No.

THE COUNCIL FOR THE DEVELOPMENT OF CAMBODIA (CDC) /
THE CAMBODIAN INVESTMENT BOARD (CIB)

THE STUDY ON
ECONOMIC POLICY SUPPORT IN
THE KINGDOM OF CAMBODIA

FINAL REPORT

February 2007

JAPAN INTERNATIONAL COOPERATION AGENCY
NOMURA RESEARCH INSTITUTE, LTD.
KRI INTERNATIONAL CORP.

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PREFACE

In response to a request from the Government of the Kingdom of Cambodia, the Government of Japan decided to conduct a study on improvement of investment policy and entrusted to the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team headed by Mr. SAKAI Hitoshi of Nomura Research Institute, Ltd., between December 2005 and February 2007.

The team held discussions with the officials concerned of the Government of the Kingdom of Cambodia and conducted interviews at the study area, as well as in neighboring countries and Japan. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of investment into Cambodia and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of the Kingdom of Cambodia for their close cooperation extended to the study.

February 2007

IZAWA Tadashi,
Deputy Vice President
Japan International Cooperation Agency

February 2007

Mr. IZAWA Tadashi
Deputy Vice President
Japan International Cooperation Agency (JICA)

Letter of Transmittal

Dear Sir,

We are pleased to submit herewith the Final Report of "The Study on Economic Policy Support in the Kingdom of Cambodia". This study was entrusted to Nomura Research Institute in association with KRI International Corporation, under a contract with JICA. The Report consists of Executive Summary, Main Report in Japanese, English and Khmer.

This study is designed to investigate the pros and cons of Cambodia, both from the macro and micro perspectives, as a destination of investment by overseas private enterprises, including Japanese companies, and to formulate a strategy and measures to expand investment from Japan and elsewhere for the development of the Cambodian industry. This study will support the improvement of Cambodia's economic policy, industrial development policy and investment policy and realize fruitful results from introducing FDI in the near future.

This sort of comprehensive study has ever conducted by the JICA in development countries. However, it has a common time lag between (1) to formulate strategies, measures and (2) to produce satisfactory results in expanding FDI from Japan in such countries and to proceed to the industrial development of the country that takes full advantage of such investment. Therefore, it is necessary for implementing agencies in development countries to make even greater efforts in order to improve business environments and for foreign aid organizations to follow up and support to implementing agencies in order to make sure of the execution by implementing agencies. These measures encourage expanding FDI from Japan and elsewhere. According to the many interview surveys conducted by the JICA study team in neighboring countries, the prospects for the Japanese investment into Cambodia in the areas of garment, food processing, electronics, etc., have become more promising and the Japanese investment will surely turn to increase gradually in Cambodia.
We would like to take this occasion to express our sincere gratitude to the JICA and the Japanese Supporting Committee organized by the JICA for providing a guidance to

carry out this Study. We are also the most grateful for the cooperation and assistance of the counterparts headed by CDC/CIB in the Royal Government of the Kingdom of Cambodia, the JICA Cambodia office, the Embassy of Japan in Cambodia and collaboration of the international donors represented in Cambodia that share the same goal of improving the investment circumstances of Cambodia.

Yours Faithfully,

SAKAI Hitoshi
Team Leader, JICA Study Team for
The Study on Economic Policy Support
in the Kingdom of Cambodia

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Abbreviations and Acronyms

Abbreviation	Full Name
ADB	Asian Development Bank
AFD	French Agency for Development
AFTA	ASEAN Free Trade Area
ASEAN	Association of Southeast Asian Nations
ASYCUDA	Automated System for Customs Data
AT	Temporary Admission
AV	Audio Visual
BLU	Back Light Unit
BOD	Biochemical Oxygen Demand
BOI	Board of Investment of Thailand
BOM	Board of Management of Vietnam
BOT	Build-operate-transfer
BRICs	Brazil,Russia,India,China
CAD/CAM	Computer Aided Design / Computer Aided Manufacturing
CAMCONTROL	Cambodia Import Export Inspection and Fraud Repression Department
CBW	Central Bonded Warehouse
CCC	Customs Cooperation Council
CCD	Charge Coupled Device
CD	Compact Disk
CDC	Council for the Development of Cambodia
CDRI	Cambodia Development Resource Institute
CD-ROM	Compact Disk – Read Only Memory
CED	Customs and Excise Department
CEPT	Common Effective Preferential Tariff
CGTC	Cambodia Garment Training Center
CIB	Cambodian Investment Board
CKD	Complete Knock-Down Production
CLMV	Cambodia, Laos, Myanmar, Vietnam
CMDGs	Cambodian Millennium Development Goals
CMP	Cutting, Making and Packaging

Abbreviation	Full Name
CNPA	Cambodia National Petroleum Authority
CNY	Chinese Yuan (=RMB)
COM	Council of Ministers
CPI	Consumer Price Index
CRC	Conditional Registration Certificate
CRDB	Cambodian Rehabilitation and Development Board
CSEZB	Cambodian Special Economic Zones Board
DIZA	Danang Export Processing and Industrial Zone Authority
DPI	Department of Planning & Investment
DTI	Department of Trade & Industry of the Philippines
EBA	Everything But Arms
EDC	Electricity du Cambodia
EIC	Economic Institute of Cambodia
EMS	Electronics Manufacturing Service
EPE	Export Processing Enterprises
EPZ	Export Processing Zone
EPZA	Economic Processing Zone Authority
ESP	Education Strategic Plan
EU	European Union
FDI	Foreign Direct Investment
FAO	Food and Agriculture Organization of the United Nations
FIAS	Foreign Investment Advisory Services
FOB	Free-on-board
FPD	Flat Panel Display
FRC	Final Registration Certificate
FTA	Free Trade Agreement
FTZ	Free Trade Zone
GATT	General Agreement on Tariff and Trade
GDP	Gross Domestic Product
GIZ	General Industrial Zones
GMAC	Garment Manufacturers Association in Cambodia
GMS	Greater Mekong Sub-region
GSP	Generalized System of Preferences
EMS	Electronics Manufacturing Service

Abbreviation	Full Name
HEPZA	HCMC Export Processing and Industrial Zone Authority
HRD	Human Resource Development
HS	Harmonized System
ICC	International Chamber of Commerce
ICS	Cambodia: Integration and Competitiveness Study
IDE	Institute of Development Economies
IEAT	Industrial Estate Authority of Thailand
IFC	International Finance Corporation
IMF	International Monetary Fund
IP	Industrial Park
IP	Internet Protocol
IPP	Independent Power Producer
ISIC	International Standard Industrial Classification
IT	Information Technology
ITC	International Trade Center
IZ	Industrial Zone
JBIC	Japan Bank for International Cooperation
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
JODC	Japan Overseas Development Corporation
KHR	Cambodian Riel
LDC	Least Developed Country
LIZ	Law on Industrial Zone
LOI	Law on Investment
LSEZ	Law on the Special Economic Zones
MAFF	Ministry of Agriculture, Forestry and Fisheries
M&A	Merger and Acquisition
MDGs	Millennium Development Goals
MEF	Ministry of Economy and Finance
METI	Ministry of Economy, Trade and Industry
MFA	Multi-Fiber Agreement
MFN	Most Favored Nation
MIGA	Multilateral Investment Guarantee Agency
MIME	Ministry of Industry, Mines and Energy

Abbreviation	Full Name
MOC	Ministry of Commerce
MOE	Ministry of Environment
MOT	Ministry of Tourism
MPI	Ministry of Planning & Investment
MPTC	Ministry of Posts and Telecommunications
MPWT	Ministry of Public Works and Transportation
MRD	Ministry of Rural Development
NAFTA	North America Free Trade Area
NES	New Export Strategy
NESDB	National Economic and Social Development Board
NiDA	National Information Communications Technology Development Authority
NIS	National Institute of Statistics
NPRS	National Poverty Reduction Strategy
NR	National Road
NSDP	National Strategic Development Plan
ODA	Official Development Assistance
OSS	One Stop Service
PC	Personal Computer
PCA	Post Clearance Audit
PEZA	Philippine Economic Zone Authority
PMIS	Sub-Committee on Investment of the Provinces – Municipalities
PPWSA	Phnom Penh Water Supply Authority
PSC	Production Sharing Contract
PSI	Pre-shipment Inspection
PSMIA	Phnom Penh Small and Medium Industry Association
QC	Quality Control
QIP	Qualified Investment Project
RCA	Revealed Comparative Advantage
RGC	Royal Government of Cambodia
RHQ	Regional Headquarters
RS	Rectangular Strategy
SAD	Single Administrative Document

Abbreviation	Full Name
SBMA	Subic Bay Metropolitan Authority
SCCI	State Committee & Cooperation of Investment
SCM	Supply Chain Management
SEDP	Socio-Economic Development Plan
SEZ	Special Economic Zone
SI	Supporting Industry
SIE	Survey of Industrial Establishments
SITC	Standard International Trade Classification
SITF	Special Inter-Ministerial Task Force on Trade and Investment Climate
SME	Small- and Medium-Sized Enterprise
SPC	State Planning Committee
SPZ	Special Promotion Zone
SWOT	Strengths,Weakness,Opportunities,Threats
TSL	Two-Step Loan
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities
UNIDO	United Nations Industrial Development Organization
US	United States
US$	US Dollar
VoIP	Voice over Internet Protocol
WB	World Bank
WCO	World Customs Organization
WTO	World Trade Organization

Currency Exchange Rate

US$1=Cambodian Riel 4,008=JPY117.2

(As of the end of February 2007)

Chapter 1
Introduction of the Study Report

1.1 Background of the Study

The inflow of FDI to the Kingdom of Cambodia is characterised by a large share of investment in the tourism-related, and garment-manufacturing industries by ethnic Chinese in Malaysia and other countries of Asia. The amount of FDI began to rise sharply in the mid-1990s and reached a peak level of almost 300 million dollars per year. More recently, however, it has been declining. Meanwhile, FDI from Japan has been extremely small. This can be attributed to the many negative factors in conducting business in Cambodia, such as a shortage of infrastructure, high electricity and transportation costs, smuggling, and slow and cumbersome trade and investment procedures. Additionally, Cambodia should convert its system to accept Japanese production methods adopted by Japanese manufacturers. In order to solve these problems, the Cambodian government is called upon to improve the investment environment by developing appropriate legal framework relating to investment, streamlining investment and trade procedures and other measures. In addition, it must take aggressive measures to create investment opportunities. In September 2004, with a view to increasing investment in Cambodia by Japanese companies and Japanese-affiliated companies, the Cambodian government requested support from the Japanese government, which would contribute to the expansion of inflow of investment to Cambodia. In August 2005, the two governments agreed to implement this Study by Japan International Cooperation Agency (JICA), which is designed to investigate the pros and cons of Cambodia, both from the macro and micro perspectives, as a destination of investment by overseas private enterprises, including Japanese companies, and to formulate a strategy and measures to expand investment from Japan and elsewhere for the development of the Cambodian industry. This study will support the improvement of Cambodia's economic policy, industrial development policy and investment policy and realize fruitful results from introducing FDI in the near future.

1.2 Aim of the Study

(1) Ultimate goal

To improve the investment environment in the Kingdom of Cambodia.

(2) Project goal

The Study aims to develop a business environment that will be conducive to promoting foreign direct investment (FDI) in the Kingdom of Cambodia primarily from Japan.

(3) Aims of Study activities

(i) Strategies and measures will be formulated to expand FDI including that from Japan in Cambodia and for the industrial development of the country that takes full advantage of such investment.

(ii) Activities by the Council for the Development of Cambodia (CDC) / the Cambodian Investment Board (CIB) aimed at attracting FDI will be enhanced.
(iii) Human resources at the ministries and agencies of the Royal Government of Cambodia (RGC) relating to industrial development and investment promotion will be developed.

1.3 Summary of the Study and Structure of the Study Report

The report touches on three important areas related to

- Policy issues
- Institutional issues
- Organizational issues
- Action Plans and Technical Assistance

They are presented in two parts of which part 1 mainly deals with policy issues that include macroeconomic policies and industrial strategies. Existing competitive industries/ products and those with future prospects are selected, factors discouraging competitiveness are identified and appropriate policies and strategies for the development of these industries are recommended. Part 2 of the report mainly deals with institutional and organizational issues. This part mainly focuses on investment promotion. Recommendations related to how legal and other important infrastructure could be improved and how the investment promotional functions of CDC/CIB could be enhanced are provided with a view to developing a more favourable investment climate in Cambodia.

1.3.1 Policy Issues

Policy issues mainly focus on development of macroeconomics policies and industrial strategies related to Cambodian industries with potential including the garment industry, agricultural, fishery and food-processing industries, footwear industry, electric/electronics industry, and machinery industry. Strategy recommendations are focused on the development of these industries because these industries are perceived to be the most promising. Cambodia possesses a higher level of competitiveness in the garment industry while there is a lot of potential for the footwear industry and agricultural, fishery and food-processing industries to grow in the medium term and prospects for machinery industry and electric/ electronics industry in the long term.

These policy issues covered in Part 1 of this paper:

- Chapter 2: “The Outlook of the Macro Economy”
- Chapter 3: “Changes in Trade and Industrial Structure and Identification of Potential Successful Export Sectors and Items”
- Chapter 4: “The Outlook for Industrial Strategy in Cambodia”
- Chapter 5: “The Outlook and Recommendations on Investment Conditions for Attracting Foreign Garment Manufactures to Cambodia”
- Chapter 6: “The Outlook and Recommendations on Investment Conditions for Attracting Foreign Agricultural, Fishery, Food Processing Industries to Cambodia”

- Chapter 7: “The Outlook and Recommendations on Investment Conditions for Attracting Foreign Footwear Industries to Cambodia”
- Chapter 8: “The Outlook and Recommendations on Investment Conditions for Attracting Foreign Electric/ Electronics Industries to Cambodia”
- Chapter 9: “The Outlook and Recommendations on Investment Conditions for Attracting Foreign Machinery Industries to Cambodia”.

