Chapter 7

Analysis of Availability of Human Resources

7. Analysis of Availability of Human Resources

(Summary)

(1) Backgrounds of the Study on Human Resources Development (HRD) in the Project

The objectives of the analysis of availability of human resources are to discuss whether or not it will be possible to implement Myanmar's industrial vision and industrial development strategies with the available human resources in the country in terms of quantity and quality and to see what kind of measures should be implemented in the area of human resources development to achieve the nation's development strategies. Since the objective of this research project is to formulate industrial development strategies primarily for the manufacturing industry, the analysis of the "human resources infrastructure in Myanmar" focuses on such quantitative aspects as the supply and demand of labor and the distribution of manpower by industry, and qualitative aspects, centering on the technological capability, skill levels, and the capability for business management.

However, unfortunately materials that show historical development and the present status of HRD in Myanmar in any systematic form have not been made public. Very frequent changes of managing ministry in the educational system, especially in the industrial sector –GTC (Government Technological College) and GTI (Government Technical Institute)- happened. Even during the short period between 1997 and 2000, universities, technical vocational schools and other educational institutions were reorganized radically and they were moved from one jurisdiction to another with great frequency. This study has relied to the extent possible on interviews with the representatives of the government, universities and private enterprises that engage in educational businesses.

(2) The Present Status of and Problems in Myanmar's Human Resources as Seen in the Industrial Sector

1) Major issues at present

It is assumed that Myanmar's overall educational plans will be based on the MOE's (Ministry of Education's) Special Four-year Plan now in effect, and the 30-year Plan that is now being worked on (this study was unable to obtain their drafts because both of these plans are treated as confidential). The major conclusions of our analysis of human resources infrastructure in the manufacturing sector are as follows.

(i) An absolute shortage of technological human resources. Most engineers and technicians are engaged in production technology and, as such, technology development capability is very small.

(ii) A shortage of infrastructure for nurturing engineers and technicians. The educational setup is inadequate in terms of the quantity of human resources to be developed and the direction of selecting different areas for human resources development is fraught with problems.

(iii) There are very few opportunities to acquire new technologies because of a shortage of opportunities to update or replace the manufacturing equipment and process. There is little stimulus for technological development because of limited inflows of technology and know-how through foreign direct investment (FDI) or from abroad.

(iv) Although skills training and nurturing of technicians are implemented aggressively, there are conspicuous shortages of facilities and teaching materials. (There is a serious shortage of skilled workers in terms of both quality and quantity.)

(v) Private enterprises, including very large ones, provide little technological and skills training in-house.

(vi) Information, including that on the industrial sectors, technologies and products in the advanced, industrialized countries as well as the neighboring countries, is extremely scarce.

(vii) Managers of private manufacturing industries (PMIs) are forced to manage their businesses solely on the basis of their narrow experiences and scarce information. Basic management education and information are essential.

(viii) Many of the senior executives of state-owned enterprises (SOEs) are former military personnel, and it is frequently pointed out that they lack the ability to manage businesses. Therefore, management re-education and the introduction of private-sector management know-how and adviser to SOEs are necessary.

(ix) It is often pointed out that qualitative improvement and quantitative expansion of educators and leaders are urgently needed to improve the quality of education.

As Myanmar has a large population, the creation of job opportunities is a major policy priority. If we simply look at the number of workers, there is no special problem. The absolute number of workers (23.1 million in 1998/99) is large. However, there are serious problems, including shortages of job opportunities themselves (despite a relatively low unemployment rate of 4.07% as of 1998/99), a mismatch between the supply and demand of labor when the quality of labor is taken into account, and a shortage of jobs for highly-educated people. A typical example of mismatching of jobs and workers is the shortage of skilled workers. There are a total of 57,000 factories run by SOEs and private enterprises (2000-2001), even if we assume that each of these

factories is to train one worker to become a skilled worker, the number of workers to be trained would be enormous. Between 1999 and 2000, the vocational training centers and schools (VTCs) gave training to a total of approximately 10,000 people to become skilled workers. It is reported that the government's 30-year Industrialization Plan envisions that 320,000 persons need to be trained to become skilled workers during the final five years (2026-2031, the sixth phase of development) of the plan alone. At the other end of the spectrum is a serious shortage of job opportunities in the software industry, a typical example of the shortage of jobs for highly-educated people. For example, more than 90% of new software engineers emigrate in search of job opportunities and better terms of employment.

The ratio of manufacturing industry workers to total employed population has remained largely unchanged at 11.4% for the past 10 years. Their number increased from approximately 1.21 million in 1990 to 1.64 million in 1998/99, or an annual increase of approximately 40,000.

Another serious problem is that of engineers (university graduate level) who are expected to play the central role in the manufacturing industry. Their number is estimated at 25,000-30,000 nationwide. Only about 1,000 new engineers graduate every year, primarily from Yangon Technological University (YTU) and other institutions. The cases of a number of large private enterprises show that the number of engineers relative to the total number of employees is extremely small and that most of these people are engaged in the maintenance of production equipment. With the exception of a few SOEs, new product and advanced technology development is hardly pursued at enterprises. At the same time, although Myanmar's industrial structure suggests that agricultural and fisheries engineers should play very large roles in the development of respective industries, engineers in these fields are extremely scarce.

In addition to these 25,000-30,000 high-level engineers who are mostly university graduates, the so-called "technicians," or graduates of government technological colleges (GTCs) and government technical institutes (GTIs) and graduates of technical high schools make up "technological human resources" of Myanmar. In its 30-year Plan, the government plans to sharply increase these technological and technical human resources. The cumulative total of graduates from GTCs and GTIs [including the technical teachers training institutes (ITTIs)] between 1997 and 2001 stood at approximately 46,000.

A tentative five-year plan to nurture engineers (Master's level) at YTU, the nation's leading engineering university, envisions approximately 200 enrollments each in the fields of machinery, electronics and chemistry as well as 150-200 each in the fields of biotechnology and nuclear engineering. The University appears to be gearing itself up for education in a broad range of engineering disciplines. The fields of biotechnology and nuclear power require highly-sophisticated research facilities and advanced technology, and require enormous amounts of investment even to nurture one

engineer. These are also the fields where it is extremely difficult to commercialize related technologies. Perhaps, it might be better to narrow down technological fields and plan to nurture human resources that will be able to directly contribute to the industries that need to be developed in the immediate future.

While technical high schools and training centers run by various ministries are training highly skilled worker, businesses seldom train them internally. As a result, an absolute shortage of highly skilled worker as well as the low level of their skills and capabilities have been pointed out.

For example, according to data from the Vocational Training Center (VTC) run by the Ministry of Labor, the cumulative number trained at VTC is 3,500. In the past year or two, only 100-150 persons have been trained there. In addition, VTC's educational facilities are small in number and out-dated. It also has serious problems with respect to the quality of teaching materials and instructors. A questionnaire survey of private enterprises recently taken by the UMFCCI, to which 690 companies responded, found that among the workforce-related problems faced by manufacturing firms, the difficulties in recruiting skilled workers was the second most serious problem after job-hopping.

Figure 7-1 Outline of the Industrial Training Center (MOI1,MOI2)

■ Case of ITC run by MOI (2)

	Shinde	Mandalay
Training Level	Skilled	Semi Skilled
No. of. Courses	8 (*1)	4
Training Period	2 years	3 month
Intake / year	230 trainees	80 (40x2)
Training fee	3,600ks / M	3,600ks

■ Case of ITC run by MOI(1)

- 30~40 courses / year
- 4~6 weeks / courses (Full time, Part – time) (Electronics,welding, inspection, others)
- Skilled / Non – Skilled

Course (*1)	No. of Trainee
Machine Tools Operation	40
Fitter	40
Die Maker	10
Auto Mechanic	40
Electrical Fitter	40
Electrical Machine	40
Maker	10
Pattern Maker	10

MOI (1) : Ministry of Industry (1) (42 consumer good : 542 product line. 83 Main factories and 64 Branch factories: Total 147 factories. Total 48,000 employee)
ITC : Industrial Training Center

Source: JICA Study Team

2) Status of HRD at private enterprises

Although it is difficult to make proper evaluations of technological capabilities of private enterprises, 70 to 80% of advanced engineers who are university graduates are employed by private enterprises and their number is estimated at 14,000-24,000. These figures, however, are derived from the cumulative number of graduates and it is said that only one-third to a-half of these people are actually engaged in work directly related to technology. This means that the absolute number of advanced engineers itself is very small.

There is a tendency among private enterprises, including very large ones, to be reluctant to employ engineers, whose salaries are high. It seems that the management often does not understand the importance of technology in the development of the company. While human resources with technological education are being supplied by universities, GTI, GTC and others, since the compensation and other working conditions are fixed by the school the person last attended, there is little incentive in the society as a whole to strive for upward mobility.

The managerial capability of business executives is a major national priority, and it is essential to strengthen the managerial capability of as many business managers as possible as soon as possible. Many businessmen running private manufacturing enterprises have only elementary school or middle school education, and it has been pointed out that they need rudimentary education in diverse subjects, including bookkeeping, quality control and human resources development management.

3) Profiles of managers and their managerial capability at SOEs

The most outstanding characteristic of the profiles of managers at SOEs is that many of them are former military men. Based on various surveys taken through interviews, it is estimated that more than 90% of MD/DG, 60% of directors and 40% of managers are former military men. Informed people in Myanmar have pointed out that the high ratio of former military men at the middle and higher levels of management at SOEs means that they do not have enough managerial capability to conduct business in a market economy.

Table 7-1 Executives and Managers of SOE

Post	The percentage of former military
MD/DG	90~(%)
Deputy director general	70~80
Director/General Manager	60
Factory general manager	80~ (Large Factory)
Deputy director/Assistant Director	50
Manager	40

■ Case at MOI(1) (Top/middle management)

Training Course	Period	Number of students	Number of programs/year
·Higher management	4 week	40 Persons	1
·Project planning	4-6	40	2
·Finance	4-6	40	2

Source: JICA Study Team

Given the international economic environment in which Myanmar finds itself, management of Myanmar's SOEs needs to be improved and reformed in many areas, including productivity improvement and cost reductions, the analysis of the market for the business, selection of and alliance with partners, the improvement of product quality and technology, the development of new products and markets, investment strategies and human resources development. The delegation of authority and the creation of a hierarchy of responsibilities within the organization, organizational decision-making mechanisms (the methods of decision-making and the desirable formats of conferences), information sharing within the organization and the methods of discussions and decision-making between different divisions all need to be reformed. The corporate culture of SOEs is dominated by military-style top-down communications and needs to be reformed. Some private enterprises in Myanmar are already achieving high growth by adopting such concepts as "subordinates should speak up to their bosses without fear" and "bosses should talk with their subordinates as equals" as their important management philosophy to overcome the country's military-style boss-subordinate relationships. The SOEs should take a leaf from their book.

