NEED OF HUMAN RESOURCE DEVELOPMENT IN THE ASIA-PACIFIC REGION AND THE ROLE OF JAPAN

by
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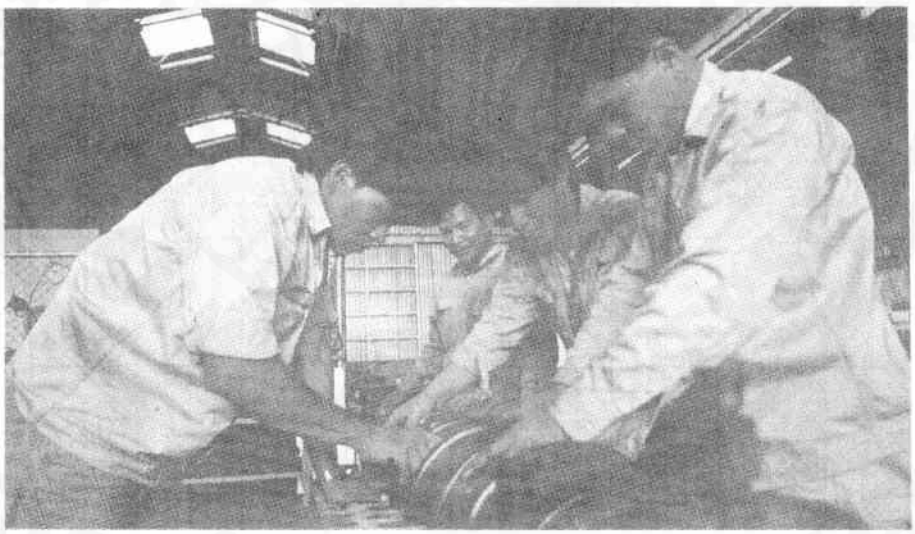

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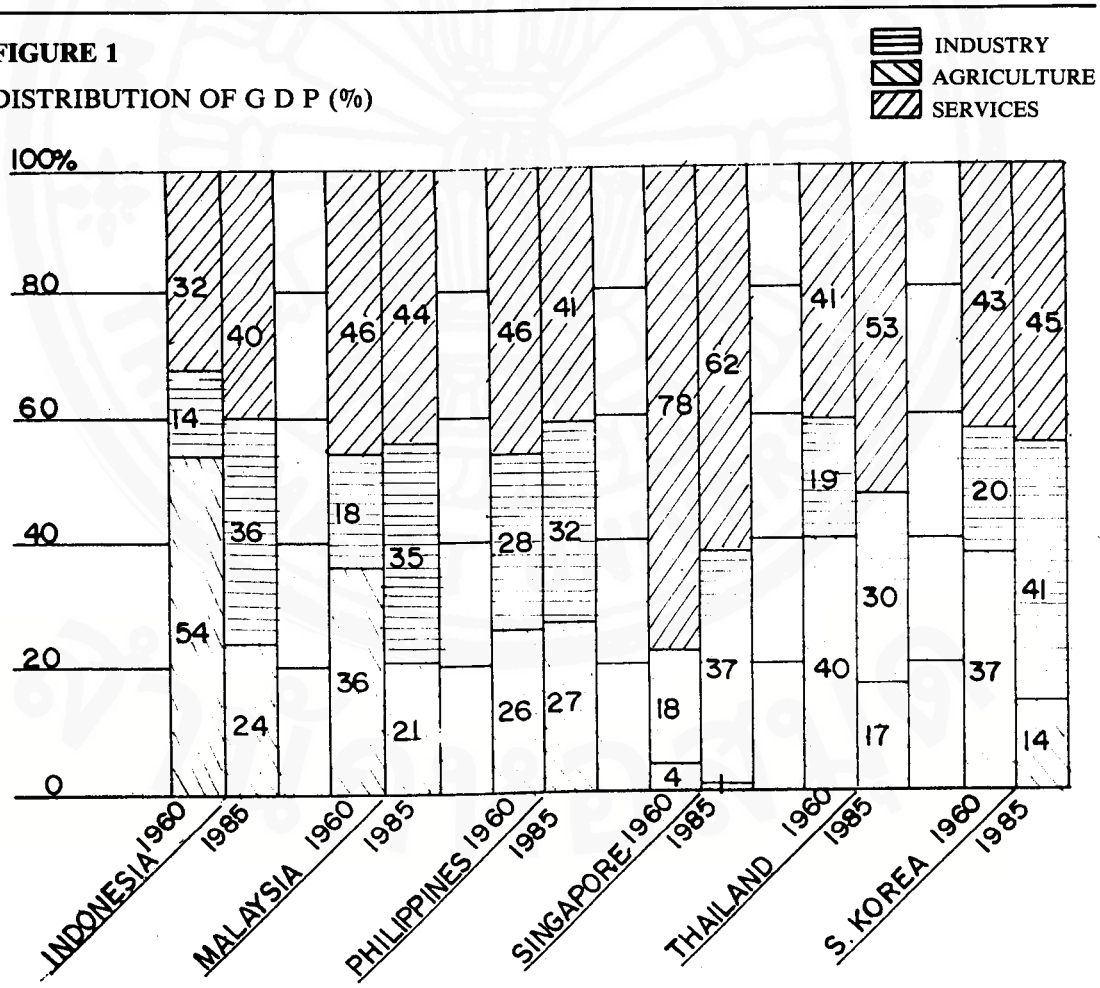
I. Structural Change in the Asia-Pacific Region

