

## **2.2.6 Trends in investment conditions and support for the electronic industry**

### **(1) Present state of the electronic industry**

The output of Myanmar's machinery industry, including the electrical and electronic industry, still amounts to only around 1% of the total value of industrial output, and the industry is presently at the import substitution stage. Imports of finished products are limited by means such as tariffs and import licenses. Products, such as automobiles, motorbikes, agriculture machinery and consumer electronic products are assembled for domestic market mostly by SOEs or joint venture Co., of SOEs, with the imported key parts and domestically made parts.

In the electrical and electronic industry, the state-owned Myanmar Heavy Industry (MHI) predecessor of MTEI (Myanma Machine Tool and Electrical Industry) produces heavy electrical equipment and electrical products. Most consumer electronics products, such as televisions and refrigerators, were until the 1990s fabricated by a joint venture formed by MHI and Daewoo of Korea until the 1990s. Due to their inability to compete with imports and Daewoo's breakup, however, such products are not now fabricated. In other fields, there is a small degree of production of electrical equipment (such as electrical facilities) and related parts for the domestic market, but these too are not internationally competitive.

A number of Japanese and Korean firms have to date established operations in Myanmar to fabricate electronic components (such as coils and transformers) for export. These have been attracted by the low cost of labor despite the unsatisfactory investment environment. Of these, one Korean enterprise assembling VCR heads (Daewoo Electronics) continues to employ several hundred workers, but the two Japanese enterprises were forced to pull out before achieving their initial objectives due to problems such as the disincentive policies of the Myanmar Government (creating problems procuring imported parts and materials and gaining approval for changes to field of fabrication) and restructuring by the Japanese parent enterprises.

Though not a foreign enterprise, one interesting case is that of Earth Industry, a local enterprise that fabricates electronic components for export. Earth Industry is a locally financed CMP enterprise in the electronic components sector that exports its entire output of fabricated parts (transformers, power sources and temperature fuses) made using fabrication technology and supplies of parts and materials from a Japanese parts manufacturer with a fabrication plant in Malaysia (Tamura Electronics). Its managers have a good understanding of the parts business and Japanese management, and the enterprise has succeeded in the export business despite being wholly locally financed. This is indicative of the sufficient potential for development of the component fabrication industry in Myanmar if the investment environment for foreign enterprises can be improved.

## (2) Changes in the investment environment affecting the electronics industry

The targets for attracting FDI in the electronic fabrication industry are Japanese enterprises. Many Japanese enterprises involved in the industry have established operations in Malaysia and other economies in ASEAN. These deliver to the equipment assembly plants of electronic equipment manufacturers with operations in ASEAN and also export directly by themselves, thus serving as major foreign currency earners for their host countries. However, many overseas investors in electronics are Japanese and elsewhere have stepped up their investment activity in China in recent years in order to strengthen their cost competitiveness because of its huge potential market and cheap supply of labor. Within ASEAN, meanwhile, the investment environment in Malaysia, where the clustering of electronic-related enterprises is most advanced, the investment environment is starting to deteriorate due to labor shortages and rising costs.

Electronic manufacturers from developed countries such as Japan that have established operations in Singapore, Malaysia and Thailand are thus having to establish new systems of production. As procurement of parts in China is becoming easier, an increasing number are moving their assembly lines for electronic equipment such as audio equipment, PCs and monitors to China. Hoping to reap the benefits of their investment in the region to date and confident of its continued growth potential, however, most electronic parts manufacturers who have invested in ASEAN are starting to look at ways of strengthening their competitiveness through, for example, pursuing a greater region-wide division of labor quite separately from moves to develop operations in China.

This division of labor is taking the form of the development by enterprises of labor-intensive assembly plants in later-comer countries such as Vietnam and Myanmar to improve their cost structure and secure access to large quantities of labor, while at the same time maintaining the core importance of their existing plants located in early developers in ASEAN such as Malaysia. In addition to competition with China, this trend is expected to be accelerated by the creation of a common market by AFTA and the improvement of existing plants' engineering capabilities to enable them to play a core development role. In fact, enterprises are already beginning to establish parts assembly plants in comparatively labor-intensive industries in EPZs around Ho Chi Minh City in Vietnam, which has been aggressively improving its investment environment to attract FDI in export industries in recent years. While these developments have only just begun, the region-wide division of labor in areas of ASEAN outside Vietnam with great potential, including Myanmar, will really get underway as AFTA takes concrete shape.

## (3) Future course of development

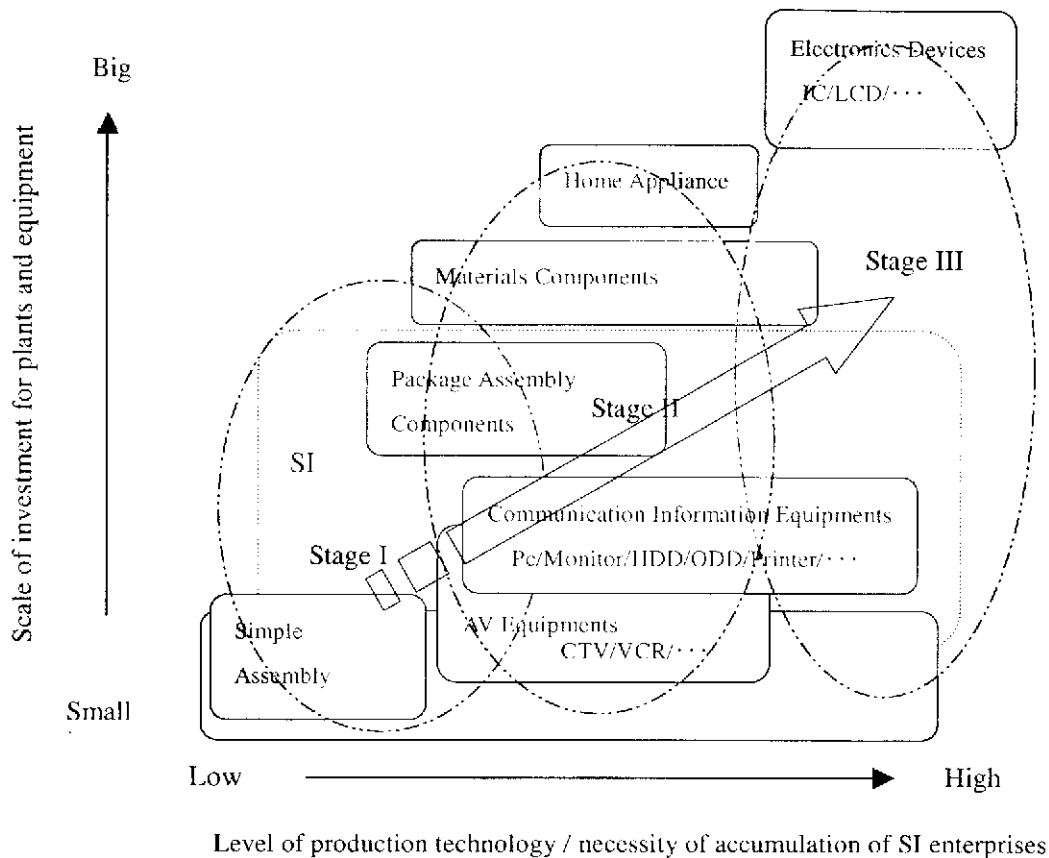
One area of the electrical and electronic industry in which Myanmar can acquire export competitiveness and earn foreign currency is in the simple assembly and processing of

electronic components. A characteristic of the electrical and electronic industry is its breadth of scope (ranging in use from consumer electronic and telecommunication devices to defense and space development, and in form from hardware to software and services) and diversity of mode of production (finished products, parts, processing and materials), and it is necessary that investment should be on a scale commensurate to the field concerned and mode of production involved. Given investment on a scale suited to the stage of development, therefore, the employment absorption effect and technological spillover are larger and the potential to create a virtuous cycle of foreign currency earning and economic growth is greater in this industry than in others. This has been verified in Japan and other Asian countries (including Singapore, Malaysia, Thailand, Indonesia and the Philippines), and, despite the different time period and background, may be reasonably expected to occur in Myanmar as well.

The electronic industry is made up of manufacturers of equipment such as consumer electronics products, audio-video and telecommunication equipment and the manufacturers of the various constituent parts required for such products, such as semiconductors, resistors, condensers and coils. Production therefore takes the form of a variety of methods of assembly and processing. Generally speaking, the production processes used are linked to the technological level of the country concerned, making it possible for more sophisticated production processes to develop corresponding to the stage of development. Initially, therefore, the targets for attracting FDI are electronic component assemblers in labor-intensive fields. As the investment environment improves, however, it will become possible in the medium to longer term to attract major telecommunication equipment assemblers that use a variety of components and parts assemblers at earlier stages of the production process. This could well ultimately lead to attracting enterprises in capital and technology-intensive fields requiring large amounts of capital investment.

Among the various fields of manufacture of electrical and electronic products and components, each distinguished by, for example, the level of capital investment and production technology involved, the field with the greatest potential for catch-up at the initial stage of development and which underpinned the early stages of development in the early developers of ASEAN, such as Singapore, Malaysia and Thailand, is the electronic manufacturing service industry. Labor-intensive electronic parts fabrication is rapidly losing its competitiveness in Singapore and other early developers in ASEAN, and there is strong potential for increased opportunities for investment in such fields in Myanmar in response to AFTA. With China beginning to become overwhelmingly more competitive in labor-intensive industries, Myanmar needs to adopt a foreign currency earning policy and develop its industrial infrastructure so as to take advantage of its geographical location and offer a variety of incentives to attract such enterprises.

Figure 2-14 Scenario for Evolution by Stages of Electric and Electronic Industries



Source: JICA Study Team

Japanese enterprises comprise one of the most promising sources of foreign investment in the electronic parts industry, having been the biggest contributors to the development of this industry in ASEAN countries such as Singapore, Malaysia and Thailand. Japanese investors and other sources of international industrial capital that have invested in ASEAN are highly interested in Myanmar and in particular its rich supply of cheap labor. The existence of numerous problems under the military government in relation to things such as investment incentives, location conditions (such as the EPZ and power infrastructure) and foreign exchange have, however, caused them to hold off from full-scale investment to avoid the risks. With China's rise to the fore, however, Japanese and other international investors in ASEAN's early developers have started to turn their focus to establishing region-wide division of labor systems throughout ASEAN, including Vietnam and Myanmar, while keeping a close eye on developments vis-à-vis AFTA.

Although products are exported around the world, most are destined for plants assembling electronic equipment in ASEAN. Despite the strong emphasis placed on CQDS (cost, quality, delivery and service), the electronic parts business has in recent years seen an increase in user demand for shorter delivery times. The key is thus how quickly products can be delivered from Myanmar to users' production plants in other ASEAN countries. To reduce

the current dependency on the physical distribution of parts by sea via Singapore as at present, therefore, a land route via the border with Thailand needs to be established in the near future. This will enable Myanmar's electronic components assembly industry to dramatically improve its competitiveness.

Despite the increasing importance of delivery times in the parts industry, there remains no change in the strong emphasis on costs. Consequently, foreign enterprises locating in Myanmar will, though initially dependent on imports of parts and materials, be constantly aware of the potential for sourcing from domestic suppliers as a means of reducing costs and delivery times. While there exist similarly strong needs in ASEAN's early developers, because of the insufficient technical and business capabilities of local enterprises in supporting industries (such as precision metal machining, precision plastics, jig and tool processing and repairing, and surfacing, etc.), the same Japanese and other foreign enterprises will ultimately establish operations and form the support structure for parts manufacturers. In order to achieve any real reductions in costs, however, procurement from local enterprises will be essential. Myanmar must therefore map out from the outset a clear course concerning the development of local enterprises making use of the support schemes (SI development schemes) of developed countries such as Japan. Although the demand for such SI enterprises will not increase within Myanmar for some time, the considerable time required in order to train the necessary engineers and entrepreneurs means that continuous support policies must be adopted from an early stage.

#### (4) Policy proposals for the development of the electronic industry

As the existence of business and technological resources up to international standards is essential to the development of an electronic industry capable of contributing to export growth, it is impossible to envisage a scenario for development in Myanmar without FDI by enterprises from countries such as Japan that do business on a global scale. Thus in order to establish a basis for producing electronic parts and electronic equipment and to foster the industry's development as an export industry, FDI and technology transfers are a prerequisite. However, it is essential to foster the development of local enterprises in supporting industries, such as the plastic processing and metal machining industries in particular, rather than continuing to depend entirely on FDI all the way into the future. Conversely, electronics-related industries have major spillover effects such as those shown in the table below. Though its form differs, the software industry may be likewise categorized as a supporting. Taking into consideration these perspectives, the policy measures are summarized as stated below that it is recommended that the Myanmar Government should take.

##### 1) Short/medium-term policies

- Rapid elimination of economic sanctions
- Radical improvement of foreign exchange policy (convergence on fair rate)

- Enactment of special economic zone law and development of EPZs
- Shift by export manufacturers from CMP mode to EPZ mode
- Attraction of simple assemblers of electronic components
- Development of physical distribution routes with neighboring countries (especially Thailand)
- Elimination of disincentive policies
- Strengthening of promotion functions

## 2) Medium/long-term policies

- Attraction of electronic equipment assemblers (principally telecommunications-related but also potentially semi-finished products)
- Linkage of incentives for foreign capital to level of domestically-made content (incentives for enterprises using domestic parts)
- Attraction of capital investment/knowledge intensive parts enterprises
- Strengthening of follow-up functions for foreign investors
- Development of SI enterprises (plastics molding, metal machining, dies, jigs and tools)
- Development of small business parks (support to attract foreign SMEs investing in Myanmar)
- Development of human resources (middle management, accounting/personnel administrative staff, engineers, operators, skilled engineers in supporting industries)

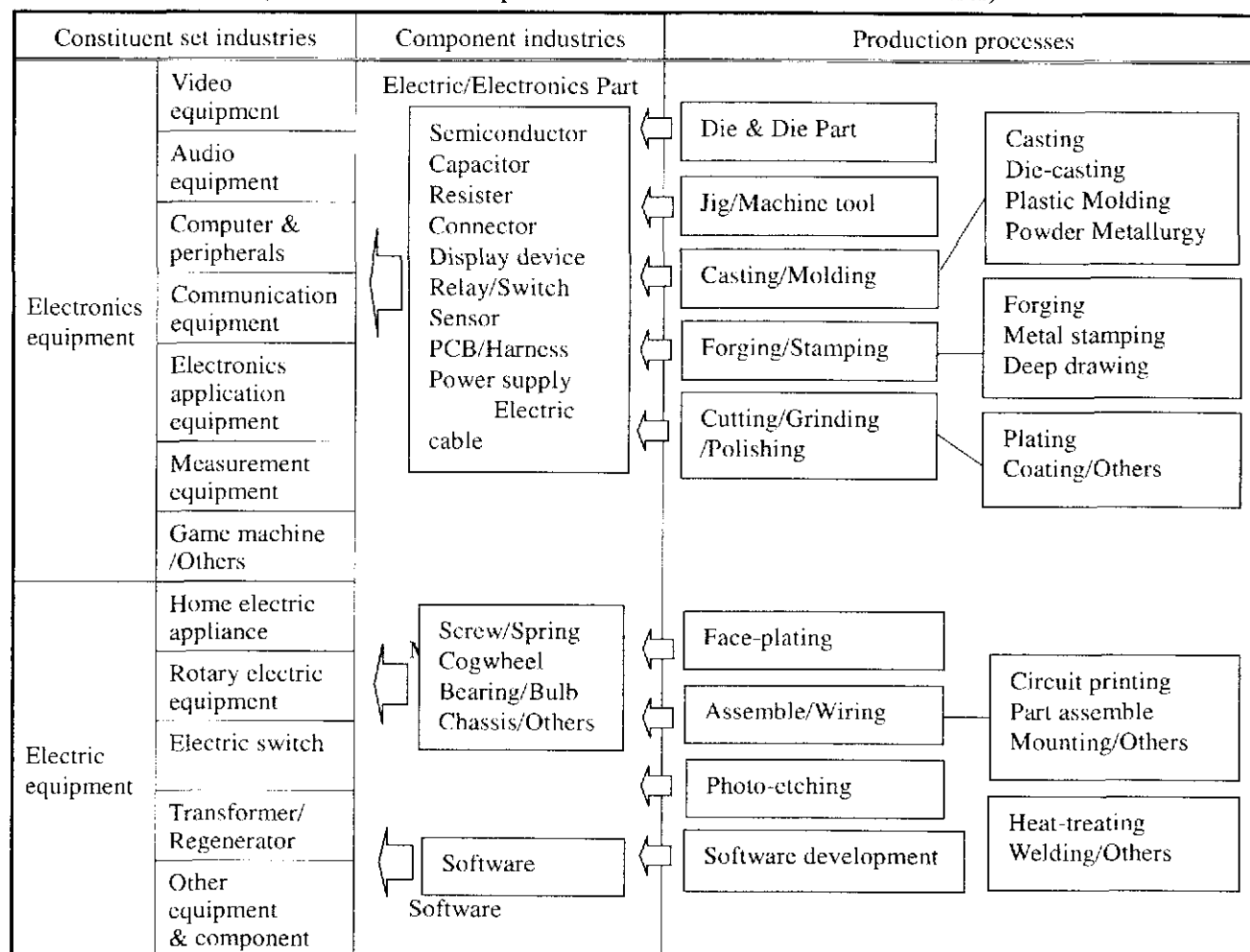
**Table 2-43 Set Production Value and Demand-Creating Effect for Components in the Japanese Electric/Electronics Industry (1995)**

(Unit: billion yen)

Set production value		Demand-creating effect for components		Demand-creating effect by major component type	
Electronic equipment	19,610	Electric/Electronic components	6,180	Printed circuit fabrication	1,558
		Mechanical components	1,560	Plastic molding	1,098
Electric equipment	16,333	Software	1,640	Metal stamping	280
				Software (development)	1,640

Source: Estimates based on the 1995 table of industrial linkage in Japan

**Figure 2-15 Structure of the Electric/Electronics Industry**  
**(Constituent Set/Component Industries and Production Processes)**



Source: JICA Study Team

## 2.2.7 Conditions for the Development of the Machinery Industry in Myanmar and the Direction of Long-Term Development

### (1) The Present Status and the Issues of the Machinery Industry in Myanmar

The outlines of the history, the present status - state-owned enterprises (SOEs) and private sector, major products, exports and imports and the issues in the foreseeable future of the machinery industry are as follows.