Chapter 2 mainly deals with identification of the forces driving Cambodian economic development. Major future positive driving forces include the upward trend of FDI into the garment industry, increased investment from neighboring countries to take advantage of Cambodian strengths, and oil production which is expected to reach its peak in 2015. Other key factors that are expected to have impacts on Cambodia in the future are: wage rise and surge of labor turnover in neighboring countries, the lifting of safeguard measures on garment exports from China in 2009, and the substantial appreciation of the Chinese currency CNY which is expected to follow. ,Result of the quantitative forecast for the Cambodian macro economy predicts sustainable economic growth subject to policy recommendations provided.

Chapter 3 mainly identifies potential major export items with the structural change of industry and trade. Extensive analyses on the dynamics of Cambodian Revealed Competitive Advantages of different export products are conducted in this chapter.

Chapter 4 mainly deals with the overview of industrial strategy with a focus on the manufacturing sector in Cambodia. Here, the term "industrial strategy" is used in the broad sense of policy for the expansion of manufacturing to contribute to Cambodia's economic growth. This word does not mean export promotion with tax incentives. The policy areas for priority study are the following four: (i) acquisition of capital and technology through attraction of FDI, (ii) conditioning of the industrial infrastructure needed to attract FDI, (iii) human resource development (HRD), and (iv) specific measures for promotion of promising industries. In any field, the Cambodian government does not yet have a sufficient store of organizations, personnel, experience, and know-how at the present time, and therefore must take prompt and appropriate action with assistance from other countries. This project selected five manufacturing fields as promising ones for development in Cambodia (i.e., garment, food processing, footwear, and simple assembly electric/electronic components and simple machining). The following sections present detailed examinations of and recommendations for each field as regards policy to attract FDI.

Chapters 5 to 9 deal with selected promising industries with future prospects in Cambodia. Chapter 4 mainly deals with recommendations to attract foreign investment in the Cambodian garment industry whereas Chapter 5 deals with how to attract FDI in the Cambodian agricultural, fishery and food-processing industries and Chapters 6 to 9 deal with footwear, electric/ electronics and machinery industries, respectively.

1.3.2 Institutional Issues

Institutional issues mainly focus on improvement of legal framework and development of industrial infrastructures that include development of electricity infrastructure, telecommunications, roads, aviation, railways, sea port, inland water transports, and water resources. This section focuses on development of these legal and industrial infrastructures with the view to promote investments, mainly FDI.

The institutional issues are covered in Part 2 of the paper as

- Chapter 10: "Analysis of Basis for FDI Promotion in Cambodia"

1.3.3 Organizational Issues

In regards to organizational issues, various measures for organizational development and enhancement of investment promotion capacity for the Council for the Development of Cambodia (CDC) / the Cambodian Investment Board (CIB) will be proposed. Particularly, investment promotion and investment networking with the Japanese market are given special attention. The development of investment promotion capacity of CDC/CIB will greatly contribute to the economic development of Cambodia.

The organizational issues are covered also in Part 2 of the Report, in

- Chapter 11: "Recommendations for Enhancement of Investment Promotion Capacity in CDC/CIB"

1.3.4 Action Plan and Technical Assistance

Chapter 12: "Policy for FDI Attraction in Cambodia – Improvement and Action Plan" summarizes issues in attracting FDI to Cambodia, makes proposals for improvement in each promising industry as well as CDC/CIB, and also proposes favourable technical assistance for CDC/CIB. Required improvements suggested for each sector are categorized according to the following three broad categories.

- Improvements for attracting FDI
- Improvements for industrial development
- Improvements for infrastructural development

Various measures are recommended for the development of each selected industry as follows.

- Regarding the garment industry, no specific development measure is stated due to the fact that Cambodia seems to have enough competitiveness, compared with China and other countries which are said to be strong in such industries, in certain categories of apparel. However, it is still necessary to develop central-bonded warehouse facilities, provide a course on quality control, etc., for further development of this industry.
- In the food-processing industry, it is recommended to establish a sufficient resources supply system including a cold chain even though the industry must rely on foreign parties for capital and technology. Besides FDI attraction, it is also necessary to adopt an effective policy agenda

including organization of agricultural and fishery cooperatives to promote agro industry, empowerment and improvement of food evaluation criteria and the inspection agency, and conditioning of infrastructural elements such as irrigation.

- Regarding the footwear industry, it is recommended to develop a master plan under which efforts should be made to overcome remaining policy issues in order to attract FDI, develop human resources, etc.
- Regarding the electric/ electronics and machinery industry, it is recommended to develop sound infrastructure including well-arranged industrial estates and an efficient international logistics network accompanied by the introduction of an intensive promotional campaign.

Detailed specific measures to be taken and required action plans for each selected industry are summarized in Table 12-1-1 of Chapter 12.

Then proposals for action plans in the area of FDI strategy are made. The proposals include

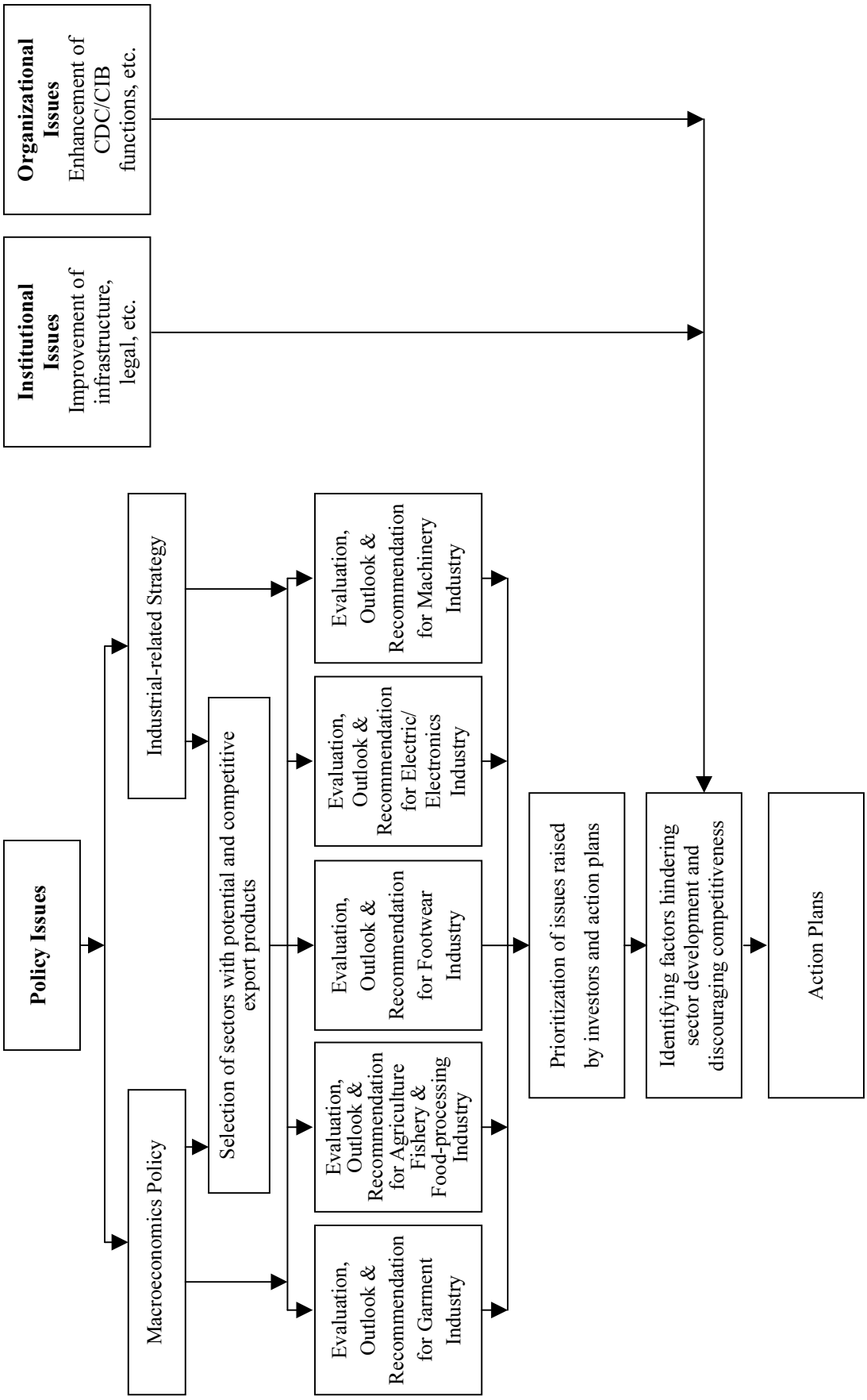
- Action plan for organizational development in CDC/CIB
- Action plans for investment promotion in CDC/CIB that include arranging investment promotion lists, establishing cooperation with trade associations and the chamber of commerce, and holding investment seminars.
- Empowerment and improvement of food evaluation criteria and inspection agencies
- Establishment of low-temperature storage facilities, cold storage and refrigerated warehouses, and cold and refrigerated transport systems
- Action plans for development of the food-processing industry that include reinforcing agricultural and fishery cooperatives to ensure stable supply of materials, and strengthening investment promotion

Chapter 12 further proposes technical assistance scheme for the counterpart of this study, CDC/CIB. It is necessary to implement effective means for the technical assistance scheme, which enhance CDC/CIB to promote foreign investment in Cambodia including five promising industries. Investment promotion capacity development as well as IT development for CDC/CIB will be recommended as part of the technical assistance scheme. In regards to investment promotion capacity development, the implementation schedule is proposed in two phases. The aim of the first phase is to establish a basic organizational structure for investment promotion in CDC/CIB. The aim of the second phase is to enhance marketing capacity in CDC/CIB. In addition, a technical assistance scheme for IT development is also proposed in order to enhance cross-departmental cooperation within CDC/CIB and information sharing between departments within the organization.

1.3.5 Flowchart of the Structure of the Study Contents

The pictorial structure of the report can be depicted as follows.

Figure 1-3-1 Flow-chart on the Structure of the Study Contents



Part 1

Analysis of Macro Economy and Attracting FDI in Major Industries in Cambodia

Chapter 2
The Outlook for the Cambodian Macro Economy

2.1 The Outlook for the Cambodian Macro Economy

2.1.1 Significance of Presenting a Vision for a Macro Economy

Our development study of Cambodia economic-policy assistance will in practice formulate measures and policies to develop the environment for promoting foreign direct investments (FDIs) in Cambodia mainly from Japan. In addition, the investment climate in Cambodia is expected to improve along with the implementation of these measures and policies. Hence, the first step is to evaluate the Cambodian investment climate. It is therefore necessary to analyze basic macroeconomic data for formulating measures and policies for industrial development in Cambodia.

Based on the past transition of key indicators and the factors which are likely to influence the Cambodian economy, the trend of indicators until 2020 will be quantitatively estimated in this chapter. Through the prediction of the indicators, the Cambodian economy will be viewed in broad perspective. In this regard, medium and long term structural changes of the international economic environment surrounding Cambodia and within Cambodia itself will be particularly examined. The accompanying influence on the Cambodian economy will also be taken into consideration.

To be more precise, economic prospects will be predicted in consideration of the condition of Cambodia's resource endowment, trend of foreign direct investment, change of industrial structure, trade structure (including international market trends of various products), and competitiveness compared with neighboring countries such as China and those in Southeast Asia .

Observations regarding the future trend of Cambodian economy will be extracted from the outlook for the macro economy. Such observations will then be utilized as background information to identify and evaluate potential products that can become key export items from Cambodia in the future. The observations will also be utilized to formulate measures and policies for industrial development in various sectors.

2.1.2 Various Factors Affecting Cambodian Economic Growth

Cambodia's macro economy has significantly benefited from the political stability of recent years, and also from success in political and administrative reforms based on the adoption of the Rectangular Strategy. The strategy aims at attaining good governance by focusing on four key reform areas (fighting corruption; legal and judicial reform; public administration reform; and armed forces reform and demobilisation).

The Cambodian economy has stably developed recently as a result of stabilization of currency, reduction of the inflation rate, and enhancement of the export industry led by foreign investments. In

the most recent years (2005 and 2006), foreign direct investment centering on the garment industry has also increased. This tendency of stable development is expected to continue for a period of time, and according to "NSDP: National Strategic Development Plan"[1] published by the Cambodian government at the end of 2005, real economic growth in the 6% range is expected to continue until 2010.

Meanwhile, both in trade balance and current account balance, Cambodia has been having a deficit over 10% of Gross Domestic Product (GDP). In the future, it will be an important part of the agenda to improve the trade balance through further promotion of the export industry. In addition, about 80% of Cambodian exports have been garment products in recent years; they have become the country's flagship export products. Along with expectations for the increasing export of garment products, the rise in the number of tourists and increasing expenditure per visitor are important factors for improving the commodity and service trade balance of Cambodia.

The table shown below, which has been provided by the Ministry of Economy and Finance (as of December 2006), indicates the future values for transition of macro indicators until 2010. Economic growth in the 7-6% range in real terms is expected until 2010. The Cambodian economy may even grow more than what the government has expected if export industries such as the recent booming garment industry keep growing in the future and oil development business gets on a steady track. When such export-led development is realized, the deficit of the current account balance is likely to diminish.