Since 1960 the rapid economic growth in the Asia-Pacific region has been one of the most significant events in the world. The 4 NICs (Korea, Hong Kong, Taiwan, and Singapore) in particular have been very successful in economic growth and development by having grown at 8%-10% p.a. in the 1960s and 1970s. The ASEAN-4 (Indonesia, Malaysia, Philippines, and Thailand) have also improved their economic performance with the average annual economic growth of 7%-8% during the two decades. Economic growth rates in the region as a whole have been among the highest in the world, even in the relatively depressed period of the early 1980s.

During the past 25 years one of the common features in the economic structural change of the NICs and the ASEAN-4 is increases in the level of industrialization. This is indicated by the growing shares of industrial GDP, labor force and exports in these economies. (See Figures 1-3) Concurrently the corresponding shares of agriculture have declined consistently, althought the agricultural sector still contains the largest share of labor force in the ASEAN-4. It is expected

FIGURE 1

DISTRIBUTION OF G D P (%)



that this decline of agriculture, particularly the share of labor force, will continue in the next decade.

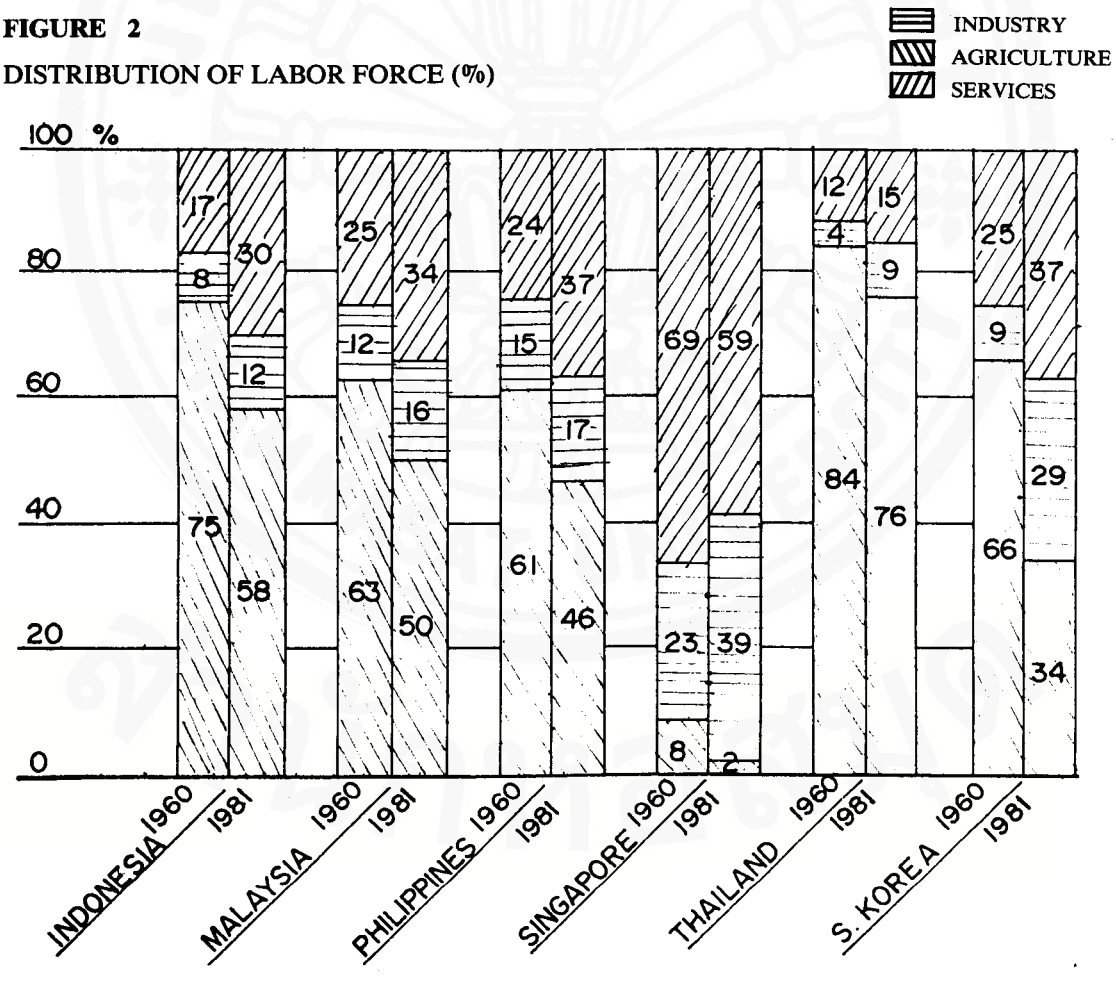
In the ASEAN-4 in particular, a number of factors including the outward-looking policies of the government have started to transform the import-substituting industrial sector into a more export-oriented one, consisting mainly of labor-intensive and natural-resource-based industries. However, several primary products (agricultural, mineral and energy products) have played a significant role in foreign exchange earning for these economics. And for the majority of the population agriculture has been and is still the most important source of income and employment. It is therefore a combination of the large supply of low-cost labor and the availability of natural resources which has had a great influence on the pattern of economic changes in these countries. It goes without saying that foreign trade and foreign investment also have facilitated such changes to occur.

II. Human Resource in ASEAN

One of the most important ingredients in the economic progress achieved by ASEAN in the past two decades is the improvement in the qua-

FIGURE 2

DISTRIBUTION OF LABOR FORCE (%)



lity of their human resource. Their population growth rates have declined significantly, life expectancy increased, and people are now better-educated than before. The literacy rate rose steadily, and is now almost 90% in some countries. The student enrollment ratios went up at all levels of education.