#### <The history of the state-owned sector of the machinery industry>

Heavy Industry Corporation (HIC), predecessor of MHIC (Myanma Heavy Industry) a state-owned enterprise, was established in 1962. The industry had emphasized technologies

in automobile, agricultural machinery, machine tools, electric power facilities (transformers, etc.) and casting and forging. With assistance from Japan, HIC launched four projects in 1962, which are agricultural machinery (Kubota Corp.), light trucks (Mazda Motor Corp.), heavy trucks (Hino Motors, Ltd.) and electrical machinery and electronic products (Matsushita Electric Industrial Co., Ltd.) These are funds and loans totaling 150 billion yen for the period between 1962 and 1988. In parallel with these four projects, Myanmar launched the following projects from 1967 to 1985; 50HP tractor (Czech Republic), Diesel injection pump and nozzles (Czech Republic), rubber tires (Czech Republic), machine tools (Germany), PVC insulated electric cable (Switzerland) and welding electrodes (Switzerland).

In addition to the above, Myanmar had launched following projects from 1996-2002 with Chinese Loans and Indian Loans; power troller (China), diesel engine, 25HP (China), disc wheels (China), Radiator (China), metal bearing (China), inlet/exhaust valve (China), foundry (China), copper wire (China), enamel wire (China), electric power cable (China), ACSR cable (India), LPG cylinders (India), ball bearing (India), sewing machine (India), dry dock 12,000ton (China).

#### <Private sector>

As of 1990, there were 5,589 private machinery makers in the private sector, which accounted for 15.7% of the manufacturing sector. The number of employees was 26,000 (13.8% of the manufacturing sector) in 1998. They are predominantly small enterprises and the industry is totally fragmented. There is little accumulation of technology or information. The implementation of Private Industrial Enterprise Law has resulted in a gradual increase in the number of registered firms.

**Table 2-44 The Number of Enterprises in the Machinery Industry**

Motor vehicle workshops & spare-parts manufacturing	2,764
— Machinery and equipment (Pumps, compressors, tap/valves, others)	631
— Fabricated metal products (metalworking services, forging, pressing, stamping...)	1,207
— Base metal manufacturing (Iron/Steel, Precious and non-ferrous metal...)	606

Source: MOI, other materials

As described above, the machinery industry in Myanmar is still small in scale and it accounts for an extremely small share of the private sector. The major players are those under the umbrella of the Ministry of Industry No. 2.

Characteristics of the machinery industry in Myanmar can be summarized as follows:

- The pace of the development of the industry is extremely slow, the level of



technology is low (it can manufacture only a small number of items) and is unable to meet domestic demand.

- The country depends on imports for most of machinery and replacement parts it needs. Some items are manufactured domestically for import substitution and the reduction of the cost of imports (SOFs).
- The private sector activities are limited to the production of replacement parts for agricultural and related machinery by a handful of enterprises.
- Major items produced are as follows:

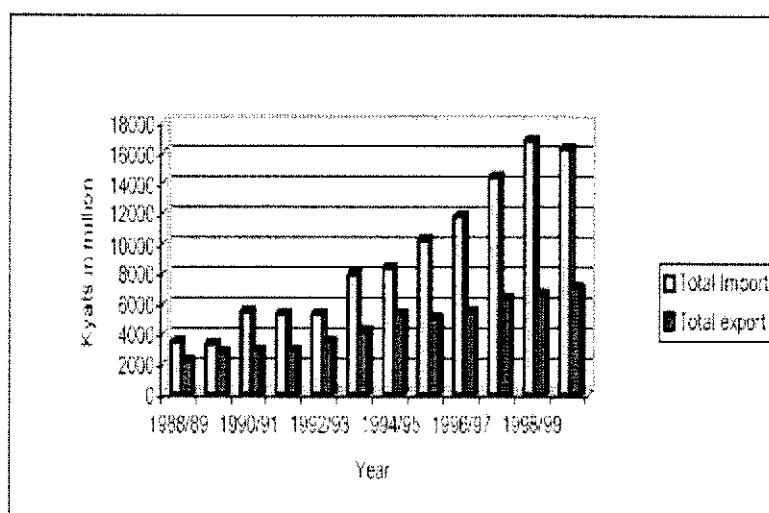
**Table 2-45 The Machinery Industry in Myanmar-enterprises and Products**

SOE & JV Enterprises	Items produced	
	SOE	JV
<b>Ministry of Industry No1</b> - Bicycle (2001.4-11, 7,400 Nos) - Repairing materials (for Textile Industries, Foodstuff, Pharmaceutical, ceramics, others 2001/2002, 73M kyats)	(1) Machine Tools Industry - Lathe Machines, Bench Drilling Machines, Column Drilling Machines, Shaper, Horizontal milling machine, Power hack saw, Pedestal Grinding Machine (2) Agricultural machinery industry - Portable Diesel Engines, Water Pumping sets, Power Tillers, Tractors, Thresher, Huller, Rice mills, Oil mills, Implements, Hand Tools, Reaper, Hydro-Tiller (3) Automobile Industry - 6.5 ton Diesel Truck, Cross Country Vehicles, Mini-van & Mini-truck (4) Auto Parts Industry - Petrol engines (600cc, 2,000cc) Diesel engines (140HP), Pistons & Piston Rings, Cylinder Liner, Connecting Rods, Inlet-Exhaust Valves, crank shafts, cylinder Heads, Metal Bearings, Radiators, Disc Wheels, Tires, Gears, Fan Belts, Cam Shaft, Leave spring & coil spring (5) Motorcycles and Bicycles Industry - Motorcycles (Max:110cc), bicycles (6) Ship Building and Repair Industry - Ocean Going Vessels (up to 12,000 ton, River Craft) (7) Metal Mold Industry - Press Dies (8) Press Processing Industry - Presses (max. up to 500 tons) (9) Heat Treating Industry - Salt Bath, Gas carbonizing, Induction Hardening	(1) Machine Tools Industry - Concrete breaking machines, Cutting machines, (2) Agricultural machinery industry - Water pumps, Rice sizing machines, Rice peeling machines, Rice milling machines, Beans sizing machines, Parts for rice mills, Agri-related items (3) Automobile Industry - Light van, Pick-up( 1 ton) (4) Auto Parts Industry - Batteries (5) Metal Molding Industry - Molding machines (6) Ship Building & Repairing industry - Water diversion doors, Power tillers & parts (7) Others - Rail sleepers joints
<b>Ministry of Industry No.2 (6 organization)</b> - Directorate of Industrial Planning - Agricultural machinery - Automobile & Diesel engine - Machine tool & Electrical Equipment - Tire & Rubber - Industrial Construction Services		
<b>Cooperative Ministry</b> - Water pump, Paddy peering machines, others (15M Kyats, 2001)		
<b>Ministry of Rail</b> - Rail-associated machines		
<b>Ministry of Transport (5 shipyard)</b> - Small & medium sized ships (2001/2002, 7ships, 241M Kyats)		

Source: MOI(2) Materials, JICA Study Team

The following chart shows exports and imports in the machinery industry of Myanmar. Machinery and transport equipment account for approximately 30% of Myanmar's total imports. In 1999/2000, imports amounted to approximately 4,200 million kyats, comprising machinery (52%), transport equipment (28%) and tools and spares (20%). Exports, on the other hand, amounted to 280 million kyats in 1999/2000, comprising electric motors, vehicles and tires. Exports are destined to China and Bangladesh, but they are equivalent to only 5.7% of the amount of imports (1999/2000).

**Figure 2-16 Import & Export in the Machinery Industry in Myanmar**



Source: Myanmar facts and figures

According to the Machinery Sector Survey 2000, the problems facing the machinery industry are as follows:

**Table 2-46 Problems Encountered by the Sample Firms and their Extent**

(Figures indicate the number of firms giving that answer.)

Particulars	No Problem	Problem	Major Problem
1. Shortage of Electricity	11	33	55
2. Difficulties in Financing	33	22	44
3. Shortage of Foreign Currency	33	11	55
4. Competition with Other Firms	22	66	11
5. Lack of Technical Know How	33	55	11
6. Aging Machinery and Equipment	33	44	22
7. Shortage of Raw Material and Parts	44	11	44
8. Shortage of Skilled Labour	44	44	11
9. Lack of Infrastructure	66	22	11
10. Lack of Sales Network	66	33	-

Source: Calculation based on Survey Data 2000.

**Table 2-47 Importance of Factors for which Sample Firms Rely on Foreign Sources**

(Figures indicate the number of firms giving that answer.)

Factor	Not Important	Some Importance	Very Important
1. Technology	11	22	66
2. Design	-	55	44
3. Machinery & Equipment	22	11	66
4. Raw material	33	11	55
5. Marketing	33	11	55
6. Distribution	44	22	33
7. Technical staff	55	22	22
8. Managerial staff	66	22	11

Source: Calculation based on Survey Data 2000.

(2) An Evaluation of the Basic Conditions for the Medium- and Long-Term Development of the Machinery Industry in Myanmar

The basic conditions for the medium- and long-term development of the machinery industry in Myanmar can be evaluated as follows:

- **Market:** The industry is still unable to provide all replacement parts required by the user-industries in Myanmar. The supply capacity is very low. The SOEs are the major suppliers of machinery (made in Myanmar), and they need to be able to purchase machinery parts from the private sector.
- **The structure of the industry:** None of the product groups has reached the stage of mass production. Though constraints to imports of parts and raw materials (foreign exchange) are partly responsible for this phenomenon, a lack of division of labor in the industry is a major cause. Large machinery makers (SOEs), that are presently manufacturing in-house a large variety of parts, hope that private enterprises will enter the parts industry. Therefore, it is necessary to change the present “bipolarization” into a “dual structure” by inducing linkage between the SOEs and private enterprises. It is essential to nurture parts suppliers in the private sector.  
(e.g., agricultural machinery: SOEs specialize in the manufacturing of key parts, such as engines. Assemblers of small agricultural machines are operating in various parts of the country.)
- **Technology development capability:** Although there is a lack of the capability to independently develop a large variety of products, the industry has the capability to independently copy low-end machine tools and to manufacture domestically the products which the country is importing by receiving technological assistance from exporters. If the “place” and “opportunities” for the enhancement of the development technology

capability are provided, it is possible to steadily elevate the level of technological capability.

- **Production manpower and technology:** Today, most mechanical engineers in Myanmar are engaged in production technology and many of them work for the SOEs. Although the absolute number of such human resources is small, human resources are available. Three conditions, in particular, are important for the development of the production technology in Myanmar. They are: i) easy access to overseas information and the inflow of information into the country; ii) the introduction of up-to-date equipment and the acquisition of know-how; and iii) technological guidance from overseas.
- **Investment:** Even the SOEs, which play the leading role in the machinery industry, have little room to “develop products, technology and markets” by plowing back their profits. It is essential to reform the SOEs and to shift to a cycle of retaining profits and making investments.
- **Technological and financial capability of foreign companies:** The commencement of the production of most machinery products in Myanmar was helped by the introduction of foreign capital (e.g., Official development assistance (ODA) from Japan and other countries, joint ventures with foreign companies, including those in India). These production activities are based not only on technological tie-ups but on ODA and foreign direct investments (FDIs). Major engines for the future development of the machinery industry in Myanmar are ODA and FDIs. Therefore, a logical move would be to open the economy to the outside world and bring in FDIs.
- **International competitiveness:** As the international competitiveness of the industry as a whole is very weak, independent exports of machinery are limited to a very small number of destinations (e.g., Bangladesh) even for low-end products. Much time will be needed to develop machinery products that are competitive in the export markets and actually export them.
- **Supporting industries:** Myanmar does not have industries that manufacture a large variety of parts and raw materials. Therefore, it is very difficult to expect the development of a broad range of machinery industries. In order to be able to introduce new models of major machinery products, an important strategy for the development of the machinery industry is “specialization.”
- (In Myanmar’s machinery industry, no new models have been introduced in major product groups, including trucks.)

### (3) The Development Strategy for the Machinery Industry in Myanmar

Myanmar’s machinery industry at present is very fragile, but there are some evidence of the budding potential for medium- and long-term development, such as the existence of a large latent market in the country and technology transfer from abroad. Generally, the development of the machinery industry starts with the transfer or copying of advanced foreign

technology for the manufacture of replacement parts for and repairs of imported machinery. This process is followed by the entry of private enterprises in the manufacture of a large variety of parts combined with the expansion of supporting industries; accumulation of engineers and technicians in such areas as designing, development and production; and the commencement of exports of low-end products to other countries by obtaining international competitiveness by adding original technologies or gaining cost competitiveness. Myanmar should aim at steady development even if it takes time. In view of the importance of the development of agriculture in Myanmar, the variety and the numbers of parts and materials needed, a great variety of production processes and technologies, and potentials for development as an assembly industry, the “Mother” industry that should drive the development of the machinery industry as a whole should be agricultural tools and machinery.

The following are recommended as the basic policies for the development strategy for Myanmar’s machinery industry.

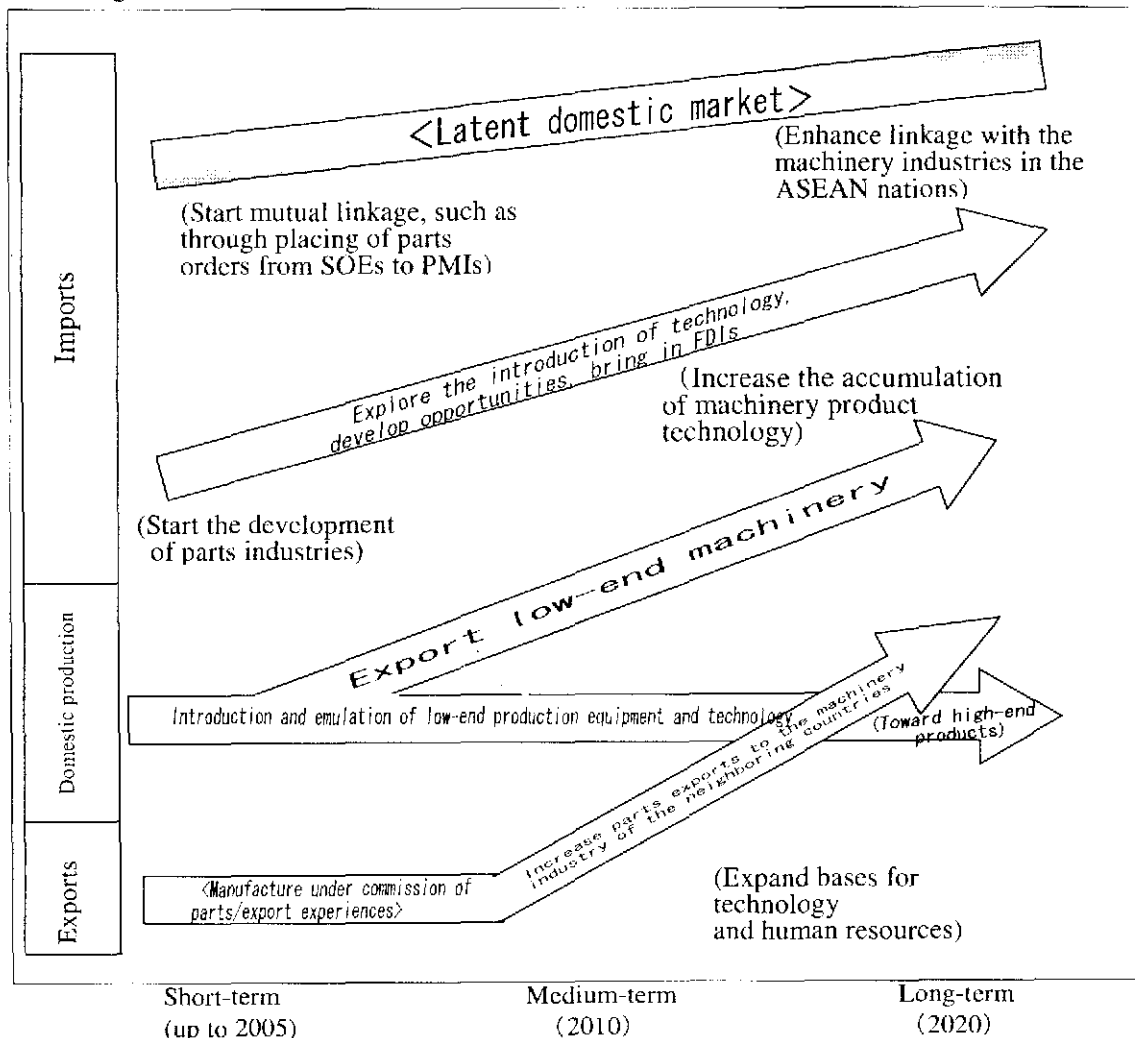
1) Preparation of a long-term development plan for the machinery industry

To prepare a long-term development plan for Myanmar’s machinery industry apart from the short- and medium-term production plans for SOEs. The plan should include the evaluation of the possibilities of technology transfer from other nations and pros and cons of domestic production; and identify priority sectors that need nurturing. It should be a plan that nurture specific segments of the industry.