4) Information and HRD

The accumulation of technological information is extremely poor. The situation is similar at university libraries, the Ministries of Industry, which have jurisdiction over industries, and SOEs. It cannot be said at least for today that ordinary researchers and

engineers are able to freely make use of the Internet to access overseas information. The exchange of information with other countries, especially strong inflows of information on overseas technologies, products, and markets to Myanmar is essential for the industrialization of the country. A questionnaire survey covering private enterprises taken by the UMFCCI (690 responding companies, multiple answers allowed) shows that the sources of technological information for overwhelming numbers of respondents were friends and acquaintances (cited by 373 firms) and trading partners (225). Other sources were newspapers, radio broadcasts, magazines and others.

(3) Measures to Upgrade Human Resources in the Industrial Sector

In the industrial sector, a serious shortage in terms of both quality and quantity is expected for now and in the future in the following categories of human resources, i) experienced managers, ii) production engineers, and iii) skilled workers.

Under these circumstances and based on our analysis of human resources for the industrialization of Myanmar, we recommend the following as the priority direction of reforms.

<The basic concept>

For Myanmar's industrialization, the following three pillars are needed for the upgrading of the nation's human resources. The first pillar is the improvement of social infrastructure, including the educational system and raising of the people's educational levels; the accumulation of various information, including overseas information, and the creation of a system to use such information; and raising the quality of teachers and leaders.

The second is the introduction of measures to raise the levels of diverse human resources, including measures for the improvement of knowledge and experiences of workers at private enterprises and SOEs, the introduction of incentives for this purpose, reforms of the business management structures and raising the levels of the businessmen themselves. The third pillar is aggressive introduction of FDIs, which, needless to say, is working as driving forces for raising the levels of human resources in other Asian nations.

<A proposal of three priority measures>

The important concrete measures to be taken for industrialization are, a dramatic improvement in the quality of skilled labor, enhancement of business management capability, the establishment of Industrial Research Center (a provisional name) to gather industrial information, including overseas information, the accumulation of relevant information, the promotion of inflows of overseas human resources, writing and implementing measures to reverse "brain drain," the introduction of incentives within

enterprises and measures to reform decision-making mechanisms, enhancement of management and technological universities, and increasing opportunities for overseas training and education. Exchange of information and people with other countries will play a very important role as the foundation of many measures.

Specifically, we recommend the following three actions as top priority measures. Improvement of the quality of human resources and expanding the supply of talented and well-educated manpower both take time. The following three proposed measures need to be taken at once.

■ Proposal 1: Establish advanced vocational training centers (VTCs) and update vocational education and skills training (VEST)

As indicated by the fact that the curricula and educational facilities of vocational training centers run by the Ministry of Industry, the Ministry of Labor and other governmental agencies are more than 25 years old and belong to earlier generations, it is doubtful that the skilled labor in Myanmar has the minimum levels of vocational education and skills training in terms of quality required for "Myanmar: a nation aiming at industrialization." Even at present, skilled workers are in short supply due to an absolute shortage of facilities for and limitations to the number of students admitted to VEST as well as financial constraints experienced by potential students (note 1). There is a risk that the country will be absolutely unable to meet the growing needs for skilled workers that will result from the rising share of manufacturing industry in the country's economy. In industries that require relatively high levels of skills (especially foreign or part-foreign companies), it is highly likely that the shortage of skilled workers is a major constraint to investment (FDI).

(Note 1. Although they are rather old, data for 1997 show that only 10% of households in Myanmar have monthly income of 20,000 kyats or more. Seventy percent of households have monthly income of 10,000 kyats or less.)

Given the fact that it takes a certain period of time to train people in modern skills, immediate enhancement and expansion of VEST are an urgent policy measure. Taking into account that almost all vocational training centers belong to earlier generations, the government first needs to establish a state-of-the-art advanced vocational training center (A-VTC) in order to make up for the "25-year time lag" and press ahead with industrialization. In other words, the government should open a showroom of the state-of-the-art technologies and start an experiment in education. With these measures, the government will reform VEST to levels that are attractive enough for FDI. The establishment of the advanced vocational training center will be the greatest stimulus for reforms.

It is important that in parallel with the establishment of A-VTC, the government

should adopt the basic policy for the entire VEST rather than leaving each ministry or agency to decide its own policy for vocational training centers under its jurisdiction and formulate a 10-year modernization plan for VEST. The VEST-C (Council) will work on the policy and the plan, while the VEST-A (Authority) will be created for their implementation. The VEST-A will have functions that cut across various ministries and agencies and will be given the authority and responsibility to perform them.

Objective

The objectives of these measures are to raise the levels of skilled workers to those of the other ASEAN nations to improve the technological and technical levels of domestic enterprises and to meet the basic requirements for bringing FDI to the country. The A-VCT will make it possible for the public to come into contact with the state-of-the-art technology, advanced skills and the latest production processes and educate the public the importance of improving productivity and enhancing competitiveness of the industrial sector. A secondary objective is to promote exchange between public agencies and the private sector in education in technology and skills.

The formulation of the basic plan

The plan should include the basic policy and legal frameworks, the development of qualification and standardization and other institutional frameworks, enhancement of the educational capabilities of public agencies and the private sector (including the sharing of teaching materials, information and facilities), the raising the levels of teachers, identification of priority sectors for skills training (short-, medium- and long-term), enhancement of private vocational training centers and institutions to allow quick responses to the technological and business environment, and the adoption of a dual training system (a system under which both schools and actual production shops are used for educating students) like the one used in the Philippines.

VEST-C and VEST-A

The VEST-C, a council, will be responsible for policy-making and oversight, while the VEST-A will be responsible for enforcement and implementation. These organizations dedicated to VEST will be created centering on people seconded from related ministries and agencies.

The establishment of A-VTC

The state-of-the-art A-VTC will be established to serve as a model for the opening of the new era of industrialization of Myanmar with assistance from foreign governments and other agencies when needed. It will be based on the dual system which places equal emphasis on school (formal) education and acquisition of practical skills in industry.

■Proposal 2: Create Myanmar Industrial Research Center (MIRC) and build industrial information infrastructure

Establish the Myanmar Industrial Research Center (MIRC) to gather, accumulate and disseminate industrial information. Through these activities, the center will assist in the area of information the formulation of industrial development policy by the government and also the formulation of strategies by businesses. The center will contribute to the overall industrial development of Myanmar as it will serve both SOEs and private enterprises regardless of their size or the sector in which they operate.

Objectives

At present, Myanmar does not have any "information infrastructure" relating to the actual status of domestic industries, analyses of their international competitiveness, and both regional and global information (markets, activities of suppliers, technology, corporate investment behavior, including FDIs, consumer trends and outlooks for the user-industries of individual industries, etc.) on each industrial sector. Myanmar lacks not only micro information on individual sectors but also macro-economic information, including the economic conditions of the neighboring countries that affect individual industries in Myanmar, changes in the neighboring countries' business environment and expectations and needs for the utilization of Myanmar's industrial resources arising from these changes in the neighboring countries, causing severe shortages of information infrastructure needed by both SOEs and private enterprises in formulating strategies for the future. The center will gather and accumulate such micro-level and macro-economic information relating to the industry, provide basic information that is essential for the formulation of industrial development policy by the government and assist Myanmar's enterprises in their strategy development from the aspect of "industrial information infrastructure."

In the other ASEAN countries and Japan, there is an accumulation of enormous amounts of information at large numbers of organizations, such as industrial associations, trade associations, chambers of commerce and industry, research departments of banks, financial analysts at brokerage firms, private market research firms, newspaper companies, universities, think tanks and consulting firms. These organizations offer diverse information to the government and businesses to be used in public policy-making as well as strategy development at enterprises. Myanmar also has industrial associations, such as the UMFCCI and its member associations, but they are still woefully inadequate to serve as an information infrastructure. The government should take the initiative for the creation of the MIRC until such time as when the country's industrialization will have made certain progress, gather and accumulate industrial information and disseminate it widely among the government officials and business people. Statistics and other numerical data, analyses and information relating to the

latest developments in the industry and economy can serve as valuable materials that support planning, discussion and judgment in various quarters, including the discussion of industrial policy by the government and formulation of various strategies by businesses.

Functions of MIRC

In the near term, the MIRC will have the following two important functions.

- Industrial research function: The center will carry out various research on not only the existing major industries but also on the industries that are expected to expand or develop rapidly in the future and disseminate information widely. It will take up various research themes to meet the needs of individual industries. Possible themes include the analyses of the present status of industries, a comparative study on the competitiveness of Myanmar vis-à-vis other Asian nations, studies on concrete requirements Myanmar must meet in order to bring more FDIs, analyses of consumer behavior, market studies, and factors in and history of industrial development policies of other countries as well as their actual development.
- Development of industrial information library: Industrial information available in Myanmar at present can be said to be woefully inadequate in terms of both quality and quantity as indicated by poor industrial libraries at the Ministry of Industry and universities. It is necessary to enhance industrial libraries and open them to the industry. The MIRC will extensively gather books, magazines relating to the state-of-the-art technologies, markets, business management and other subjects and industry-related information in other countries that is available to the public and make them available to anyone who wishes to use them. It will offer the use of equipment to freely access the Internet, the information search and retrieval functions as well as links to relevant agencies at home and abroad via its own homepage, and encourage businesspersons to make use of more information.

After a few years, the effectiveness of the activities to that point should be evaluated and discussion will be held on the addition of new functions if that is necessary. Possible new functions are (1) proposals to the government on the "development policies for various industries" which may arise from the results of research the center will have completed by then and (2) writing of and consulting on management strategies to be offered to private enterprises. These functions are already being performed in the other ASEAN countries.

Organization and other important matters

The MIRC may be led by the government or by a private organization, such as the UMFCCI. However, given the needs for recruiting domestic personnel (researchers at

the MIRC) and foreign experts (researchers and advisors), financial support for facilities and operations, and coordination and adjustments with related ministries and agencies in setting research themes and the capability for meeting these needs without difficulty, the most realistic approach would be for the government to take the initiative at least at the very early stages of the center.

Its structure and working should be such that the needs of private enterprises will be fully taken into account and allow participation of foreign experts advisors and unimpeded participation of industry-related people at domestic private enterprises as well as universities. A committee comprising relevant people from the government and the private sector will be formed for each theme, which will have the authority to decide on the contents of research, reports to the government and on how the outcome of the study will be used by industry. Research by the MRIC should cover diverse industrial sectors. For each theme outside talents, primarily from the industry, will be used in addition to the center's own researchers, who will serve as the nucleus of the team. The center will aim at "excellent research" through joint research by specialists at home and abroad.