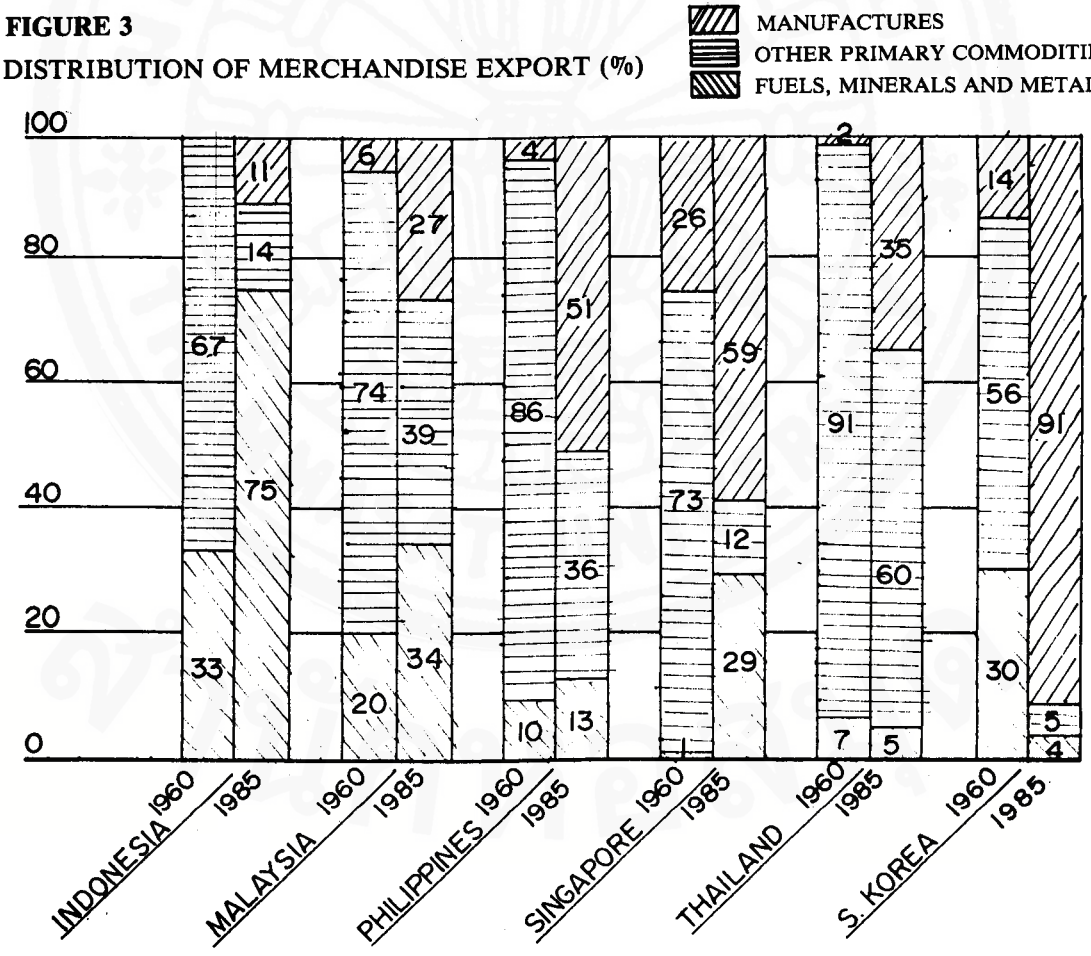
In recent years, there has been an increasing degree of awareness of the greater need for human resource in science and technology in order to create a higher level of indigenous technological capability. This has come about as a result of at least 4 changes.

1) In the ASEAN-4, agriculture is in the process of modernization and diversification in response to changes in the world market and challenges to strive for food self-sufficiency. Consequently, new technology has been introduced to improve land and labor productivity.

2) Throughout ASEAN, policy measures have been adopted to transform the growing manufacturing industries from being an import-substituting sector into a more competitive, efficient and export-oriented one. Calls are made to step up technology transfer from abroad to be more self-reliant in science and technology, to

FIGURE 3

DISTRIBUTION OF MERCHANDISE EXPORT (%)



compete in the world market, and to climb up the industrial ladder.

3) Some basic natural resources and environment (e.g. forests, soil, water, and marine resource) have been exploited and damaged in the process of economic changes in the past. There is greater recognition that more science and technology is required to manage the use and preservation of these resources in a proper and optimal manner. Success in doing so will lead to a better quality of life and more balanced economic development.

The need for more science and technology (or S&T) manpower is now even greater than before because changes in technology and world economic situation are more frequent and rapid. In addition, economic and social problems, both in the urban and rural areas, both in the public and private domains, have become more complex. It requires a higher degree of skill and knowledge not only in S&T but also in management to solve these problems.

In ASEAN, as well as in many other countries in the world, education is provided for by the government, right from the primary through to the tertiary levels. Thus, skilled labor is generally supplied by the government through education and training, which in several cases is highly subsidized. It should be noted that, in most ASEAN countries (except Singapore), although the number of students at the tertiary level of education has more than doubled in the last 10 years, most of these students are concentrated in the non-S&T fields of study. (See Table 1) In Thailand in particular, the number of university students in S&T in 1985 was only 11% of the total, compared with 56% in Korea, 31% in Japan, and 61% in Singapore. In relation to population

Table 1

Education at Third Level: Enrollment by Field of Study (%)