Table 2-1-1 Continuous and Stable Growth of the Cambodian Economy

	2003	2004	2005	2006	2007	2008	2009	2010
GDP (KHR 2000 billion constant prices)	17,493	19,234	21,812	23,382	24,919	26,479	28,128	29,903
GDP (Million US$ current prices)	4,591	5,265	6,195	6,441	7,006	7,609	8,258	8,969
GDP per capita (US$)	345	389	448	457	488	520	554	590
Real GDP (% increase)	8.6%	10.0%	13.4%	7.2%	6.6%	6.3%	6.2%	6.3%
Inflation in KHR (% increase, year average)	1.2%	3.9%	5.8%	3.8%	3.0%	3.0%	3.0%	3.0%
KHR/US$ parity (end of period)	4,000	4,038	4,160	4,115	4,135	4,155	4,175	4,195
Exports of goods (% GDP)	44.1%	47.0%	47.0%	49.6%	48.8%	47.8%	46.9%	46.2%
Imports of goods (% GDP)	55.8%	60.6%	63.4%	70.0%	71.1%	70.0%	69.2%	67.5%
Trade balance (% GDP)	-11.6%	-13.6%	-16.4%	-20.4%	-22.4%	-22.2%	-22.3%	-21.3%
Current account balance (% GDP)	-9.8%	-9.3%	-9.6%	-10.9%	-11.8%	-10.4%	-9.8%	-8.4%

Note: Values indicated after 2006 are predicted values
Source: Data from Ministry of Economy and Finance (as of December 2006)

Under the above mentioned future perspectives, the major factors that may have great impact on

[1] Royal Government of Cambodia, National Strategic Development Plan 2006-2010, December 2005

Cambodian economy until 2020 can be regarded as: trend of foreign direct investment, parameters of export competition among neighboring countries, and influence of oil development. These should be pointed out as the three key factors.

(1) Upward Trend of Foreign Direct Investment Centering on the Garment Industry

Cambodia has recently been accepting foreign direct investment with a focus on garment industry. According to statistics by Cambodian Ministry of Economy and Finance, for example, Cambodia has accepted foreign direct investment of US$ 223 million on an actual performance basis in 1998, which is nearly equivalent to 7.2% of GDP. In this manner, foreign direct investment is a vitally important parameter for the development of Cambodian economy.

Foreign direct investment in Cambodia had decreased since then, and dropped to 1.7% of GDP in 2003. However, as described later in "Investment Conditions for Attracting Garment Manufactures"[2] by the Japan International Cooperation Agency (JICA) study team, foreign direct investment in the garment industry after 2005 has recovered dramatically and the ongoing increase in such investment can be expected in the foreseeable future. Moreover, the investment in the service industry centering on tourism sector facilities and construction-materials factories has been active, and this may even lead the foreign direct investment to exceed government expectations.

As a result of the positive influx of foreign direct investment, it is expected that the value of production mainly in the Cambodian export industry will expand to a large extent. It is anticipated, based on such expectation, that actual GDP of Cambodia for 2005 will exceed the government's provisional figure. What's more, the increase in total production associated with the foreign direct investment is not temporary but ongoing.

Table 2-1-2 Investment Amount in Cambodia

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total Investment	**879.4**	**691.0**	**718.9**	**776.2**	**751.1**	**849.5**	**961.0**	**891.0**	**977.1**	**1,324.8**
Public Investment	**200.6**	**150.9**	**165.2**	**190.8**	**213.6**	**280.7**	**354.4**	**299.0**	**304.9**	**324.5**
Domestic financed	(33.4)	2.7	30.2	57.5	49.3	58.3	40.9	48.9	62.9	47.8
Foreign financed	234.0	148.2	135.0	133.4	164.2	222.4	313.2	250.0	242.0	276.7
Private Investment	**678.8**	**540.1**	**553.7**	**585.4**	**537.6**	**568.8**	**606.9**	**592.0**	**672.2**	**1,000.3**
Domestic financed	385.1	372.0	330.7	364.4	395.6	426.8	467.9	518.0	551.2	619.3
Foreign financed	293.7	168.1	223.0	221.0	142.0	142.0	139.0	74.0	121.0	381.0
Total Domestic Financed	**351.7**	**374.7**	**360.9**	**421.8**	**444.9**	**485.1**	**508.8**	**566.9**	**614.1**	**667.1**
Total Foreign Financed	**527.7**	**316.3**	**358.0**	**354.4**	**306.2**	**364.4**	**452.2**	**324.0**	**363.0**	**657.7**

Note: Unit: US$ 1 million
Source: Data from Ministry of Economy and Finance (as of December 2006)

[2] Chapter 5 - The Outlook and Recommendations for Investment Conditions for Attracting Foreign Garment Manufacturers to Cambodia.

(2) Possibility of Export Competition from Neighbouring Countries Such as China and Vietnam

While Cambodia is a member of ASEAN and has joined the WTO, it is assumed that economies of Cambodia and surrounding countries will become more open to global competition and therefore economic relationships among countries will intensify, as Vietnam has just become a member of WTO, and conclusion of FTA among nations is being promoted (especially, the ASEAN-China FTA). The impact of these movements on the Cambodian economy is as follows: emigration of workers, increase in trade, and investment influx from neighboring countries such as Thailand and Vietnam where various industrial activities are booming.

According to the results of interviews with economists, policymakers, and researchers in Thailand and Vietnam, gradual, phased, investment inflow is expected as a result of investment from neighbouring countries. On the possibility of shifting production bases from Thailand, the interviewees mention that the bases such as production and process of agricultural/fishery products, garments, and footwear may be realistic scenarios, but, on the other hand, relocation of the production bases that are part of global supply-chains such as electronic products and transport-machinery parts is not realistic in the short term.

Meanwhile, in the relationship between Cambodia and surrounding countries, there is a parameter of "competition," in which the most prominent is the competition with other countries for garment exports which also account for 80% of the total exports that are equivalent to about 70% of GDP of Cambodia. In addition to the price competitiveness and currency exchange of each country, whether Cambodia receives more preferential treatment at export destinations than other countries and whether there is some sort of restriction on those countries has an impact on the competitiveness of the Cambodian garment industry. Therefore, it is conceivable that the Cambodian economy will be affected as well. As a result, it becomes necessary to take those factors into consideration when examining the Cambodian economy.

The following seven points are factors that may affect the competitiveness of the Cambodian garment industry. The details of these factors will be described in a section on the garment industry. One example is that the abolition of MFA in 2005 is assumed to be a neutral parameter which may work against the Cambodian garment industry in theory,[3] while the application of safeguard measures on garment exports from China is regarded as a favourable factor.

[3] Refer to Chapter 5 "The Outlook and Recommendations for Investment Conditions for Attracting Foreign Garment Manufactures to Cambodia". According to the detailed analysis, the influence of the abolition of MFA in fact turned out to be negligible.

Table 2-1-3 Key Factors Influencing Competitiveness of the Cambodian Garment Industry

- Abolition of MFA in January 2005;
- Imposition of safeguard measures by US and EU on garment exports from China in June 2005;
- Rise in wages, surge in labor turnover, difficulty in finding suitable personnel in the garment sector, competition from Vietnam and Thailand that has become outstanding since 2006, and appreciation of the Chinese currency;
- Abolition of quotas to Vietnam in January 2007 along with Vietnam's joining in WTO
- Lifting of safeguard measures on garment exports from China after January 2009
- Revaluation of Chinese currency (CNY) which is assumed to be accelerated after January 2009
- Alleviation of antidumping measures imposed on China in the garment sector in January 2016

Note: Refer to "The Outlook and Recommendations for Investment Conditions for Attracting Foreign Garment Manufacturers to Cambodia" in Chapter 5 of this report for details.

(3) Impact of Oil Production that may dramatically Change the Cambodian Economy

Cambodia has a diversity of mineral resources which are yet to be developed. Fuel resources (oil, gas) as well as metals (copper, bauxite, iron ore, manganese, etc.) are seen to be commercially viable for development, and thus there is a possibility that such development will further encourage the economic development of the country, if it were to be in large scale. Within such possibilities, development of offshore oil/gas fields is now seen to be one of the major factors that may affect the macro economy of the country.

It was in the 1970s that resource exploration of oil and natural gas started in earnest in the upcountry and offshore of Cambodia. Though a number of exploratory drillings have been conducted since then, oil and natural gas fields which are economically viable have not been found so far. It was around 1999 that full-scale petroleum exploration off the coast of Siam bay began. In development Block A, where a Production Sharing Contract (PSC) was concluded in 2002, enough reserves for inaugurating operations were discovered for the first time and the early start of operations has been eagerly anticipated.

Based on press reports in July 2006, it is reported that oil and natural gas resources in Cambodia became oil of two billion barrels and natural gas of 280 billion cubic meters, and it is also said that US$ 2 billion of annual net income of the government will be expected in the event of full-scale production.[4] However, according to Cambodia National Petroleum Authority, the official announcement shows oil/gas condensate of 96 million barrels and natural gas of 74 million cubic meters. The government is on the prudent side saying that it will take more time to start production and also the reported scale of oil and natural gas fields has not been confirmed. Based on the official data, production will start in 2012 at the earliest and the peak will come in 2015, then gradually decline. The amount of production will be 13,000 barrels a day. Regarding income and expenditure

[4] The Cambodian Daily 5 July 2006, Cambodia Sin Chew Daily 24 July 2006, etc.

accounts, in the case of production at sea, capital investment will be US$ 1.71 billion, sales will be US$ 14.34 billion (natural gas: 0.005 US$/cubic feet, oil and gas condensate: 40 US$/barrel), and gross profit will become US$ 12.65 billion. If 50% is presumed to be government revenue, the government will be able to get net income of total US$ 7 billion through the life cycle. This is a risk-free value which is about one third of the value reported in the press.

As the entire picture of oil production off the coast of Cambodia has not been grasped, there are various views on when, how much, and how the economic effect will be actualized. Although oil development may dramatically change the Cambodian economy, the degree of influence will heavily depend on how the development will expand. However, the influence of oil development in this study is merely one factor for assuming a base line, the officially announced data (the most conservative estimation among various views) by the Cambodia National Petroleum Authority will be taken into consideration when examining the Cambodian macro economy in this analysis.

Table 2-1-4 Scenario for Oil Production Off the Coast of Cambodia (Block A)

Key factors	Settings
Reserve:	
Oil and gas condensate	96 million barrels
Natural gas	74 million cubic meters
Time of development:	
Start of production	in 2012
Production peak	in 2015
Production Sharing Contract:	50 % of sales revenue goes to the Cambodian government
Development cost:	US$ 17.009 billion
Foreign direct investment:	US$ 2.05 billion

Source: Data from Cambodia National Petroleum Authority (CNPA)

2.1.3 Foreign Direct Investment/Export-Led Development Scenario

When examining the Cambodian economy in the medium and long term, if the above mentioned various factors are taken into consideration in line with the National Strategic Development Plan (NSDP), it will be fundamental to consider events such as further advancement of the tourism industry and securing government revenue by oil development to be a base line. In addition, it can be assumed that a trend such as increase in capital stock and the number of employees through foreign direct investment arising from improvement in the investment environment, and a trend such as progress of basic working skills along with betterment of elementary and secondary educational level, will result in the advancement of production capacity/productivity and promote further development. Regarding manufacturing industries, it is also conceivable to presume limited industrial structural change, which is associated with the previously mentioned trends, to mean a gradual expansion of the service industry and labor-intensive manufacturing industries, under the circumstance that the accumulation of high-value-added industries which are significantly different from the current garment industry in terms of labor productivity are not expected.

Meanwhile, in addition to the increase in capital stock and the number of employees, and progress in working skills, as to the relationship with neighboring countries, it is necessary to examine the future outlook while taking into consideration the influence of competitive relations for export on macro economy. In this analysis, a simple macro econometric model, which considers such influencing factors, will be developed and the economic activities of Cambodia in 2010 and in 2020, especially the scale of production and export, will be predicted.

2.2 Quantitative Estimation of a Cambodian Macro Economy

2.2.1 Condition of Model Building

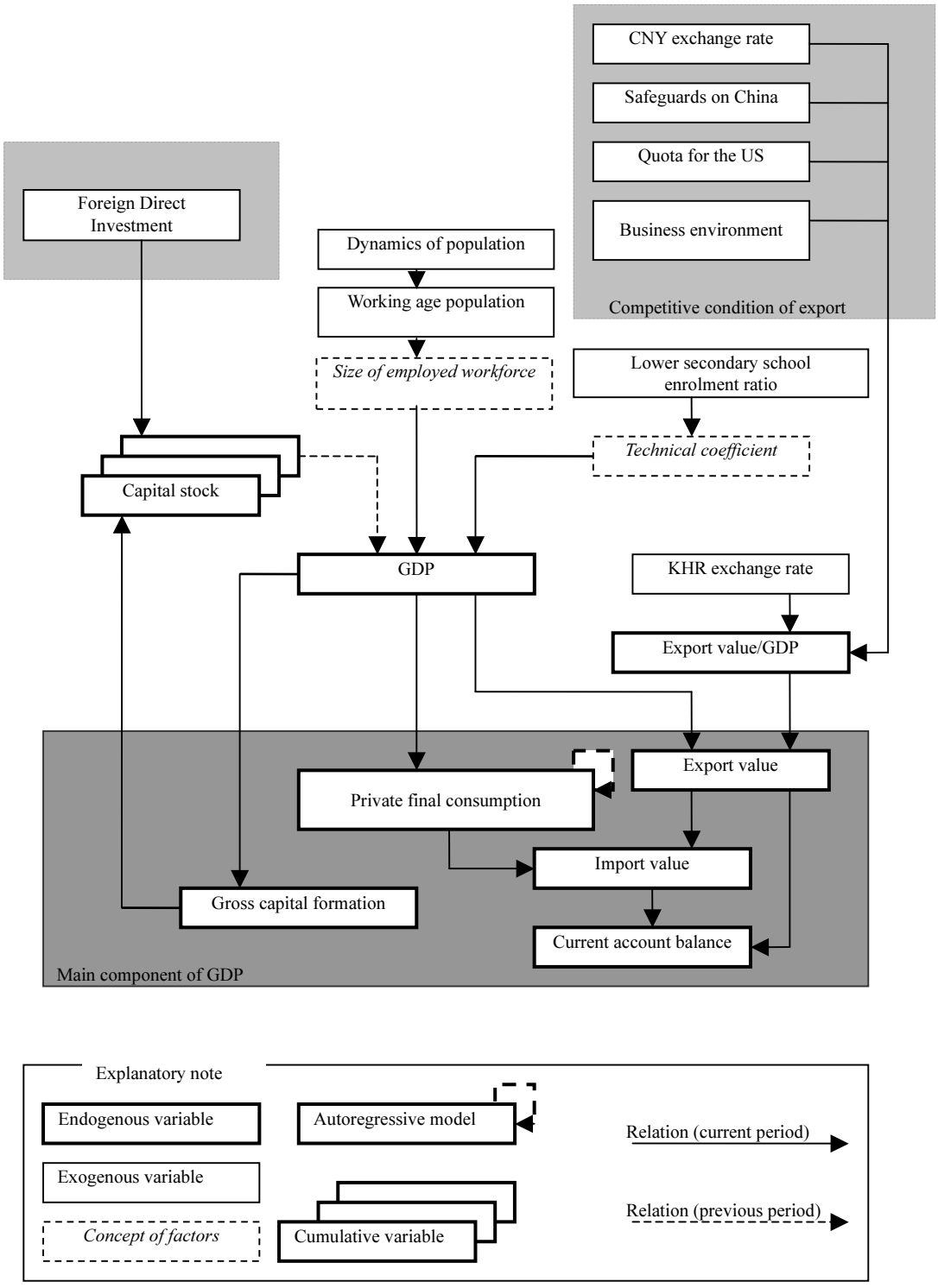
A simple macro econometric model which will be developed in this report can predict the Gross Domestic Product (GDP) each year until 2020, the private final consumption expenditure, gross capital formation, and the scale of export and import (of goods and service). It also takes into account the influence of foreign direct investment on GDP, and the impact of exporting competitive factors such as international competition on export value and production capacity of Cambodia. Meanwhile, population, foreign direct investment, and skill of workers will be set as exogenous variables.