■Proposal 3: Expand institutions for management education designed to enhance the managerial capability of PMI executives

A predominant share of managers of private enterprises in Myanmar is owner-managers of SMEs and individuals running small proprietorships. On the other hand, many of the senior executives of SOEs, which are mostly large enterprises, are former military men and there is still a shortage of people who have received management education. Management education is being offered by YIE(Yangon Institute of Economics), the UMFCCI, and some private bodies, but they can only meet the needs of a limited number of people. Although Myanmar has begun the transition into a market economy, which requires executives to arm themselves with management know-how, management education infrastructure is woefully inadequate in terms of the scale and in the quality of education. Moreover, because of the small scale of FDI, there are few opportunities for transplanting advanced management know-how from other countries. There is no agency that gives case-by-case guidance on the management of individual SMEs. Apart from those which executives learn through friends or other personal contacts, the average businessman has few opportunities to learn about other companies' successes and failures through seminars, special journals, newspapers or overseas literature on management. With the exception of businessmen who have contacts with overseas companies through the imports of raw materials or exports of finished products or those who make frequent business trips abroad, businessmen in Myanmar have few opportunities to learn. A large number of businessmen in Myanmar are groping their way toward a market economy armed only

with the knowledge gained from the experiences of themselves, their friends or acquaintances. Therefore, it is absolutely necessary to offer them sharply expanded opportunities to study and learn.

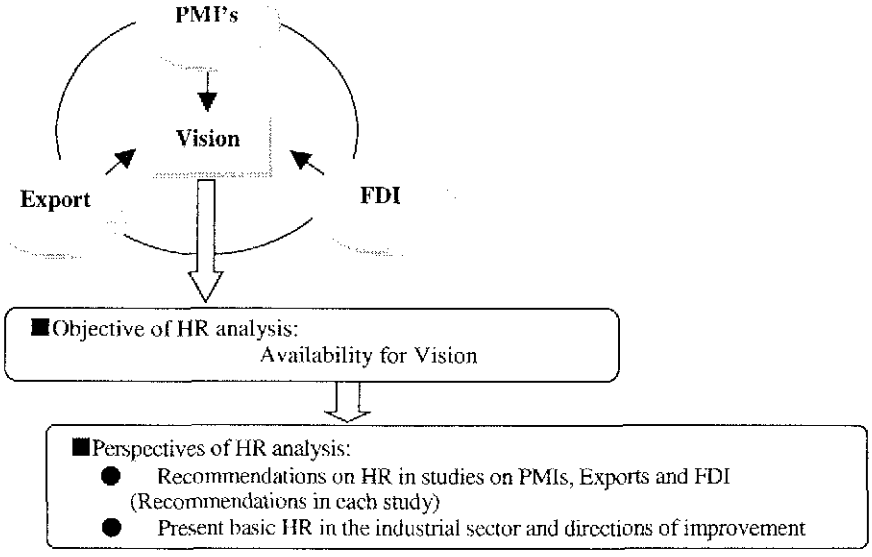
- The creation of an institution for practical management education for executives and managers of SMEs, the enhancement and expansion of existing educational institutions, including the UMFCCI
  (Support for the enhancement of private-sector educational institutions, creation and enhancement of management education courses for SME executives and managers)
- Management education for SOE executives and managers, management education toward privatization
  (Case studies of individual enterprises, including reviews of SOE management strategies, and management education based on such case studies, transplanting of experienced executives from private enterprises to SOEs as top management)
- Expansion of opportunities for overseas experiences
  (Creating opportunities for visits to overseas enterprises to learn about their management and for attending management seminars overseas, offering various seminars in Myanmar to be conducted by executives or scholars from other Asian countries)
- Improvement of the quality of instructors for management courses
  (Creation of opportunities for re-education, accelerated exchange with overseas, an increase in the number of instructors, etc.)

7.1 Backgrounds of Study on Human Resources Development (HRD) and the Study's Place in the Project

A study on the availability of human resources is designed to find out whether or not the industrialization strategy (primarily for the manufacturing industry) is feasible in terms of the quantity and quality of Myanmar's human resources. It is also designed to identify what kind of measures should be implemented in the area of human resources development in order to implement the industrialization strategy.

The heart of the industrialization strategy to be presented in this Project consists of i) development plans for private manufacturing industries (PMIs), ii) a master plan for exports and iii) a master plan for foreign direct investments (FDI). Measures for human resources development are discussed in connection with the discussion of the above-mentioned three plans and in connection with other factors, namely the present status, problems and issues, and required human resources development measures concerning "Myanmar's human resources infrastructure." Since the industrialization strategy centers on the manufacturing industry, the analysis from the perspective of "Myanmar's human resources infrastructure" is focused on the quantitative aspects, such as the supply and demand of labor and the distribution of manpower by industry as well as the qualitative aspects centering on the technological and management capabilities. This chapter will also discuss measures and ways of upgrading the nation's human resources.

Figure 7- 2 Framework and Objectives of HRD-analysis



HR/HRD: Human Resources/Human Resources Development
Source: JICA Study Team

7.2 An Outline of Educational System and Human Resources Development (HRD) in Myanmar

Detail materials showing historical development and the present condition of human resources development (HRD) in Myanmar have not been made public. Perhaps, such information has not been collected systematically. It is difficult to grasp the numbers of institutions, students and instructors by field of discipline and level chronologically due to the fact that even in the few years between 1997 and 2000, technical training schools and universities were reorganized frequently and the government ministries and agencies which have jurisdictions over them have been changed with an equally high frequency. Nevertheless, the following six documents are useful as comprehensive materials on human resources development.

A. Human Resources Development and Nation Building in Myanmar
(Office of Strategic Studies, Ministry of Defence, 1997)

B. Brief Description of Education Reform
(Ministry of Education 2000.7)

C. Handbook on Human Resources Development Indicator, 2000
(Dept. of Labor, 2001.4)

D. Education in Myanmar
(Ministry of Education, 2001.8)

E. Institutions of Higher Education
(The government of the Union of Myanmar, 2002.3)

F. Enhancing Accessibility to Education in Myanmar (Conference on Myanmar-Malaysia Economic Opportunities and Technical Cooperation, Aug. 2002)

All of these documents are not extensive enough to help grasp the overall picture of human resources development, especially that in the industrial sector, and to identify problems and issues in relation to the present and future visions for Myanmar's industry. This study, therefore, has relied on interviews with relevant people in the government, universities and other institutions to the extent possible.

Table 7- 2 Comparative Table of Universities, Degree Colleges and Colleges according to Ministry (from 1998 to 2002)

No	Ministry	Universities, Degree Colleges and Colleges								Total Increase
		1998				2002				
		Universities	Degree College	College	Total	University	Degree College	College	Total	
1	Education	9	7	11	27	31	9	22	62	35
2	Health	4			4	14			14	10
3	Defence	1			1	4	1		5	4
4	Culture				0	2			2	2
5	Forestry				0	1			1	1
6	Agriculture & Irrigation				0	1			1	1
7	Livestock Breeding & Fisheries				0	1			1	1
8	Co-operative				0		1	3	4	4
9	Civil Service Selection & Training Board				0	1			1	1
10	Science & Technology				0	6	49		55	55
11	Religious Affair				0	1			1	1
12	Progress of Border Areas & National Races and Development Affairs				0		2		2	2
13	Transport				0	1	0		1	1
Total		14	7	11	32	63	62	25	150	118

Source: Institutions of Higher Education, March 2002

Human resources development (HRD) in Myanmar is administered by relevant ministries, which include the Ministry of Education (Universities), which plays the leading role in HRD, the Ministry of Industry and the Ministry of Science and Technology. There are following four academies.

- Arts and Science Academy
- Medical Science Academy
- Agriculture, Livestock and Fisheries Academy
- Science and Technology Academy

The academies are under the respective Ministries. At the moment, they are holding seminars on research works done in their respective fields and the papers are being published. The Myanmar Scientific and Technological Research Department(MSTRD) had conducted quite a number of research work in the applied sciences but very few know how to make use of those research findings. There is no enough linkage between the industry and research centers.

Although the industrial development plan for 30 years had been submitted to the higher authorities, there is no detailed mention about the human resource demand and supply. There is no doubt that as industrial development takes place, many qualified engineers, scientists, technologists and technicians will be required. There will, of course, be much higher demand for skilled workers. There was recently a discussion among the industrialists who felt that the government technical high schools should not have been abolished. A majority of skilled workers who graduated from technical schools are doing very well, some even established

their own workshops.

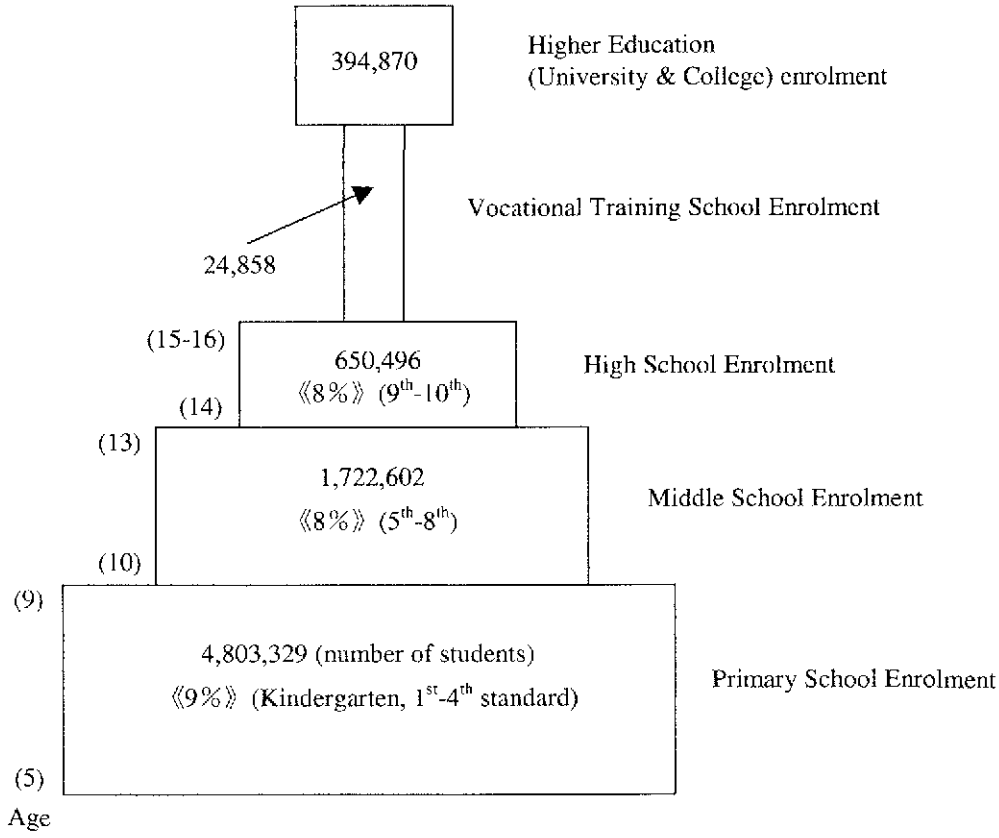
Although the government's basic policy is to upgrade the level of science and technology, it is not yet in line with the direction of industrial development. A human resource development center is being established in West Yangon under the Ministry of Education. At the moment, the Universities and Colleges are encouraged to open new diploma courses in some industrial subjects such as food technology, cosmetic technology and environmental engineering. M.Sc (Engineering Chemistry), M. Sc (Engineering Physics) courses are conducted at the Yangon Technological University, Yangon University, Dagon University and Mandalay University, Actually, the situation may be considered as not yet stable as there may be changes according to the changing economic situation and stage of development of industries. The Dagon and Eastern Universities had been adjusting the teaching periods according to influx of students who had passed the High School Examination during the past 4 years. Now the last batch had been admitted and the teaching loan on the teaching staff had become stable.