2) The creation of linkage between SOEs and private manufacturing industries (PMIs)

Despite the existence of the latent needs for it, today there is hardly any linkage between SOEs and PMIs. There are many problems, such as the levels of PMIs’ equipment and technology, a lack of awareness on the part of SOEs of the need to develop PMIs, and terms of purchase agreements. Although all these factors appear to be creating a vicious circle, SOEs and PMIs should start by joining forces to develop parts industries with SOEs placing orders for some of the parts for agricultural machinery and machine tools to PMIs.

Figure 2-17 The Direction of the Development of Myanmar's Machinery Industry



Source: JICA Study Team

### 3) Preparation of a strategy for the reform and a giant leap forward of the agricultural machinery business in Myanmar

The following three points are particularly important strategies for the “reform and a giant leap forward” of Myanmar’s agricultural machinery business, which has developed aided primarily by Kubota under Japan’s ODA programs (though in recent years, Chinese products have been increasing sharply among equipment and machinery used in related factories).

- i) Preparation and implementation of Myanmar government’s new reform plans for the agricultural machinery industry (linkage among various relevant ministries and agencies) (Policy to promote CMP (Cut, Make & Pack Policy) in parts manufacturing under commission; the possibility of the privatization of SOEs, including the discussion of reducing SOEs’ debts; the approval of used machinery imports for the production of raw

materials and parts)

- ii) Discussion of incorporating plants in Myanmar to Kubota's agricultural machinery production network in Asia  
(Harmonization of ODA and Kubota's production strategy for Asia, future division of labor with neighboring countries in parts production, etc.)
- iii) Improvement of government's incentive measures for farmers to increase agricultural production and the development and implementation of measures to expand the agricultural machinery market  
(Rice exports and rice price policies, the expansion of the use of agricultural machinery in rice production, the full-scale adoption of rental/leasing systems, etc.)

Other important strategic perspectives for the "reform and a giant leap forward" are:

- iv) Discussion of conditions for the creation of synergy among the agricultural machinery businesses—parts industries in particular among Japan, China and Myanmar in the future pan-Asian market and production networks (division of labor)  
(By type of parts, in terms of costs, quality, etc.)
- v) Shifting of the production of specific parts from SOEs to Myanmar's PMIs
- vi) Promotion of transfer of management know-how for the agricultural machinery business to Myanmar
- vii) Bringing machinery parts plants of Japanese companies to Myanmar under a CMP scheme  
(Possibility of transferring equipment and production from Japan to agricultural machinery plants in Myanmar)
- viii) Increasing competitiveness by relocating some of the functions of agricultural machinery plants

#### 4) Bringing in FDI in the area of mass-produced machinery parts

Although it will be difficult to bring in industries that require large capital, such as bearing production, bringing in the production of mass-produced machinery parts, including pumps, cylinders and bicycle parts, will be possible. It will help Myanmar accumulate various processing technologies, including cutting and grinding, pressing, heat treatment, surface treatment, and casting and forging.

#### 5) Parts production under commission from the ASEAN nations

The first priority should be given to gaining the opportunity for the production of machinery parts under commission (exports). This should start with specific items (parts and replacement parts). (e.g., agricultural machinery parts to China and Thailand, exports to the neighboring countries of bicycle and motorcycle parts and exports of low-end parts, including wire harnesses, to the automobile industries in the ASEAN nations)

6) Accumulation of technology

- i) The creation of linkage between SOEs and PMIs (commission of parts processing to PMIs by SOEs, sharing of information on technology, etc.)
- ii) Development and production of machinery (production equipment) that are clones of equipment made in China or other Asian countries
- iii) Development of opportunities for the introduction of basic technology and design from other countries (Emphasis should be placed on job-orders from other countries and the accompanying internal technology transfer)
- iv) Major increases in opportunities for human resources capacity building (Government Technological Institute, business managers), sending engineers and technicians to technologically advanced countries for training, etc.
- v) Major increases in access to overseas information (the establishment of industrial libraries, the promotion of the use of the Internet, etc.) This could include the creation of machinery industry development centers, which, among other things, can encourage sharing of information and technologies, and implement training programs. (Should start from the collection of state-of-the-art equipment and product information and sharing of such information in the industrial circle in Myanmar.)

• Others: The development of user industries

- i) The building of supply capacity for high-quality raw materials, especially steel, and the development of the industries that use machinery
- ii) Winning of opportunities for the assembly of machinery under commission from the ASEAN nations (assembly of electronic, electrical and other machinery under an OEM arrangement or through CMP schemes).

## 2.2.8 Problems and Development Opportunities in the Plastics Industry

### (1) Industry outline

The plastics industry is an important supporting industry with links to various sectors of industry. The main types of products produced by the plastics industry in Myanmar at present are as follows:

- Plastic packaging
- Plastic bottles
- Plasticware (cups, hangers, furniture parts and other household supplies)
- Plastic pipes and rope

There are a total of three SOE plants and 530 firms in the private sector. Interviews with related companies indicate employment in the industry to be around 10,000, and value added in



the plastics industry (excluding the cost of imported raw materials) is estimated to be over US\$11 million per year. Estimates based on monthly container imports of the 6-7 main dealers indicate raw material purchases (Myanmar imports all of its plastic raw materials) to be six times value added. Electricity costs account for 80% of value added, while labor costs, plant depreciation and other value added account for only 20%. Much of the equipment used in the plastics industry consists of ancient manually operated machinery used by single-person micro-enterprises. These are copies of Korean and Taiwanese-made machinery.

Ministry of Industry 1 has three factories:

**Table 2-48 Outline of Plastics Factories (SOEs)**

<ul style="list-style-type: none"> <li>• No. 1 factory: Plastic sheets, PP woven bags</li> <li>• No. 2 factory: Plastic wear</li> <li>• No. 3 factory: Plastic films and bags, PP woven bags, Plastic wear</li> </ul>	<ul style="list-style-type: none"> <li>• 25-30% share of the Myanmar plastics market (private enterprises account for the rest).</li> <li>• Poor product quality: it is rumored that 80% of SOE products are recycled as feedstock by private enterprises (major social loss).</li> </ul>
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Source: JICA Study Team

In the private sector, the number of main players in Myanmar's plastics industry declined slightly from 527 in September 2001 to 524 in September 2002 (including some closures due to difficulty in obtaining raw materials and the instability of power supplies).

**Table 2-49 Core Plastic Products Produced in Myanmar, Main Markets and Machinery Sources**

	Product	Industrial uses and main markets	Machinery
Plastic packaging	<ul style="list-style-type: none"> <li>Low-density polyethylene (LDPE) bags (25:75 LDPE/LLDPE (linear LDPE) are the main raw materials used in Myanmar)</li> </ul>	Freezers (especially in the fishing industry)	90% of machinery domestically made
	<ul style="list-style-type: none"> <li>High-density polyethylene (HDPE) bags</li> </ul>	Widely used domestically as shopping bags	
	<ul style="list-style-type: none"> <li>Polypropylene bags</li> </ul>	Used as packaging in the food industry (for snack foods, etc.) and garment industry	
	<ul style="list-style-type: none"> <li>Flexible three-layer bags (only two private-sector plants in Myanmar)</li> </ul>	Polypropylene plastic film upper layer and LDPE inner layer Used as a packaging for consumer goods, e.g soup powder	Most machinery made in Korea and Taiwan
Plastic bottles	<ul style="list-style-type: none"> <li>HDPE bottles</li> </ul>	Spread initially for use as drinking water bottles Pasteurized milk bottles	50% imported and 50% domestically made (est.)
	<ul style="list-style-type: none"> <li>PET bottles (5-10 plants)</li> </ul>	Now widely used as bottles for drinking water, soft drinks, cooking oil, milk and other liquid foods (All machinery imported from Japan, China and Taiwan)	100% imported
Plasticware		Household and daily necessities (furniture, cups, baskets, containers, hangers, etc.)	All imported from Thailand 10 years ago Now 90% domestically made
Plastic pipes and rope <ul style="list-style-type: none"> <li>PVC pipes</li> </ul>		Mainly used in the construction sector Used for plumbing in homes and building (PVC used mainly in construction, PVC and PP pipes used in homes)	Some locally made machines 20 years ago Now all imported (technical problems)

Source: Prepared by the JICA Study Team based on Interview Survey

Plastic products are thus already made in Myanmar. However, the country is still heavily dependent on imports. Imports of raw materials are government controlled due to the lack of foreign exchange.

**Table 2-50 Plastic-Related Imports**

Plastic products	: Films such as BOPP (bi-oriented polypropylene) film (expensive machinery, different variety of materials), plastic sheet, pipes, plastic ware, PP woven bags
Plastic raw materials	: Resin entirely imported (from Malaysia, Indonesia, Singapore, Thailand and Near/Middle East) (Some albeit small quantities of recycled resin also exist in Myanmar)
Plastic processing machinery	: Some molding equipment produced domestically (made by private enterprises), but high-tech products imported

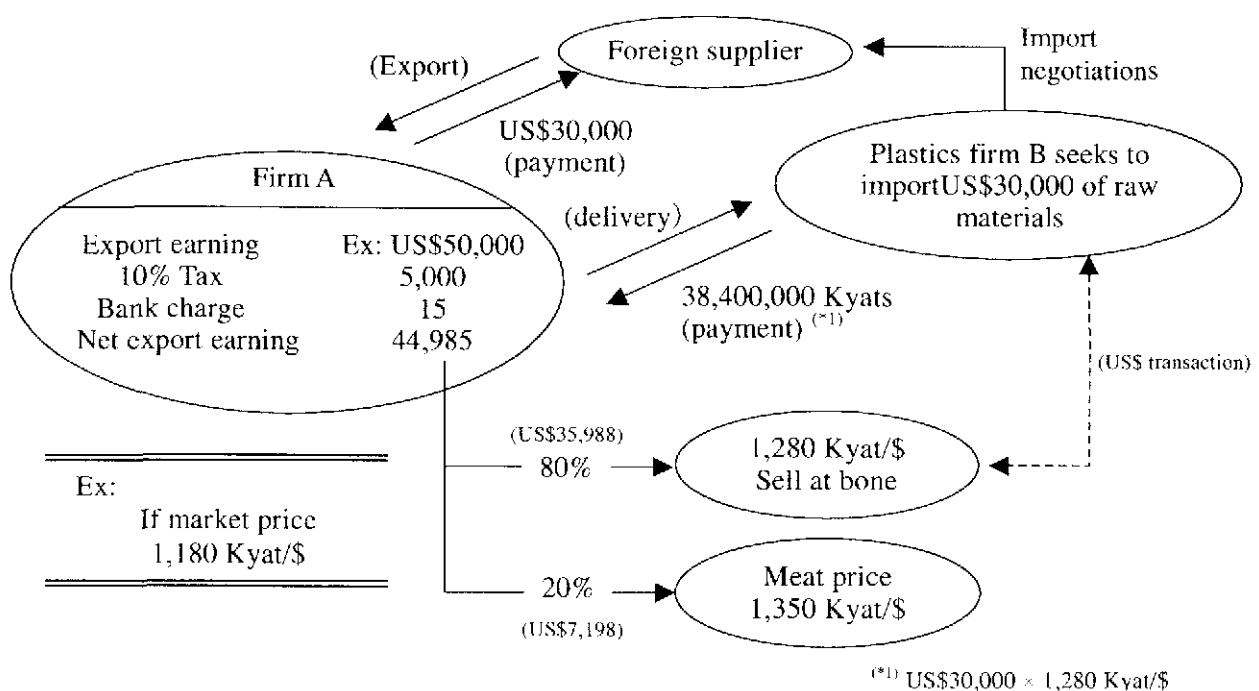
Source: Prepared by the JICA Study Team based on Interview Survey

## (2) Problems in plastics industry

The biggest problem faced by the plastics industry is that of imports of raw materials (the Government's "export first/import later" policy)

The majority of plastics firms that are not export earners buy U.S. dollars from exporters at a high rate of 1,280-1,350 Kyats. (Plastic raw materials are essential items). Naturally, purchases are made at the black market rather than the official rate (6 Kyats/US\$). (Firm A in the figure below imports raw materials for plastics firm B.)

**Figure 2-18 Resin Procurement by Plastic Processors**



Source: Prepared by the JICA Study Team based on Interview Survey

It is also generally not easy for firm A to obtain an import license from the Ministry of Commerce. If it wanted to import 60 tons of resin worth US\$30,000, for example, it would have to divide the shipment into three to obtain a license, which would take four to five weeks to acquire.

Another problem, though not one limited to the plastics industry, is the instability of the power supply and the high cost of electricity (if generated privately). Illegal electricity theft is also said to occur.

A further problem often cited by business proprietors in the plastics industry is the shortage of skilled labor and the frequent “job-hopping” of skilled workers. Many firms in the plastics industry are *small and medium-sized enterprises* (SMEs), and there is a strong tendency for skilled workers to job-hop to medium-scale firms in other industries.

### (3) Development opportunities in the plastic processing industry

<Existence of market>: Domestic demand is greater than domestic output. In terms of market size, therefore, there is plenty of potential for growth in the industry.

<Procurement of raw materials>:

The Government is stepping up regulation of imports in the view of private-sector plastics firms. This is a severe impediment to industrial development. Although capital investment is necessary, domestic production of raw materials needs to be increased through investment by leading investors, and a processing industry consisting of large numbers of private-sector SMEs needs to be nurtured. Ministry of Industry 1 is currently investigating with China construction of a raw materials plant at an investment of around US\$150 million.

<Improvement of machinery leasing arrangements>:

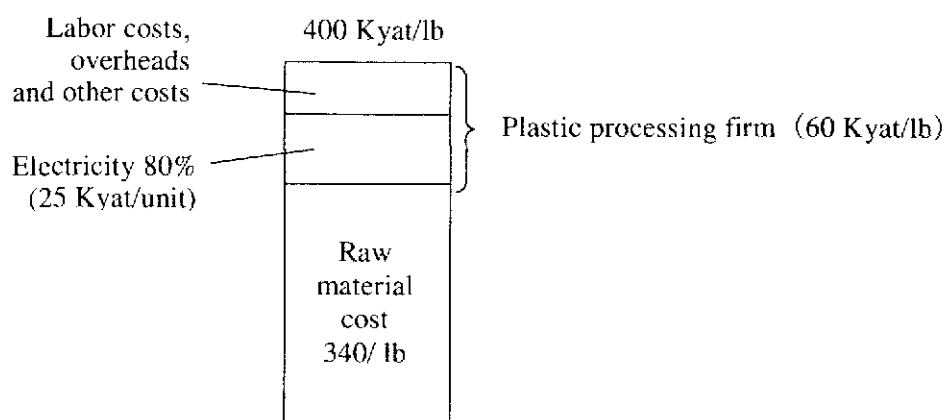
The majority of the advanced core equipment required is currently imported. Domestic production of machinery is extremely difficult because of the state of Myanmar’s present technological base. Leasing arrangements therefore need to be developed in order to improve the quality of plastic processed products and enable costs to be reduced.

Currently, Oriental Lease (an affiliate of Myanmar Oriental Bank) is the only company involved in leasing machinery and equipment to private enterprises. The rate of interest charged is extremely high (36%), however, making it almost impossible to introduce equipment by leasing.

<Power supply problems>:

Being a heat processing industry, access to stable electricity supplies is obviously crucial to the plastics industry. Many plastic processors face no alternative but to generate their own electricity, and the high cost of doing so completely wipes out the advantages of the cheap cost of labor in Myanmar.

Figure 2-19 Price Breakdown of Typical Plastic Product



Source: Prepared by the JICA Study Team based on Interview Survey

If we assume 450 containers of raw materials to be imported each month (one container: 16 mt, 2,200 lb/mt, 35,200 lb/container), then the scale of the plastics producing industry would be in the order of US\$11.40 million, i.e.  $60 \times 450 \times 35,200 \times 12 / 1,000$  (Kyat/US\$). 80% of this is accounted for by the cost of electricity. If the number of workers in the industry is 10,000, sales works out at US\$1,140 per worker per year.

<Formulation of development policy>:

Myanmar has at present no clear, concrete development policy for the plastics industry. Plastics processing firms registered with Ministry of Industry 1 are said to account for little over 20% of the total, and there is no accurate picture of the plastics industry as a whole. The true situation therefore needs to be determined as soon as possible, and a plastics industry development plan drawn up consisting of a package of core measures to increase domestic production of raw materials by the Government (i.e. Ministry of Industry 1; although this is currently under consideration, a proper analysis needs to be made from the perspective of economic rationality), expand the processing business of private enterprises, establish training and education programs provided by UMFCCL, and improve and strengthen the plant leasing arrangements of

financial institutions. The benefits of doing so are considerable, and should lead to industrial development due to increased domestic production of raw materials, a higher level of plant technology, expanded employment due to the growth of the processing industry, and improved living standards for the people of Myanmar.