Regarding the influence of oil development on the macro economy, it is significantly subject to whether crude oil is exported directly from the sea or whether it is refined at a domestic oil refinery, the chemical industry is built up, and then the petroleum products are distributed. If it is refined and consumed in the country, an analysis utilizing an input-output table will be essential. However, in this analysis, only direct impact of oil development on the balance of trade by export and also the direct impact of foreign direct investment along with infusion of the development cost are taken into consideration, under the assumption that entire amount of oil is exported directly from the platform.

2.2.2 Equations Composing the Model

The core of the model is the basic fundamental form of a growth model in which production is defined as a function of labor and capital. In other words, Y=F (L, K). To be more precise, the neoclassical growth model such as $Y=A \cdot L^{\alpha} \cdot K^{(1-\alpha)}$ (Note: Y= production, L= labor, K= capital, A= productivity coefficient) is adopted as an original form of a production function. The productivity coefficient “A” is not considered to be constant but an exogenous variable, growing as time advances (as educational level improves in concrete terms). It is also considered to be a variable which explains production based on the idea that the progress of working skills results in the improvement of labor productivity.

Figure 2-2-1 Diagram of Cambodian Macro Economic Model



Source: JICA Study Team

As a result, the structure of the model became as in the above diagram. About the influx of foreign direct investment as a main parameter of the Cambodia macro economy and the possibility of export competition with other countries, each parameter is considered to be an exogenous variable. The equation composing the model consists of a total of nine equations as cited in the following table.[5] Out of these nine equations, the five marked by an asterisk (*) are linear regression formulas and the rest are structural formulas.

Table 2-2-1 Constitutive Equations of Cambodian Macro-Model

(1) GDP= F (number of employees, parameter of productivity level, capital stock [-1]) *
(2) Export/GDP= F (CNY exchange rate, most-favored-nation treatment, trade environment such as competing country safeguard, KHR exchange rate) *
(3) Export value= export／GDP×GDP
(4) Private final consumption expenditure= F (GDP, private final consumption expenditure [-1]) *
(5) Import value= F (export value, private final consumption expenditure) *
(6) Trade balance= export value-import value
(7) Gross capital formation= F (GDP) *
(8) Capital stock= gross capital formation + foreign direct investment + capital stock [-1]
(9) Number of employees= F (working age population= F <population>)

Note: Coefficient and error term of each item are omitted
Source: JICA Study Team

2.2.3 Characteristics of the Model Structure

(1) Composition of GDP

If GDP is viewed from expenditure, it consists of principally four factors, namely, private final consumption expenditure, gross capital formation, trade balance of goods and service, and government final consumption expenditure.

The function for private final consumption takes the form of a stochastic, autoregressive model. This is because the share of private final consumption expenditure in GDP which is estimated through production function has been gradually decreasing along with the maturation of economy. On the other hand, regarding the estimation of export value, it is calculated by figuring out the percentage of export value in GDP as a dependent variable and multiplying its percentage by GDP in order to reflect the characteristics of Cambodian macro economy in which the percentage of exporting goods/service in GDP is large and also growing.

What's more, the percentage of gross capital formation in GDP has gradually been increasing as the economy maturates. This phenomenon is replicated by simple linear regression analysis in this model.

Although government final consumption expenditure underwent a transition of around 10% of GDP in past statistics, it has not been adopted as a variable in this model, because it often appears smaller

[5] Estimated results of the formulae are shown in appendix 1 A.1.1

than the statistical discrepancy if it is viewed from the side of GDP expenditure statistics.
Variables used as an explanatory variable when estimating GDP are explained below.

(i) Number of employed workforce:

The number of employees is adopted as a variable indicating labor force which is one of the key factors for production, and utilizes population by age until 2020 estimated by using cohort analysis by United Nations Fund for Population Activities (UNFPA) as original data. In this report, working age population (age 15-64) is adopted as employment population. Therefore, the number of employees is an exogenous variable and factors such as population shift along with the change of economic level are not reflected in this model.

According to the stochastic model of UNFPA, in regard to dynamics of population, it is expected that the overall population will increase by close to 2% and become 15.3 million people by 2010 and 18.8 million people by 2020. As a result of growth of population under the stable conditions of a country, the imbalance of the sex ratio is expected to be solved and become 1.04:1 by 2020.

The proportion of working age population which accounts for the total population was 52% in 1998 and is 60% currently. It will reach 63% in 2014 and then slightly decrease as the population ages. Regarding coefficient of immigration, it is conceivable that in fact the population will increase more than what is expected in line with migrant workers' returning home, because the movement toward steps to crackdown on illegal residents in Thailand is not counted in the report by UNFPA.

(ii) Capital stock:

Capital stock is a variable adopted as capital which is another parameter for productive activity. However, it is set up as a variable that appoints default value arbitrarily and accumulates capital every year, because statistics of capital stock are not included in the national accounts of Cambodia. The default value is set as 10 trillion KHR, which is a figure under the condition that capital coefficient improves with economic development.

What is accumulated each year as capital stock is gross capital formation, which is calculated from GDP of that year, and foreign investment. In addition, it has become possible to describe the influence of the structure of accumulated investment on production, by adopting fluctuation of assets as an endogenous variable. (This investment is subtracted from national economic accounting as a capital transaction and from GDP as a flow, and, therefore, is not included in gross capital formation but is recorded as an account for accessing capital.)

(iii) Productivity coefficient:

Manufacturing industries which are expected to develop in Cambodia from now are assumed to account for a large part of work involving menial labor. According to the past interview survey, worker skill, in addition to qualification of management, is counted as a main factor that predicts success/failure of manufacturing industries in Cambodia.

Although productivity coefficient normally needs to reflect skill level and labor productivity of workers who are engaged in production, lower secondary school enrolment ratio is adopted as productivity coefficient in this analysis because there are no other existing appropriate statistics which can be utilized. Many of the industrial factory workers in Cambodia are lower secondary graduates, and therefore lower secondary school is considered to be appropriate as a prospective academic level for this analysis purpose. Lower secondary school enrolment ratio has been used as an exogenous variable, but prospective value has been set by referring to Education Strategic Plan[6] and the result of interviews with the Ministry of Education, Youth, and Sport[7].

(2) Export, Import, and Balance

The percentage of export value of goods and service in GDP takes competition with neighboring countries upon export into consideration. To be more precise, exchange of home currency KHR and international settlement currency US$ is adopted as a main parameter. Exchange rate of Chinese currency CNY to US$ is also adopted as a parameter which has influence on exporting capability of China, regarded as one of Cambodia's main competitors. In addition, whether there is an export quota in the US or not is adopted as a variable (dummy variable) of the export environment, and whether there are market safeguards against China is adopted as an explanatory variable.

Regarding imports, it is explained by export value and private final consumption expenditure, reflecting the fact that textiles, which are intermediate goods of garment products, Cambodia's major export items, totally depend on imports and also reflect that the percentage of import products in consumer items within Cambodia seems to be high.

Although difference of export and import of goods and service indicates balance, due to the structure of import value's strong reliance on export value and private final consumption expenditure, it appears to be difficult to dramatically ameliorate the balance if economic development and export expansion happen. Therefore, in order to reflect the future betterment of trade structure, adjustment

[6] Ministry of Education, Youth, and Sport, Education Strategic Plan 2006-2010, December 2005 (ESP)

[7] Lower secondary school enrolment ratio in Cambodia is only 20% currently. The MDG progress report and NSDP which is based on that report have advocated making the ratio 75% by 2010. However, in ESP announced by Ministry of Education, Youth, and Sports at the end of 2005, the goal of 2010 has been changed to a lower level of 50%. What's more, in the interview with Ministry of Education, Youth, and Sport, it has been reported that the goal of ESP seems to be difficult to accomplish in reality because of financial constraints.

of constant value has been implemented for prospective value based on the government forecast. Key variables used for explaining calculation of the percentage of export value that accounts for GDP will be described below.

(i) KHR/US$ exchange rate:

Since 1998, the transition of Cambodian currency KHR has been relatively stable and has recently stayed at an annual decrease of 0.5-1.0%. In NSDP of the Cambodian government, it is assumed that KHR will undergo a stable transition of about 0.5% depreciation annually. Since this assumption may be regarded as reasonable, KHR is adopted as an exogenous variable for a transition of the same level.

In Cambodia, it needs to be noticed that the macro economy according to the exchange rate of the home currency, the KHR, is considered almost exclusive compared with other countries, as most of the business transactions in Cambodian society, including domestic payment, are done in US$.

(ii) CNY/US$ exchange rate:

Assuming that the main competitor of Cambodian exports is China, the exchange rate of that country is adopted as a parameter that reflects a competitive variable. In other words, as the exchange rate of Chinese currency CNY increases, it has a favourable effect on Cambodian exports. The rate of CNY to US$ had decreased until 1997, but had been a fixed exchange rate until 2004. Since then, it has increased at a slow pace and in 2005 it rose about 1% from the previous year. In these days, as international pressures on revaluation of CNY has been heightened, the rate of CNY to US$ is assumed to have risen 5% in 2006, to rise 10% after that, and rise with a pace of 5% again after 2015.

(iii) Other competitive factors

In addition to the exchange rate, safeguard measures against exports from China by the US and EU (2005 to 2008), import quotas by US (1999 to 2004) and enforcement of the new investment law in Cambodia (1993) are adapted as positive dummy variables.

(3) Private Final Consumption Expenditure and Gross Capital Formation

Private final consumption expenditure and gross capital formation are derived from gross domestic product. The ratio of private final consumption to gross domestic product, which reached 99% in 1996, decreased to 76% in 2005. This phenomenon is linked to an increase in the ratio of gross capital formation. As for private final consumption expenditure, auto-regression estimation is conducted to represent the phenomenon. Its results show that the ratio of private final consumption expenditure will be reduced to around 50% in 2020.

The ratio of gross capital formation, which was 8% of gross domestic product in 1996, has increased drastically to 27% by 2005. Based on the assumption that inflow of foreign direct investment and

development of social and industrial infrastructure will lead to an increase in the rate of gross capital formation, and the savings rate is expected to rise, the rate also increases gradually over time in the model.

(4) Investment

In the National Strategic Development Plan (NSDP), the Cambodian Government set a target for the amount of investment. The target amount totals US$ 4 billion (of which US$ 1.3 billion is foreign direct investment and US$ 2.7 billion is domestic investment). The targeted sectors are manufacturing such as the garment industry and footwear industry, services (tourism), processing of agricultural goods, and manufacturing of construction materials. In 2010, private investment is expected to rise to US$ 71.48 million (KHR 2,758.1 billion). After 2010, the targeted trend of the investment between 2005 and 2010 (3 to 5% annual increase) is expected to continue.

In the estimation, due to oil resource development, foreign direct investment will reach its peak in 2010 when an additional US$ 61.524 million will flow in. Foreign direct investment is employed as an exogenous variable for the following reasons: the government target and the effect of oil resource development can be reflected, and the effect on economic growth of the change in investment can be grasped.

2.2.4 Prediction Results

(1) Exogenous Variables

The future values of the exogenous variables, which are set as assumptions, are shown below.[8] Foreign direct investment will increase steadily in line with the government target line until 2010. The investment figure for 2010 includes a considerable amount of oil development investment and, therefore, with the peaking out of oil development investment activities, the total investment shows a decrease until 2015. The population, in line with UNFPA prediction, is assumed to increase to 15 million in 2010 and to 18 million in 2020.

Table 2-2-2 Exogenous Variables and Variables Directly Calculated from Exogenous Variables

Year	Foreign direct investment (KHR bil)	Employment (1,000)	Population (1,000)	CNY/US$	KHR/US$
2005	1,895	8,086	13,807	8.19	4,118
2010	5,132 [9]	9,468	15,269	5.11	4,253
2015	3,260	10,588	16,936	3.02	4,353
2020	4,160	11,636	18,724	2.33	4,453

Note: Monetary values are at 2000 constant prices
Source: JICA Study Team

[8] Annual estimation result is shown in Appendix 1 A.1.2. Calculations are based on macroeconomic data obtained from Ministry of Economy and Finance, as of July 2006.