With the new Diploma courses opened at the Universities the work load on the teaching staff had increased. This kind of situation is expected become stable only in the next 2 years with more teaching staff having been appointed.

The new Universities and Technological Universities are well built but they need more modern equipment and libraries. It would probably take some time to arrive at a condition that suits the modern teaching institutes.

The enrolment pattern of students in Myanmar is as follows.

Figure 7- 3 Enrolment Pattern of Student in Myanmar (1999-2000)



Source: National Planning and Economic Development Brochure. March 2001

《 》: Dropout ratio(98/99 Statistics, Brief Description of Education System, Ministry of Education, 2000.6)

7.3 The Present Status of and Problems in Myanmar's Human Resources as Seen in the Industrial Sector

(1) Major issues at present

It has been reported that the government of Myanmar is now drawing up a 30-year plan for education and human resources development. Since the stage of development and the contents of this plan are treated as confidential information and have not been made public, this Study Team has not been able to obtain even its outline. The education plan for the nation as a whole is expected to be based on the special four-year plan now being worked on by the Ministry of Education and this 30-year plan. Since the overall objective of this Project, which is the formulation of an industrialization strategy, will center on the development of the manufacturing industry, this study on human resources development in Myanmar has focused on the quantitative aspects, such as demand and supply of labor and distribution of human resources by industry, as well as qualitative aspects centering on technological and management capabilities in its analysis of "Myanmar's human resources infrastructure." The conclusions of the study are as follows:

a. An absolute shortage of technological human resources. Most engineers and technicians are engaged in production technology and, as such, technology development capability is very small.
b. A shortage of infrastructure for nurturing engineers and technicians. The setup is inadequate in terms of the quantity of human resources to be developed and the direction of selecting different areas for human resources development is fraught with problems.
c. There are very few foreign direct investments (FDIs) and opportunities for equipment renewal. Since the inflow of technology and know-how from other countries is small, the nation has neither the tools nor stimulus for technological development.
d. Although skills training and nurturing of technicians are implemented aggressively, there are conspicuous shortages of facilities and teaching materials.
e. Private enterprises, including very large ones, provide little technological and skills training in-house.
f. Information, including that on the industrial sectors, technologies and products in the advanced, industrialized countries as well as the neighboring countries, is extremely scarce.
g. Managers of PMIs are forced to manage their businesses solely on the basis of their narrow experiences and scarce information. Basic management education and information are essential.
h. Many of the senior executives of state-owned enterprises (SOEs) are former military

personnel, and it is frequently pointed out that they lack the ability to manage businesses. Therefore, management re-education and the introduction of private-sector management know-how and personnels as management advisers to SOEs are necessary.

i. It is often pointed out that qualitative improvement and quantitative expansion of educators and leaders are urgently needed to improve the quality of education.

The following are some of the problems and priorities in the expansion of higher institutes of learning, centering on universities and colleges.

a. The new Universities and Colleges are located at places somewhat far from the cities and towns. For example, Ywathargyi Institute of Economics is about one and half hr drive from the city. If the road conditions were improved, it would not take so long. The new West University in Htantabin township is also quite distant and the road is not good. Another University is to be opened in Maubin about one and half hr drive from Yangon.
b. The students are reluctant to attend these Universities and Colleges but the authorities made arrangements for ferry buses at reasonable rates.
c. Similarly new Technological Universities and Colleges had been opened in some distant areas.
d. As Myanmar students have a thirst for knowledge, they tried their best to attend these Universities and Colleges.
e. The cost of attending these Universities and Colleges is quite high but the parents tried their best to put their children in higher leaning institutes.
f. There are more girls than boys in the higher learning institutes (Same is true of workers both in the factories and offices)

(2) Technological education and skills training at universities and GTIs

This section will discuss the kind of human resources development that is needed or is desirable for Myanmar while describing the present status and backgrounds of human resources development in the nation.

As Myanmar has a large population, the creation of job opportunities is a major policy priority. If we simply look at the numbers, there is no special problem. The absolute number of workers (23.1 million in 1998/99) is large. However, there are serious problems, including shortages of job opportunities themselves (despite a relatively low unemployment rate of 4.07% as of 1998/99), a mismatch between the supply and demand of labor when the quality of labor is taken into account, and a shortage of jobs for highly-educated people. The ratio of manufacturing industry workers to total employed population has remained largely unchanged at 11.4% for the past 10 years. Their number increased from approximately 1.21 million in 1990 to 1.64 million in 1998/99, or an annual increase of approximately 40,000.

Table 7- 3 Educational Expenditure

Educational expenditure (as of GDP, projection)	2000	1999
Total education expenditure (*3)	2.5	3.1
Public education expenditure	0.64	0.79
Primary school dropout (%)	9	(1999)
Middle, High School dropout (%)	8	(1998)
Literacy rate (%)	91	(1999)

Source: Handbook on Human Resources Development indicators, 2000 (UNFPA)

Table 7- 4 Education Budget Government Expenditure

	90 / 91	94 /95	97 / 98
Education	2.9	7.0	6.9
Health	0.7	4.5	1.1
Social Welfare	0.1	0.1	1.6
	0.1	1.2	0.2
Total (Social Services)	4.1	7.0	9.8
% of total budget	22.9	24.7	2.0

Source: Handbook on Human Resources Development indicators, 2000 (UNFPA)

Table 7- 5 Population and Labour Force

■Population	48.12 (1999, in million)
- Yangon	5,470 (1999, in thousand)
- Mandalay	6,442 (1999, in thousand)
- Age (15 – 49)	25,113 (1999, in thousand)
- Age (20 – 49)	20,460 (1999, in thousand)
■Total Labour Force	23.10 (98 / 99, female 8.82)
■Unemployment Rate	4.07 (98 / 99, female 4.76)

Source: Handbook on Human Resources Development indicators, 2000 (UNFPA)

Table 7- 6 Percent Distribution of Employed Population

Sr.	Indicator	1990 Survey	98 / 99
35.	**by Occupation Group**	100.0	100.0
	Legislators, Senior Off. & Managers	0.37	0.4
	Professionals	2.76	2.8
	Technical & Associate Professionals	1.98	2.0
	Clerks	2.08	2.1
	Services, Shop, etc. sales workers	10.11	10.1
	Skilled Agri. & Fishery Workers	32.84	32.8
	Craft and Related Workers	11.58	11.6
	Machine Operators and Assemblers	3.44	3.4
	Elementary Occupation	34.84	34.8
	by Industry Group	100.0	100.0
	Agri., Hunting, Forestry & Fishing	56.47	56.5
	Mining and Quarrying	0.95	1.0
	Manufacturing	11.36	11.4
	Electricity, Gas and Water	0.18	0.2
	Construction	2.64	2.6
	Trade, Restaurants & Hotels	15.81	15.8
	Transport, Storage & Communication	3.78	3.8
	Financial Institution	0.27	0.3
	Social and Personal Services	7.73	7.7
	Activities not Adequately Defined	0.81	0.8

Source: Handbook on Human Resources Development indicators, 2000 (UNFPA)

The problem is that the number of engineers, who play the central role in the manufacturing industry, is very small and is estimated at only 25,000-30,000 for the entire nation. Only about 1,000 new engineers graduate every year, primarily from Yangon Technological University (YTU) and other institutions. The cases of a number of large private enterprises show that the number of engineers in the total employment is very small and that most of these people are engaged in the maintenance of production equipment. With the exception of a few SOEs, product and technology development is hardly pursued at enterprises. At the same time, although Myanmar's industrial structure suggests that agricultural and fisheries engineers should play very large roles in the development of respective industries, engineers in these fields are extremely scarce. This may be partly attributable to temporary shutdowns of universities in the past.

Regarding the shortage of engineers, the long close down of the universities and technological institute had been one of the causes. In the case of management personnel, the private enterprises have only recently become aware of the usefulness of qualified management staff who possess management degree or diploma in addition to experience. Among SOE's, the old way of thinking persist, i.e., people who have been assigned to administrative and management jobs are people who came up by seniority . Some have engineering and management degree or diploma.

More fundamental reason appears to be the fact that the long-term perspective of industrial development has been lacking in the education of engineers.

Table 7- 7 Advanced Engineers for Industrial Development

Bachelors or advanced degrees	: 25,000-30,000 (Presently employed)(*1,2)
- Engineers from abroad	: 200-300/year (*3)
- Engineers going overseas	: 100-300/year (*3)
- Foreign engineers	: With foreign companies or specialists sent by foreign governments → small in number

(*1) Many of the figures are estimates by the Study Team based on interviews, etc.
Data are not available on technological capability evaluation.
Data compiled mainly on the basis of an interview survey.

(*2) Estimates based on the number of graduates from YTU, MTU and Pyay Technological University. Excludes those with degrees in medicine or pharmacology.

(*3) Estimates based on interview survey by JICA team

Table 7- 8 YTU (Yangon Technological Univ.)

• Number of students	: Approx. 4,000
(Number of graduates	: Approx. 600/year)
• Number of MS and doctorate candidates	: Approx. 1,000
(Number of degree recipients	: just under 200/year)
• Relations with overseas	: Very few and on a very small scale

Source: Interview survey

In addition to the 25,000-30,000 engineers, the so-called technicians, who have graduated from the Government Technical Institute (GTI) or technical high schools, make up the "technological human resources" in the industrial sector of Myanmar. In the 30-year plan mentioned earlier, the government reportedly plans to sharply increase these technological human resources.

Total annual output of skilled workers from Vocational Training Schools and training center still very small compared to the developing status of local industries.

Follow take is shown for reference.

