanese Share (%)	Employees (persons)	Japanese Dispatches (persons)	Product
A	1969	200	34	710	7	Tyre, tube, gum products
B	1989	100	75	70	2	Tyre valve
C	1992	745	100	150	3	Transmission complete Engine gear
D	1994	160	70	94	3	Seat belt
E	1994	200	100	53	3 (6 from UK)	Painting bumper Instrument Panel
F	1995	160	—	—	3	Instrument panel Door Trim Bumper
G	1996	25	48	21	3	Nut

Source: Survey by the author

3. Firm-Level Research

3.1 Outline of the Research

In January 2000, the author visited seven Japanese autoparts manufacturers in Thailand and conducted a field survey on heightening production control abilities and utilization of public technical assistance schemes. The outline of the target companies is indicated in Table 7. Aside from company A, they are all comparatively new and either small or medium sized.

Subsequently, business conditions before and after the crisis, HRD practice and the utilization of the schemes, and suggested improvements to the schemes are mentioned one by one, based on the results of surveys.

3.2 Business Conditions before and after the Crisis

Business conditions after the economic crisis have been very different among the companies. One of the most important reasons is the difference in production shift to products which are finally exported. Like company C's case which will be examined later, operation rates differ according to the place of destination, domestic or export, even within the same company. Autoparts manufacturers' business conditions depends very much on assemblers' export orientation.

Company A. Influence on business began to appear three or four months after the onset of the monetary crisis. Between August and October 1998, the operating rate fell by as much as 50% to 25-day full operation. As employees are at present required to work on Sunday, the rate is over 100%. Although the total number of employees was 1,100 persons at the peak in 1995, now it is 710. The peak figure of 250 part-time operators dropped off to 50 temporarily, and has now recovered to 100. The number of Japanese expatriates changed from 10 at the peak to 6 at the bottom - currently there are 7. Thai business partners understand that Japanese employees are necessary to retain their technological level, and therefore they do not see reducing Japanese staff as a favorable option.

Because of the big deficit in 1997 and 1998, yearly bonuses were not supplied in 1998 and 1999. In 1999, regular wage increases were also not implemented. As the Japanese share is less than half and management did not need to demonstrate good conditions to employees, drastic measures were put into effect. In 2000, a 2.1% across-the-board pay increase and the provision of yearly bonuses will be conducted, as business seems to be recovering.

The main products, motorcycle tyres and tubes, shifted to an increase in production as the domestic market recovered. 75% of the output represents the final products for the domestic market, 18% is for the domestic aftermarket, and 7% is for export. Although most products for export went to Japan before the economic crisis, current destinations for export are chiefly Latin America, the Middle East and Africa, as well as other ASEAN coutries.

Company B. Sales fell by 30-40% after the monetary crisis. However, even so, the influence wasn't as serious for those companies which rely upon the domestic market. Although the tyre valve for the motorcycle is sold in Thailand, 60% of the products for automobile are shipped for export, including indirect export via tyre manufacturers and car assemblers. To get approval from BOI on holding a 75% controlling share, it was necessary to export more than half of the total output. Therefore, export orientation was indispensable to grasp management authority. At present, their products are exported to Indonesia, Malaysia, Vietnam and the Philippines. The company has made it a principle that its products are "made in ASEAN and sold in ASEAN".

Now on-site operators work overtime everyday and come to work on Sundays. Management uses human-wave tactics to deal with increasing orders, because they cannot afford to pull up production capacity. To put the present operating rate at 100%, the figure was 40% in the end of 1997. It recovered gradually to about 85% in the latter half of 1999, which is two shifts plus a little overtime work on weekdays and Saturdays. There is no significant difficulty in labor relations, as operators are willing to work overtime even for five hours a day. Payment of extra allowance for overtime work, especially 100% extra pay on Sunday, seems to be very attractive to them.

After production fell, employees were reduced by not replacing job leavers. The overall number of employees has been reduced by 10% a year in this manner.

However, there is a structural problem regarding international competition. In other words, yellow copper, the raw material for their product, has to be imported. Although several domestic companies produce it, the material made in Thailand suffers from problems in quality. In addition, the import duty for the raw material is higher than that for the parts. Therefore, the selling price of the parts made in Thailand is higher than that from Japan. Support from the parent company in Japan is necessary in the present circumstances. Specifically, by reducing the invoice price of yellow copper from the parent company without considering profit, it manages to compete with imports.