Field of Study	Indonesia (1982)	Malaysia (1981)	Philippines (1980)	Singapore (1982)	Thailand (1985)
Humanities	3.2	19.7	3.6	14.8	3.6
Education	26.8	3.1	29.7	8.1	14.3
Social Science	31.0	25.0	8.4	11.5	45.4
Law	12.2	0.8	6.6	1.6	24.9
Engineering	12.9	16.4	11.6	50.3	2.1
Natural Science	2.1	17.6	15.1	6.8	3.4
Medical/Health Science	3.5	3.4	15.6	3.6	3.6
Agricultural Science	6.5	3.6	3.9	—	2.3
Others	1.8	10.4	5.5	3.3	0.4
Total	100.0	100.0	100.0	100.0	100.0

size, the number of S&T graduates in most ASEAN countries is also rather small. In 1988 Thailand is expected to produce 55 engineering graduates per one million population, compared with at least 425 engineering graduates per one million population in the NICs in 1978. (See Table 2)

Shortages in skilled manpower of most ASEAN countries in the fields of S&T, including management, have occurred in terms of both quantity and quality. In Thailand where the number of technicians graduated from technical/vocational schools and colleges is relatively high, the problem is more on quality rather than quantity. Employers generally complain of their lack of work discipline and basic, as well as some specific, skills needed for factory jobs. Examples of the types of skills found to be inadequate are:

- Industrial instrumentation (ability to properly operate and maintain tools, equipment, and machines)
- Operation of high-precision machinery
- Basic skills in electrical and electronic technology.

The problem allegedly results from a lack of coordination and communication between the producers and the users of these technicians. Curriculums are developed with no consultation with potential employers, and the system of apprenticeship was unheard of a few years ago. In addition, there seems to be little on-the-job training provided by employers for these technicians to improve and acquire further skill. Perhaps this is due to a high rate of job turnover among technicians which than acts as a disincentive for adequate on-the-job training in most factories, particularly in small and medium enterprises.

As for university graduates in S&T, the present problem in Thailand is an increasingly acute shortage of manpower, most seriously engineers. It was estimated that while there will be an annual demand for 6,000 engineers in the next 10 years, the universities now can supply only 2,700-3,000 engineers per year. Deficits are found in the fields of mechanical, electrical/electronic, computer, and industrial engineering. The shortage was precipitated by a recent big surge of foreign investment in manufacturing, mainly from Japan, Taiwan, and Korea, leading to greater demand for engineers to work in the newly established factories. The problem has begun to adversely affect the public sector, including the universities which produce engineers, as increasingly high salaries for engineers in the private sector have attracted well-qualified engineers away from public enterprises and universities ----- the so-called "brain drain" problem. It should be noted also that part of the problem

Table 2

Number of Science and Technology Graduates per One Million Population

	Science & Technology	Engineering
Japan	1,174	740
U.S.A.	1,210	270
U.S.S.R.	1,987	1,400
Singapore	1,645	1,400
Korea	1,207	680
Hong Kong	744	575
Taiwan	746	425
Thailand		
1988	269	55
1991	413	98

has to do with work preference of the engineers themselves. A large number of engineering graduates tend to prefer desk jobs or even salesman job rather than factory floor operation or research and development (R&D) work. Therefore, there has always been a shortage of shop-floor engineers in Thailand.

It is obvious that as the economy becomes more industrialized and business is modernized, the need for better and more managerial skill, both in the private and public sectors, is increasing. In the area of business management, educational institutions in the region have responded rather quickly to the increasing demand for education and training. However, while the need for training of public administration to cope with economic structural changes is recognized, incentives and facilities for such training are totally inadequate.

III. The Role of Japan in Human Resource Development in ASEAN

Before discussing the role of Japan in human resource development (HRD) in ASEAN, it is useful to briefly review the efforts being made by ASEAN themselves to alleviate their HRD problems. In recent years, all governments of ASEAN countries, recognizing the problems, started to place more importance in improving their manpower in the fields of S&T, and management. Most have taken steps to expand and upgrade educational and training institutions in order to supply more and better-trained S&T human resource. Indonesia and Malaysia have been setting up more technical/vocational schools and training centers, as well as introducting more business, commerce, and computer courses in primary and secondary schools. The Philippines introduced a tax incentive scheme for labor training by private firms, and aimed at producing more manpower for such industries as glass, paper, rubber, food processing, textile, and electronics. Singapore, with a small population, wants to reduce her dependence on foreign workers and to upgrade skills of local workers. A number of schemes and institutes have been set up to gear its industries towards being more technology/capital-intensive and automated. R&D is promoted in such technology as information, biotechnology, micro-electronics, and medical sciences. It is worth noting that the Singapore an government also solicits and encourages involvement by the private sector and foreign governments in funding and operating training and R&D programs.