Table 7- 9 Skilled Workers from Vocational Training Schools and Training Center

Sr NO.	Schools/Centers	1994/95 No.of		1999/2000 No.of	
		School	Student graduated	School	Student graduated
1	Technical High School	16	1,818	-	-
2	State Agricultural Institute	7	228	7	498
3	Agricultural High School	10	568	-	-
4	Industrial Training Center	1	96	1	109
5	Technical Training School	11	-	11	231
6	Commercial School	3	269	3	555
7	Machinery Repair and Maintenance School	2	121	2	96
8	Handicraft School	11	1,431	11	984
9	Fishery School		16	-	-
10	Lacquer were Institute	1	9	1	49
11	Weaving School	-	155	-	89
12	School for Home Science	6	2,608	6	4,564
13	Forestry Training School	-	1,184	-	676
14	Evening Classes	-	-	-	-
	(i) ETEC(Engineering Technical Evening Classes)	-	1,257	-	n.a
	(ii) Evening Occupational Classes	-	4,283	-	n.a
			14,043		7,851+n.a

Source: HRD Indicator –2001

Table 7- 10 Average Number Per Year of Graduate and Post Graduate

	Graduate	Post Graduate (Master & Diploma)	Ph·D's
Engineer	883	100	6
Architects	11	8	-
Medical Doctor	18,191	376	40
Economies	1,142	175	-
Computer Science	537	158	-
Agriculture	115	102	-
Forestry	207	8	-
Others	41	NA	-
Total	21,107	945	46

Source: The role of Science and Technology in HRD and Nation Building in Myanmar (by: U Kyin Soe, 1999)

A tentative five-year plan to nurture engineers (Master's level) at YTU, the nation's leading engineering university, envisions approximately 200 enrollments each in the fields of

machinery, electronics—integrated-- and chemistry as well as 150-200 each in the fields of biotechnology and nuclear engineering. Although the University appears to be gearing itself up for education in a broad range of engineering disciplines, there is a question of whether it might not be better to focus human resources in a smaller number of priority disciplines that will promote the development of industries.

The technical high schools and training centers run by various ministries train and educate technicians. Businesses seldom train and educate technicians in-house. As a result, an absolute shortage of technicians as well as the low level of their skills and capabilities have been pointed out.

For example, according to data from the Vocational Training Center (VTC) run by the Ministry of Labor, the cumulative number of technicians trained at VTC is 3,500. In the past year or two, only 100-150 persons have been trained there. In addition, VTC's educational facilities are small in number and out-dated. It also has serious problems with respect to the quality of teaching materials and instructors.

Table 7- 11 Case of ITC Run by MOI(1)

- 30～40 courses / year
- 4～6 weeks / courses (Full time, Part - time) (Electronics, welding, inspection, others)
- Skilled / Non - Skilled

MOI (1): Ministry of Industry (1)
(42 consumer good : 542 product line. 83 Main factory and 64 Branch factory : Total 147 factories. Total 48,000 employees)

Source: Ministry of Industry (1)

Table 7- 12 Case of ITC Run by MOI (2)

	Sinde	Mandelay
Training Level	Skilled	Semi – Skilled
No. of. Courses	8 (*1)	4
Training Period	2 years	3 month
Intake / year	230 trainees	80 (40x2)
Training fee	3,600ks / M	3,600ks

Course (*1)	No. of Trainee
Machine Tools Operation	40
Fitter	40
Die Maker	10
Auto Mechanic	40
Electrical Fitter	40
Electrical Machine Maker	40
Pattern Maker	10
Mechanical Drafts - man	10

Source: Ministry of Industry (2)

We understand that discussion is under way to introduce to Myanmar the Dual-Tech System (DTS), which is a German concept of skills training and which has been successfully introduced to the Philippines and China. The DTS is drawing attention in the CLMV countries as a method of skills training for fast economic development. Under this system, a series of training programs is conducted by using facilities at schools and factories. It has many advantages, such as reducing the burden of investment in facilities for schools and also allowing them to train more students. It gives big incentives to trainees as they are sometimes hired at the plant where they were trained.

The following is a brief description of the present status of upgrading the capability of teachers and standardization of skills testing and certification.

There are two venues conducting training of Teachers, ie Vocational Training Center (VTC) of the Ministry of labor, providing training of trainer courses for state owned enterprises and Private Vocational Training Schools. The other one is Technical Teacher Training Institute (TTTI) of the Ministry of Science and Technology, which train teachers for Government Technical Institute (GTI) only. It will be more appropriate to upgrade and expand the capability of VTC of the ministry of labor so that trainers from Public and Private sea for could access and be trained.

At present, skills testing and certification are done by various Ministries and various training institutions/schools with own standard. There should be Nationally recognize skills testing procedure and certified skills standard. An authority such as Vocational Education and Skills Training Authority (VESTA) need to be established with the mandate of the Government, to carry out those functions.

On the other hand, the present situation calls for enhancing the roles of the private sector in skills training.

Private schools were nationalized or disbanded in 1965. Even though Market Economic Policy was adopted by the Government in 1989, private schools including private Vocational Training Schools have not been permitted to register as Formal school or Formal Training School. Those who are operating at present are registered as Education Service Providers.

The Ministry of Science and Technology (MST) upgraded all (17) Technical High school inherited from the Ministry of Education (MOE) to Technical Institutes and Technical Collages which focus on training of Junior Engineers only. Thereby only few Government Technical Training Schools/centers left to train skilled workers needed by local industries (ie Public and Private Industries). At present, estimate skilled workers requirement per year is about 59,000. Therefore Government's Training Schools alone cannot provide such quantity of skilled workers. Enhancing the roll of private sector in training of skilled workers is required to fill such a gap.

We will now study the industries for which skills training is necessary. The following table shows the industrial structure (primarily process and manufacturing industries) of Myanmar and breakdown by industry of 7,700 enterprises operating in 18 industrial zones in the country. Food-related businesses account for a large share, but textiles, construction materials, agricultural machinery, transport equipment (repairs and parts) and woodworking also have large shares. [However, their shares can change dramatically depending on the definitions used in statistical treatment (e.g., garment factories)]. Given the large value added (71%) of the private manufacturing industries, it is obvious which industries should be chosen as targets for skills training.

Table 7- 13 Composition of Industries in Myanmar

Type of Industry	Percentage Production	Percentage Employment
(1) Food & Beverages	82.11(%)	51(%)
(2) Clothing & Apparel (Textile & Garment)	1.72	17
(3) Construction Materials	1.32	9.3
(4) Personal Goods	0.97	1.7
(5) Household Goods	0.20	1.3
(6) Printing & Publishing	0.18	0.7
(7) Industrial Raw Materials	5.01	2.5
(8) Mineral Product	6.64	3.1
(9) Agricultural Equipment	0.43	5.1
(10)Industrial Equipment	0.04	
(11)Transport Vehicles	0.58	5.8
(12)Electrical Goods	0.12	1.4
(13)Miscellaneous	0.62	1.1
Total	100.00	100.00

Source: Ministry of Industry(2)

Table 7- 14 Distribution of Industries by Industrial Zone

Sr. No.	Industrial Zone	No. of factories	Food Staff	Textile Garment	Wood based	Personal Goods	Others
1	Yangon East	1,415	202	27	57	283	846
2	Yangon West	-					
3	Yangon North						
	- Shwe Pyi-Thar	93	28	17	3	7	38
	- Hlaing Tha-Yar	366	50	80	-	65	171
4	Yangon South	1,075	269	97	-	290	419
5	Mandalay	994	126	18	35	47	768
6	Meiktila	90	31	34	3	1	21
7	Myingyan	306	138	17	24	34	93
8	Monywa	490	177	90	9	32	182
9	Yenangyaung	197	82	3	8	12	92
10	Pakokku	448	252	64	-	30	102
11	Bago	35	16	4	7	1	7
12	Pyay	125	46	5	8	6	60
13	Pathein	326	181	-	30	12	103
14	MyaungMya	420	318	-	10	2	90
15	Hinthada	482	294	-	32	19	137
16	Mawlamyine	326	129	-	63	36	98
17	Taunggyi	342	147	9	5	54	127
18	Myeik	153	49	-	28	10	66
	Total	7,683	2,535	465	322	941	3,420

Source: MIDC Survey 1998/99
Dr. Kyaw Htin, Myanmar's Industrialization Dec 1999
Data Collected from Hlaing Tha-Yar on 4-10-02
Data of Industrial zone is fluctuating with reference to business

Table 7- 15 Number of Private Factories and MVA

Sr No	Size of Factory	Employment Range	State		Co-operate		Private		Total	
			No	%	No	%	No	%	No	%
1	Micro	Below 10	719	1	443	1	50,844	99	52,006	94
2	Small	10-50	291	11	175	7	2,134	82	2,600	5
3	Medium	51-100	257	55	57	12	150	32	464	1
4	Large	Over 100	309	68	2	0	142	31	453	1
Total			1,576	3	677	1	53,270	96	55,523	100
Share of Total MVA			28%		1%		71%		100%	

Note: MVA=manufacturing Value Added

Sources: Review of the Financial, Economic and Social condition (various issues)

(3) Status of HRD at private enterprises

Although it is difficult to make proper evaluations of technological capabilities of private enterprises, 70 to 80% of advanced engineers who are university graduates are employed by private enterprises and their number is estimated at 14,000-24,000. These figures, however, are derived from the cumulative number of graduates and it is said that only one-third to a-half of these people are actually engaged in work directly related to technology. This means that the absolute number of advanced engineers itself is very small. One of the following tables shows a breakdown of employees at a certain enterprise group in Myanmar (the group is engaged primarily in manufacturing and employs a total of approximately 2,300 workers) by job category. It shows that the number of engineers is very small and also that the number of executives at the decision-making level is also very small. Therefore, upgrading technological capability as well as managerial capability of the middle management are essential for the industrial development of Myanmar. The owner of this enterprise pointed out that the two characteristics of the popular concept about "technology" held by PMIs are as follows:

Awareness of technology among managers (PMIs);

- Generally, do not understand the importance of technology
- As machinery is expensive, tend to think manpower is cheaper than the introduction of machinery

Table 7- 16 Distribution of Advanced Engineers (with Bachelor's Degree or Higher)

Public Sector	Approx. 20-30%
Private Sector	Approx. 70-80%

Engineers in the private sector earn several times more than those in the public sector, although public servants receive fringe benefits.

Source: JICA study team

Table 7- 17 Number of "Managers" in Corporate Organizations

(An Example from a Large Private Enterprise)

Owner, Share Holder	2 persons
Sector Chief	20
Engineer	10
Group leader/ Supervisor	60
Skilled Worker	100
Worker	2,100
Total	2,292

Source: JICA study team

Table 7- 18 General Classification of Engineers in Myanmar and an Example of their Pay Scale

Last school attended	Annual salary (thousand kyat/year)	Number of engineers
1) Univ. (Bachelor)	500	2
2) GTI (Government Technical Inst.)	250~400	5
3) GTC (Government Technological College)	~200	3
4) High School (Technical)	150	—

(The above figures are those of a private enterprise with 2,229 employees)
Source: JICA study team

There is a tendency among private enterprises, including very large ones, to be reluctant to employ engineers, whose salaries are high. It seems that the management often does not understand the importance of technology in the development of the company. While human resources with technological education are being supplied by universities, GTI, GTC and others, since the compensation and other working conditions are fixed by the school the person last attended, there is little incentive in the society as a whole to strive for upward mobility. Regarding management education, there are several courses and programs as shown below, but they are still small in scale.