Company C. In October 1998, operating rates fell to 25% at the bottom. It recovered

gradually to 30-40% in the first half of 1999, and to around 50% in the second half of the same year. Management forecasts the figure will be 60% in the second half of 2000. However, a big difference in operating rates is observed among production lines. For instance, while it is only 20% in the line for the domestic market, it is 90% in the line for the export market. Operators working in the latter line work overtime and come to work on holidays.

Since the crisis, the company hasn't raised wages. The number of job leavers, however, remains very small. But it is difficult to recruit capable persons at the same time. The number of employees has increased from 130 to 150. All the new employees are operators. Increase in the allowance for overtime work makes average employees' incomes higher.

Company D. It was in April 1998 that production fell to its lowest level. Then, the line was at work only for four days a month, although usually for 26 days. In the latter half of 1999, production levels recovered to one shift (eight hours) operation on weekdays. The number of employees fell to 65 from 115 before the monetary crisis. At present it has increased again to 101. Recently, when putting up the bulletin board in front of the company to advertize for three vacancies, 120 persons applied. Although the labor turnover rate has also gone up to 6% from 2% during the crisis, employers still have the initiative in the labor market. Business conditions are becoming favorable, for example they have been producing a surplus on a monthly basis since September 1999 and forecast net profits in 2000, in spite of the remaining accumulated debt. 75% of sales now come from automobiles which are exported[13].

Company F.[14] Although business performance has recovered little by little, the evaluation loss of the debt caused by depreciation of the Baht is still the principal burden. Fortunately, the company is not in excessive debt. It should be said that its financial condition is very serious, like that of many other companies. When starting operation, they introduced more expensive equipment than that in Japan, because of the lower technological level in Thailand. Although automated equipment requires mass

[13] There was a minor change to existing products. For the domestic market, they used material which was sold at a lower price but becomes hard and fragile at low temperatures. It is necessary, however, for exportable products to maintain a reasonable quality even at low temperatures. Because of this, they changed the material to one which, although a higher price, is sufficiently impact-resistant at low temperatures.

[14] The author could not obtain the relating comment from company E, as it was still at the stage of preparation for production.

production to be cost effective, output from the factory has not yet increased to a sufficient level. The main reason for stagnant production is that the assemblers' production shift to exports hasn't yet taken off. At this stage, only the parts for 200 units out of 6000 units produced in the past year were exported. It is expected that production for export cars will increase from now on.

Company G. The economic crisis happened just when production began to move into gear. Consequently orders suddenly stopped. When conditions for business became very bad, the company adopted a four-day working week. In fact, the machines were kept in operation to maintain the employees' skill levels, even though this increased the stock even further. Business recovered gradually during 1998. In 1999, orders increased rapidly. It is because they are supplying mainly to two Japanese assemblers who produces automobiles for export. Employees work overtime for one hour on weekdays and come to work even on Sundays. The machines are in operation for 24 hours on weekdays and 18 hours on Sundays. There are trucks almost constantly waiting for delivery on the factory's premises. The accounting term of December 1999 recorded a surplus. Output reached twice as much as that at the bottom of the recession. To increase production, they plan to construct a new factory in a remote area. It will commence operation in August 2000.

3.3 HRD Practice and Utilization of the Schemes

3.3.1 Introduction

The production shift to exports by Automobile assemblers has influenced the production methods and the manner of HRD among autoparts manufacturers.

For assemblers, the important problem is to satisfy environmental and safety standards in developed countries. On the other hand, the specifications of most autoparts don't change substantially. For them, the influence emerged in the form of being required to improve QCD to a level matching that in Japan, through taking part in international competition after the assemblers' change[15].

[15] According to the Technology Promotion Association (TPA) (Thailand-Japan), which is a vocational training organization, training needs in the whole manufacturing sector changed after the crisis. In 1999, TPA carried out 253 training courses, which were classified into seven categories. That is, ①Environmental and Security Power Group, ②Information Technology, ③Measuring Equipment Technology and Calibration Group(① － ③ Industrial Technology), ④ Production Management Group, ⑤Management and Human Resource Management, ⑥Quality Support and Standardization, ⑦Total Productive Management(④－⑦Management Technology). ① and ③ belong to industry specific technologies and the remainder to management technique. Investigating the general change since the latter half of 1997, applicants to ① decreased, while ⑥ and ⑦ have

To achieve the equivalent QCD level as that in Japan means to expidite related HRD locally without delay. Japanese expatriates are expected to be trainers for upgrading production management skills. However, some companies which cannot afford to pay the expenses of Japanese allowed the their number to be reduced. As a result, it began to be difficult to maintain the previous production management level. Public technical assistance schemes offered by JODC and AOTS can alleviate the burden of expenses. Moreover, they play an important role in maintaining the necessary level of technology transfers and HRD. It would appear that potential needs are being met among companies which have utilized the schemes so far.