[9] Of which 2,374.1 billion dollars are invested for oil development business

(2) Endogenous Variables

The estimated value of the main index, based on calculation through a macro economic model, is shown below.[10] Until 2010, growth of each variable is broadly in accordance with the government's NSDP projection. However, in the model where accumulation of investment affects capital stock, the sensitivity to foreign direct investment is high. In addition, the goods and services balance and private final consumption expenditure are relatively low.

Among the main index, gross domestic product and goods/services export and import are as explained in detail with the tables.

Table 2-2-3 Predicted Values of Exogenous Variables

Year	GDP (KHR bil)	Growth rate (%)	Private final consumption expenditure (KHR bil)	Gross capital formation (KHR bil)	Goods/ services export (KHR bil)	Goods/service s import (KHR bil)	GDP per head (1,000 KHR)
2005	19,294	7%	14,684	5,229	13,952	15,591	1,397
2010	28,264	8%	18,562	8,330	23,112	22,084	1,851
2015	43,464	7%	25,751	14,232	35,522	32,164	2,566
2020	59,434	7%	33,476	20,432	48,904	45,166	3,174

Note: monetary values are at 2000 constant prices
Source: JICA Study Team

(i) Gross domestic product

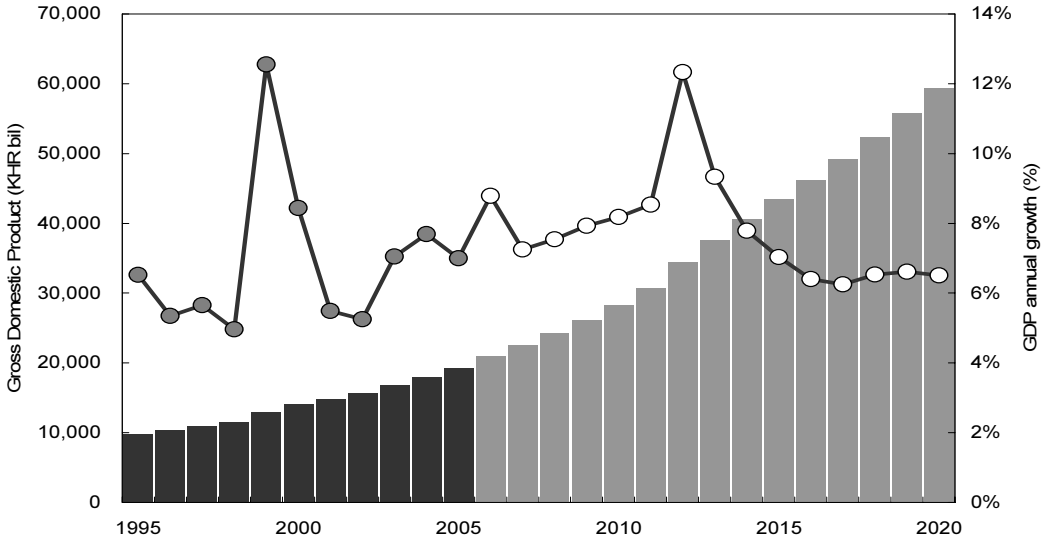
In the past ten years, while the ratio of agriculture, forestry and fisheries production decreased, that of manufacturing increased. The ratio of services, mining and other manufacturing production remained fairly constant over time.

With the recent active foreign direct investment, 7 to 9% of growth is expected until 2010. From 2010, economic growth will stabilize to 6 to 7%. In 2012, when oil production begins, the growth rate of gross domestic product will jump to 12%. Thereafter, stable growth of more than 6% will be achieved.

As the consequence of such high percentage of economic growth GDP will surpass the double of current level before 2015, and will approach triple of the present soon after 2020. This prediction of the Cambodian economic growth, although it may seems extraordinary rapid, is consistent with the relatively rapid growth of Cambodian population as well as the continuing high growth estimation in neighboring countries such as Vietnam and Thailand. Cambodia will have to pursue rapid growth so as to fill the economic disparity between its neighboring countries, but such will not be the case if it were not for the growth rate in this prediction.

[10] Annual estimation is shown in Appendix 1 A.1.2

Figure 2-2-2 Gross Domestic Product and GDP Growth

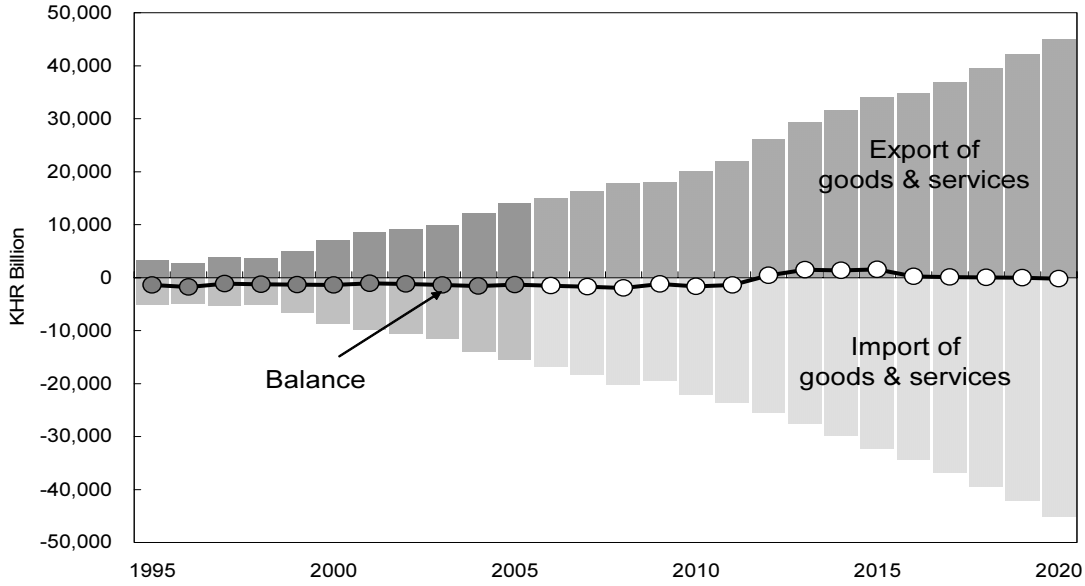


Source: JICA Study Team

(ii) Export and import of goods & services

In the past, Cambodia has had a deficit in goods and services trade. However, with rapid growth of garment production, trade surplus in tourism and oil production after 2012, Cambodia will show a trade surplus temporarily. The garment sector is expected to grow over 30% in the short term and contribute to an upturn in the trade balance. In addition, foreign direct investment from Thailand and Malaysia has continuously flowed to the services and tourism sectors, and the number of tourists is expected to increase. The balance in the service industry is expected to contribute to an upturn in the goods and services balance.

Figure 2-2-3 Export and Import of Goods & Services and Balance



Source: JICA Study Team

2.2.5 Conclusion: Export-Driven Economic Growth Backed by Increase in Foreign Direct Investment

Calculation with the simple macroeconomic model enabled to justify and support Cambodian government's economic projection to 2010, and also to present further prediction up to 2020. It indicates that the Cambodian economy heavily depends on foreign direct investment, thus implying that attracting FDI is the key factor to achieve sustainable growth.

In the model, an indicator on skill and productivity of Cambodian labor force was employed. The indicator proved effective in the model, reflecting the fact that the rapidly growing sectors which are manufacturing and services both depend heavily on skill level of the labor force in current Cambodian economy.[11]

Furthermore, it can be said that acceleration of gross capital formation and improvement in the trade balance, as well as private final consumption, are necessary. While gross capital formation will increase with growth in foreign direct investment, it can be concluded that to attract export-oriented industries is a valuable policy option to improve the trade balance.

It can also be said that the CNY/US$ exchange rate is one of the important factors for Cambodian export competitiveness. It is necessary to pay close attention to the future prospects of CNY revaluation.

[11] Indicator for labor skill has been surrogated by lower secondary school enrolment ratio. The argument is therefore based on an assumption that improvement of enrolment ratio will directly push up the sill level of workers.

2.3 Economic Policies and Measures to attain Sustainable Economic Growth

The Cambodian economy is likely to attain sustainable growth under the conditions that the inflow of FDI retains its momentum, inflation stays under control and its currency remains stable.[12] To ensure such assumptions the Cambodian Government will be obliged to adhere to some basic economic policy principles. The principles which will enable the Cambodian economy to maintain its impetus for sustainable growth can be summarized as follows:

(1) Continuous effort to liberalize its market

The Cambodian economy, from the viewpoint of its market size, is somewhat limited and is unlikely to attract inland market-oriented, large-scale foreign direct investment. But rather than as a market, the advantage of the Cambodian economy is in its potential to become a globally integrated strategic point for business activities, principally manufacturing. It is therefore essential that the economy is well situated to allow active borderless flow of capital, goods and services to take place. Hence the Cambodian market, as well as being able to provide various incentives to attract businesses, must be a globally open and liberal market. The government has already been making efforts to establish an open and liberalized market. The policy needs to be further strengthened so as to make the country's market globally open and competitive. It is in such liberalness and openness that Cambodia's economy can practically be integrated into global business activities.

(2) Prudent fiscal policy

Current account balance of Cambodia, inclusive of Official Development Assistance (ODA), is in deficit. Further, saving is not sufficient to sustain investment. Although the tendency is common with other developing countries, the Cambodian economy is none the less pressured by its financial deficit, resulting in such macroeconomic performance. Thanks to coordination by international organizations and the donor countries, Cambodia's financial resources are effectively distributed among social and economic sectors.[13] Continuous prudence in fiscal policy is essential for the country's further sustainable economic growth. This is especially true because lack of such prudence will inevitably lead to losing control over inflation or currency rate. Instability of the macro economy will not only affect the sustainable growth but also will result in losing the confidence of businesses. Prudent fiscal policy is the fundamental factor for sustainable growth of the economy.

(3) Diversification of economic structure

Despite the Cambodian Government's effort to ingeniously steer the country's economy, the country

[12] Current Cambodian economy is a dollarized economy where most of the savings and business transactions are performed in US$, thus its monetary policy being little effective. However, its own currency KHR can be strengthened and promoted so as to make monetary policy become more effective as the economy performs stable and sustainable growth.

[13] c.f. The World Bank, Cambodia at the Crossroads - Strengthening Accountability to Reduce Poverty (Nov 2004). The World Bank also initiated a 14 million USD project in June 2006 called the "Public Financial Management and Accountability Project", which is seen as a key component of the Bank's approach to helping improve governance.

will nevertheless be affected by the global economic climate. Anticipated climate changes are not only inflation or currency fluctuation but also the effects of such unforeseen turmoil as global terrorism, which can definitely discourage investment and business activities worldwide. Risks such as downturn in the market environment will affect a country's economy, no matter how large or small the country is. It is small and brittle economies such as that of Cambodia which are most vulnerable to the negative impact of regional and global incidents. For the Cambodian economy to assure sustainable growth it must be able to endure environmental change outside the country. In other words, the Cambodian economy is required to diversify its structure from present heavy dependence on garment exports to a more multifarious featured economy, including promotion of tourism and services, realization of mass agro-processing industries, etc. Diversifying income-generating activities is a medium-long term issue to be tackled to attain country's sustainable economic development.

2.4 Recommendation for the Cambodian Government

Through the analysis we could confirm that the government's policy stressing the need for attracting foreign direct investment is rightly addressing the needs of the country's economy. From the outcome of the model analysis foreign direct investment is found to be playing a crucial role in the steady growth of the macro economy.

Such analysis could be carried out only with the support of government institutions by providing the team with enough data and background explanations. It should be noted that not all the economic and social data could be obtained from the National Institute of Statistics. It is therefore recommended that all the updated and comprehensive statistics be made available to the public through appropriate interfaces including website access.

Further, NSDP, the country's medium term strategic plan, has been useful for the analysis, as practical measures and goals were well specified in the context. The plan also includes macroeconomic projection in figures, and it will be fruitful to regularly and continuously (preferably every year) review the actual situation so that the Plan can be adjusted on a rolling basis. This will help the government to monitor the degree or attainment of its plans and hence to consider future measures in a more practical manner.

Chapter 3
Changes in Trade and Industrial Structure and Identification of Potential Successful Export Sectors and Items

3.1 Prospects of Macroeconomics and the Structure of Industry and Trade

We have so far revealed that the Cambodian economy can achieve sustainable and steady economic growth under conditions that inflow of foreign direct investment will continue and also that workers' skill level will continue to rise. Based on such prediction it will also be bebeficial to specify and target the industrial sector and production items for achieving a higher value added and diversified industrial structure.

Taking into account the policies, endowment of natural resources, economic environment, position in the global economy and the international market, the industrial area and manufacturing items in which Cambodia has comparative advantages can be specified.

3.2 Industrial Sectors with Prospect for Future Growth

3.2.1 Sectors Identified as Strategic Industrial Sectors in Governmental Policies

Some of the policy papers issued by the government and international organizations stipulate several industrial sectors as the strategic sectors. In this section, we look at three representative reports, i.e. the National Strategic Development Plan, Strategic Plan of the Ministry of Industry, Mining and Energy, and International Trade Center's New Export Strategy.

First, the National Strategic Development Plan 2006-2010, as we have seen in Chapter 2, specifies, together with infrastructure development, agriculture, agro-processing, labor-intensive and export-oriented industrial sectors as priority sectors for private sector development and employment creation.