## 2.2.9 The Software Industry – Current Situation and Opportunities for Development

### (1) The Potential for Development of the Software Industry in Myanmar and Immediate Issues

The software industry in Myanmar is finally starting to grow. The government has formulated an overall industrial development plan for IT based on the IT-Master-Plan 2010 (the draft was created by the Myanmar Computer Federation, under the patronage of the National Computer Council). There is considered to be quite a significant amount of potential for development, mainly in the software industry but also in associated businesses in Myanmar.

**Table 2-51 Significant Potential for Development as an Industry**

<The Largest Driving Force for Development>

- 1) Possibilities for software production businesses (subcontracting)
  - Foreign orders (large volumes of data input work, software development, etc.)
  - Investments in Myanmar by advanced software companies (FDI)
- 2) A government backbone computer system, installation of computers associated with the implementation of communications infrastructure, etc., and the expansion of opportunities for software orders, aided by foreign countries

<The Second Largest Driving Force>

- 3) Domestic market (government, private companies): Large markets in the medium to long term
- 4) Software orders from foreign companies (future attraction of FDI)
- 5) Start of dissemination of the Internet and expansion of opportunities for software businesses

<Driving Force>

- 6) Expansion of software businesses by engineers who have returned to Myanmar and device import and sales businesses
- 7) Assembly of hardware, initiation of assembly of related parts, etc., dissemination of personal computers and opportunities for software production, either through FDI or local investment

Source: JICA Study Team

Among these opportunities, it seems that, in particular, the acquisition of opportunities for software production from foreign sources and the attraction of related FDI are highly significant key issues.

In spite of such future “opportunities,” it is also true that the software industry in Myanmar faces many problems. The major problems are as follows.

**Table 2-52 Immediate Problems**

<p>&lt;Biggest Problems&gt;</p> <ol style="list-style-type: none"> <li>(1) There have been extremely few orders from foreign sources as yet. (The actual situation and capability of the software industry in Myanmar is not generally well known in Asian countries.)</li> <li>(2) The flood of software personnel (new university graduates) to foreign destinations (Malaysia, Singapore, etc.) is “extremely” strong. Development outcomes are not achieved because computer software personnel produced by universities and other institutions do not currently remain inside Myanmar.</li> <li>(3) There is an acute shortage of experience in terms of software and market development, communications infrastructure, human resources, etc., required to develop and export Myanmar’s unique software.</li> </ol> <p>&lt;Problems&gt;</p> <ol style="list-style-type: none"> <li>(4) Myanmar’s ability to purchase hardware, such as personal computers, is acutely limited and there are not many opportunities for the software business.</li> <li>(5) Although the opening up and dissemination of the Internet has begun, there are still large problems regarding costs for usage and quality. Communication with foreign companies, who may potentially place orders for software development, is insufficient.</li> </ol>
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Source: JICA Study Team

(Reference:) - Legal aspect of IT

- The National Science and Technology Development Law
- Computer Science Development Law
- IT related councils
  - The National Council for the Development of Science and Technology
  - The National Computer Development Council for the Promotion of IT
- IT-Master-Plan 2010
  - Education and training on IT
  - Development of IT Industry
  - Data-Communication Network-Improving IT Infrastructure
  - IT Applications
  - Policies for Encouraging the IT Development and Applications

(2) Outline of the Software Industry

As of August 2002, 129 companies were members of the Myanmar Computer Industry Association. This number includes many personal computer assembly kit businesses and imported hardware sales businesses. The number of software production companies is estimated to be around 30 to 40, which includes educational media (CD creation and sales) and computer education businesses. Although it seems that the actual number is smaller, the

number of software companies is growing. The largest companies have 200 to 300 employees but the number of companies of this size is small. Twenty-nine companies are currently investing in the MICT-Park, where software-related environments, such as communications infrastructure, are implemented, and six or seven of these are software companies. About 600 people work at companies in the MICT-Park, and this includes foreign companies, such as a Malaysian software company (producing software for the Myanmar government). It is expected that this number will increase by more than 1,000 within a year. There are other foreign companies; for example, two Japanese companies (one of which is developing a program on a full-scale basis), as well as Singaporean, Thai and Indian (computer school business) companies.

At present, production is outsourced by foreign countries (program development, web site creation) in only a few percent of cases, and software production for domestic consumption makes up most of the market. The areas of software production for domestic sales are as shown below, and most of this software is custom-made.

- Accounting software
- Hotel management software
- Banking software
- Supermarket / Department store software
- Educational software, company personnel management software
- Hospital management software

Among these, the top four markets seem to be the accounting, hotel management, banking, and supermarket software areas. Other than garment factories, the manufacturing industry has not yet become an actual market, and government and related organizations have not yet become major markets. Among Japanese companies, there is a case where a color quality control system for a photo development system was developed. There are also cases such as the development of a charging system, a beautician's performance assessment system, and a cosmetics and fashion trend analysis system that was designed for beauty salons (chain development) according to the services requested by individual customers; these services included types of cosmetics used, hair styles and types of cosmetic massages. Even though the numbers are small, some software orders have started to come in from Thailand, Malaysia, Singapore and Japan. Although there are no overseas exports, some companies are making efforts to export personnel management software. Sales of development know-how and experience in web sites enabling e-commerce have already begun. Supported by the Malaysian government, there is an ongoing e-government project aimed at implementing smart cards, e-passports, e-visas and e-procurement.

Although no accurate data is available regarding the dissemination of personal computers in Myanmar, personal computer ownership is estimated to be about 100,000 units. These personal computers consist of imported machines and clones (assembled by domestic businesses). The low-price clones are sold at US\$400 to US\$500.

The annual increase in new personal computers (*number of units sold*) is roughly



estimated as below.

**Table 2-53 Number of PC Units Sold in 2002**

Types of Personal Computers	Number of Units
Imported Machines (Completed) <sup>(*)</sup>	500 - 1,000 units (The major importers comprise two to three companies. Many companies are importing parts.)
Cloned Machines	2,500 - 4,000 units (There are around 20 major clone manufacturers.) <sup>(*)</sup>
Total	3,000 - 5,000 units

<sup>(\*)</sup> There is at least a 200-unit increase in notebook computers every year.

Source: JICA Study Team

On the other hand, the government is demonstrating initiatives in ICT-related education, implementation of infrastructure and laws, standardization, and so forth, and promoting these activities. Looking at software businesses, there are no state-owned software companies (it is estimated that there are 200 to 300 software engineers in total in government organizations) and almost all the software is manufactured by private companies. The advantages of software companies in Myanmar are as follows.

- Lower labor costs
- Ability to program in English
- High ability of engineers to think logically

Young software engineers are developing their technical levels in IT-related companies in countries such as Malaysia, Singapore, the U.S., the U.K., Australia, and Japan. Their accumulated experience is expected to play a major role in driving the future development of the IT industry in Myanmar.

**Table 2-54 Standard Wages for Software Engineers**

Experience in Software Development	Wages
Three years or more	US\$500 / month
One to three years	US\$100 - US\$200
Less than one year, trainee	US\$50 - 60

Source: JICA Study Team

In addition, just recently, the opening up of the Internet for general public use has begun to accelerate. Although there are only two provider companies and many restrictions on usage, it seems that the government is considering approval of the community use method (e.g., Internet cafes) in order to promote the use of the Internet by the general public.

Table 2-55 Conditions for Use of the Internet

<MICT-Park>

- The environment enabling companies inside the Park to use the Internet is almost the same as in advanced Asian countries (underwater cables, satellites)
- Continuous twenty-four hour use is possible. Fixed rate of US\$170 / month. (Electric power failures prevented due to back-up-generators.)
- Reference: The Myanmar-Japan E-learning Center is operating inside the Park. (Education is provided using 50 personal computers.)  
: Thirty-two companies are tenants. Eight of these are foreign companies.

<Provider: Bagan.net>

- There are various services available, such as Individual Dial-up, Student Dial-up, Corporate Dial-up, Broadband Wireless (individual, corporate) and Internet & E-mail Application Accounts.
- The most inexpensive Student Dial-up service (including a mail address) charges 60 FEC for annual maintenance and 10 to 50 FEC as a monthly fee. (No. of free hours: From ten to unlimited access.) Normal telephone lines to users' homes can be used.
- Charges for the use of the Internet and e-mail (corporate broadband) consist of an initial cost of 500 FEC, with 300 FEC for annual maintenance and a monthly fee. (150 FEC for 60 hours and ten free e-mail addresses.)

Source: Prepared by the JICA Study Team based on Bagan net data and Interview survey to MICT-Park

### (3) Infrastructure for Development of the Software Industry

< Human Resource Development>

Since the domestic market is still small and there have not been many foreign orders, the most critical issue is human resource development aimed at the future development of the software industry. In terms of the government's political measures, young engineers are actively being nurtured by organizations such as Yangon Computer University (YCU). However, most of the graduates move to foreign countries, seeking to accumulate actual work experience and earn higher salaries. At present, they are not returning to Myanmar. To encourage them to return to Myanmar, it may be necessary to develop an environment where graduates can gain experience (development of the domestic market) and to dramatically reform payment scales corresponding to their technical skill levels. For example, the following political measures may be required.

- The attraction of advanced foreign software companies (Orders for government software, reduction in corporate charges for use of the Internet, etc.)
- Introduction of computers into government organizations and software orders offered to the private sector
- Provision of incentives in order to bring back top-class personnel

Another critical issue in terms of the development of human resources is the development of an environment for on-the-job training (OJT). The basic education provided at universities and in companies is insufficient to nurture software engineers. The accumulation of experience in software development for actual businesses is essential in order to improve the quality of personnel. In this sense, one “key” to the future development of the software industry in Myanmar is to “create an opportunity for software production inside Myanmar.” In short, the key for the software industry is “market development” itself.

#### <Technical Software Skills>

The software industry has just begun to grow and the market is still small. Therefore, the improvement of technical skills is a major future challenge. The constitutive measures required to improve technical skills are: the accumulation of development experience (through the creation of a market, the dispatch of engineers to work on commissioned projects in foreign countries and the acquisition of experience during those projects), the attraction of advanced foreign software companies and the promotion of exchanges with foreign companies, and getting Myanmar engineers who have moved overseas to return home.

**Table 2-56 Areas where Myanmar’s Software Production Lacks Experience  
(or Has Very Little Experience)**

- Experience in computer network development for large corporations  
(e.g., Networks linking headquarters with branch offices)
- Experience in software development for mainframes (large computers) and mini computers  
(Experience in development for personal computers only at present)
- Application development for back offices  
(Development for front offices is possible with Myanmar’s current technical skills.)

Source: Prepared by the JICA Study Team based on interview survey

**Table 2-57 Number of Students from Myanmar Studying Software Engineering in Foreign  
Countries (Estimated through Interviews)**

India	20 - 30	
Japan	20	(In addition, there are about 50 individual students studying subjects related to computers.)
Singapore	0 - 10	

(Notes) These numbers include students dispatched by Myanmar companies or by the Myanmar government to other governments. They exclude those who are employees of companies in Malaysia, Singapore, etc. (The number of students who have moved from Myanmar.)

Source: Prepared by the JICA Study Team based on interview survey

On the other hand, the Ministry of Science and Technology established the “Special

Master Computer Course” in 1997 in order to nurture higher-level computer scientists. The numbers of students nurtured through this course and at the two universities are shown below.

**Table 2-58 Ministry of Science and Technology**

Degree	Ministry	Military	Total
Master Degree	≒ 230 students	≒ 80	310
Honors Degree	—	≒ 80	80

Source: Prepared by the JICA Study Team based on interview survey

**Table 2-59 University**

Course	YUC <sup>(*)</sup>	MCU <sup>(*)</sup>
Ph. D Computer Course	≒ 50 students	—
Special Master Computer Course	≒ 40	≒ 50

(\*) Yangon Computer University. The total number of past graduates is about 1,000. Of these, more than 90% have moved to other Asian countries. The number of current students is about 4,600. About 1,000 engineers are being nurtured every year (graduates).

(\*) Mandalay Computer University

Source: Prepared by the JICA Study Team based on interview survey

Other than these, there are courses such as the Regular Master Computer Course (YCU, about 130 students), the Special Course for a Computer Post-graduate Degree (about 400 student places for Ministry personnel, Ministry, USDA, etc.), and the Regular Course for a Post-graduate Degree (YCU, MCU, about 400 students). The Myanmar government is very enthusiastic about human resource development for higher-level computer science.

Furthermore, an examination was recently held for the Japanese Information Technology Engineer’s qualification. This is equivalent to a Class II Information Technology Engineer’s qualification. (The examination is called the J-Test in Myanmar.) Nobody passed the first examination conducted at the beginning of 2002. It is expected that some will pass the second one.

#### <Goals of Industrial Development>

Taking a broad look at the development of the IT industry in Myanmar from the viewpoints of hardware, communications systems and software industries, we can see that it will be extremely difficult for Myanmar to become competitive and expand the size of its industry in terms of hardware in the future, except for simple device and parts assembly businesses. The fostering of a software business known as the “India type” is one direction that will lead to the powerful industrial development of the Myanmar IT industry. The software industry is the least expensive industry and expansion of the industry depends mainly on the development of a market and human resources.

The current size of the software industry is estimated to be about US\$2 million, based on calculations using the number of personnel involved in software production (estimated to

be around 1,000) and the costs involved (US\$200/month on average). People in the Myanmar software industry say that their dream is “to become one of the major sectors supporting the Myanmar economy,” “to achieve production on a scale of US\$200 million in the near term,” and “to become one of Myanmar’s exporting industries,” by taking advantage of the worldwide shortage of software engineers. Their orientation and goals appear to be accurate. The immediate goal of the software industry in Vietnam is to expand the scale of production to US\$500 million. Catching up with the Vietnamese software industry is one goal for Myanmar in terms of scale.

Moreover, India’s software exports to Japan are estimated at US\$200 million. On the assumption that technical standards in Myanmar will improve due to the rapid nurturing of computer engineers, and with the average personnel expense for a computer engineer in Myanmar amounting to US\$500/month in the near future, operations for a period of ten months will cost US\$5,000/head/year. A US\$50 million industry will mean employment for 10,000 engineers and a US\$100 million industry will mean employment for slightly more than 20,000 engineers.

Cooperation between private software companies, the Myanmar government and advanced foreign software companies will be the greatest factor in determining how fast the goals are achieved.

#### **2.2.10 Development Opportunities and Foreign Currency Earnings Related to the Tourism Industry in Myanmar**

##### **(1) Current Situation Concerning the Tourism Industry in Myanmar**

###### **1) History**

- It can be said that the tourism industry was established after Myanmar became independent (1948). In those days, tourists were able to stay in Myanmar for three days without a visa and for 30 days with a tourist visa. Yangon Airport was opened in 1955 to connect Yangon with direct flights to major cities around the world, such as London, Paris, Rome, Tokyo and San Francisco. It was the most modern airport between London and Tokyo. Tourism in Myanmar in those days was well developed, with 15 travel and tour companies, such as Olympic Tours, and six hotels, such as the Strand Hotel, which was built in 1901 and is the oldest hotel in Asia.
- Under the nationalization policy (the socialist economy) of 1964, the tourism industry was monopolized (nationalized) by Tourist Burma (today’s MTT). At the same time, the issue of visas was halted and, as a result, the tourism industry died. However, visas began to be issued again with many restrictions in 1970, and the number of tourists gradually grew from 10,000 in 1970 to 37,000 in 1980.
- In September 1988, the issue of visas was temporarily halted once more but was

restarted by the end of the year. After that, the new government recognized how important tourism was and approved the construction of international standard hotels by foreign companies at major tourist spots. As part of the market economy policy, private sector participation in tourism was approved under the Myanmar Tourism Law established in 1990. In 1992, in order to encourage organizational development of the tourism industry, the Ministry of Hotels and Tourism was established. With these efforts, more private companies have participated in tourism. At present, a tourist visa allows a stay of 28 days.

## 2) Current Situation Concerning Tourist Companies

- As of 2001/02, there were 568 tourist companies, including one foreign company, 14 joint ventures, and 553 local companies. However, it seems that more than 90% of the tourists were actually handled by about 50 companies and most of the companies were extremely small and lacked a continuous flow of business.
- It seems that the major tourist companies are as follows (according to interview surveys).