3.3.2 Company A

Specifications of the products and prodution methods do not differ greatly between goods for export and for the domestic market. However, an increase in the kinds of products caused more difficulties in production management. While on average 25 kinds of products were produced in one day before the recession, now 40 kinds are produced. The total number of different kinds exceeds 200. This is because of the many differing types which are needed for the export market. Tyres are produced in a long process. This means the greater the diversity of products, the more waiting and transfer emerges. Eventually this has a negative effect on productivity. Especially in the past two years, quality control levels like those in Japan have been required to meet the needs of exports. The Japanese way of building up skills is to acquire them through experiencing problems first hand. Local employee do not have the requisite experience to do this.

Since 1998, every year one employee is supposed to utilize the AOTS scheme. During the first three months, trainees study Japanese and attend other lectures. After that, they learn how to produce tyres at the factory. Trainees are to be assigned to the same post and the same job as in Thailand. This method aims at letting them learn how to do and arrange work from basic principles. At present, the focus of training is on managers and staff. That is because the training above all aims at upgrading management techniques[16]. To attain this purpose, training in Japan is indispensable. First of all, trainees need to learn the good points of the Japanese system at first hand. Subsequently, they have the chance to make a presentation after coming back to

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been more popular.

[16] The term means technology, which is commonly used among different industries. Specifically, the measures regarding quality control and cost management are included. It is used as the antonym to industry specific technology.

Thailand to disseminate what they have acquired to others. First hand experience has the effect of nurturing a self-developing mind, as well as learning management techniques. After the training, they also cultivate how to teach work and how to deal with others, although not learning directly. From now on, management plan to send workers to Japan. At any rate, the company will become more active in training in Japan.

Local training by AOTS is good for the company because a broader range of employees have the chance to learn the essence of the Japanese system. Employees from the company, attend a one-week seminar by a Japanese lecturer. Although translated from Japanese to Thai, participants were very interested in the lecture, because the lecturer was excellent and the talk he gave was also stimulating. Usually, lecture participants feel sleepy during the class and often cannot fully understand what is said. This lecture stands apart from the ordinary and was very useful. A Japanese executive of the company also had the chance to listen to the lecture for a short time. He felt it was useful enough also to Japanese dispatches, as the lecturer talked in a understandable way about important points.

The company has also applied to JODC's expert dispatch scheme. Immediately after learning about the scheme in 1999, it obtained a subsidy for two experts from Japanese parent companies, to be sent for three months each. Presently, it is applying for three experts, also from parent companies, including one for the new dispatch scheme for SMEs. Without this type of scheme, it is said to be very difficult to call managers and engineers from Japan. When calling one person from Japan, it costs US $400 a month for wages, 20,000 Baht for air tickets, 800 Baht a day for meals and 1,000 Baht a night for the hotel. These expenses are a heavy burden to a company without abundant funds.

3.3.3 Company B

In Thailand, localization of men and material leads to costdown. As the automobile industry has been expanding, success in costdown brings about greater business opportunities. However, as for localization of men, the problem is that local supervisors are short on ability. Although they are in charge of supervising the production lines, they are still learning basic skills such as 5S. When trouble occurs such as a fall in productivity, staff are supposed to follow procedures. In some cases, Japanese expatriates are directly in charge. This is unavoidable as local staffs do not understand Kaizen activities well.

As for the utilization of the technical assistance schemes, from now on the company is planning to be more active than ever. So far, it has the experience of receiving experts

under the AOTS scheme, reducing the average defect rate from 2.5% to 2.0% , and cutting costs of equipment and production processes incurred through Kaizen. The present target is for a 1% defect rate. AOTS's new scheme (local training) can be evaluated highly. It excels at the point that workers/operators can participate. The possibilities for application are high. For instance, when introducing TQC (Total Quality Control) and the ISO9000 series[17], the program is designed as follows. Firstly the lecturer gives a course for two weeks. And then OJT will be conducted for several months. The AOTS scheme conforms to the course part of the above mentioned program. As the company thinks of TQC implementation in a more fully-fledged way, it is investigating how to build the scheme into TQC.

Training in Japan supported by AOTS is also useful. This scheme, which differs from local training, is intended for managers and engineers. The two schemes can be regarded as complementary. In 1999 under the AOTS scheme, four Thai employees, an assistant manager and three engineers were sent to Japan for four months.