Educational institutions for managers and senior management;

- Yangon Institute of Economics (YIE), a small number of private management schools, courses on finance at UMFCCI, etc. But both the number and scale of such institutions are still small.
- Very few MBA/DMA (YIE) programs (see attachment for curricula, etc.)

The following is a curriculum at Yangon Institute of Economics (YIE). All the textbooks are in English and most of them are from the 1980s.

Figure 7- 4 Curriculum at YIE

■ Yangon Univ. / Yangon Institute of Economics

No. of students: 8,500 (including 4,500 receiving distance education)

- Economics Dept
- Applied
- Commercial
- Management Studies
- Statistics
- Mathematics
- Geography
- English

■ MBA(full time) / DMA(part time)

Number of Applicant ≒ 800 persons

Number of Entrance ≒ 130～140

(Back ground) (*1)

Private company	≒ 75%
Government company	≒ 5
Own small Business	≒ 5
From / To foreign countries	≒ 10

- Total: Approx. 800h (lecture)
- Lecturers: Approx. 30 (Professors, lecturers, assistant lecturers) (Including 4-5 lecturers from abroad)
- Textbooks: Mostly textbooks from the U.S. or Europe

Curriculu

<First year>

(Term : First)

- General Management
- Management Accounting I
- Quantitative Methods for Decision Making
- Macro Economic Framework
- Legal Framework for Business

(Term : Second)

- Marketing
- Production & Operations Management
- Financial Management
- Managerial Statistics
- Management Accounting II

<Second year>

(Term : First)

- Introduction to Management Information Systems
- Entrepreneurship & Small Business Management
- Public Enterprises Management
- Strategic Management

(Term : Second)

- Human Resources Management
- Managerial Economics
- International Finance
- Organizational Behavior
- International Business Management

Source: YIE

The MBA program/programs for the education of managers is/are small in scale (in terms of the number of students) and many of the students are sponsored by their employers. As a result, very few students start their own businesses after graduation. It is said that many of the graduates find work with foreign capital-affiliated companies. It is necessary to offer a "chance for learning" to managers of SMEs and to enhance and expand the MBA program/programs.

The managerial capability of business executives is a major national priority, and it is essential to strengthen the managerial capability of as many business managers as possible as soon as possible. Many businessmen running private manufacturing enterprises have only elementary school or middle school education, and it has been pointed out that they need rudimentary education in diverse subjects, including bookkeeping, quality control and human resources development management.

The following three points sum up the characteristics of management capability at private manufacturing enterprises:

- The number of managers with college education is extremely small.

- Information relating to business is inadequate. There is strong demand for information on markets.
- Entrepreneurial spirit and the will to expand businesses are said to be weak.

(4) Profiles of managers and their managerial capability at SOEs

The most outstanding characteristic of the profiles of managers at SOEs is that many of them are former military men. According to an estimate, former military men account for more than 90% of MDs (managing directors) and DG (directors general), 60% of directors and 40% of managers. Informed people in Myanmar have pointed out that the high ratio of former military men at the middle and higher levels of management at SOEs means that they do not have enough managerial capability to conduct business in a market economy. However, one should admit that "military" style management of senior executives at SOEs and strongly "owner" style management at SMEs are not without merit in that they allow quick decision-making.

Table 7- 19 Executives and Managers of SOE

Post	The percentage of former military personnel
MD / DG	90～(%)
Dupty director general	70～80
Director / General Manager	60
Factory general manager	80～ (Large Factory)
Dupty director / Assistant Director	50
Manager	40

Source: JICA Study team

However, from the perspective of expecting medium- and long-term development into a very strong organization, it (the present system) tends to produce autocratic leaders, involve high risk in the sense that poor judgment may be made, and exert pressure on the nurturing of human resources within the organization, including the education of subordinates. Thus, it is highly problematic.

Given the international economic environment in which Myanmar finds itself, management of Myanmar's SOEs needs to be improved and reformed in many areas, including the analysis of the market for the business, selection of and alliance with partners,

the improvement of product quality and technology, the development of new products and markets, investment strategies and human resources development. The delegation of authority and the creation of a hierarchy of responsibilities within the organization, organizational decision-making mechanisms (the methods of decision-making and the desirable formats of conferences), information sharing within the organization and the methods of discussions and decision-making between different divisions all need to be reformed.

One of the surest and speediest ways of achieving such management reform is to recruit managers and senior management people with experiences in private enterprises and a keen business sense to SOEs and for the government to support their management reform efforts.

Between 1984 and 1988, "Management Training Courses" were held for officials of SOEs. These courses were said to help military officers assume civilian posts and were held in high esteem. At the same time, many senior military officers are graduates of the Defense Service Academy (DSA), whose three-year curriculum includes economics.

Table 7- 20 Recent Top/Middle Management School at MOI (1)

Training Course	Period	Number of students	Number of programs/year
・Higher management	4 week	40 Persons	1
・Project planning	4 – 6	40	2
・Finance	4 – 6	40	2

Source: JICA Study team

As of September 2001, the distribution of personnel and pay scales at the Ministry of Industry (MOI) was as follows. Most of those who were classified as "officers" were Bachelors of Science (BSC), Bachelors of Administration (BA), Bachelors of Engineering (BE), graduates of the Government Technical Institute (GTI), or former military personnel. Most of those classified as "others" were factory workers.

Eighty-six percent of personnel at the factories of state-owned enterprises receive 7,500 - 12,500 Kyat per month in direct compensation.

Table 7- 21 Distribution of Personnel and Pay Scales at MOI (September 2001)

	Approved	Appointed		
		Permanent	Temporary	Total
Ministry	52	19	2	21
Directorate of Industry	491	294	84	378
Directorate of Industrial	1,136	660	12	672
Super Vision & Inspection		-	-	
6 Industries	59,227	35,059	14,243	49,302
Total	60,906	36,032	14,341	50,373

Pay scale	Appointed-Permanent
13,000 - 200 - 16,000	53
11,500 - 200 - 12,500	70
10,000 - 200 - 11,000	182
8,700 - 200 - 9,700	335
7,500 - 200 - 8,500	1,580
Officer Total	2,220
13,000 - 200 - 14,000	4,997
11,500 - 200 - 12,500	5,398
10,000 - 200 - 11,000	13,398
8,700 - 200 - 9,700	7,639
7,500 - 200 - 8,500	33,812
Other Rank Total	36,032
Grand Total	36,032

Source: MOI data

There is a noticeable gap between the old experience and trained staff in the SOEs and those appointed about 5 years ago. Although the new entrees are intelligent, they need more incentives. The government is trying to provide more incentives but better quality middle management personnel are going into the private enterprises where they get better salaries although work security and pension are more attractive in government service.

(5) Information and HRD

The accumulation of technological and industrial information is extremely poor. The situation is similar at university libraries, the Ministries of Industry, which have jurisdiction over industries, and SOEs. Access to overseas information via the Internet is beyond the reach of most researchers and engineers at least for now. The exchange of information with other countries, especially strong inflows of information on overseas technologies, products, and markets to Myanmar is essential for the industrialization of the country.

The seriousness of the lack of information can be seen in figures obtained by a questionnaire survey of SMEs taken by the UMFCCI. Regarding both technology and management, 50-60% of respondents answered that the sources of their technological and

management skills were "self-study," which was followed by "family members and relatives" (16-20%) and "experiences in previous jobs" (13-17%). Only a small percentage of respondents cited "schools" as sources of their skills.

The same survey asked about direct sources of information concerning technology. Predominantly large numbers of respondents cited friends, colleagues and trading partners. The survey revealed that next in importance were conversation, newspapers, radio, other companies in the same industry and manufacturers of machinery and equipment, and materials makers. Libraries, business associations, such as the UMFCCI, universities, technological information providers, consulting firms and government agencies are hardly serving as sources of information. Although the question allowed multiple responses, only about one in a hundred respondents chose any one of these institutions.

Table 7- 22 Source of Information for Technology (Multiple Choice)

Information source	Number of companies (n=690)	Percentage (%)
Friend and associate	373	54.1
Trading partners	275	32.6
Equipment and machinery makers	83	12.0
Other companies in the industry	71	10.3

Source: UMFCCI/JICA (2002.3)

The questionnaire survey found that 80% of businesses were "dissatisfied" about the availability of technological information, while only just over 6% of firms responded that they were "satisfied." The shortage of technological information is also evident from responses to the question, "What are the problems concerning technology?" The three most serious problems, according to the respondents, were: i) a lack of funds to upgrade technology; ii) shortages of equipment; and iii) inadequate access to information.

Table 7- 23 Problems in Technological Development (Multiple Choice)

Problem	Number of companies (n=690)	Percentage (%)
- Shortage of equipment for technology development	244	35.4
- Difficulty in obtaining information on technology	226	32.8
- Shortage of fund for technology development	223	32.3
- No need for technology development	105	15.2
- No one consult on technological problems	97	14.1
- Shortage of technology staff/ engineers	86	12.5

Source: UMFCCI / JICA Study Team

To begin with, information necessary for management is to be discovered and not to be given. The information one finds by oneself is unique information not shared with rival companies and can be an important weapon in competition. However, Myanmar even lacks the kind of basic technological information that is considered to be "common sense" and is shared by all in other countries. Information is discovered on the strength of the information one has accumulated. Without the information which should serve as the foundation, businesses' capability for discovering information is bound to be poor. The gap with other countries in the area of fundamental technological information should be closed by government policy rather than through the efforts of individual entrepreneurs.

Support is also necessary when businesses develop their unique technologies beyond the fundamental technology. Most of SMEs are unable to own expensive measuring instruments, for example, that are necessary for technology development. At SMEs, the technological knowledge of the owner-managers itself is the source of technology improvement and development (the questionnaire has revealed that businesses in which the owner-managers themselves are in charge of technology development accounted for 84.8% of all respondents). Since an individual's technological knowledge is bound to be limited, it must be supplemented with technological knowledge in the areas outside of his or her specialization. Even when an SME discovers new technological information, it often finds it difficult, if not impossible, to systemize it based on scientific principles. The solution of these problems is beyond the self-help efforts of entrepreneurs and requires support from government policies.