Thailand recently launched a "crash program" for state universities to produce 1,300 more engineers next year to meet the demand by industries. It has also established the S&T development program to promote R&D in genetic engineering, biotechnology, material technology, applied electronics and computer. The program is mostly funded by the $49 million assistance from the U.S. government.

As for Japan's role in ASEAN, it should be noted at the outset that Japan has now become the largest foreign source of official development assistance (ODA) and private investment in ASEAN. It is also observed that a large portion of Japanese ODA to the region has been in the form of equipment and physical infrastructure. For instance, in 1986 about half of all Japanese ODA provided to Thailand was under the category of equipment. Though this kind of assistance has contributed towards general social and economic development, it has not directly promoted the development of human resource which is more long-lasting and beneficial to indigenous technological capability and creativity. ASEAN has reached a stage of development where basic human infrastructure is ready and capable of absorbing

a different kind of assistance which is more human-oriented than before. Any effort which will change the nature of Japanese ODA towards this direction should be promoted.

I am not implying that ODA from Japan to the region has totally overlooked the HRD aspect. Fellowships and scholarships have been given by the Japanese government for training in Japan or other countries, and a large number of Japanese experts (through JICA) and volunteers (through JOCV) have been sent to assist developing countries in the region. Some technical and management training institutes have been established in the region by partial and total funding from the Japanese government. However, the scope and magnitude of Japanese ODA in this aspect have so far been rather limited and the results have not been cost-effective. There are a number of limitations in Japanese ODA to ASEAN in HRD:

1) Language: Since most engineers, scientists, and technicians in ASEAN tend to adopt English as their second and common language, and in most cases it needs them to know Japanese if they want to learn effectively from Japanese experts, language has become an important barrier in education and training provided by Japan.

2) Cost: In cases where matching or supplementary funding by recipient governments is necessary for training in Japan, the high cost of living in Japan can be a deterrent to HRD.

3) Time: The Japanese educational system requires university students, particularly at graduate levels, to spend a time period longer than in Western universities in order to obtain equivalent degrees. Therefore, students in Asia prefer to receive scholarships from such countries as U.S., Australia, Canada, and Western European countries rather than from Japan.

There are complaints also that Japanese experts sent abroad tend to be more reserved and less willing in transferring knowledge and technology to local trainees than their Western counterparts. These complaints are made both in the cases of ODA and Japanese firms investing in joint ventures in ASEAN.

If Japan is planning to improve its ODA in the area of HRD for the region, I would like to propose the following points for consideration.

1) There is no doubt that the existing education and training programs and institutions in ASEAN need further improvements, particularly in the fields of S&T and management. Japan is now in a better position to increase its assistance in the form of equipment, scholarships/fellowships, and Japanese experts provided for in these programs and institutions.

2) To maximize the number of trainees and graduates, and to serve the real needs in local conditions, it is important that most training programs be organized in home countries. Not only is this approach less costly than training in Japan, but it also

- enables a larger number of local experts to work with Japanese experts in training activities,
- makes possible apprenticeship and on-the-job training in local conditions, and
- enables Japanese experts to be more familiar with local conditions and problems, and more effective in subsequent training.

3) It might be worthwhile establishing links between home country training programs and Japanese MNCs investing in home countries, as well as well-established local corporations. For instance, technical experts and facilities of these MNCs and local corporations can be "loaned" to the training programs. In fact, these

MNCs, local corporations and local industry associations should also be urged to participate in the designing of training courses and curriculums to ensure that real needs are fulfilled by the programs.

4) In view of the fact that more specific skills and technologies are increasingly needed, it is necessary to establish more specific-skill training centers in the region. A good example of these is the Japan-Singapore Institute for Computer Software Technology in Singapore. More should be set up in the region in the fields of food processing, textile, rubber, and electronics.

5) In planning, designing and operating any new training programs and institutes which directly benefit the private sector, Japan should change the existing approach of dealing only with the government of aid-recipient countries. It is important to allow or urge the private sector concerned to participate in the process of decision making. It will be even better if the private sector can be committed in operating and funding these programs and institutes jointly with the government. Several training programs operated solely by the government have failed because of the bureaucratic red tape and slow responses to dynamic changes. The Technological Promotion Association (Thai-Japan) in Thailand is a good example of success where the government plays no role in the organization. The Association with its independent management team has been operating successfully for over 10 years with partial funding from Japan through the Japan-Thailand Economic Cooperation Society.