The company has not yet utilized the JODC scheme. However, it has now become more necessary than ever. At present, two Japanese are dispatched to keep and upgrade production management levels. The total cost is more than that of 50 Thai employees. The burden is therefore too heavy, especially during a recession.

They also plan to start a stamping business. As their Japanese parent company has a stamping parts division, Thai stamping parts buyers often request them to sell parts in Thailand as well. However, only the production division for tyre valves is based in Thailand. Engineers in the tyre valve division do not have the necessary skills to produce another division's products. Therefore, as experts from the stamping division are necessary to the formation of a new business, the JODC scheme will be very useful. Moreover, in the latter half of 2000, because the company intends to obtain ISO certification, experts will be required at that time as well. The only concern is that the scheme is very popular among Japanese affiliates and competition is therefore very keen. If the application is not successful, a revision in the plan might be unavoidable.

3.3.4 Company C

In 1999, the Japanese managing director came to feel that quality had deteriorated. While it is not true that products for export are harder to produce regarding specifications, the effect of an increased workload on maintaining quality, however, is

[17] The international standard for management systems arranged by the International Standard Organization.

considered to be quite great[18]. An increase in new employees also contributes to this problem. For instance, entry-level failures, such as the making of flaws during the set-up, are noticeable. This means that day-to-day training is not enough. Defects caused by human error are frequent. Worse than that, frequent failure in finding them leads to more serious defects at later stages in the process. However, such excuses as, 'it is too busy' or, 'new employees are increasing', cannot be accepted. As a second best solution, the emphasis must be on final inspection in the short run. But of course in the long run, it is indispensable to upgrade the production management ability of employees.

In the case of products for export, more attention needs to be paid to quality control, because the appearance of defects will be more serious (it is difficult to replace parts instantly). Assemblers are more nervous than in Japan and tend to check more in detail. ISO9000 and QS9000[19] certification is also necessary to maintain existing relationships with assemblers.

Training in Japan under the AOTS scheme was implemented for line leaders and upper class employees. Although this was suspended after the crisis, it is supposed to start again in the near future. However, apart from that, the company has not utilized JODC and AOTS schemes consciously and actively. The local Deputy Factory Manager is fully responsible for outside training. Japanese expatriates are not involved in the individual courses, although they know some of the courses are provided at discount price supported by the Japanese government.

Out of other vocational training organizations, the Thai German Institute has been frequently used. This is because the cost is low and the location is nearby (10 km) to the factory. Equipment for machining and inspection are arranged well in the premises. In particular, it provides comparatively cheap training courses, at 100-200 Baht per person, per day. Therefore, there is an incentive for sending more employees. The same courses provided by a private consulting firm, would cost 3000-4000 Baht per person, per course (usually for two days). Since the foundation of the company, being a member of the TPA, it has utilized only limited cases such as the Failure Mode and Effects Analysis (FMEA) course which is part of QS9000. The location is too far from the factory. In addition, it has used the training center of the Ministry of Industry. Specifically supervisors were

[18] Before the production shift to exports, the scale of production changed drastically and it was hard to introduce quality control measures. Presently, it has become possible to utilize a problem-solving method managing the difference between plan and performance.

[19] The 'Big Three' American automobile assemblers made this standard by adding the new things to ISO 9000 series for being adapted to automobile industry. Suppliers to the 'Big Three' are required to obtain this certification.

Table 8. Company C's Training Plan for 1999

Courses	Trainee	Method	Duration	Expense (Baht)
Orientation	New Employees	Internal	Jan.-Dec.	
Analysis Metallurgy	SV*	External	Jan.	1,000
Safety for Supervisor Level	SV	External	Feb.	10,000
TPM	SV	External	Feb.	3,000
Safety for Manager Level	SV	External	Mar.	3,000
ISO 9000 and Implement	SV	External	Mar.	1,500
8D	SV	External	Apr.	4,000
FMEA	SV	External	May	3,000
Human Resource Development by "OJT"	SV	External	Jun.	6,000
Efficiency through "5S"	SV	External	Jun.	5,000
Q.C. Technique	SV/Manager	External	Jun.	3,000
Precision Measurement	SV	External	Jun.	20,000
Personnel Administration	SV	External	Jun.	8,000
Time Management	SV	External	Jun.	8,000
Q.C. Process Chart	SV	External	Jun.	3,000
Machinery Maintenance Management	SV	External	Jun.	4,000
Efficiency Working Development	SV	External	Jul.	9,000
Supervisor Technique	SV	External	Jul.	12,000
Report Writing Technique	SV	External	Jul.	5,000
Management Accounting	SV/Manager	External	Jul.	3,000
Cost Reduction by All Participants	SV/Manager	External	Jul.	6,000
Quality Mind	SV	External	Jul.	3,000
Modern Production Management	SV	External	Jul.	2,000
7 Items for Reduction of Loss	SV	External	Jul.	6,000
Preventive Maintenance	SV	External	Jul.	6,000
Productivity Management	SV	External	Jul.	3,000
Poka-Yoke System	SV	External	Jul.	1,000
Job Ordering & Following Technique	SV	External	Aug.	5,000
CNC Technology	SV/Manager	External	Aug.-Sep.	27,000
JIG & FIXTURE Design	SV	External	Sep.	9,000
"Excel" for Production Planning	SV	External	Sep.	6,000
Fire Prevention	Company-wide	Internal	Sep.	20,000
How to be a Good Supervisor	SV	External	Nov.-Dec.	20,000
QCC Activities	Company-wide	Internal	Nov.	40,000
			Sum	265,500