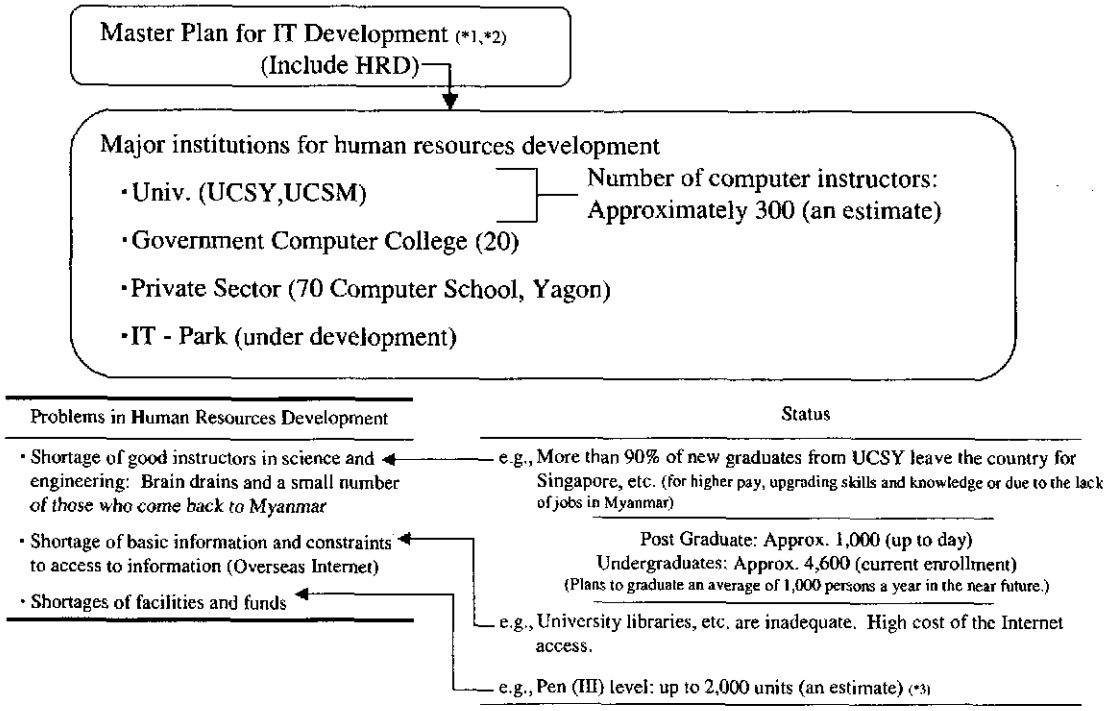
(6) Human resources in the software sector

The development of the information technology (IT) industry, especially the software industry, is a major priority for Myanmar, and the country is now in the process of writing a 10-year plan. The software industry is potentially a very promising new industry for Myanmar (this sector is discussed in another chapter of this report).

The cost of facilities for the software industry is much smaller than that for other infrastructure, including electric power, roads, and ports and harbors. At the same time, by creating special zones, such as software parks, jobs in the industry can be clustered.

The largest problem in the development of the software industry is human resources development. Put in another way, the key factor that will determine whether or not this industry will develop is human resources development. Today, most of the new human resources in software (graduates of the Computer College) find jobs in Singapore, Malaysia and other foreign countries, primarily because of a lack of adequate job opportunities and low levels of remuneration in the country. Therefore, software job-creation is the urgent and most important measure for the development of the software industry in Myanmar.

Figure 7- 5 Problems in Human Resources Development at Software Industry



(*1) Legal Aspect : The National Science and Technology Development Low
: Computer Science Development Low

(*1) Chiefly responsible for the development : MOST (Ministry of Science and Technology)

(*2) Being prepared by Myanmer Computer Federation

(*3) An estimate including those (30-40 units) owned by MOST. The number of personal computers in the country as a whole (cumulative number of imports) as of the end of 2000 is estimated at approximately 100,000.

Source: JICA Study team

In order to accumulate human resources in the software and IT industries, the basic approach would be to develop these industries (i.e., markets for these industries) in Myanmar rather than resort to measures to stem the outflow of these people. There are many businesses that would help the development of these industries, but important measures are to get orders for software development from other countries and bring direct investments (FDIs) from overseas advanced software enterprises.

(7) Characteristics of labor force and incentives in private enterprises

A questionnaire survey covering 690 private enterprises on recruitment methods conducted by the UMFCCI/JICA shows that the most frequently cited methods were through the introduction of existing employees and hiring of relatives. These are followed by through the introduction of friends or business partners and then through public hiring. Hiring through the introduction by public agencies is extremely rare.

A breakdown of employees by the level of formal education shows that more than 70% of employees at private enterprises (in manufacturing) have middle school education or less. High school graduates account for approximately 12%, and university graduates and those with certificates/diplomas account for slightly more than 7%.

Slightly less than 90% of enterprises cited "in-house training" as the principal method of employee education, followed by 6% which cited "on-the-job training" (OJT) as the major method. It appears that "in-house training" consists of elementary instruction for operating the machinery and equipment in the shop and training to teach how to perform their jobs. There is hardly any training in which employees are sent outside of the firm to acquire knowledge or skills.

Although offering opportunities for overseas training and education (through very few) is a preferred incentive for high-grade human resources, there is hardly any incentive system for ordinary workers. Factories that employ a large number of unskilled female workers often adopt a system under which compensation is directly linked to productivity or job performance, which may be considered as an incentive system.

The following chart shows examples of incentives offered by private enterprises.

Table 7- 24 Incentive Example in Private Company

Job title (persons)	Incentive	Reference	
		Academic background	PayPay (Kyat/Mo.)
Manager (Top executives)	-	Univ.	25,000~
Sales manager Sales promoter } (70)	Bonuses are increased depending on sales performances	Univ. High	15,000~ 5,000~
Engineer 40	Opportunities for overseas training	Univ. GTI	20,000~ 16,000~ (*1)
Office staff 40	(Managers: Promotion opportunities) (Clerical workers, women: No special opportunities)	Univ.	25,000~ 15,000~
Skilled Worker Non skilled } 150	Over – time wage	Mid Mid	~10,000 3,000~7,000
For all employees (?300)	Relatively high pay (foreign capital), health insurance	-	-

Source: JICA Study team

In this study, interviews were conducted to find out what kind of incentives enterprises are offering to employees. It was found that incentives consisted mostly of offering bonuses or health insurance according to sales performances and that businesses are not offering incentives that would directly lead to raising the levels of human resources.

It has been pointed out that the most serious problem for private enterprises regarding labor is job-hopping, followed by the difficulties in hiring skilled workers.

Table 7- 25 Labor Problems

Problem	Number of companies (n = 202)	Percentage (%)
Job hopping	145	71.8
Difficulties in hiring skilled workers	24	11.9
Absenteeism	16	7.9

Source: UMFCCI/JICA

According to our interview study for a couple of private companies, the largest reason for job-hopping is for a better pay. This is followed by "shorter commuting distance." As commuting by public transportation is inconvenient and unpleasant, workers tend to choose work which is closer to their homes. The third reason is the "atmosphere of the workplace." People like friendly workplace atmosphere and bad workplace atmosphere seems to be a major cause for job-hopping.

(8) Business training by UMFCCI

The UMFCCI offers the following educational courses in its UMFCCI Business Training Center Activities.

Table 7- 26 UMFCCI Business Training Center Activities (March, 2000 – June, 2002)

St. No	Course	No. of Course conducted	No. of Candidates Completed	Remark
1	Level I	10	666	5 month
2	Level II	4	157	8 month
3	Level III	1	49	9 month
4	PC/Office-XP instructor Course	1	25	8 days
5	PC/Office-XP Workshop	1	12	5 days
6	International Trade Course (Program I)	1	48	8 days
	Total		957	

Source: UMFCCI

The PC education course, which is one of the courses offered, is conducted at MICT-Park. Training at MICT-Park includes some seminars and internet training courses. The buildings in the Park are well constructed and some private firms use them as workspace. A number of local companies have registered with the Bagan Cybertech for the use of the internet and intranet. Private computer training classes are also offering internet training).

The UMFCCI (Chamber) had conducted a PC/Office-XP instructor training course under the JODC programme at the UMFCCI Training Centre. Fifty computers donated by JODC were used and a Japanese expert gave a short training course. The computers will be moved to the MICT Park main building as the space in the present building is too congested and electricity supply is irregular. Another Japanese expert will be arriving soon.

7.4 Measures to Upgrade Human Resources in the Industrial Sector

Based on our study of literatures on human resources and interviews with various parties, it has been found that the types of human resources that are and will continue to be in short supply in the industrial sector are i) experienced managers, ii) production engineers, and iii) skilled workers. Under these circumstances and based on our analysis of human resources for the industrialization of Myanmar, we recommend the following as the priority direction of reforms.

<The basic concept>

For Myanmar's industrialization, the following three pillars are needed for the upgrading of the nation's human resources. The first pillar is the improvement of social infrastructure, including the educational system and raising of the people's educational levels; the accumulation of various information, including overseas information, and the creation of a system to use such information; and raising the quality of teachers and leaders. The second pillar is various measures to upgrade human resources in enterprises, including raising the levels of knowledge and experiences of employees at PMIs and SOEs, and the introduction of incentives for this purpose; and reform of corporate management organization and raising the levels of managers themselves. The third pillar is aggressive introduction of FDIs, which, needless to say, is working as driving forces for raising the levels of human resources in other Asian nations.

<A proposal of three priority measures>

The important concrete measures to be taken for industrialization are, a dramatic improvement in the quality of skilled labor, enhancement of business management capability, the establishment of Industrial Research Center (a provisional name) to gather industrial information, including overseas information, the accumulation of relevant information, the promotion of inflows of overseas human resources, writing and implementing measures to reverse "brain drain," the introduction of incentives within enterprises and measures to reform decision-making mechanisms, enhancement of management and technological universities, and increasing opportunities for overseas training and education. Exchange of information and people with other countries will play a very important role as the foundation of many measures.

Specifically, we recommend the following three actions as top priority measures. Improvement of the quality of human resources and expanding the supply of talented and well-educated manpower both take time. The following three proposed measures need to be taken at once.

■Proposal 1: Establish advanced vocational training centers (VTCs) and update vocational education and skills training (VEST)

As indicated by the fact that the curricula and educational facilities of vocational training centers run by the Ministry of Industry, the Ministry of Labor and other governmental agencies are more than 25 years old and belong to earlier generations, it is doubtful that the skilled labor in Myanmar has the minimum levels of vocational education and skills training in terms of quality required for "Myanmar: a nation aiming at industrialization." Even at present, skilled workers are in short supply due to an absolute shortage of facilities for and limitations to the number of students admitted to VEST as well as financial constraints experienced by potential students (note 1). There is a risk that the country will be absolutely unable to meet the growing needs for skilled workers that will result from the rising share of manufacturing industry in the country's economy. In industries that require relatively high levels of skills (especially foreign or part-foreign companies), it is highly likely that the shortage of skilled workers is a major constraint to investment (FDI).