Next, the Strategic Plan 2004-2008, issued by the Ministry of Industry, Mining and Energy, points out that agro-processing (sugar, palm oil, cashew nuts, cassava products, grain and canned fruits) and labor-intensive industries (garments, hats, socks, gloves, shoes, toys, electrical and mechanical assembly) need to be actively promoted together with mineral resourced development and import subsidization.

Further, the International Trade Center (ITC), an organization based on UNCTAD and WTO activities, is preparing a New Export Strategy 2006-2008 for the Cambodian government. Included in the draft version of the report garment are agro products, freshwater fishing, rice, silk products and tourism as strategic export sectors.

Overall, it becomes clear that the Cambodian government has specifically identified agro/fishery

product based industries and labor-intensive sectors (garment, footwear machinery, etc.) as strategic exporting industries which deserve priority in development.

3.2.2 Potential Industrial Sectors based on Functional Specialization Structure in the Eastern Asia Region

The Eastern Asia Region, with Japan, China, Korea and Southeast Asia being the main component economies, shows the trend of economic ties strengthening, and further development of a network of functional specialization.[14] The decisive factor for the functions of each of the economies within such a specialization network is basically an economy's relative advantage in its endowed resources.[15] Hence an economy with cheap and abundant labor will specialize in labor-intensive sectors, while on the other hand, an economy with higher capital and higher technology will specialize in capital-intensive, high-skill sectors. International trade will then function to complement the requirement for products of other than what it can produce by itself.

Cambodia is a late entrant into the region's economic network, being the least developed in the region, and therefore has the advantage of a cheap and ample labor force, together with relatively abundant usable flat land for industrial activities. Making use of such advantages, as well as actively encouraging the inflow of investment and businesses, the country has been successful in attracting numerous garment and footwear manufacturers. These businesses have become the country's key exporters. These labor-intensive sectors not requiring high skills fit well into Cambodia's relative advantage, and therefore can be said to remain the country's dominant exporting industries.

On the other hand, the supply chain network of machinery and electronics industries which Japanese, Korean and Chinese enterprises possesses are expected to further develop to allow functional specialization of industries within the Eastern Asia region. Cambodia, sooner of later, is likely to be integrated into this network to fulfil an important function within it. In such a case Cambodia will inevitably start by taking over the most basic function of the network, which is the labor-intensive process in manufacturing, i.e. assembling of mechanical electronics parts.

3.2.3 Potential Industrial Sectors based on Resource Endowment and Intention of Businesses to Utilize Resources

Cambodia is endowed with mineral resources such as fuels (oil, gas), metals (copper, bauxite, iron ore, manganese, etc.) limestone, clay, etc. These mineral resources are expected to be further developed for production in the near future. However, development of processing plants for fuel and metal resources requires large-scale investment, and processing will be commercially viable only when there is sufficient quantity for mass production. Under such constraints, energy and metal resources are unlikely to be processed inland, and are most likely to be exported partly processed or

[14] c.f. Ministry of Economy , Trade and Industry of Japan, White Paper on International Economy and Trade 2006,Chapter 2

[15] Representative of the theories is the Heckscher-Ohlin Theorem

unprocessed. On the other hand, non-metal mineral resources such as limestone, clay and stones are already being consumed domestically to meet the high demand in construction. It can therefore be said that mineral resources, although they are valuable, are less likely to become the resource for Cambodia's new manufacturing export sector.

A vast arable land and ample labor force can be regarded as endowed resources with potential application to agro-processing for export-oriented manufacturing. Cambodian agriculture, presently, is not yet developed for mass and stable production, and productivity is low. However, introduction of proper equipment and skills is seen to as the key for making use of available advantages in resources. The Cambodian agro-processing industry can be said to have the potential to become a major exporting industrial sector next to garments and footwear. Furthermore, Cambodia's advantage in having freshwater fishing resources, especially in the lake Tonlé Sap, is another endowed resource for developing mass production aquaculture and its processing industry.

In the course of this study we conducted a questionnaire survey of 2,000 Japanese companies and also conducted interviews with more than 100 Japanese businesses inland and those based abroad (Thailand, Malaysia, Vietnam and Cambodia). These surveys were carried out to grasp how interested the businesses are in Cambodian resources, and further, to gauge their intentions to invest in Cambodia. As the result of the surveys, although none of the businesses could be identified as having the intention to invest in the near term it became clear that businesses in some industrial sectors are showing strong interest in Cambodian resources and advantages.

It is in the agro/aqua-processing industry that the businesses are interested in studying the feasibility of producing and processing vegetables, fruits and fish fillets in Cambodia. Furthermore, labor-intensive operations such as assembly of electric parts for automobiles and assembly of toys and automotive mechanical parts were seen to be able to benefit, in the long run, from Cambodia's cheap and ample labor force.

Although there are still issues to be solved to improve the investment climate of Cambodia, sectors mentioned above, if based in Cambodia, can become competitive. Therefore, it can be said that there is a good chance that Cambodia will attract foreign direct investment in such industrial sectors.

Rubber/latex is also one of Cambodia's major export products but will not be picked up for estimation in this chapter. This is due to the fact that result of questionnaires showed limited interest in the product and also because rubber is not so often mentioned as strategic export products in existing governmental plans. However, action plans to be listed later (in Chapter 12) will touch upon rubber in parallel with food products which require better organized evaluation and inspection system.

3.2.4 Identification of Potential Industrial Sectors in Cambodia

Judging from the government's policy, its position in the international socio-economy, economic environment, resource endowment and also from business people's interest in such resources, five industrial sectors can be identified as having future potential growth. These sectors are the existing (1) garment and (2) footwear sectors, (3) agro (and aqua)-processing, which is the top candidate for new export manufacturing sector, and, in the medium/long term, (4) electronics parts assembly and (5) machinery assembly, the most likely functions for Cambodia to take over from other economies one step ahead of it. Therefore, it is essential that the investment climate of Cambodia improves, overcoming present issues. Under such conditions there is a good chance of foreign direct investment coming in to create such businesses to function as one part of the East Asia region's electronics and machinery production supply chain. Outlook and recommendations on investment circumstances for attracting foreign investment in these five sectors; i.e. garment, agro-processing, footwear, electronics and machinery, are elaborated in Chapters 5 to 9, respectively.

3.3 Potential Export Items within Prospective Industrial Sectors

As the next step, we will estimate the future export competitiveness of major export items in garments, agro-processing, footwear, electronics parts assembly and machinery products. In the five sectors, we specify the items which are likely to grow as follows.[16] These items are also specified in each sector's outlook and recommendations on investment circumstances for attracting foreign manufactures to Cambodia (Chapters 5 to 9). Detailed analysis of each item in the garment and footwear sector is conduced in each of the chapters (Chapter 5 and Chapter 7). We therefore will analyze the entire sectors in this chapter.

Table 3-3-1 Potential Items in Main Export Sectors

Sector	Item	Contents
Garment	Garment product (S-284)	Garments in general. This item can be classified as inner wear and outer wear. Main export item is currently inner wear, but we expect a shift to outer wear to some extent.
Processed agricultural products	Frozen fish fillet (S2-0344)	Frozen fillet of catfish. A rich resource of catfish in River Mekong is assumed to provide an opportunity for export.
	Crustaceans (S2-036)	Frozen shrimp whose export is partly realized.
	Tapioca and other Cassava-derived products （S2-05645)	Cambodia currently exports unprocessed cassava. Starch extraction is gradually starting in Cambodia and final product of tapioca is expected to be a major export commodity. Production of bio-ethanol from cassava extract is another possibility of higher value- added export.
	Palm Oil (S2-4242)	Export from palm tree plantation to Malaysia is expected to expand.
Footwear	Footwear product(S2-85)	General footwear. This item can be classified as leather, rubber or texture. Textured athletic footwear is the current main export item, while leather shoes are anticipated to further gain competitiveness.

[16] For item classification, we use STIC Rev.2 as trade statistics in Vietnam is in accordance with STIC. UN Comtrade Database is used as database.

Sector	Item	Contents
Electronics assembly components	Automotive electrical equipment and parts (S2-7783)	Not yet produced in Cambodia. Products such as wire harness and coils are assumed to have potential as export items.
Machinery assembly components	Other parts and accessories for vehicles (S2-7849)	Not yet produced in Cambodia. Products such as car antennas are assumed to have potential as export items.

Note: Each item is specified in each sector's outlook and recommendations on investment circumstances for attracting foreign manufactures to Cambodia (Chapters 5-9)
Source: JICA Study Team

3.4 Identifying Potential Major Export Items with the Structural Change of Industry and Trade

3.4.1 Basic Principles for Analysis

As future key Cambodia export items, each item in the four major sectors – garments, agricultural products, footwear, electronics assembly parts and machinery products – is specified as above. The future value of exports and the comparative advantage of Cambodia will be estimated.

The ratio of the export value of the targeted items to total exports is used as an explanatory variable. For this purpose, first we conduct a factor analysis of the structural change of industry and trade in Vietnam, which is on a similar path of development as Cambodia, has the same export product composition (garments, oil, coffee beans and agricultural products such as rice) and shares the same pattern of vegetation and natural resources. Next we apply the result of the factor analysis to the case of Cambodia. An equation using three variables – (1) global market, (2) skill improvement and (3) capital accumulation – is used to estimate change in the ratio of the export value of particular items to total exports. The structural change of industry and trade in Cambodia until 2020 is estimated by applying the equation to Cambodia, based on the assumption that Cambodia will experience a similar structural change in trade with the accumulation of capital.

3.4.2 Methodology and Precondition

Formation of explanatory functions by variables of market trends, skill development and the accumulation of capital stock – analyzing the trend of the ratio of each item, we assume the following factors:

(i) Trend of the global trade value
(ii) Skill development in Vietnam
(iii) Rise in the capital equipment rate

To apply the equation to Cambodia, the constant term (intercept) is adjusted. With the equation which is applicable to Cambodia, we estimate the future value of each item to total exports.

Assumptions:

(i) Skill development in Cambodia: secondary school enrolment rate

(ii) Accumulation of capital stock in Cambodia: the value derived from the macro model

3.5 Past Export of Each Item in Vietnam

While Vietnam is adjacent to Cambodia and achieves similar economic development, it has a different social and economic environment. Thus, Vietnam cannot represent the future Cambodia. First, we conduct basic analysis on the export trends of each item in Vietnam, and secondly we consider its applicability to Cambodia and its limitations.

Garments and footwear are Vietnam's major export items, consisting of more than 10% of total exports. In recent years, each item's export value has increased and its importance as an export product has risen. In Vietnam, labor-intensive mass-production manufactures continue to be promising industries.

Frozen fish fillet export is currently only a small part of total exports but is tending to increase and has the potential to be a major export item.

The export of crustaceans is an established important item, accounting for 10% of total exports. However, its ratio has remained at the same level for several years.

The export of palm oil and cassava products is a minor proportion of Vietnam's exports and the transaction amount is very small. Taking into account the differences between Vietnam's and Cambodia's natural resource structures, Cambodia may well have more potential to export these products.

There is only a very limited export of automotive electrical equipment and components from Vietnam. Automakers in Vietnam procure all car components from abroad and there is no technology transfer yet. Thus, there is virtually no local car parts industry in Vietnam. It may take a long time to establish machine industries in Vietnam as well as in Cambodia.

Lastly, regarding other parts and accessories for vehicles, there is little export so far but its growth rate is relatively high.

Table 3-5-1 Percentage of Export Value of Each Item to the Total Export Value in Vietnam

Year	Garments (S2-84)	Frozen fish fillet (S2-0344)	Crustaceans (S2-036)	Tapioca and other cassava-derived products (S2-05645)	Palm oil (S2-4242)	Footwear (S2-85)	Automotive electrical equipment and parts (S2-7783)	Other parts and accessories for vehicles (S2-7849)
2000	12.65%	0.03%	8.52%	0.00%	0.24%	10.04%	0.03%	0.01%
2001	12.44%	0.11%	9.36%	0.02%	0.15%	10.56%	0.03%	0.03%
2002	15.82%	0.17%	9.02%	0.02%	0.03%	11.22%	0.02%	0.09%
2003	17.29%	0.37%	8.16%	0.03%	0.07%	11.22%	0.02%	0.10%

Source: JICA Study Team

3.6 Future Value of Potential Items in Cambodia

We apply equations, which are estimated by variables such as international market trends, skill development and capital accumulation, in Vietnam,[17] in order to forecast the future export value of the items in Cambodia.[18]

Table 3-6-1 Prediction of the Percentage of Products Within Total Export Value of Cambodia

Year	Garments (S2-84)	Frozen fish fillet (S2-0344)	Crustaceans (S2-036)	Tapioca and other cassava-derived products (S2-05645)	Palm oil (S2-4242)	Footwear (S2-85)	Automotive electrical equipment and parts (S2-7783)	Other parts and accessories for vehicles (S2-7849)
2000	69.81%	0.23%	0.17%	0.01%	0.00%	2.06%	0.00%	0.00%
2005	70.79%	0.09%	0.39%	0.00%	0.03%	1.45%	0.00%	0.01%
2010	51.55%	0.27%	0.46%	0.01%	0.01%	3.90%	0.00%	0.09%
2015	56.57%	0.61%	0.61%	0.02%	0.03%	5.05%	0.00%	0.16%
2020	65.87%	0.86%	0.82%	0.03%	0.05%	6.04%	0.00%	0.26%

Source: JICA Study Team

As the result, garment exports are considered to account for more than 50% of the total export value in the coming years. We expect that the ratio will decrease towards 2010, but somewhat increase afterwards.

The export of processed marine products such as frozen fish fillets and crustaceans, which has already started, will grow and its proportion to the total value will increase. As we see that the export value of each item consists of only 1% of the total export value, there remain some uncertainties as to whether the items will become major export items. However, it can be said that such aqua products have huge potential for growth.

[17] The estimation result is shown in Appendix 1 A.1.3.
[18] The prediction result is shown in Appendix 1 A.1.4.