Note: SV Stands for Supervisor.
Source: Company C

sent to the courses regarding materials and heat treatment and section managers and engineers to the production management course.

Considering that it is difficult to upgrade practical production management ability solely through outside training, the factory manager planned to preside over a study meeting to be held every month. However over the past few months, he has not been able afford to have the time to carry out this plan, because increasing orders have made the whole company busier and, instead Japanese expatriates became involved with the new project. Although the necessity for practical training by Japanese expert staff is well recognized, the circumstances have not allowed the company to implement it. It may be necessary to re-examine methods for nuturing managers and supervisors. In the meantime, supervisors who have graduated from techmical college are supposed to be brought up to assistant managers and managers. In the future, the numbers of Japanese staff should be reduced. Even so, it is necessary to maintain production management levels. In order to accomplish that, managers and supervisors must be upgraded. Top class supervisors in the company achieve the necessary level in quality and delivery control, although not in charge of cost management. They qualify to be promoted to the upper position comparatively. However, average supervisors who have 10-years work experience, have acquired useful industry specific technology but are short on management technique. The latter is necessary by supervisors as well as managers as soon as possible. There are no Japanese type supervisors in Thailand who have the required long work experience and excel both in skills (industry specific technology) and management (management technique). Because of this, a division of the supervisors' functions might be necessary, i.e, supervisors in charge of management and supervisors in charge of skills. Two supervisors would then play the role of one Japanese supervisor. In this case, college graduates who majored in science or engineering should be designated as supervisors in charge of management.

3.3.5 Company D

In Thailand, the manager class is weak. All are college graduates and don't have a long history of work experience in the production line. That is why they don't have detailed knowledge of operational work and cannot give instructions to their subordinates. As they have been to Japan under the AOTS scheme, they know 5S, TQC, and Kaizen. Some of them went to Japan several times but have not yet reached the level for being delegated work. They can do things when someone gives them instructions, because they have already learned the basic knowledge from their lectures. For example, they seem to realize, when it is explained in detail, how to alleviate waste in the

assembling method. However, the ability to apply their knowledge is in short supply, even when they come across a similar situation. And a more serious problem is that they lack an understanding of Kaizen and still think that the boss is merely talking again about irrelevant things. They cannot turn around the PDCA[20] circle. As they go further without keeping to the point, their efforts eventually turn out to be fruitless. Their skill formation can be regarded this way. They acquire comparative industry specific technology to some extent, but their management technique remains poor.

Reducing Japanese staff in the long run is the one and only way for making the enterprise profitable. But at this stage, Japanese should remain in order to transfer technology and skills.

From July 1999 to January 2000, an engineer from a Japanese parent company was sent to train a local engineer on a one-to-one basis. This local engineer was able to gain both theoretical knowledge and practice and achieved good results. In February 2000, the company has called two experts to revise the existing production management system. Special emphasis will be placed upon setting the standard cost and improving it in reference to individual performance. As for maintenance, breakdown maintenance will be upgraded to preventive maintenance. This is comparatively easy if explained in detail, because it is part of industry specific technology. The JODC scheme can be utilized at this stage.

Although affiliates in South Korea and India have already utilized JODC experts, the company in Thailand has yet to use the scheme. The Japanese managing director feels that he should have applied to the scheme right after the monetary crisis. At the time, however, they could not afford to make complicated documents. In the company, one Japanese is in charge of 50 Thai employees. The person in charge of administration needs to manage finance, accounting and personnel affairs. Compared with the typical work experience in Japan, each Japanese expatriate in Thailand must consider a much wider range of work. As the priority was on the effort to maintain output, it was hard to touch on productivity improvement. Support from the Japanese parent company was not expected at that time. It is a shame to consider that big companies were exploiting AOTS scheme on a massive scale during that time.