**Table 2-60 Tourist Companies in Myanmar**

No.	Name of Travel Agency	Company Type	No. of Staff
1	Myanmar Travel & Tours	State Owned Enterprise	197
2	SM Tours & Transport Co., Ltd.	Local Company	90
3	Diethelm Travel Services	Joint-Venture (Thai, The parent company is in Switzerland.)	66
4	Insight Myanmar Tourism Co., Ltd.	Joint-Venture (Thai)	44
5	Golden Express Tours Co., Ltd.	Local Company	25
6	Exotissimo Travel Co., Ltd.	Joint-Venture (Thai, Europe)	24
7	Tour Mandalay Co., Ltd.	Local Company	20
8	Sai Travel Services (Myanmar) Co., Ltd.	Joint-Venture (Japan)	18
9	Orchestra Travels Co., Ltd.	Local Company (Italian)	16
10	Myanmar Abercrombie & Kent	Joint-Venture	13
Ref:	Komy Tour Co., Ltd.	Foreign Company (Korea)	4

Source: Prepared by the JICA Study Team base on Data of Ministry of Hotel & Tourism and interview survey

As can be inferred from this table, even the major companies are still small and MTT (an SOE), which is the largest, has only 200 employees. Some of the other major private companies have only dozens of employees. However, some companies own

their tour vehicles while others do not, and the methods of counting tour guides and counting drivers, i.e. whether or not they are counted as staff members, are different. Therefore, the staff numbers in the table do not necessarily correspond to business size. For example, SM Tours, one of the major companies, owns slightly less than 40 vehicles and has 25 tour guides (15 speak English and 10 speak Japanese) and 90 staff members.

- Joint venture companies are the major leaders among tourist companies. The main reason is that they have more power than local companies due to the following factors.
  - The management ability and know-how of foreign companies in attracting customers from advanced countries and neighboring Asian countries
  - Locality marketing (Joint ventures can carry out marketing in the tourists' own countries. Local companies in Myanmar need to market overseas on their own.)
  - Ability to develop products such as tour packages

#### Price competitiveness

At present, many local companies often have an "attitude of opposition" towards foreign companies. The government understands how important it is to nurture tourist companies, which will become the core of tourism industry development, by utilizing foreign investment. However, it seems that the government is unwilling to grant licenses to new foreign companies.

- The largest company, MTT (an SOE), is also the oldest. In recent years, MTT has rapidly lost its leading role and market share and the number of personnel, including tour guides, has declined. Accordingly, tourism is becoming a private-company driven market. MTT's market is limited to the VIP market in Myanmar as well as markets related to the Myanmar government and foreign governments. The major reason for this is that MTT's price competitiveness is being reduced. The problem is thought to stem from MTT's method of estimating tour expenses, in which losses in one fiscal year are added on to prices in the next fiscal year. As a result, customers have flowed to private companies.
- At present, it is estimated that tourist companies are handling 50% to 60% of the approximately 200,000 foreign tourists coming into Myanmar, i.e. slightly more than 100,000 tourists. The rest are individual tourists. In Thailand, a company that handles about 10,000 tourists a year is regarded as a major tourist company (JTB handles about 80,000 Japanese tourists in addition to others.). It is estimated that a major tourist company in Myanmar handles 1,000 to 3,000 tourists a year.
- Private tourist companies expect the government to support the private sector with tax reductions in order to strengthen their competitiveness (In the past, income tax was 10%. At present, after taking out the 2% Foreign Exchange Tax and 5% Commercial Tax (7% in total), profit is less than 10%. Thus, the tax burden is large.). They also expect that the government will provide opportunities for high-level training of personnel and increase the number of direct flights to Yangon (Since ANA's direct flights were

cancelled, the number of Japanese tourists, who used to hold top position, has declined, and Taiwanese tourists have now taken the top spot.). Simplifying the visa acquisition process is another of their expectations. Moreover, hotel tax is 10%. If a tourist company pays a hotel after receiving foreign currency, it has to pay tax twice (tax for the tourist company and hotel tax), which amounts to 17% in total. This tax is finally borne by tourists, however, and accounts for a large portion of the tour costs (There is no VAT system in Myanmar.). In particular, the tourist companies strongly expect that lower costs for the acquisition of visas and shorter visa processing times will contribute considerably to increasing the number of tourists; therefore, they expect the government to quickly improve the situation. Arrival visas are already being issued in Cambodia.

- The organization of industries related to tourism has finally started. In April 2002, the Union of Myanmar Travelers Association (UMTA) was established and, in October, a hotel association (English name not yet decided) was established. Exchanges between these two organizations have also begun. Myanmar Airways began planning tourism promotion seminars in Japan and tourist companies and hotels have started to plan joint invitations for media-related parties to visit Myanmar.

### 3) Tourist Trends

- The number of tourists has steadily grown from slightly less than 30,000 in 1992/93, to 60,000 in 1993/94 and 180,000 in 1996/97. Although this growth slowed in 1997/98, the numbers grew again in 1998/99 to 200,000. These figures represent the number of tourists registered at the Yangon gateway (1,000 to 2,000 tourists enter via Mandalay every year.).

**Table 2-61 Tourist Arrivals in 2001**

• Yangon Airport	About 198,000	
• Mandalay Airport	1,600	
• Through Boarder Entry Point	255,000	(*)
• By Cruise Ships	3,000	
• By Charter Flight	1,000	

(\*) Mainly day trips to tourist spots on the borders (Monler, etc.). Mainly Chinese and Thai tourists.

Source: Myanmar Tourism Statistics

Generally, it seems that the approximately 200,000 tourists in total who arrive at Yangon and Mandalay international airports can be identified as so-called foreign tourists.

- According to the statistical data for 2001/02, 12% (about 25,000) of the tourist arrivals were Taiwanese tourists, 10% (20,000) were Japanese, 8% to 9% (17,000-19,000) each



came from Thailand and China, and 5% to 7% (10,000-15,000) each came from North America, France, Germany, Malaysia and Singapore. By area, most of the customers were tourists from Asia at 61%, followed by 2.8% from Europe, 7% from North America and 4% from other countries. Whether the Myanmar tourism industry can attract tourists from Asia and Europe is a major factor, at present, in determining tourism revenues for Myanmar. Moreover, just recently, an attempt was made to promote tourism exchanges between China and Myanmar, and it seems that the inflow of Chinese tourists has rapidly accelerated. This is also an example of actual outcomes resulting from China's active diplomacy towards Myanmar after a meeting between top officials from China and Myanmar. From this year, the number of flights between Kunming and Mandalay has been increased from one to three a week, and direct flights between Kunming and Yangon have also started.

- The types of tourism in Myanmar are naturally determined by the condition of the tourist resources and the development of products by the tourist companies. Although there is no statistical data regarding tourism type, the main types are as follows.
  - Recreational tours: Beach resorts, such as Ngapali, Kam Thaya and Chaung-Tha
  - Cultural tours: Pyu, an old capital city, Bagan and Vesali Mrauk, Buddhist ruins, etc.
  - Eco-tours: The 19,000-foot Mount Khakaborazi, mountain tours in Kachin State, Lake Inle, Lake Indaungyi, etc.
  - Others: Marine tours, off-road car rallies and caravan tours, hot-air balloon tours, etc.
- According to Myanmar Tourism Statistics (2001-2002), 35% of the tourists were package tour groups, 25% were foreign independent travelers, 18% were business travelers, 4% were visiting friends and relatives, and 18% came for other purposes. The development of attractive package products is one of the engines that will allow the tourism industry to grow.

## (2) Opportunities for Development of the Tourism Industry in Myanmar

It is extremely important for Myanmar to develop its tourism industry for the following reasons: "natural and cultural resources are not being sufficiently utilized, but if they are utilized, industrial development can be expected in the short term," and "tourism is a business directly linked to the acquisition of foreign currency but is not a capital-intensive industry or an industry that requires the import of raw materials." From a long-term viewpoint, to develop the tourism industry into a huge industry, large investments will be required to influence the thinking of the government and citizens regarding the industry, as well as tourists. This could be achieved, for example, through the implementation of substantial infrastructure, the acquisition of tourism management know-how, and the education of workers in the tourism industry. However, not much foreign currency will be required to raise revenues to a certain

extent in the tourism industry from today's levels. Moreover, the development of the tourism industry will provide revenue to local areas (tourist spots) and become an engine that drives the development of local industries.

Myanmar has rich natural and cultural resources and there is great potential for development of the tourism industry. Measures to develop the tourism industry need to be based on the viewpoint that smaller investments are required at present, to further expose these potential resources as businesses. However, the Myanmar government's tourism and advertising expenses are extremely small (Expenses for Thailand are three billion baht a year for 20 countries, according to trial calculations.). Therefore, a significant increase in funding for advertising will be required at the least.

Private companies are already assuming the actual leadership in tourist businesses. Therefore, it is desirable for political measures to support the activities of private companies, by enabling individual companies to more freely develop products and more smoothly develop businesses, for example. With the aim of implementing its political measures, the Myanmar government has already carried out basic research aimed at developing the tourism industry.

In this project, it is not intended that a strategy to develop the tourism industry be formulated. Therefore, only "hypothetical conditions" regarding the development of the Myanmar tourism industry are indicated below.

#### <New Trends in the Tourism Industry>

- As represented by special interest tourism (SIT) and ecological tourism, the trend toward seeking "new experiences" is becoming stronger.
- It is claimed that there will be two trends in world tourism over the next ten years. One is "resort-life-oriented tourism" and the other is "cultural and hobby-oriented SIT."
- Research into the relationship between the attributes of customers and their needs as tourists and the development of products suitable for each customer will be more important as a strategy for developing the tourism industry. Needless to say, it will also be important to take into account the characteristics of tourists from individual countries. It will be more important to turn tourism packages into specialty items. Examples of market segmentation are young women's groups, aged groups, new family groups, student groups, and SIT groups.

#### <Introduction of the "Customer First" Concept to Myanmar>

- Myanmar has natural, cultural and religious resources that suit the needs of both the "resort-life-oriented" and "SIT" trends.
- Tourist services in Myanmar should be improved in terms of both the "software" and "hardware" available to tourism businesses in relation to the "customer first" viewpoint.
- In terms of software, education for people related to tourism services should be introduced into both public areas and private areas as the most important strategy for

industrial development.

<Promotion of Myanmar as a Country for Tourism and Linkage of Tourist Routes with Other Asian Countries>

- At present, large-scale promotion needs to be carried out in the advanced countries and other Asian countries that are today's major tourist customers for Myanmar. In particular, "turning tourist packages into specialty items" requires that Myanmar must markedly improve its ability to distribute information to specific groups. The effective use of the mass media, such as TV, movies, music, tourist magazines and newspapers, is an especially important measure. The effectiveness of this measure has been proved in the development of tourism industries in many other countries.
- As seen in the large negative impact on the tourism industry caused by the recent terrorist acts in New York and Bali, Indonesia, political and social stability is essential for the stable development of the tourism industry.
- A very low percentage of tourists from Taiwan, Japan and Thailand, who are the major tourists to Myanmar, actually select Myanmar as the final destination. Myanmar should, for example, strongly promote package tour development focused on a combination of ASEAN countries and Myanmar. Also, more energy should be spent on the development of air access directly connecting Myanmar with other Asian countries (Myanmar has signed an Agreement on Tourism Cooperation with Malaysia, Laos, Vietnam, Singapore, Cambodia, Thailand, and China.).
- At present, 13 international airlines fly into Yangon. The capacity is about 10,000 seats a week. From 1996 to March 2000, there were three direct flights (ANA) every week between Yangon and Osaka. However, they have since been cancelled. It seems that this was caused by the problem of business profitability and a shortage of mid-size planes. There are hopes that the flights may possibly be restarted by improving Mandalay Airport (so that Jumbo jets will be able to take off and land there). Due to the cancellation of direct flights by ANA, there has been a significant but temporary decline in the number of Japanese tourists.

Table 2-62 The Number of Tourists Visiting Myanmar and Southeast Asia

Tourists (Country)	Myanmar (1)	Southeast Asia (2)	(1)/(2) (%)
Taiwan	26,770	1,611,145	1.7
Japan	19,534	5,347,192	0.4
France	11,148	556,765	2.0
Germany	7,424	536,309	1.4
Thailand	7,736	795,539	1.0
Italy	6,373	252,639	2.5
U.S.	5,721	1,637,480	0.3

Source: World Tourism and Myanmar Statistics Yearbook 2000

\* 1998

### <Proposals for Practical Strategies to Attract Japanese Tourists>

- For Japanese tourists, whose visits tend to be short, problems regarding the issue of visas (time and cost) are large obstacles. The government could experiment with systems, such as no-visa or arrival visas for Japanese tourists. According to the results of such experiments, the government would be able to consider whether it should introduce the system on a full-scale basis, and this is one possible proposal.
- In order to encourage Japanese tourists to travel to Myanmar, a travel book on Myanmar by a famous travel writer could be produced. Past examples that generated big booms were the “Hong Kong Zatsugaku Note” (1970s) and “Chiengmai no Kubi” (1980s).
- To encourage Japanese to travel to Myanmar, an effective plan in cooperation with the Japanese travel industry could be created and carried out. For example, in order to promote pre-graduation excursions and training trips from Japan, systematic marketing should be conducted aimed at groups such as prefectural education boards, local rotary clubs, and local agricultural cooperatives. Past successful cases in which the Nomura group attracted Japanese tourists include the attraction of business customers from 1,000 Japanese companies since 1994 and performances by the Union of Myanmar National Traditional Dancing and Music Troupe in Japan.
- To encourage Japanese to travel to Myanmar, efforts could be made to sign friendship city agreements.
- The possibility of developing a theme park in Myanmar should be considered.
- To encourage Japanese to travel to Myanmar, people in Myanmar related to tourism could be provided with practical training by Japanese travel specialists in Myanmar and Japan.

### (3) Tourism and Foreign Currency Revenues

The main foreign currency revenues related to tourism in Myanmar are generated from investments by foreign companies inside Myanmar, mainly hotels, and tourism revenues from tourists.

**Table 2-63 Foreign Investment in Hotels & Commercial Complex (Up to March 2002)**

	Number of Projects	Number of Rooms	Investment Amount (US, M\$)
Completed	26	4,439	602
Under Construction	14	3,176	633
Total	40	7,615	1,235

Source: Myanmar Tourism Statistics

According to Myanmar Tourism Statistics (2001-2002), investments by foreign companies amounted to slightly more than US\$600 million each for completed facilities and facilities under construction. According to the same reference material in 2001, there were about 12,000 rooms available in local privately owned hotels and slightly more than 1,000 rooms available in state-owned or leased hotels. After adding the 4,200 rooms in foreign or joint-venture facilities, the total number of available rooms came to 17,000. It has been claimed that there is no particular problem in terms of the quality or quantity of hotels.

On the other hand, the income from tourism was as follows in 2001.

**Table 2-64 Income from Tourism**

	92/93	93/94	94/95	2000/01	2001/02	Units
Total Earning	19	22	34	84	90	US.M\$
Average Expenditure Per Person Per Day	36	27	54	60	70	US\$
Average Length of Stay	7.1	6.5	5.5	7.0	7.3	Days

Source: Myanmar Tourism Statistics (2001)

Moreover, the Myanmar Hotels and Tourism Services (MHTS), a state-owned company to which the state-owned tour company MTT also belongs, has eight hotels, airport restaurants, transport fleets, and so forth. Its total sales amount to US\$1.6 million or 940 million kyats.

Foreign currency revenues earned through tourism are roughly calculated by multiplying the number of tourists by the tourist consumption unit price. According to the reference material mentioned previously, the consumption unit price in Myanmar was US\$400 to US\$500 in 2001. Assuming 200,000 tourists, the total revenue would be US\$80 to US\$100 million (Note 1). In order to significantly increase the number of tourists it is, needless to say, necessary to develop infrastructure. In addition, many practical issues remain, as can be seen below. If the number of tourists to Myanmar in the future were to reach approximately one million, as in Vietnam between 1993 and 1995, or two million as at the beginning of the 1980s in Thailand, foreign currency revenues would be between US\$400 million and US\$500 million or between US\$800 million and US\$1 billion respectively. Therefore, tourism could be a very large potential source of foreign currency compared with the current size of exports from Myanmar. It seems that the targeted number of tourists that will be attracted in the government's 30-year plan is far larger than these figures suggest.

(Note 1) However, it is claimed that these revenues will not enter Myanmar in the form of actual foreign currency. If the tourist company is a joint venture, part of the revenue will go to the foreign country where the marketing was conducted. Moreover, it is also claimed that tourist companies inside Myanmar are underreporting their income.

<Reference: Basic Conditions for Attracting Tourists from Advanced Countries>

1) Enrichment of the Quantity and Quality of Resources for Tourism

- Whether a sufficient quantity and quality of existing resources for tourism, appropriate to the cost and the length of visits, can be ensured.
- Whether the quantity and quality of resources for tourism are satisfactory for repeat tourists.  
(Whether they are satisfactory for repeat tourists is key to sustainable development.)
- If the quantity and quality are insufficient, whether there is room for new tourism resource development.

## 2) Ensuring Access to Resources for Tourism and Circular Routes

- Whether access to resources for tourism is ensured by major roads and railway networks.
- Whether it is possible to design circular routes for tourists based on the international airports.  
(Tourists tend to prefer a combination of high-speed traffic systems and local traffic systems.)
- Whether it is possible to ensure safety and comfort while traveling.  
(Continuous transshipment is required between different forms of transportation.)

## 3) Ensuring the Standard of Hotels and Meals

- Whether tasteful, hygienic meals that are also unique to Myanmar are available.
- Whether meals are not monotonous and whether a full range of variety is available.
- Whether safe, comfortable, reliable, convenient, clean hotels are available.

## 4) Others

- Whether exotic, good quality souvenirs are available.
- Whether a rich variety of souvenirs is available.
- Whether a variety of entertainment (dances, shows, etc.) is available.
- Whether the workers provide hospitality to tourists (tourism education, etc.).