We predict that the export value of palm oil and tapioca/cassava-derived products will increase gradually. Based on interviews with producers, it can be said that the amount of exports heavily depends on the degree of processing technology introduced in Cambodia. With the introduction of technologies, Cambodia may become advantageous for agro-processing production.

The importance of footwear exports is likely to increase, and their contribution to total exports will reach 4% in 2010 and 6% in 2020. The increase in the footwear export ratio will fill the gap of the decrease in the garment export ratio.

Regarding electronics assembly parts, their export value will remain almost negligible in the future. The reason is that, as the cases of Thailand and Vietnam show, it will take a long time to establish a supporting industry in Cambodia. However, production of labor-intensive products such as coil, wire and wire harness have potential.

On the other hand, it will take relatively less time to start up production of non-electronics mechanical components (such as antennas) compared with those of electronics components.

In conclusion, in Cambodia, the garment, footwear and processed agricultural products sectors are likely to grow in the future. In addition, it is possible, in the long term, that machinery and electronics component industries will be established and will grow if the investment environment improves, taking advantage of Cambodia's relative advantage in labor-intensive industries.

3.7 Revealed Comparative Advantage Analysis (RCA) for Potential Key Export Items in Cambodia

Here we conduct analysis for comparative advantage of the key export items using revealed comparative advantage (RCA) analysis. RCA analysis is used to identify items which have comparative advantage in a certain country. In the analysis, an RCA index is calculated and when the index is high, it shows that the country has a comparative advantage in the export of the product.

$$\text{RCA Index for x item of country A} = \frac{\text{Export value of x item of country A / total export value of country A}}{\text{Export value of x item in world / total export value in world}}$$

Predicted RCA index for potential key export items of Cambodia is calculated as follows:[19]

[19] Annual predicted value of RCA index is shown Appendix 1 A.1.5

Table 3-7-1 RCA Index for Potential Export Items of Cambodia

Year	Garments (S2-84)	Frozen fish fillet (S2-0344)	Crustaceans (S2-036)	Tapioca and other cassava derived-products (S2-05645)	Palm oil (S2-4242)	Footwear (S2-85)	Automotive electrical equipment and parts (S2-7783)	Other parts and accessories for vehicles (S2-7849)
2005	34.136	1.434	2.684	5.980	0.103	2.369	0.001	0.003
2010	24.909	3.734	2.667	16.018	0.035	6.368	0.002	0.038
2015	26.676	7.967	3.294	32.605	0.074	8.044	0.003	0.066
2020	31.829	11.573	4.518	53.243	0.145	9.858	0.005	0.108

Source: JICA Study Team

Judging from the result of the prediction, Cambodia will slightly lose its comparative advantage in garment products around 2010. The future RCA index for garment products is lower than at present. This is a reflection of the increase in export amount and competitiveness of other export items (footwear and processed agricultural products).

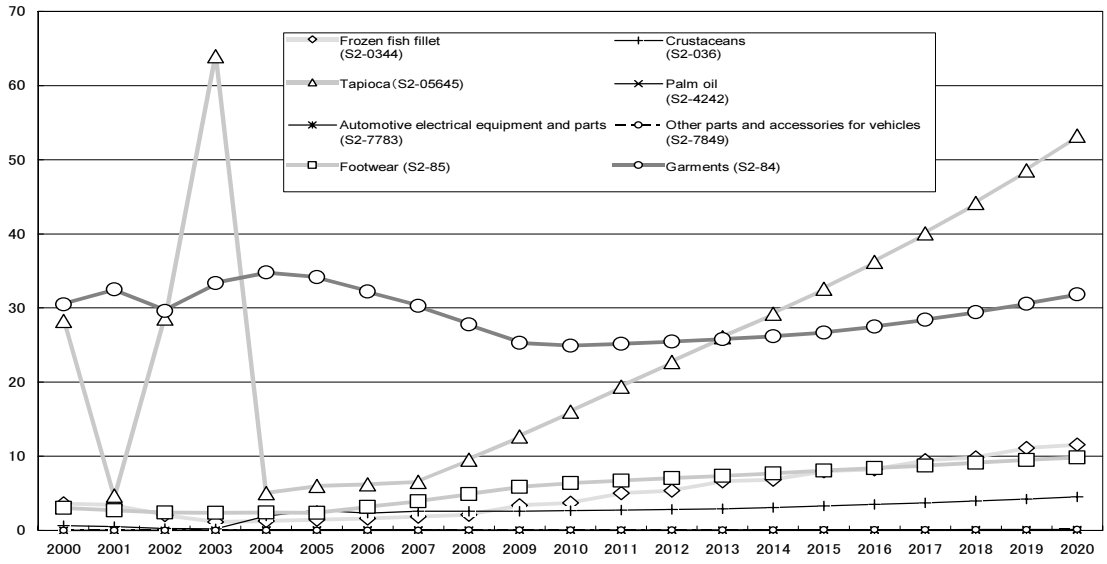
Comparative advantages for tapioca, crustaceans and frozen fish fillets are estimated to increase. When value-added processing of tapioca (such as starch extraction and bio-ethanol production) is introduced, the comparative advantage is expected to increase further. On the other hand, we found that Cambodia has somewhat lower comparative advantage in palm oil. This is because countries such as Malaysia and Indonesia have already achieved mass production of palm oil. As the extracted oil market is expected to expand rapidly due to a growing demand for bio-diesel products, it is possible that in the future Cambodia will have a comparative advantage in palm oil.

Cambodia's current comparative advantage in footwear will be even stronger in the future. Growth of competitiveness is expected to be significant, and is likely to show a steady rise.

Cambodia's comparative advantage in electronics assembly components is low and will not change in the foreseeable future. The export amount of electronics assembly components is unlikely to grow, and the comparative advantage in garments, footwear and processed agricultural products will be unchanged for the time being. However, in specific labor-intensive items in the sector Cambodia may have comparative advantages.

In machinery assembly components, Cambodia has a higher advantage compared with electronics components. Although its comparative advantage is likely to increase slightly over time, the RCA index will remain at a low level in 2020. It can be said it will take a long time to nurture the Cambodian machinery industry.

Figure 3-7-1 RCA Index of Cambodia's Potential Key Export Products



Source: JICA Study Team

3.8 Conclusion: Cambodia Will Keep a Comparative Advantage in Garment Products and Cambodia's Footwear and Processed Agricultural Product Sectors Will Grow

We analyzed the future prospects of both the ratio of potential key export items to total exports and the comparative advantage in international competition. Garment products will play an important role as a major export item. We also find that footwear products and processed agricultural products (especially cassava/tapioca products and aqua-marine products) have the potential to be main export items after garment and footwear products.

Among processed agricultural products, we expect that Cambodia may have a high comparative advantage in cassava / tapioca. As the export amount of frozen fish fillets and crustaceans is likely to grow, its comparative advantage will increase as well.

It will nevertheless take a long time for Cambodia to become strong in electronics assembly components and machinery assembly components. We find that the export of machinery components will expand faster than that of electronics assembly components.

Chapter 4
The Outlook for Industrial Strategy in Cambodia

4.1 General Condition

Generally speaking, the term "industrial strategy" is a collective one for policies whereby the national government intervenes in corporate activities to nurture and develop industries. More specifically, it consists mainly of policies in the following four areas: (i) industrial structure, (ii) support for technology development, (iii) intervention in individual industrial organizations, and iv) closing of interregional gaps and cultivation of the growth of SMEs. The policy means include various kinds of incentives through enactment of ad-hoc legislation, administrative guidance, infrastructural conditioning, tax breaks, subsidies, and policy-directed financing. In the case of developing Asian countries, governments deploy industrial strategy with definite targets, such as the following: (i) promotion of exports, (ii) protection of domestic industry (capital) to cultivate heavy/chemical industries and upgrade the industrial structure, (iii) growth of resource development and processing industries, (iv) growth of SMEs and SI, and (v) technology development and productivity improvement.

Viewed from this perspective, it must be said that Cambodia, which depends on ODA and FDI and lacks a good stock of indigenous capital, does not have a hard-hitting industrial strategy of the sort found in developed countries or for industrialization in other developing Asian countries. It has, however, taken various industrial measures, mainly for promotion of the garment industry and tourism, including enactment of legislation to allow provision of incentives to attract foreign investment creating exports and employment; infrastructural improvements to support production and service activities; preparation of networks for manufacturing, distribution, and human transport; assurance of employment and adjustment of labor conditions; construction of setups for import and export control; and commercial negotiations with developed countries to get export markets (e.g., acquisition of quantitative export quotas and application of GSP tariff rates). It has also deployed measures to promote exports for the purpose of earning foreign currency as part of its development of natural resources and primary industries (e.g., agriculture, forestry, and fishery) as well as processing industries.

Under the current administration in Cambodia, which has positioned economic growth and the cultivation of industry as top priorities, the garment and tourism industries have begun to grow into major fields of employment and foreign currency earnings. Attainment of the medium- and long-term targets posted by the government, nevertheless, will require the continued buildup of industrial capital through infrastructural conditioning with ODA and FDI attraction. The degree of success in attraction of FDI and exports by their sites will be particularly vital for industrial development. It will consequently be important to encourage siting and effective use of domestic resources for such development by proper conditioning and enforcement of laws and regulations, and improvement of infrastructures with ODA. This, in turn, requires activities grounded in correct industrial strategy established by the Cambodian government.

This section presents an overview of industrial strategy with a focus on the promising manufacturing sector, one of the major themes of this project. Here, the term "industrial strategy" is used in the broad sense of policy for the expansion of manufacturing to contribute to Cambodia's economic growth. At present, the fields of manufacturing being developed in Cambodia are extremely limited (essentially to the garment industry). In light of this reality, the policy areas for priority study are the following four: (i) acquisition of capital and technology through attraction of FDI, (ii) conditioning of the industrial infrastructure needed to attract FDI, (iii) human resource development (HRD), and (iv) specific measures for promotion of promising industries. In any field, the Cambodian government does not yet have a fully sufficient store of organizations, personnel, experience, and know-how at the present time, and therefore must take prompt and appropriate action with assistance from other countries.

Table 4-1-1 Industrial (industry-related) Policy for Promotion of Manufacturing in Cambodia

Industrial-related policy	Themes to be emphasized	Actual cases
Policy to attract FDI (acquisition of capital and technology)	・Conditioning and enforcement of laws and regulations ・Organizational capabilities for FDI attraction ・Promotional capabilities	-Law on investment, Incentives, Import-export control, Labor conditions -Transfer of authority, Capabilities for industrial analysis, Master plan -Investment climate, Handbooks, Japan ASEAN Center
Policy for infrastructural conditioning (preparation of the industrial foundation)	・Construction of industrial estates ・Logistic infrastructural conditioning	-SEZ functions, Power, Water, Wastewater treatment, Telecommunications -Overland transport (truck and rail), Sea transport, Air transport
Policy for HRD (fostering of personnel needed to run enterprises and implement policy)	・HRD system ・Cultivation of policy-related experts	-Primary and secondary schools, universities, technical colleges (for occupational training), management personnel -personnel for FDI policy deployment, SEZ personnel
Policy for industrial promotion (measures for individual industries)	・Measures for promotion of promising industries	-Export promotion, resource development (irrigation, crops, processing technology, etc.) master plan preparation (garment, food processing, footwear)

Source: JICA Study Team

4.2 Promising Manufacturing Industries and Industrial Strategy

This project selected five manufacturing fields as promising ones for development in Cambodia (i.e., garments, agricultural, fishery and food processing, footwear, and simple assembly electric/electronic components and simple machining). The following sections present detailed examinations of and recommendations for each field as regards policy to induce foreign capital and promote industry, including measures to attract FDI and promote exports. The table below shows the connection between the promising industries and industrial strategy.

Table 4-2-1 Connection between promising Industries and Industrial Strategy in Cambodia

Promising fields	Policy to attract FDI	Infrastructural conditioning policy	HRD policy	Industrial promotion policy (construction of a vision)
Garments	△	△	○	necessary
Agricultural, fishery and food processing	○	◎	◎	necessary
Footwear	○	○	○	necessary
Simple assembly electric/electronic	◎	◎	◎	too early
Simple machining	◎	◎	◎	too early

Note: Double ring = absolutely necessary, Single ring = necessary, Triangle = already handled
Source: JICA Study Team

4.2.1 Garment Industry

Cambodia has a comparatively favorable investment climate, and foreign concerns have shown a keen interest in further siting there. The prevailing law on foreign investment, other related legislation, and their enforcement have been conditioned and improved with an awareness of the garment industry. Partly because garment-making does not definitely require a highly developed infrastructure of industrial estates and supply of power and water, needs for policy to attract FDI and create infrastructures have not been very strong. If the Cambodian garment industry, which may be expected to continue expanding along with FDI, is to heighten its international competitiveness, the government must take measures for human resource development needed for smooth transfer of garment-making technology and management know-how to local hands. As recommendation to promote direct investment into the garment industry, it can be pointed out such as enhancement of productivity, diversification of export markets, shift to develop and export, the creation of central bonded warehouse facilities in SEZs.

4.2.2 Agricultural, Fishery and Food Processing Industry

Cambodia has a large potential for supply of agro-sector products and resources, and the demand for food processing is expanding in Japan and other Asian countries. Under these circumstances, policy for promotion of industry in this field has a very high priority. In it, however, industry cannot be promoted merely by dependence on foreign investment. Promotion requires policy that takes account of various factors, including consistency with policy on agriculture and encouragement of export by domestic capital. As such, to transform the ravaged national land into fertile soil for production of agro resources, the government must, of course, formulate policy for FDI attraction to acquire the funds and technology of developed and neighboring countries, but it must also prepare the infrastructure needed for qualitative improvement and stable supply of foodstuffs for processing. This is a task that must be addressed in the context of agro-sector policy and requires extremely wide-ranging studies.