3.3.6 Company E

The Japanese parent company has expanded business in plastic injection moulding products for the electrical/electronics industry. Affiliates in Europe began to supply the

[20] Stands for Plan, Do, Check and Action and indicates the workflow of management.

automobile industry for the first time in the corporate group. Therefore, technology has been accumulated not in the parent company but in its European affiliates. Because of this, during the start-up stage, British engineers are playing an important technological role.

Mass production will commence in May 2000. Although the ramp-up period usually requires at least one year, the company is trying to finish it in half a year. In order to conduct several intensive production trials, many expatriates need to come to Thailand. Still, the training of employees, especially operators has not gone well. For instance, operators in the painting process require comparatively high skills. But most of them don't have the experience of painting workshops to produce "first grade appearance parts" which catches one's eyes, such as a bumper and instrument panel. As the company had no alternative, it hired persons with no experience and trained them in three to six months in OJT. They have been taught to do the basic work as operators. First of all, they are required to remember 70 kinds of parts which they deal with in operation. While trainers can delegate all works including set-up to the experienced employees, in the case of inexperienced employees, this is not possible. Although the real intention was to recruit one experienced person, the company hired three inexperienced persons instead because of the difficulty in finding appropriately experienced candidates. In addition, to make moulds in a shorter time than usual causes trouble in the process. More expatriates from Japan and United Kingdom are therefore necessary. The JODC scheme will be a significant option when calling experts, if possible.

The main customer will be an American automobile assembler. They are asking the company to obtain QS9000 certification. The May deadline has been extended to September 2000, because the time was not sufficient. Once a month since December 1999, a consultant from the QS9000 consulting firm which is one of the assembler's affiliates has been giving instructions. Until the certification is obtained, it will cost around US$ 50,000 plus expenses for an air ticket from Malaysia (44,000 Baht) per visit. This is beyond the limits of the public technical assistance scheme. Although the cost is very high, it is indispensable to maintain transactions.

3.3.7. Company F

It is now time to prepare production of the parts for the 2002 new model car. It is necessary to introduce new technology for vacuum injection moulding, to maintain consistent quality improvement, to cut the cost of the mould and to operate production smoothly on the whole. Generally speaking, the technology and skill levels of Thai

employees have to be improved. We are now in the stage of “cram education”, because they do not yet have the ability, willingness and methods required.

At this stage, many of the necessary contents for training are common among the different industries. Companies can implement training jointly. In 1999, five employees took part in the seminar arranged by AOTS. Two experienced lecturers from the Sanno Institute of Management in Japan gave lectures regarding Kaizen. As a result of recruiting 100 participants, around 80 from 40 companies out of the 108 members of the Japanese affiliates organization attended. The target group was managers and supervisors who were intended to be the core members and trainers to subordinates in the production sites. Although lectures were very limited in time, three days only, the course was very useful as participants acquired ways of thinking about Kaizen activities that were also fun to learn.

The company obtained ISO9000 and QS9000 certification in 1999. During that process, the importance of 5S and Kaizen were repeatedly indicated. Even so, locals seemed to feel Japanese staff forced them to use troublesome measures to date. This time they could understand the importance of these measures from independent lecturers who talked about the same kinds of things. The lecture didn’t deal with any new content. Most importantly, it had the effect of arranging the skills and knowledge gained in OJT.

Another method is to employ a peripatetic lecturer who goes around to many companies and gives lectures on his/her own specialized topic, such as 5S, TPM and QS9000. As one two-day visit per month is usually enough for one company, to call such a lecturer from Japan only for that purpose is inefficient. If 10 companies plan the training course jointly, it will be more efficient. In 2000, to obtain ISO14000, it will be necessary to call on consultants from outside. There are several companies which plan to obtain ISO14000 in the same industrial estate. If the AOTS scheme is available, the group can call on a Thai consultant jointly.

The problem with HRD was in the low ability level of the managers and supervisors. They are still remembering the contents of work in charge and don’t ever seem to get to the stage of giving instructions to subordinates. The Japanese production director and Japanese experts dispatched specifically for technical instruction are in charge of training locals.

During the bubble economy period, as funds were abundant, the company used expenses freely when calling persons from outside Thailand. But funds are now in short supply when trying to train employees. As costly Japanese staff should be kept to a minumum level, long-term expatriates cannot have the time to train locals for daily work. In particular, it is more difficult to teach something systematically and theoretically. In

the case of OJT, Japanese are inclined to be in charge by themselves when they are busy, as it is not efficient for Thai employees to keep on working. This has an adverse influence on HRD. In order to conduct systematic training including lectures under such conditions, the company must call trainers from outside, for instance, employees of a Japanese parent company or independent trainers outside the corporate group. The company plans to make better use of public technical assistance schemes from now on.