**Table 2-65 Reference: Number of Tourists in Thailand and Vietnam**

Thailand	<ul style="list-style-type: none"> <li>: Since tourist interest is shifting to SIT, inland spots (Buddhist ruins, etc.) and islands, such as Samui and Krabi, are being developed.</li> <li>: About one third of the loan aid from the Japanese government (¥560 billion in total between 1995 and 1999) was spent on traffic-infrastructure-related projects.</li> <li>: In 1995, the number of foreign tourists was already about seven million. In 1983, the number was 2.2 million, which was slightly more than ten times the number in Myanmar in 2001.</li> </ul>
Vietnam	<ul style="list-style-type: none"> <li>: SIT is rapidly growing. Examples include visiting the undeveloped beaches with their natural environment, experiencing the atmosphere of the old capital or the active lives of the local people, and shopping activities for young women.</li> <li>: The number of foreign tourists has grown rapidly from 670,000 in 1993 to 1.35 million in 1995 and 2.33 million in 2001.</li> </ul>

Source: JICA Study Team

# Chapter 3

## Master Plan for the Promotion of Foreign Direct Investment

### 3. Master Plan For the Promotion of Foreign Direct Investment

#### (Summary)

##### (1) Current FDI in Myanmar

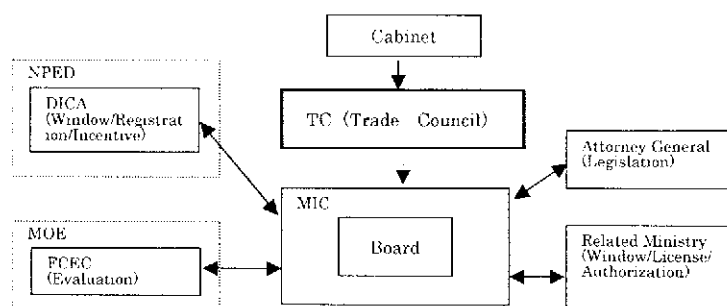
###### 1) Organization for FDI policy

In 1998, the Myanmar government promulgated the Foreign Investment Law (FIL), opened the door to siting by foreign firms, and began to take active measures to attract foreign direct investment (FDI). The FIL is thought to have been prepared upon research of precedents in older members of ASEAN with adjustments for circumstances distinctive to Myanmar. It incorporated establishment of an organizational setup and authority for FDI policy (e.g., a commission and a board), the determination of industrial fields with prospects for attraction of FDI, and provision of incentives such as corporation tax exemptions and deductions for a certain period.

The MIC (Myanmar Investment Commission) was given its current name in 1993, when it was given the authority to handle domestic investment as well. In addition to two personnel on the level of deputy prime minister, its board originally consisted of the heads of 12 ministries. More specifically, it has been chaired by the Minister of Science & Technology, and had a membership of the four ministers of Electric Power, Commerce, Energy, and Finance & Revenue, for a total of five since 1998. Its powers in FDI policy deployment are said to have been weakened in the process.

The MIC is a commission composed of the board and the secretariat supporting the board. As a result, it depends on the Directorate of Investment & Administration (DICA) under the National Planning and Economic Development (NPED) and the Attorney General for the provision of window, registration, and other services; on the Foreign Capital Evaluation Committee (FCEC) under Minister of Energy (MOE) and certain other ministries for examination of proposals and deliberation on issuance of export-import licenses; and on the Trade Council (TC), which is superior to it, for approval of investment projects and decisions on major items of FDI policy.

Figure 3-1 Administrative Organization Related to FDI Policy in Myanmar (MIC)



Source: JICA Study Team



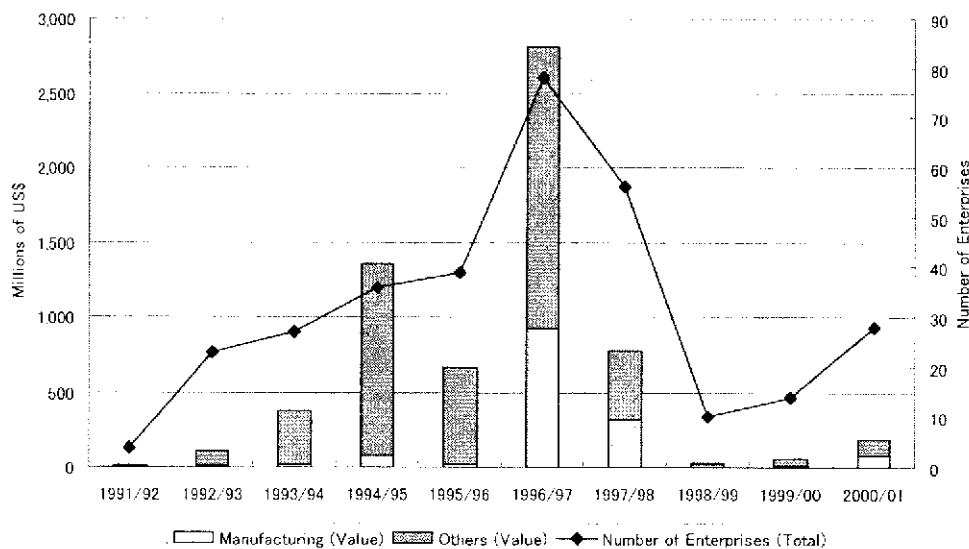
## 2) Actual trend of FDI

The enactment of the FIL in 1988 was followed by an upsurge of expectations for democratic reforms into the mid 1990s. In this atmosphere, FDI rapidly increased and reached more than 2.8 billion dollars (on the approval basis) in 1996. However, the subsequent setback of the movement for democracy combined with the influence of the Asian currency crisis to hold FDI to a low level beginning in 1997. Up to and including fiscal 2000, approved FDI came to a cumulative 355 projects and 7.1 billion dollars. The latter figure represents 1.5 percent of the corresponding cumulative amount (of about 470 billion dollars) for combined FDI in ASEAN countries over the years 1988 - 2000. Coupled with the recent recovery of FDI in other ASEAN countries, this situation shows how seriously the continued Western economic sanctions are impeding the FDI inflow into Myanmar.

The breakdown of the cumulative FDI on the approval basis by country of origin reveals that UK firms and Singaporean firms have the largest shares at about 20 percent each, followed by firms from Thailand at 17 percent and those from Malaysia at 9 percent. The share occupied by other ASEAN countries has risen in relative terms and now accounts for about 50 percent of the total.

In terms of type of industry, the oil and gas sector accounts for the lion's share of the cumulative FDI at 33 percent, followed by manufacturing sector at 22 percent. In terms of the number of projects, however, the manufacturing sector has the leading share at about 40 percent. Manufacturing sector FDI is concentrated in the two years of 1996 and 1997.

Figure 3-2 Trend of FDI in Myanmar (Approval Basis)



Source: Directorate of Investment and Company Administration, Directorate of Hotels and Tourism, Directorate of Trade

### 3) Factors impeding FDI

#### i) External factors

The economic blockade imposed by Western governments is not only discouraging siting and import by Western firms; it is also behind the stagnation of siting by firms from Japan and other Asian countries, cessation of official development assistance (ODA), and suspension of financing from the World Bank and IMF.

In response to the Asian currency crisis, the IT boom, and subsequent IT bust, Japanese and other foreign firms with extensive investments in the ASEAN region were pressed to reconstruct their existing production locations, expand their capacities, and then contract them beginning in the late 1990s.

As evidenced by its establishment of special economic zones, China is deploying aggressive policy for attraction of FDI, which is drawn by its abundance of low-cost labor and the vast potential of its domestic market. In their FDI, many developed-country firms have consequently accorded more priority to China than to ASEAN countries.

#### ii) Domestic factor

The aforementioned law for promotion of FDI was prepared with consideration of precedents in neighboring countries that are members of ASEAN, but the legal and institutional setup could not be regarded as vigorously promoting and encouraging investment from other countries. Similarly, many specialized defects of various kinds remain in areas such as labor laws and regulations, resolution of disputes, the tariff system, and intellectual property rights.

**Figure 3-3 Internal Factors Impeding FDI**

■ FDI-related legislation	- Positioning of FDI and FDI policy in the context of overall economic policy - Stance of FDI attraction in the FIL(Foreign Investment Law)
■ FDI-related organization	- Weakening of the MIC's authority in FDI policy - Dispersion of the organization for FDI-related work in the MIC
■ FDI policy operation	- Concentrating of authority related to FDI policy in the TC - Complex procedures and frequent policy changes - Restrictions on corporate establishment (minimum capital, limits on interest in JVs, etc.) - Restrictions on business activities (export-import license, export tax, overseas remittance, etc.) - Restrictions on CMP firms (export-import license, frequent business reports, exchange rate, etc.)
■ Industrial infrastructure	- Underdeveloped status of the socioeconomic infrastructure of power, communications, transportation networks, etc. - Lack of EPZs with basic infrastructures of power, etc., and one-stop service capabilities
■ Economic policy	- Multi-tiered exchange rate system - Dual price system - Vested interests of state enterprises and other public-sector entities (export-import license, etc.)

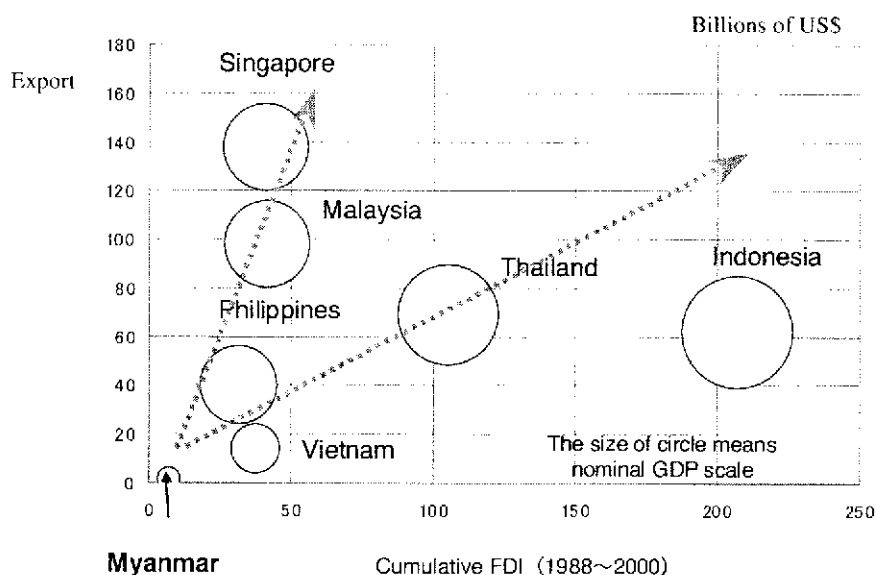
Source: The JICA Study Team.

In addition to the Western economic sanctions, shortage of foreign exchange, the tiered exchange rate system, and other negative factors in the politicoeconomic landscape, Myanmar is saddled with an underdeveloped infrastructure of power supply and industrial estates, a decline in the level of FDI administrative competence in MIC owing to the consolidation of such authority in the Trade Council (TC), and inconsistency in operation of policy (which acts as a disincentive). All of these are major factors are inhibiting the inflow of FDI.

## (2) Extended effects of FDI in major ASEAN countries

As shown in the figure below, other ASEAN countries achieved high rates of economic growth beginning in the 1980s thanks to the FDI-driven contribution to export (for earnings of foreign exchange), creation of employment, and technology transfer. FDI is also helping them to acquire potential for further advancement in the future.

**Figure 3-4 Correlation between Cumulative FDI, Export and GDP in ASEAN Countries**



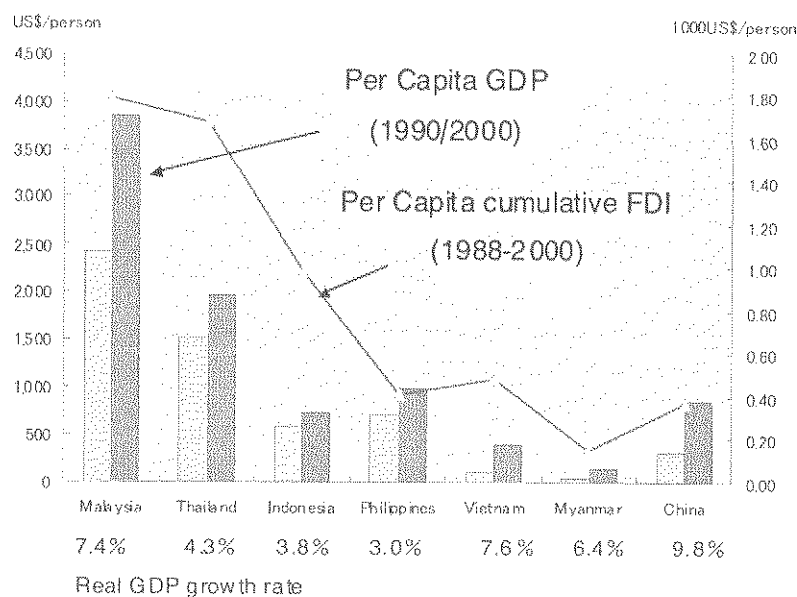
Source: Statistical data related to export and FDI in each country

As compared to these other ASEAN countries, the Philippines and Vietnam are less developed, have population sizes closer to that of Myanmar, and instated substantial policy for attraction of FDI at about the same time in the latter half of the 1980s. Like Myanmar, they are regarded as containing considerable "country risk" in the eyes of foreign investors. Nevertheless, they have thus far attracted much more FDI than Myanmar.

In other words, this record indicates that, over a period of slightly over ten years, the Philippines and Vietnam made significant improvements in their FDI policy and organization for attraction, and also in investment circumstances for foreign companies. Therefore, study of

the cases of the Philippines and Vietnam may be expected to yield precious pointers for work aimed at preparing an FDI Masterplan in Myanmar.

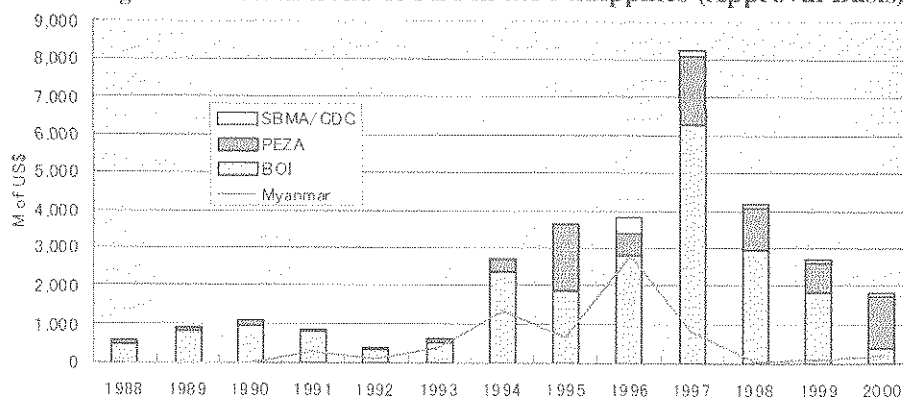
**Figure 3-5 Correlation between Per Capita Cumulative FDI and Per Capita GDP(2000)**



Source: Macroeconomic statistical data for each country

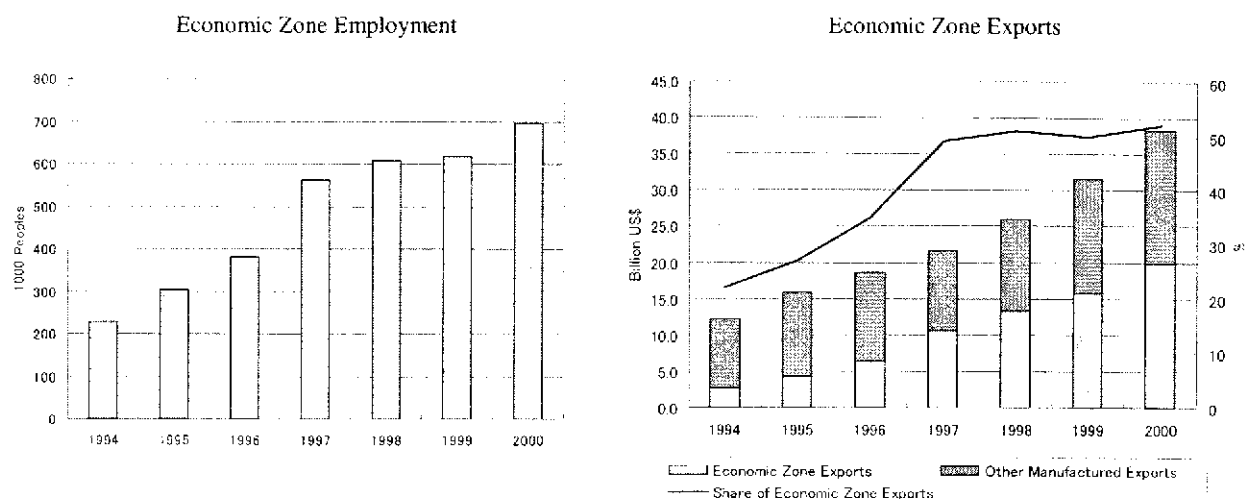
A case study in neighboring countries such as the Philippines and Vietnam indicates that FDI can have enormous extended economic effects for creation of employment, expansion of export, and technology transfer. The following items have been identified as prerequisites for FDI attraction: (1) conditioning of the infrastructure of electrical power, etc.; (2) establishment of special economic zones and/or export processing zones; (3) strengthening of the capabilities of the FDI administrative agencies; (4) diversification of entities involved in FDI attraction (delegation of authority and EPZ management); and (5) reinforcement of promotional efforts.