(Note 1. Although they are rather old, data for 1997 show that only 10% of households in Myanmar have monthly income of 20,000 kyats or more. Seventy percent of households have monthly income of 10,000 kyats or less.)

Given the fact that it takes a certain period of time to train people in modern skills, immediate enhancement and expansion of VEST are an urgent policy measure. Taking into account that almost all vocational training centers belong to earlier generations, the government first needs to establish a state-of-the-art advanced vocational training center (A-VTC) in order to make up for the "25-year time lag" and press ahead with industrialization. In other words, the government should open a showroom of the state-of-the-art technologies and start an experiment in education. With these measures, the government will reform VEST to levels that are attractive enough for FDI. The establishment of the advanced vocational training center will be the greatest stimulus for reforms.

It is important that in parallel with the establishment of A-VTC, the government should adopt the basic policy for the entire VEST rather than leaving each ministry or agency to decide its own policy for vocational training centers under its jurisdiction and formulate a 10-year modernization plan for VEST. The VEST-C (Council) will work on the policy and the plan, while the VEST-A (Authority) will be created for their implementation. The VEST-A will have functions that cut across various ministries and agencies and will be given the authority and responsibility to perform them.

Objective

The objectives of these measures are to raise the levels of skilled workers to those of the other ASEAN nations to improve the technological and technical levels of domestic enterprises and to meet the basic requirements for bringing FDI to the country. Today, there

is strong demand for middle-level workers and the proposed measures are designed to supply such workers to the business community. The A-VCT will make it possible for the public to come into contact with the state-of-the-art technology, advanced skills and the latest production processes and educate the public the importance of improving productivity and enhancing competitiveness of the industrial sector. A secondary objective is to promote exchange between public agencies and the private sector in education in technology and skills.

The formulation of the basic plan

The plan should include the basic policy and legal frameworks, the development of qualification and standardization and other institutional frameworks, enhancement of the educational capabilities of public agencies and the private sector (including the sharing of teaching materials, information and facilities), the raising the levels of teachers, identification of priority sectors for skills training (short-, medium- and long-term), enhancement of private vocational training centers and institutions to allow quick responses to the technological and business environment, and the adoption of a dual training system like the one used in the Philippines.

VEST-C and VEST-A

The VEST-C, a council, will be responsible for policy-making and oversight, while the VEST-A will be responsible for enforcement and implementation. These organizations dedicated to VEST will be created centering on people seconded from related ministries and agencies.

The establishment of A-VTC

The state-of-the-art A-VTC will be established to serve as a model for the opening of the new era of industrialization of Myanmar with assistance from foreign governments and other agencies when needed. It will be based on the dual system which places equal emphasis on school (formal) education and acquisition of practical skills in industry.

■Proposal 2: Create Myanmar Industrial Research Center (MIRC) and build industrial information infrastructure

Establish the Myanmar Industrial Research Center (MIRC) to gather, accumulate and disseminate industrial information. Through these activities, the center will assist in the area of information the formulation of industrial development policy by the government and also the formulation of strategies by businesses. The center will contribute to the overall industrial development of Myanmar as it will serve both SOEs and private enterprises regardless of their size or the sector in which they operate.

Objectives

At present, Myanmar does not have any "information infrastructure" relating to the actual status of domestic industries, analyses of their international competitiveness, and both regional and global information (markets, activities of suppliers, technology, corporate investment behavior, including FDIs, consumer trends and outlooks for the user-industries of individual industries, etc.) on each industrial sector. Myanmar lacks not only micro information on individual sectors but also macro-economic information, including the economic conditions of the neighboring countries that affect individual industries in Myanmar, changes in the neighboring countries' business environment and expectations and needs for the utilization of Myanmar's industrial resources arising from these changes in the neighboring countries, causing severe shortages of information infrastructure needed by both SOEs and private enterprises in formulating strategies for the future. The center will gather and accumulate such micro-level and macro-economic information relating to the industry, provide basic information that is essential for the formulation of industrial development policy by the government and assist Myanmar's enterprises in their strategy development from the aspect of "industrial information infrastructure."

In the other ASEAN countries and Japan, there is an accumulation of enormous amounts of information at large numbers of organizations, such as industrial associations, trade associations, chambers of commerce and industry, research departments of banks, financial analysts at brokerage firms, private market research firms, newspaper companies, universities, think tanks and consulting firms. These organizations offer diverse information to the government and businesses to be used in public policy-making as well as strategy development at enterprises. Myanmar also has industrial associations, such as the UMFCCI and its member associations, but they are still woefully inadequate to serve as an information infrastructure. The government should take the initiative for the creation of the MIRC until such time as when the country's industrialization will have made certain progress, gather and accumulate industrial information and disseminate it widely among the government officials and business people. Statistics and other numerical data, analyses and information relating to the latest developments in the industry and economy can serve as valuable materials that support planning, discussion and judgment in various quarters, including the discussion of industrial policy by the government and formulation of various strategies by businesses.

Functions of MIRC

In the near term, the MIRC will have the following two important functions.

- Industrial research function: The center will carry out various research on not only the existing major industries but also on the industries that are expected to expand or develop rapidly in the future and disseminate information widely. It will take up various research themes to meet the needs of individual industries. Possible themes include the analyses of the present status of industries, a comparative study on the competitiveness of Myanmar vis-à-vis other Asian nations, studies on

concrete requirements Myanmar must meet in order to bring more FDIs, analyses of consumer behavior, market studies, and factors in and history of industrial development policies of other countries as well as their actual development.

- Development of industrial information library: Industrial information available in Myanmar at present can be said to be woefully inadequate in terms of both quality and quantity as indicated by poor industrial libraries at the Ministry of Industry and universities. It is necessary to enhance industrial libraries and open them to the industry. The MIRC will extensively gather books, magazines relating to the state-of-the-art technologies, markets, business management and other subjects and industry-related information in other countries that is available to the public and make them available to anyone who wishes to use them. It will offer the use of equipment to freely access the Internet, the information search and retrieval functions as well as links to relevant agencies at home and abroad via its own homepage, and encourage businesspersons at SMEs and PMIs to make use of more information.

After a few years, the effectiveness of the activities to that point should be evaluated and discussion will be held on the addition of new functions if that is necessary. Possible new functions are (1) proposals to the government on the "development policies for various industries" which may arise from the results of research the center will have completed by then and (2) writing of and consulting on management strategies to be offered to private enterprises. These functions are already being performed in the other ASEAN countries.

Organization and other important matters

The MIRC may be led by the government or by a private organization, such as the UMFCCI. However, given the needs for recruiting domestic personnel (researchers at the MIRC) and foreign experts (researchers and advisors), financial support for facilities and operations, and coordination and adjustments with related ministries and agencies in setting research themes and the capability for meeting these needs without difficulty, the most realistic approach would be for the government to take the initiative at least at the very early stages of the center.

Its structure and working should be such that the needs of private enterprises will be fully taken into account and allow participation of foreign experts advisors and unimpeded participation of industry-related people at domestic private enterprises as well as universities. A committee comprising relevant people from the government and the private sector will be formed for each theme, which will have the authority to decide on the contents of research, reports to the government and on how the outcome of the study will be used by industry. Research by the MRIC should cover diverse industrial sectors. For each theme outside talents, primarily from the industry, will be used in addition to the center's own researchers, who will serve as the nucleus of the team. The center will aim at "excellent research" through joint research by specialists at home and abroad.

■ Proposal 3: Expand institutions for management education designed to enhance the managerial capability of PMI executives

A predominant share of managers of private enterprises in Myanmar is owner-managers of SMEs and individuals running small proprietorships. On the other hand, many of the senior executives of SOEs, which are mostly large enterprises, are former military men and there is still a shortage of people who have received management education. Management education is being offered by YIE (Yangon Institute of Economics), the UMFCCI, and some private bodies, but they can only meet the needs of a limited number of people. Although Myanmar has begun the transition into a market economy, which requires executives to arm themselves with management know-how, management education infrastructure is woefully inadequate in terms of the scale and in the quality of education. Moreover, because of the small scale of FDI, there are few opportunities for transplanting advanced management know-how from other countries. There is no agency that gives case-by-case guidance on the management of individual SMEs. Apart from those which executives learn through friends or other personal contacts, the average businessman has few opportunities to learn about other companies' successes and failures through seminars, special journals, newspapers or overseas literature on management. With the exception of businessmen who have contacts with overseas companies through the imports of raw materials or exports of finished products or those who make frequent business trips abroad, businessmen in Myanmar have few opportunities to learn. A large number of businessmen in Myanmar are groping their way toward a market economy armed only with the knowledge gained from the experiences of themselves, their friends or acquaintances. Therefore, it is absolutely necessary to offer them sharply expanded opportunities to study and learn.

- The creation of an institution for practical management education for executives and managers of SMEs, the enhancement and expansion of existing educational institutions, including the UMFCCI
  (Support for the enhancement of private-sector educational institutions, creation and enhancement of management education courses for SME executives and managers)
- Management education for SOE executives and managers, management education toward privatization
  (Case studies of individual enterprises, including reviews of SOE management strategies, and management education based on such case studies, transplanting of experienced executives from private enterprises to SOEs as top management)
- Expansion of opportunities for overseas experiences
  (Creating opportunities for visits to overseas enterprises to learn about their management and for attending management seminars overseas, offering various seminars in Myanmar to be conducted by executives or scholars from other Asian countries)

- Improvement of the quality of instructors for management courses
  (Creation of opportunities for re-education, accelerated exchange with overseas, an increase in the number of instructors, etc.)

List of Task Force and Consulting Group Members

(Trade and Industry Sector in Japan)

Task Force Members

Leader of Trade and Industry Sector	Masahiko Ebashi	Meiji Gakuin University
	Keiichi Oguro	University of Shizuoka
	Johzen Takeuchi	Hosei University
	Nobuhiro Kurose	Senshu University
	Mitsuhiro Iino	University of Shizuoka
	Kazumasa Morita	Toyohashi Sozo College

Consulting Group Members

Team Leader	Kenji Shiino	Nomura Research Institute, Ltd.
	Hitoshi Sakai	Nomura Research Institute, Ltd.
	Seiichi Masuyama	Nomura Research Institute, Ltd.
	Shoichi Kobayashi	Japan Development Institute, Ltd.
	Tatsuhiko Yamasaki	Tokiwa Corporation
	Michihiro Takahashi	Tokiwa Corporation
	Yoshiaki Hayakawa	Tokiwa Corporation
	Naoji Kumagai	Nomura Research Institute, Ltd.
	Hisami Mitarai	Nomura Research Institute, Ltd.
	Taku Ogata	Nomura Research Institute, Ltd.