3.3.8 Company G

To produce autoparts in Thailand nowadays requires a high level of production management. Firstly, the competition among autoparts manufacturers was not serious before the economic crisis. But assemblers' production shift to exports forced them to participate in international competition. In addition, products for automobiles need to be of a higher quality than that for the electrical/electronics and construction industries. For example, while tolerance is ±0.2mm for automobiles, it is ±1mm for construction. Defective autoparts are more likely to cause fatal accidents. That is why they need strict quality control.

In order to upgrade the level of production management, it is indispensable to maintain the requisite number of Japanese expatriates on a long term basis and use technological specialists from Japan on a short term basis. But the cost of doing so is heavy for a small-sized company. Hence the decision to develop the JODC scheme. Althought the monetary crisis made it difficult for the company to pay for Japanese expatriates, the Japanese production manager was able to remain with the company in Thailand between March 1997 to September 1999, because he became a JODC expert.

The company has utilized the AOTS scheme in its supplementary budget. In 1998, an expert from a Japanese parent company implemented the training of production management, especially 5S and quality control. In 1999, it called on an independent consultant who was the top executive of Japanese affiliates in Thailand and had experience in obtaining ISO9000 certification. The training consisted of quality control mainly targeted to supervisors. As a result of these schemes, local employees were able to understand why quality needs to be checked at every stage of the process.

The quality control training taught seven instruments for QC[21] and how to make documents and files. In other fields of management too, responsibility has been gradually delegated from Japanese staff to local employees. For instance, local staff handle orders for shipping of materials, production schedules and shipping control. As

[21] Pareto chart, cause and effect diagram, histogram, scatter chart, control chart, graph, and check sheet.

for quality control, locals are in charge of gathering and arranging data to some extent. Problem solving is still the job of the Japanese. But in the second phase of training, supervisors learned how to process the data obtained and think up ideas for problem solving. Trainees were taught that gathering data was not enough, it was solving problems that was important.

Companies which produce mainly for export as well as companies still dependant on the domestic market are very conscious of the necessity to attain a QCD level which conforms to international competition. The schemes provided by JODC and AOTS satisfy these basic needs.

By conducting the training, it became apparent that targeted companies have a common problem. Although local employees were able to reach a sufficient level of expertise in industry specific technology, they lacked expertise in management techniques. Although many staff understood basic management techniques, they were generally very weak in problem solving techniques, such as Kaizen.

3.4 Suggested Improvements to the Schemes

As mentioned in the previous section, the targeted companies evaluated the technical assistance schemes of JODC and AOTS. Particularly, they appraised the policy change to place greater emphasis on Japanese affiliates after the economic crisis. However, most of them also raised suggested improvements to the schemes as follows.

Company A. Expansion of the operation, extention of the tenure, and an increase in the number of experts are all desirable. Japanese affiliates have high expectations and there are large potential needs. Presently the recipients must pay 25% of the total cost. Considering the contribution to the Thai economy, conditions for a fully funded scheme should be addressed in proper cases.

In the case of the ALTP, paying personnel expenses for trainees was very important, because avoiding redundancies was a priority. However, if the economy recovers and unemployment rates go down, the payment of personnel expenses will no longer be required. Funds should be allocated to increase training courses. This would be a more efficient way to promote HRD in Thailand.

For instance, training courses can be held periodically such as once every three or six months. Even if the trainees understand the contents of the courses, it is hard for them to maintain this knowledge for a long time. Without follow-up, skills and knowledge may not be retained by the trainees. This could result in a precious

opportunity being lost.

Company B. Trainees who are sent to Japan for training under the AOTS scheme, cannot go to Japan again in the same year. From now on, the company plans to design and produce moulds. The current three-month training period is not enough for this field. Only basic things can currrently be learned during training[22]. In addition, lectures in Japanese language instruction take up too much time. Courses where English is the language of instruction should therefore be increased.

JODC should approve non-Japanese experts. For instance, if they are able to satisfy conditions such as fluency in Japanese and work experience in Japan for more than 10 years, Thai or nationals of a third nation should be recognized as experts. After all, only the ability to write down reports in Japanese should need to be satisfied. With regard to the level of technology, there are cases where experts from affiliates in Taiwan could do a better job than their Japanese counterparts. At present, many Japanese companies conduct business internationally. When considering technical assistance to this type of company, non-Japanese experts should have the possibility to better facilitate HRD in developing countries.