**Figure 3-6 Actual trend of FDI in the Philippines (Approval Basis)**



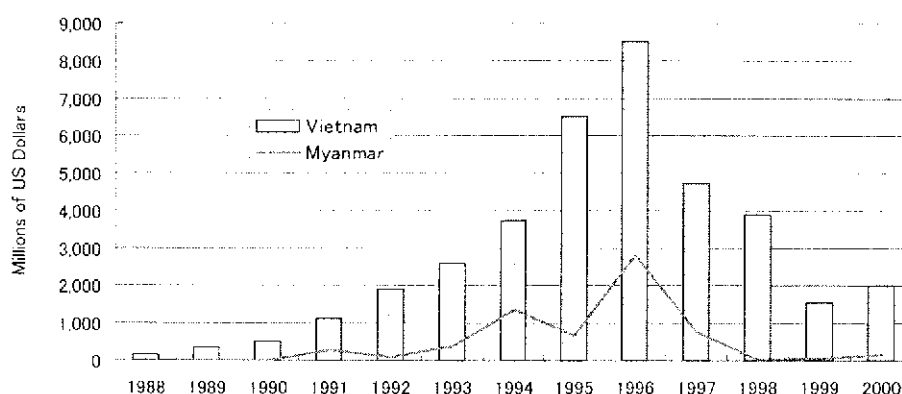
Source) BOI Material, PEZA Material

**Figure 3-7 Effects of FDI Attraction in the Philippines (Employment/Export)**



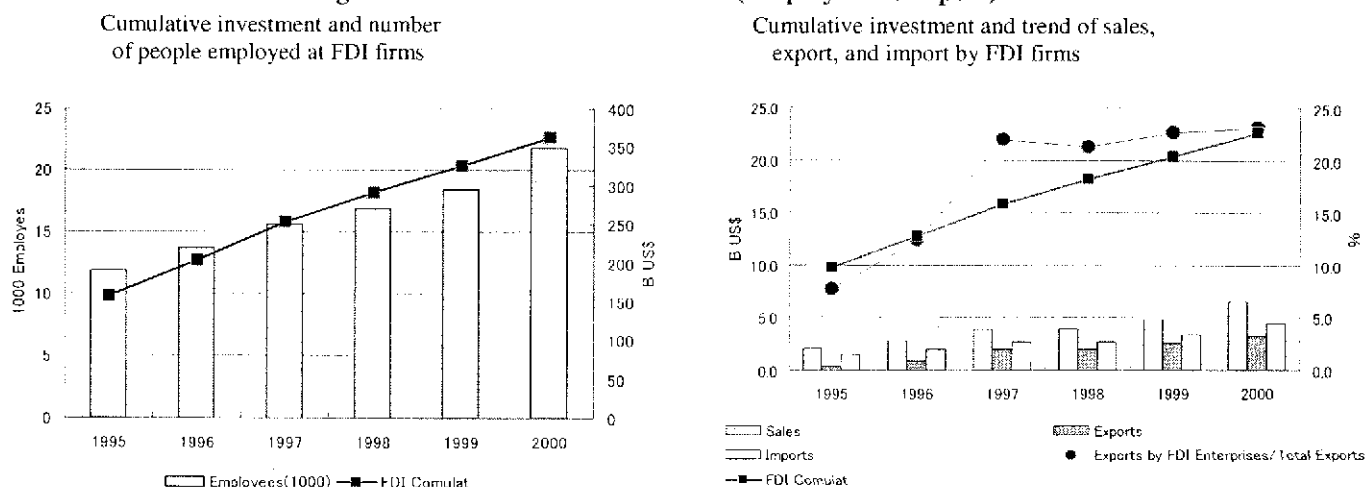
Source: PEZA Material

**Figure 3-8 FDI Attraction in Vietnam (Approval Basis)**



Source: MPI data

**Figure 3-9 Extended Effects of FDI (Employment/Export)**

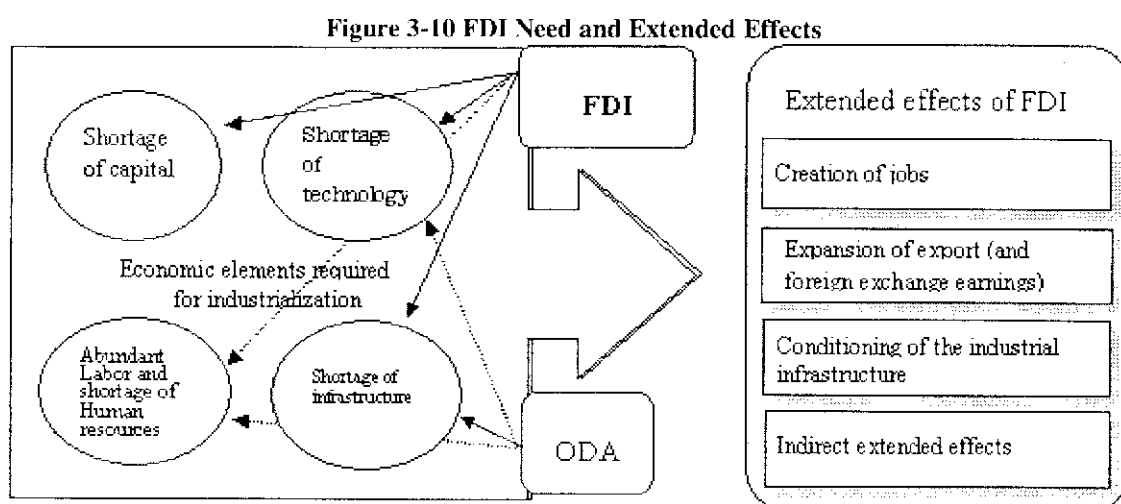


Source: MPI Material in Vietnam

### (3) FDI need and Promising FDI sectors in Myanmar

#### 1) Need for FDI in Myanmar

The major economic elements needed for promotion of the strategy for industrialization to achieve the industrial vision are infrastructure (electrical power, telecommunications, transport/physical distribution, industrial estates, etc.), capital (facility investment and operating funds), technology (manufacturing, product, and management/administration technology), and labor (workers, engineers, middle managers, and executives).



Source: JICA Study Team

Myanmar has a shortage of all of these elements except labor. Aggressive promotion of FDI for prompt resolution of these shortages is a matter of top priority. The creation of employment opportunities through FDI could also be expected to expand export (and earnings of foreign currency) and improve the industrial infrastructure. It should be noted that conditioning of the socioeconomic infrastructure is also indispensable for FDI, and efforts ought to be made for the resumption of ODA in parallel with or advance of FDI.

#### 2) Promising FDI Sectors

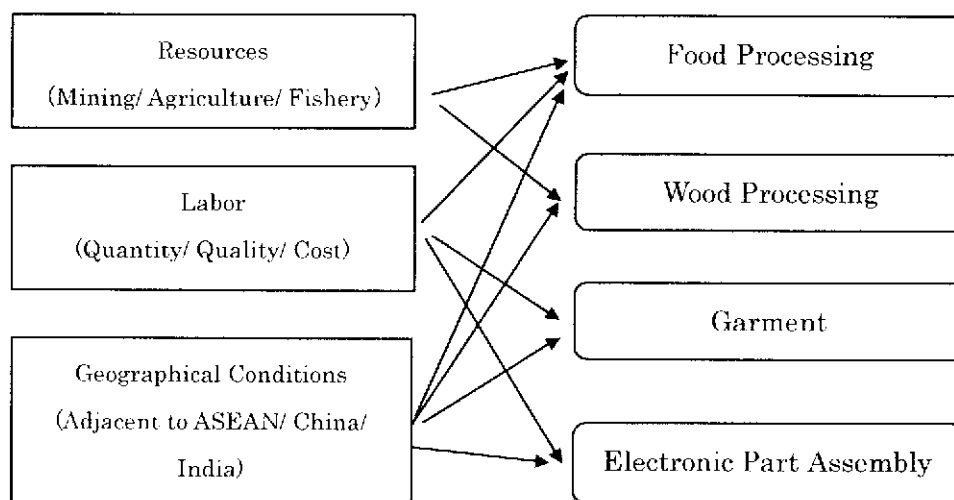
In some manufacturing sectors, Myanmar should positively attract foreign capitals with priority for the time being to promote her exportation and secure employment opportunities. These sectors may well be considered as two: one is the nation's leading agricultural/marine resource-utilizing type industry and the other the labor-incentive industry, with her environments of competition against peripheral countries and her division-of-labor structure taken into consideration in addition to her reserved resources, existing industry footing and potential manpower (ample low-cost labor).

The two industrial sectors referred to above may well be considered as the industries where Myanmar has comparative advantages over neighboring countries. A foreign capital

also shows a strong tendency to seek a highly profitable business with investments limited to an envisaged size. Those lines of business, which may well be considered to have higher priority in attracting foreign capitals, are the following four industrial sectors, (1) Garment, (2) Wood Processing, (3) Food Processing and (4) Electronic Part Assembly.

Out of the four industrial sectors, the former three or (1) Garment, (2) Wood Processing and (3) Food Processing have already had a certain level of resource/industrial footing while domestic capitals are showing a field-proven result of exportation. These three industrial sectors should be considered to have higher priority in attracting foreign capitals. For domestic resource- based sectors, such as wood processing and food processing, however, their business deployment has a limitation in significantly expanding their exportation.

**Figure 3-11 Promising FDI Sectors in Myanmar**



Source: JICA Study Team

The garment sector, on the other hand, does not allow for an optimistic view of exportation since a quota system has been established and there are some import controls in Europe and America. Besides, there is a very severe competition against China and Vietnam. Myanmar, however, is potential enough to compete against China and Vietnam in terms of labor forces and labor cost. In addition, she has been enjoying an application of exceptionally privileged tariffs on exportation to Japan.

The electronic part assembly sector will be almost entirely dependent upon the foreign capitals of Japanese origin. Every ASEAN member country and China has positively attracted electronics-related enterprises, including parts vendors, and has been promoting the employment, export expansion and technology transfer. And this attitude of attaching importance to investments in the field from now on has remained unchanged and it is anticipated that the countries involved will compete more and more vigorously around FDI. To attract FDI enterprises in the field, therefore, it is necessary to boldly build up the investment environments in domestic infrastructure.

#### (4) Medium/long-term FDI targets for Myanmar

Studies were made of the trends of FDI in neighboring countries such as the Philippines and Vietnam, and the changes in the investment climate surrounding the industries of relative advantage. Based on the findings of these studies and the actual trend of FDI in Myanmar so far, the values shown below were chosen as the medium-to-long-term targets for FDI (i.e., for cumulative FDI to 2020, number of siting firms and FDI-created jobs, and amount of FDI-generated export). Two sets of targets were established for cumulative FDI and other items: higher and lower. The higher targets are premised on the lifting of Western economic sanctions within a few years (two or three) and swift improvement of the investment climate, and the lower targets, on the lifting of sanctions later (in four or five years) and more gradual improvement of the investment climate.

**Table 3-1 Long-Term Targets for FDI Attraction in the Myanmar Manufacturing Sector**

		2000	2005	2010	2015	2020
Cumulative FDI (billions of US\$)	Lower target	7	12	20	32	40
	Higher target	7	15	30	45	60
Number of siting firms (Number of firms)	Lower target	400	700	1,200	2,000	2,700
	Higher target	400	900	1,900	3,000	4,000
Number of employees (thausans of persons)	Lower target	150	250	400	600	700
	Higher target	150	300	550	800	1,000
Amount of export (billions of US\$)	Lower target	2	3	23	40	50
	Higher target	2	4	38	60	80

Source: JICA Study Team

In each case, the targets appear extremely high as compared to the current status in Myanmar. However, they are by no means unattainable, considering the latent development potential, prospects for resolution of the factors impeding FDI, and the cases of success in neighboring countries. While achievement of the targets will be heavily influenced by external factors (such as the investment climate and the disposition of FDI firms), it is vital for Myanmar to prepare circumstances that are conducive to economic activities by and hold benefits for FDI firms, i.e., that make it possible to set up a "win-win" relationship between the country and these firms. Although the task of improvement will not be an easy one, Myanmar should immediately set about the measures described in the succeeding section for reform of FDI policy while also taking the steps needed for lifting of the sanctions.

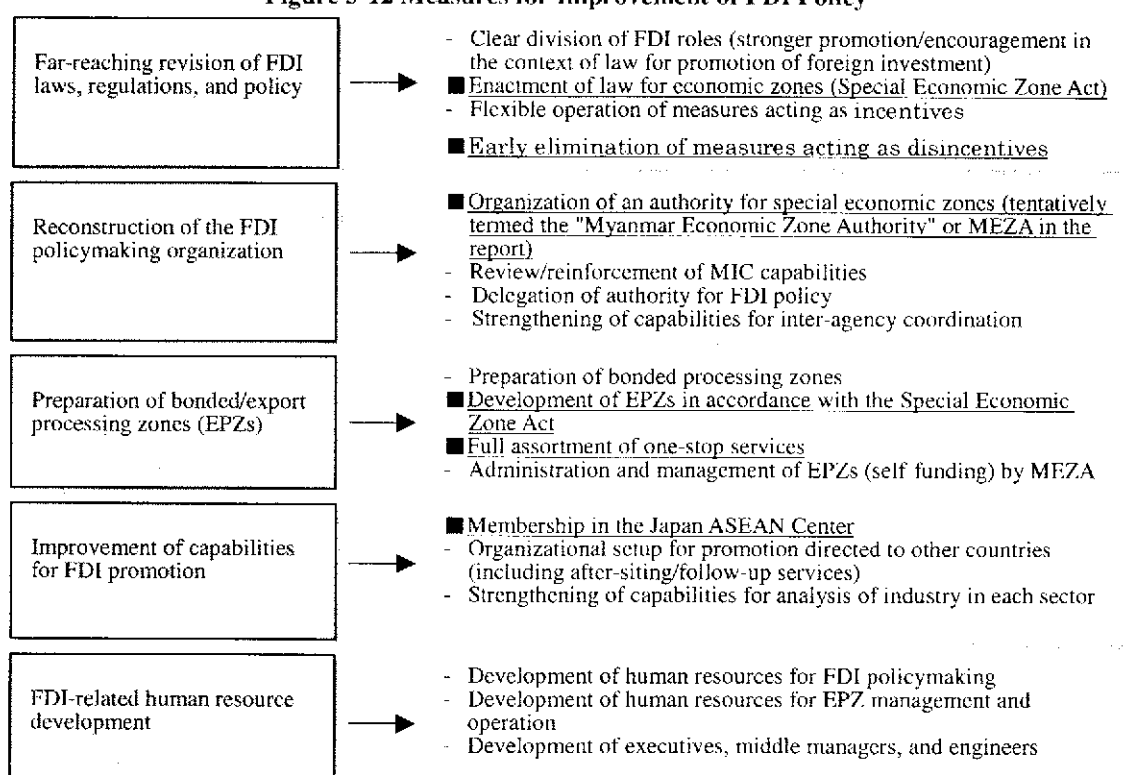


## (5) Strategy of FDI attraction in Myanmar

### 1) Measures for improvement of FDI policy

The following items are indispensable for FDI attraction in Myanmar: A. preparation of a long-term national plan for industrial advancement, B. rationalization of financial policy (in respect of exchange and foreign currency), C. conditioning of the industrial infrastructure, and D. emergence from the circumstance of economic sanctions. On the assumption that these preconditions will all be met simultaneously, in order to attract an extensive inflow of FDI, the Myanmar government must provide for the forceful promotion of the measures noted below for improvement of FDI policy, while gaining the cooperation of other countries.

**Figure 3-12 Measures for Improvement of FDI Policy**



Source: JICA Study Team

Note : ■ The policy Issue to be handled immediately

### 2) Far-reaching revision of FDI laws, regulations, and policy

Myanmar must undertake a thorough revision of FDI legislation and policy including clear definition of roles (for stronger promotion and encouragement in the context of the FIL), enactment of the Special Economic Zone Act, flexible operation of incentive measures, and early elimination of disincentives. It also must swiftly develop EPZs to provide estates where FDI firms can site with confidence.

i) Clear division of FDI roles

In Vietnam and other neighboring countries, law for promotion of foreign investment is amended and revised in correspondence with the internal and external climate for investment. In Myanmar, the FIL is strongly colored by a selectivity regarding types of industry to be attracted, and its provisions for attraction are restrained. It should be revised for a more positive tone as regards FDI positioning and privileges, so that it actively induces FDI contributing to achievement of the industrial vision.

ii) Enactment of law for economic zones (Special Economic Zone Act)

Fully provisioned EPZs are essential for FDI attraction. The experience of Korea, other ASEAN countries, and China shows that extensive siting by FDI firms comes only when EPZs are readied. In developing EPZs, Myanmar must specify the areas and enact ad-hoc law stipulating relaxation of domestic regulations and taxes for firms siting in them.

Generally, EPZs offer a blanket relaxation of related domestic regulations and tax conditions for siting firms (both domestic and foreign) in various fields, such as agro-industry, other industry, commerce/trading, tourism, investment, and financing. If domestic circumstances make it impossible to revise legislation in the whole spectrum of fields, Myanmar should at least make priority studies of and enact the Special Act, which would be aimed exclusively at attraction of FDI by export-oriented manufacturers engaged in processing and assembly.