6) Region-wide training facilities are worthwhile establishing if they serve the common needs of the region and promote a better understanding among neighboring countries. However, experience has shown that such facilities are possible only at the graduate level where a common language (English in most cases) can be used as a medium of instruction. One good example is the Asian Institute of Technology which is a regional graduate engineering institute located in Thailand. At lower levels of training, languages become a barrier for most countries in the region and it might be better to think in terms of national facilities. If there are benefits in work coordination among these national facilities in different countries, a system of networking can be developed.

On a region-wide basis, technical/engineering training is still one of the most important fields where regional needs seem to be similar. However, it is worth exploring the idea of regional facilities for training public administrators and private managers in the region because they may learn from sharing experience with one another, and it could promote further regional cooperation.

7) Education and training in Japan for manpower from the region is becoming more important as more advanced skill, knowledge and technology in S&T and management are essential for further economic progress. This also helps promote mutual understanding and appreciation in the social and cultural aspects among Japan and other countries in the region, leading to smooth and healthy relationships among them. As mentioned above, there are a number of limitations in studying and training in Japan: language, cost and time. I understand that some changes have been made to accommodate and attract foreign students to come and study in Japan. For instance, the school of engineering at Tokyo University started to use English as a medium of instruction. A number of Japanese universities can now grant graduate degrees, particularly in science and engineering, within the period of study comparable to those in universities of Western countries. Further changes could be made in these directions and, with more scholarships and fellowships available, we can expect

significant increases in the number of foreign students in Japan in the future.

8) To promote mutual understanding and cooperation in the Asia-Pacific region, an idea was floated to establish a research institute, similar to the East-West Center in Hawaii, where comparative cultural research and study on desirable regional cooperation can be made. It should be noted that while Japan has put a lot of efforts in studying the societies and economies of other countries in the region through such institutions as IDE, Southeast Asian Studies Center in Kyoto University, and International Studies Center in Kyushu University, there have been little efforts for other countries to study the Japanese society and economy. Therefore, a move towards further comparative research and study on regional cooperation should be supported. But one research institute dealing with all countries in the Asia-Pacific region is too ambitious and impractical as there are a large number of countries in the region. I suggest that a number of such institutes each dealing with a group of countries be set up, e.g. Japan-ASEAN, Japan-East Asia, Japan-U.S., Japan-Australia/New Zealand, or any other groupings where comparative research and study are lacking. It is important that these new institutes coordinate work not only with one another but also with the existing research institutes of similar nature in order to avoid repetitions.

9) Besides Japan, other industrial countries, notably the U.S. and the E.C., have assisted the region in HRD. As far as I know, there was an HRD agreement in 1985 between ASEAN and the E.C. to cooperate in the following schemes:

- A young executive exchange scheme,
- Promotion of business management courses,
- Civil aviation training and
- Training in public administration.

As mentioned above, the U.S. government has provided funds of $49 million for the first 4 years beginning 1985 to Thailand in promoting R&D in 3 areas of S&T (biotechnology, material technology, and applied electronics technology).

Two differences can be observed in the approach taken by Japan on the one hand, and other industrial countries on the other, in HRD assistance programs. Firstly, other industrial countries tend to start by organizing seminars where not only government officials but also persons from universities and the private sector participate. In subsequent stages of planning, people in and outside of the government also take part. Once the programs start to be implemented, private participation is also visible. Japan, on the other hand, tends to take the government-to-government approach which usually excludes local non-government (including university) participation. Details are worked out jointly by Japanese experts and government officials.

Secondly, the kind of HRD assistance from Japan is more oriented towards physical tools and equipment, whereas other industrial countries prefer to provide "human software" rather than "hardware". I have argued elsewhere above that, where possible, Japan should consider changing its approach towards more "privatized" and "software" orientation.

Indeed, to make different HRD assistance programs from industrial countries complementary with one another, Japan and other industrial countries are well advised to coordinate their work and avoid competition. For instance, in training centers, both already in existence and to be established in the future, activities could be conducted jointly between Japanese experts and their Western counterparts.