Company D. When deciding the target of the scheme for SMEs, judgement should depend not on the scale of Japanese parent companies but of the affiliates themselves. A considerable amount of Japanese affiliates who are classified as SMEs do not receive any benefits, because their parent companies are not SMEs. But in fact, in many cases, affiliates cannot expect support from Japan, although their parents are regarded as big enough to do so. The current rules do not conform to the actual situation.

Company E. It would be very helpful if non-Japanese experts were approved by JODC. It costs a great deal to call on expatriates. As many parent companies are in debt, support from Japan cannot be expected. Given cost accounting in the short term, it is often not favorable to call experts, even though this is necessary, given long-term future considerations.

Company F. ALTP was a very good program. The same lecturers should come to

[22] A JODC expert in a local company also demands flexible tenure which conforms to the characteristics of technology. In the case of moulds, it takes much more time to get good results from technological instruction. Extention of tenure is indispensable in the field. Production of moulds is very hard to standardize. The situation is substantially different from that of the mass production line.

Thailand periodically and continue the scheme. For instance, twice a year, a short-term training course could be held in one place in which participants from many companies gather. Between the courses, each company would then implement OJT regarding the content of the latest course.

Concluding Remarks

On the subject of the JODC technical assistance scheme, companies seem to think, “As the expatriates who are in charge of daily operations cannot take time to train locals, the scheme is to be used for experts who specialize in technology transfers and training”, or, “As the cost is too high to locate the minumum Japanese staff for daily operation, the schemes is to be used to compensate for these expenses”. AOTS’s local training including ALTP is evaluated highly because it offers the chance to learn knowledge systematically, and the content of the courses, although basic, conforms to the needs of supervisors and candidates.

In view of the presence of Japanese affiliates in the autoparts industry, it is important for industrial development to prevent them from diminishing and withdrawing in the short run and to facilitate the expansion of existing enterprises and the inflow of new ones. HRD, especially the upgrading of production management ability, brings about improvements in the QCD level and is an indispensable factor in attaining international competitiveness. Companies which utilized the technical assistance schemes of JODC and AOTS are considered to have achieved significant results.

However, in the aftermath of the economic crisis, support for Japanese affiliates needs greater emphasis. This might prompt criticism, such as “do Japanese affiliates deserve such technical assistance?” or “do the new schemes merely serve to maintain and build up the structure of Japanese dominance?" (i.e, Japanese affiliates presence in the industry and the presence Japanese staff in Japanese affiliates abroad). In fact, Japanese affiliates are important actors in developing the autoparts industry, but they cannot conduct HRD independently in the meantime. At this point, technical assistance to Japanese affiliates is a valid means of providing assistance for industrial development. It should be considered that the schemes serve the national interests of both Japan and the recipient countries, although it is still necessary to consider the balance between Japanese affiliates and local entreprises.

There is no doubt that the schemes are meaningful to Japanese autoparts manufacturers in Thailand. The problem of balance between the two doesn’t undermine the significance of the schemes.

Lastly, the possibility that APEC should commit resources to technical assistance for affiliates from developed countries should be considered. Affiliates are an important path for technology transfers and HRD. But the funds for the ECOTECH program are so limited[23] that to implement technical assistance like JODC and AOTS would be impossible. Centralizing information regarding the existing schemes and smoothly circulating the information is considered to be one of the most efficient way for the APEC to contribute in the area of human resource development. In this sense, the Business Volunteer Program (BVP), of which JODC is a member organization, is focusing on the right point[24].

For instance, when considering whether to dispatch experts to Thailand and other ASEAN countries, it should be recognized that South Korean or Taiwanese experts can sometimes do a better job than their Japanese counterparts, in certain cases. If BVP can coordinate and arrange to dispatch experts within those corporate groups which have a multinational business base, it can play a valuable role in the APEC region.

[23] Total funds are about US$ 5 million. Funds per project are no more than tens of thousands of US dollars.

[24] BVP is the project of the APEC Human Resource Development Working Group. It aims at sending technical experts from Australia, Canada, Japan, Taiwan and the United States to developing countries in APEC.

According to the Japanese advisor to the program, it has two problems. One is that in the case of Southeast Asian countries, applicants asked for Japanese experts in the first instance, and that the coordination function of BVP therefore doesn't have any significant meaning. The other is that many of the focal points in each country are government offices. As they are not good at communicating with private enterprises generally, potential applicants cannot be realized.

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