Together with the Special Act, Myanmar must enact legislation for privatization of the power sector through BOT schemes, for example, in order to encourage conditioning of the EPZ infrastructure. At present, the Ministry of Electric Power is continuing with its systematic efforts for resolution of power shortages amid the lack of financial resources, and is negative about the option of privatization. In other countries, however, it is normal practice to permit the participation of private-sector capital through BOT and other schemes in order to build up the power supply as needed to attract FDI linked to industrial advancement. Myanmar, too, should move quickly to enact legislation that will lead to an adequate supply of power for EPZs through measures that are holistic and based on economic rationality.

iii) Early elimination of measures acting as disincentives

Among the factors *impeding* FDI in Myanmar is a certain disincentive in the aspect of policy operation. Although this derives partly from Myanmar's political and economic attitude as exemplified by its stance on FDI, much of it springs from the neglect to give a clear positioning to FDI in the context of industrialization plans, and a definite priority to FDI policy in that of economic policy, against the backdrop of the economic sanctions and shortage of foreign currency. Myanmar must recognize the critical importance of FDI for adjusting the industrial structure and achieving economic growth, accord it a higher degree of policy priority, and do its utmost to eliminate measures acting as disincentives, as described below.

- Complex procedures and frequent policy changes

- Regulations related to establishment of enterprises
- Regulations impeding business activities
- CMP regulations

### 3) Reconstruction of the FDI policy organization

#### i) Diversification of entities executing FDI policy (establishment of MEZA)

The MIC must accord equal treatment for the investment projects of domestic and foreign firms, and could not offer incentives favoring the latter, even in the operation aspect. In addition, the entity promoting FDI must be endowed with the capabilities for involvement in the development and operation of industrial estates (EPZs) as FDI sites. This is behind the proposal of establishment of the Myanmar Economic Zone Authority (MEZA) in connection with the enactment of the Special Economic Zone Act.

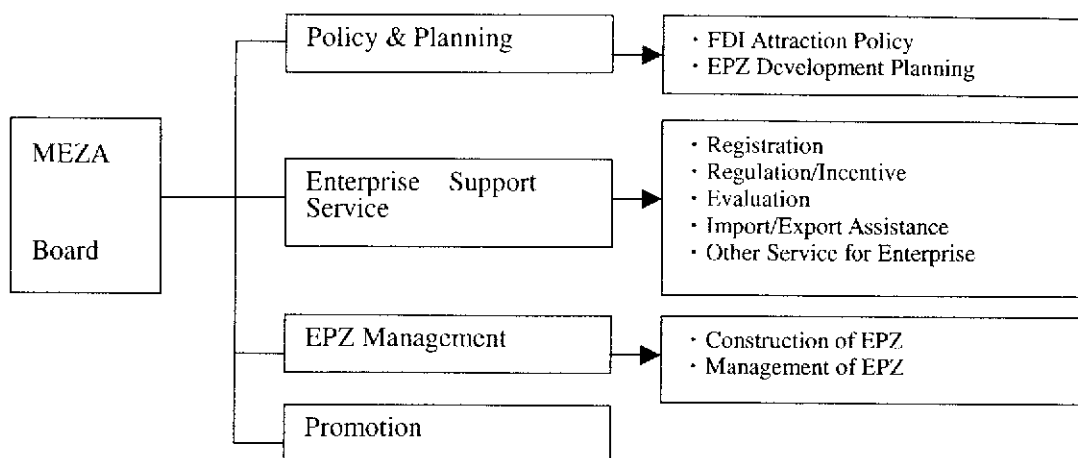
Whereas the MIC would have to offer the same incentives for both domestic and foreign investment, MEZA could devote itself exclusively to attracting the latter. To this end, its organization should include separate departments for revising related legislation and drafting policy; accepting applications, registering firms, and performing other office work; promoting investment; and operating and managing newly developed EPZs.

**Figure 3-13 Function of MEZA and MIC**

<p>MEZA (tentative name)</p>	<ul style="list-style-type: none"> <li>• <u>Concentration of FDI attraction (provision of incentives favoring FDI in the operational aspect)</u></li> <li>• Institution of a board with a high status</li> <li>• Capabilities for revision of FDI-related legislation and proposal of policy</li> <li>• Capabilities for performance of work such as acceptance of applications, examination of projects, and registration</li> <li>• Capabilities for provision of one-stop services</li> <li>• Capabilities for investment promotion</li> <li>• <u>Capabilities for operation and management of newly developed EPZs</u></li> <li>• <u>Funding with income from EPZ operation and management</u></li> </ul>
<p>MIC</p>	<ul style="list-style-type: none"> <li>• Equal treatment of foreign and domestic investment projects, as to date</li> <li>• Institution of a board with a high status</li> <li>• Capabilities for revision of FDI-related legislation and proposal of policy related to investment (domestic and foreign)</li> <li>• Capabilities for performance of work such as acceptance of applications, examination of projects, and registration</li> <li>• Capabilities for provision of one-stop services</li> <li>• Capabilities for investment promotion</li> <li>• Funding from the national treasury</li> </ul>

Source: JICA Study Team

**Figure 3-14 MEZA Organization**



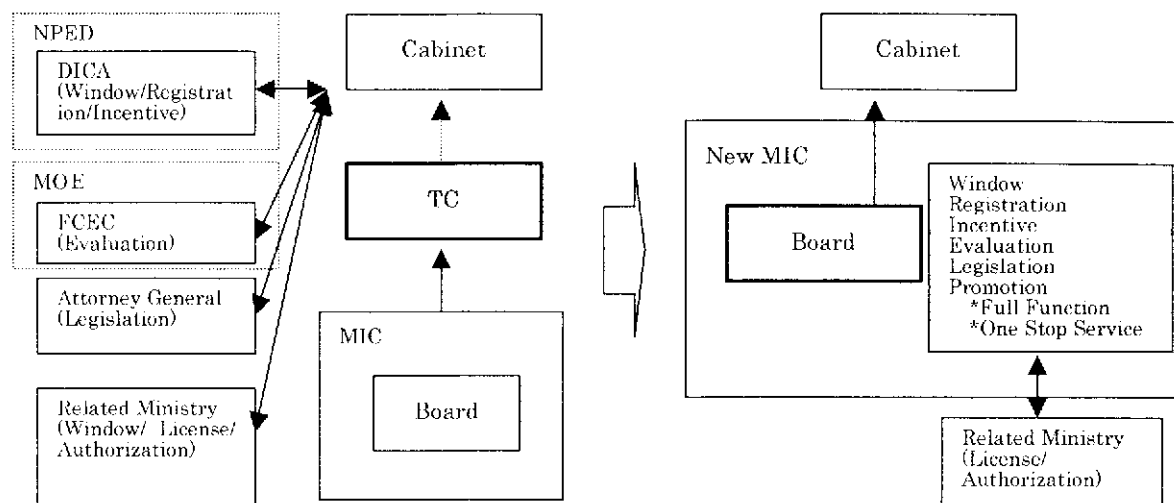
Source: JICA Study Team

The key tasks in establishing MEZA are as follows: a) preparation of laws and regulations enabling forceful promotion, under private-sector leadership, of in-carnest EPZ development; b) direct operation and management of the newly developed EPZs by MEZA; c) funding of MEZA's operation by the income from EPZ operation and management, and d) attachment of MEZA directly to the prime minister's office (or equivalent organ) to make its board more authoritative.

#### ii) MIC reorganization and reinforcement

The renewed MIC should be organized along the lines of the BOI in the Philippines and have an effective unit (board) for practical decision-making related to FDI policy. It should also be equipped with the requisite capabilities in three areas: revision of related legislation and drafting of policy, performance of application acceptance and registration work, and promotion of investment.

**Figure 3-15 Proposed Reorganization of the MIC in FDI Policy in Myanmar**



Source: JICA Study Team

A status as an independent entity would be preferable for heightening the degree of priority placed on FDI attraction in the context of national policy. However, it would presumably also be vital for the entity with authority over FDI policy to remain under the NPED, if there are good prospects for the instatement of policy to attract FDI based on the national economic plan to be executed by the NPED.

#### 4) Development of bonded/export processing zones (EPZ)

##### i) Bonded processing zones

It is important to develop fully provisioned EPZs to serve as sites for acceptance of FDI. At the same time, consideration must be taken for the FDI firms already in Myanmar and export-oriented firms which come in the future but decide not to site in EPZs for various reasons. For these firms, it would probably be effective to instate a scheme of bonded processing zones, which would not require substantial legislation.

At present, procedures required for bonded processing are being carried out at organizations and facilities in the vicinity of the port of Yangon. In the case of production plants sited on the outskirts of Yangon or in provincial cities such as Mandalay, ports must be visited to perform procedures on each occasion of material import or product export. This could be avoided by sending personnel from bonded processing offices to provide services for each major siting firm or opening a bonded processing office for several plants in the vicinity.

##### ii) EPZ development and conditioning

To attract siting, Myanmar cannot merely offer the industrial estates developed thus far; establishment of export processing zones (EPZs) is an urgent task. Such zones are to be equipped with a highly developed infrastructure of electrical power and other elements,

facilities for bonded processing (use of 100-percent imported materials for processing and assembly, and export of 100 percent of the output), and one-stop services for execution of procedures for application to concerned ministries and administrative agencies, for example.

It is obvious even from the cases of other ASEAN countries and China that extensive FDI cannot be attracted without EPZs. EPZs are absolutely essential in fields such as garment-making and electronic component assembly, where firms will have to depend entirely on imported materials for the time being and will export the entire output. Other ASEAN countries and China are vigorously developing such EPZs, which allow tenants to carry on their activities unencumbered by a lot of domestic regulations while enjoying incentives. Attraction of FDI through EPZs has helped them to generate employment, earn foreign currency, and achieve economic growth.

To take a realistic approach to EPZs, Myanmar would not have to make big expenditures for the development of completely new ones. Physically, it would be possible to prepare EPZs in a comparatively short time by equipping the existing industrial estates developed through collaboration between existing firms and the government (such as the Mingaladon estate), and others remain largely unoccupied because of insufficient infrastructure. This could be done by endowing them (or sites adjacent to them) with dedicated electric power facilities and one-stop services for customs clearance and other items.

The approach should begin with the establishment of a few EPZs in the Yangon area, with a view to creating cases of successful EPZ siting and business, mainly by firms in the garment-making industry, which could be expected to consider siting in Myanmar even earlier than those in other industries. Once it can demonstrate its abilities for skillful management of EPZs in the garment-making industry to all parties, Myanmar could set about developing new EPZs with even better services for firms assembling electronic components.

New EPZs could be developed as joint-venture projects pairing the Myanmar government with private enterprises (domestic and foreign) as to date, and operated and managed by MEZA as described above. While development would be premised on FDI firms, the future holds the possibility of receipt of public-sector support from Malaysia and other more developed ASEAN countries in connection with intra-ASEAN economic cooperation. Through these and other approaches, the number of newly developed EPZs is anticipated to reach about five within the next few years, 10 - 20 around 2010, and 40 - 50 around 2020.

##### 5) Reinforcement of capabilities for investment promotion

Both the Philippines and Vietnam view promotional activities among foreign firms with great importance and are reinforcing capabilities for them. For investment-promoting entities such as PEZA, which operates and manages EPZs and depends on revenue from this operation and management to fund its own activities, these activities are indispensable to attract investment.

In Myanmar, there have been almost no promotional organizations or specific activities

for attraction of FDI even by the MIC. The coming years are bound to see intensifying competition among ASEAN countries themselves and with China for attraction of siting by foreign firms. This points to a need for clear positioning of promotional activities, the preparation of capabilities for provision of information on the investment conditions to foreign parties, and the conduct of ongoing sales campaigns aimed at foreign firms that are promising potential investors at the entities executing FDI policy (i.e., the MIC and MEZA).

With financial assistance from the Japanese government, the Japan ASEAN Center engages in activities to support efforts to attract FDI, promote export, and develop tourism in ASEAN countries. Cambodia and Laos, two other less-developed ASEAN countries, recently became members. The Myanmar government, too, is apparently staying in fairly close contact with the Center through its embassy in Japan, visits to Japan by its ministers, and its participation as an observer in the Center's board meetings staged in ASEAN countries. It still has not decided to apply for membership, however, because it retains doubts about cost effectiveness and the requisite provision of internal information and data.

Upon payment of relatively low annual dues of between roughly 5 and 10 million yen each, the member-countries can look forward to receiving all sorts of support from Japan in their efforts to attract FDI, promote export, and develop tourism. It would be hard to say whether Myanmar would reap tangible benefits for FDI attraction soon after entry, because a lot depends on the climate of investment inside and outside the country. This reservation noted, Myanmar could probably expect considerable benefit, even over the relatively short run, in the aspect of tourism and trade. The JICA Study Team recommends immediate application for membership.

#### 6) Medium- and Long-term FDI Policy Deployment Time Schedule

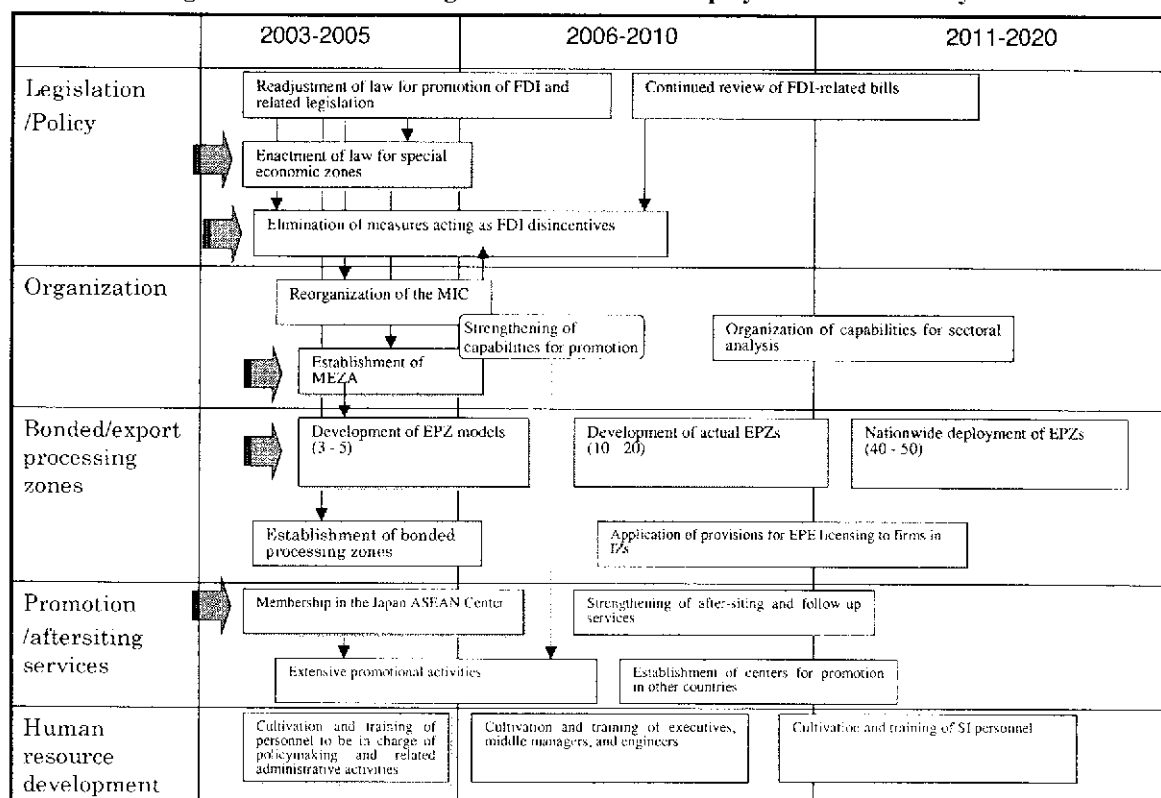
A menu of the FDI-related policies in Myanmar could be positioned in a medium/long-term timeframe as referred to below. The FDI that bears exportation on the shoulder is an effective means that would allow Myanmar to dissolve her serious foreign currency deficiencies. And there are a lot of political issues that Myanmar should tackle with in attracting FDI enterprises.

Those Chinese investment environments, which have attracted the ASEAN member countries with the AFTA just at hand and many other foreign capitals, are changing vigorously. A long time will be required, furthermore, for Myanmar to build up the infrastructure because it must be accompanied with an establishment of such legal systems as to implement an economically privileged ward and to privatize power electric operations. In the FDI policy to be executed early, a financial burden of Myanmar government is not always big. Therefore, Myanmar government should begin to go through bold one step toward reform.


The sooner the Myanmar Government proceeds to the policy menu, the more desirable it is, accordingly. A menu of the policies that the Myanmar Government must tackle from now on to attract FDI enterprises should cover a lot of items, such as to establish/revise related legal systems, build up policy-related organizations and functions, develop and build up the

infrastructure, improve the aspects of policy operations and make effective use of a support scheme provided by an international organization. In addition, it would be difficult for Myanmar to attract FDI enterprises as targeted without drastically improving her investment environments. As referred to below, therefore, we dare to propose that Myanmar should deploy policies, with more emphasis attached to those ranked at a higher priority order in the policy menu referred to below.

**Figure 3-16 Medium/Long-term Schedule for Deployment of FDI Policy**



Source: JICA Study Team

Note  This mark indicates high-priority measures