In addition to attraction of foreign capital and technology, Cambodia must urgently make studies for the preparation of an industrial vision (master plan) encompassing use of ODA and development of human resources for deployment of the agro policy. This must be accompanied by the building of a consensus among all concerned parties, internal and external, for promoting food processing industry.

4.2.3 Footwear Industry

Like the garment industry, Cambodia's footwear industry enjoys a tail wind in the investment climate. For leather footwear in particular, there is a strong possibility of siting in Cambodia by some Taiwanese[20] firms that already have locations in China and Vietnam, in order to avoid anti-dumping penalties imposed in the European market. This points to a need for measures prepared with a view to attracting siting by footwear firms (both major ones and subcontractors).

As in the case of the garment industry, there is relatively little necessity to condition the infrastructure, but the supply of electrical power, for example, must be strengthened, because the footwear production process has steps that depend more on use of power. As for HRD, the remarks in reference to the garment industry also apply to the footwear industry. Consisting of plastic formation, molding with metal molds, gluing, and other steps, the production process has a more pronounced technical dimension, and therefore demands personnel with these capabilities.

The Cambodian footwear industry has the potential for growth into a major processing industry to follow the garment industry. The government should encourage the inflow of foreign investment to solidify its stage of development. At the same time, over the longer term, it must support the domestic supply of parts and materials as well as participation by indigenous enterprises to reinforce the industry's competitiveness in the international market. Eventually, the time will come when Cambodia makes studies to prepare a master plan that will serve as a vision for the industry to this end.

4.2.4 Simple Assembly Electric/Electronics Industry

At present, Cambodia does not have a major firm, whether indigenous or foreign-affiliated, in this field. The interviews with major Japanese firms sited in neighboring countries found that some of them performing simple assembly were beginning to look for new production locations to retain their cost competitiveness. Their prerequisites for siting in this field are influenced by the business climate for their items of production and go beyond a mere satisfaction of labor conditions. Indeed, the most important prerequisites are the presence of industrial estates with well-dimensioned infrastructures and preparation of the international logistics setup. Besides taking action to meet these prerequisites, the government will therefore have to conduct a hard-hitting promotional campaign for FDI.

Sites would be in the nature of export processing locations premised on imported materials. There would be very little room for participation by Cambodian capital which doesn't have technology accumulation, and promotion of industrial activities would have a very heavy dependence on foreign capital. For this reason, it is critical to make the preparations needed for siting by foreign concerns (i.e., legislative and infrastructural conditioning). There is only scant margin for preparation of a master plan to foster the growth of this industry by Cambodia on its own initiative.

[20] Economy so called as "Chinese Taipei" in WTO as well as in APEC is referred to as "Taiwan" in this report.

HRD is also essential for attraction of FDI in this industry. Besides workers (operators) performing the simple operations, Cambodia must train technicians and engineers to manage production and processes that involve advanced products, and middle managers with general administrative capabilities.

4.2.5 Simple Machining Industry

As in the electric/electronics field, Cambodia currently does not have a major firm in this industry except for several motorcycle assemblers. According to the findings of the interviews with them, some of the Japanese firms with locations in this field in neighboring countries saw a possibility of investment for production in Cambodia for two reasons: cost competitiveness and cultivation of the domestic market.

Like the electric/electronics industry, simple machining is not marked by a strong emphasis on labor conditions in the cost aspect; the most important factors in the investment climate are a supply of workers and engineers oriented toward machining, the existence of industrial estates with good supply of electricity and other infrastructural elements, and preparation of the international logistic setup. Here too, besides taking action to meet these prerequisites, the government will therefore have to conduct a hard-hitting promotional campaign for FDI.

For the foreseeable future, activities would consist of export processing premised on material import and/or production for the domestic market. It would be critical to make the preparations needed for siting by foreign concerns (i.e., legislative and infrastructural conditioning). Further in the future, indigenous industry could play the role of SI, and this would create margin for preparation of a master plan taking account of participation by Cambodian capital. For the time being, however, it would be premature to do any such planning.

4.3 Industry-related Policy in Cambodia

This section sets forth the orientation of policies in the areas of FDI attraction, infrastructural conditioning, and human resource development as constituting industry-related policy common to the promising industries described in Section 4.2. It also comments on the preparation of an industrial vision (master plan) in the context of overall policy for promotion of industry.

4.3.1 Policy for FDI Attraction

(1) Conditioning and Enforcement of Laws and Regulations

The Law on Investment, which stipulates the duty-free action of the corporation profit tax (The period setting), duty-free action of the raw material import, the extra special repayment action and one-stop services for approval of investment applications, was prepared on the basis of the actual legislative arrangements in other ASEAN countries and with a view to offering foreign capital greater benefits. Cambodia has applied and improved pertinent laws and regulations in step with the foreign siting in the garment industry. From now on, it will probably be necessary to make a review of the tax incentives, for example, on the assumption of FDI attraction in other industries as well. Some interviewees pointed

out that there was a certain vagueness about the requirements for determination of incentives.

The government is now making a detailed study of the establishment SEZ Law as the key to attraction of export-oriented FDI. Besides studying methodology for application of laws and regulations related to trade management, it would also be advisable to carefully research precedent cases in neighboring countries and make finely-tuned arrangements to satisfy global standards through studies from the standpoint of foreign concerns. This also applies to the various legislation related to the business activities of foreign capital, and its enforcement, starting with the labor law, which foreign firms constantly face in their routine activities. International firms are looking for appropriate improvements as necessary, based on conformance with their activities.

(2) Organizations and Capabilities

The authority to approve FDI is currently concentrated in the CDC/CIB. Over the longer term, the option of distributing it through devolution (transfer of authority) ought to be considered. This is suggested by the cases of FDI policy in Vietnam and the Philippines, which constitute precedents. These countries succeeded in attracting FDI by transferring some approval authority to public corporations and other subordinate organizations and local governments, making the approval work more efficient as a result, and introducing the element of competition for investment attraction. The key factor is the linkage of industrial estate operation and attraction campaigns; it should be noted that, with such linkage, incentives act as a powerful inducement. Naturally, the CDC/CIB functions as the sole official agency in charge of promoting policy for FDI attraction, like organizations such as the BOI in Thailand. The point is that the future is likely to bring a deepening need for transfer of some authority related to the work at one-stop service counters for approving applications.

The priority fields for FDI attraction in the manufacturing sector are garment making, food processing, simple assembly electric/electronics, footwear, and simple machining. To actively attract FDI in these fields, the CDC/CIB obviously must engage in promotional activities, but it would not be effective to do so haphazardly. Instead, it must establish a setup for surveys and examinations to ascertain the future prospects for the target industries as regards the global market climate, technical innovation, industrial structure, and major entrants. Corporate enterprises, whether domestic or foreign, cannot make major investment decisions unless the government establishes guidelines from this perspective. It would be preferable to institute such an organization in the CDC/CIB. Another option would be to nurture such capabilities in a public-sector research institute with specialized competence.

At any rate, Cambodia will not be able to deploy effective policy for FDI attraction unless it has organizational capabilities enabling it to get a comprehensive outlook on future growth in the promising industries where siting is anticipated. As the policy authority with jurisdiction over FDI, the CDC/CIB ought to reinforce its capabilities for survey and examination in the industrial fields which the government wants to cultivate in the future. The specific suggestion here is the organization of a task force for each promising industry. It would be the duties of each task force to formulate policy

proposals based on the results of surveys and analyses undertaken over a sufficient period of time, and to have these reflected in the actual promotional campaigns. These task forces should also make studies for the preparation of master plans for major industries . In particular, there is thought to be a need for such master plan studies for the existing industries, i.e., ,agricultural, fishery and food processing and footwear.

> The case of Vietnam
> In Vietnam, the State Committee & Cooperation of Investment (SCCI) played the role of executing FDI policy until the mid-1990s. Upon the revision of law governing FDI in 1996, the government consolidated the SCCI and the State Planning Committee (SPC), and elevated the new body to the status of a ministry: the Ministry of Planning and Investment (MPI). The MPI is composed of the state planning division, which was the main function before the consolidation; an investment division concerned chiefly with FDI; and several survey and research divisions. Although the interdivisional policy coordination is not perfect, policy for FDI attraction in the investment division is drafted and implemented on the basis of the activities of the state planning division, which adjusts the administrative plans and budgets of the ministries and agencies in line with medium- and long-term plans. At the same time, the authority for FDI approval is distributed among the MPI and the people's committees in accordance with differences of industry and investment size, and this makes for a more effective organizational setup.

(3) Promotional Capabilities

Attraction of foreign investment is affected by the international competitive climate. In their search for investment destinations that are more advantageous, companies make comparative studies of candidate sites that begin with collection of information and extend to in-depth preliminary investigations. Many neighboring countries are in competition with Cambodia for FDI. Although the main rivals are presumably Vietnam, Laos, and Myanmar, the list naturally includes Indonesia and the Philippines, and perhaps even Thailand and China, depending on the case. It follows that the host-country side must prepare handbooks presenting information on the investment regime that is convincing to foreign firms, and develop fuller promotional capabilities in all aspects. The important thing is to promote an investment regime that goes beyond benefits for siting and incorporates the possibility of change and improvement over the medium and long terms even if it holds disadvantages for foreign capital at present. What foreign firms emphasize in the final analysis is the character of the people in the host country and the enthusiasm for industrialization. This is why it is deemed necessary for the executives of the various concerned agencies to make and implement the decisions needed for FDI attraction on their own initiative.

While deploying promotional activities, it would also be vital to erect a scheme for firm determination of the problems and wants of foreign-affiliated firms already sited in Cambodia, with the cooperation of groups such as industrial associations. The findings would be reflected in conditioning of the investment regime so that foreign concerns can continue to invest in the country with confidence. The government must realize that the bolstering of capabilities for follow-up checking is a shortcut to the improvement of legislation and policy pertaining to FDI attraction, and can lead to additional investment. The

operation of such public-private conferences is apt to fall into formalism. Efforts must be made to prevent the conferences from turning into mere ceremonies, and to hold them on a continuous basis and in good faith with the important objective of expanding corporate siting.

4.3.2 Infrastructural Conditioning

(1) Industrial Estates

Attraction of FDI in the manufacturing sector requires the preparation of industrial estates with good infrastructures. The garment and footwear industries, where many foreign firms have already sited, are highly labor-intensive. In many cases, firms acquired sites themselves and built their own plants outside industrial estates in order to assure themselves of a sufficient supply of labor and avoid wage-hike pressures. Similarly, well-dimensioned infrastructures for power and water supply and wastewater treatment are not absolute prerequisites. In contrast, the electric/electronics and machine assembly industries, in which Cambodia hopes to attract siting in the future, entail larger capital investment, and require a stable supply of power for production facilities in most cases. Depending on the production process, it may also be necessary to have facilities for stable supply of water and treatment of the wastewater arising in the production process. For this reason, it is indispensable to develop industrial estates with full infrastructures of these types.

The precedent cases in neighboring countries indicate that the destinations of siting by many Japanese firms in the electric/electronics and machine assembly fields are industrial estates developed and operated by public corporations or local governments. In Vietnam, some sites are industrial estates that were funded by foreign governments or developed and operated directly by Japanese trading firms. In other words, many of the Japanese firms foresee production activities into the distant future at these sites and strongly emphasize a full assortment of facilities and highly reliable industrial estate management. Although there are certain SMEs and special firms that are inclined to site outside industrial estates, Cambodia must note that most Japanese firms prefer sites in industrial estates which are run by the public sector or Japanese trading firms. In most cases, siting in Cambodia follows the pattern of import of all parts and materials, and export of all of the product output. This point to a need for full EPZ provisions in industrial estates as a matter of course.

(2) Logistic Infrastructure

In the electric/electronics and machine assembly industries (and also in the food processing industry), preparation of networks for physical distribution inside and outside the country holds the key to FDI attraction. In the case of the electric/electronics industry, firms are engaged in SCM on a worldwide scale, and it is indispensable to offer more efficient logistics for distribution not only within the ASEAN region and Asia as a whole but also to Europe and North America. Firms generally demand a transport time of no more than a few days for truck or air cargo and from two weeks to one month for sea cargo. With the exception of international marine transport, the current situation in Cambodia would therefore require substantial improvement. Improvement of the logistic infrastructure will take an enormous expenditure, and financial assistance from other countries in forms such as ODA would be essential to

fund it. To pursue this improvement without delay, it would be advisable for Cambodia to accelerate its preparation of the conditions donor countries seek in recipient ones.

The focus of the highest expectations in respect of logistical improvement is the network for overland transport inside and outside the country. Work is moving ahead in construction of the No. 1 east-west corridor linking Cambodia with Myanmar, Thailand, Laos, and Vietnam. The No. 2 east-west corridor, which will link Cambodia with Thailand and Vietnam, is anticipated to have even greater ripple-effects because it will connect Bangkok, Phnom Penh, and Ho Chi Minh. Cambodia is expected to conclude an agreement with its neighbors for mutual air cargo service in the near future, and all concerned are awaiting the paving of as yet unpaved roads and completion of bridge construction within Cambodia. For the overland transport network, there are hopes for improvement of roads between Phnom Penh and Sihanoukville as well as the reconditioning of rail lines.

For marine transport, the garment industry uses the port at Sihanoukville. The expansion of the port and harbor facilities there is projected to be completed with assistance from the Japan Bank for International Cooperation. At present, many ships call at Singapore, and this creates temporal constraints, but there are hopes for a shortening of schedules in service links with overseas markets through the use of large cargo carriers. International air networks are indispensable for transport of small electronic components. Along with demand growth, however, international air cargo firms may be expected to enter the country, and will probably need support from Cambodian air transport authorities in such ways as relaxation of regulations.

4.3.3 Human Resource Development

Diverse human resources are going to be needed for execution of policy for FDI attraction over the coming years. As a first step, it is necessary to refine the skills of personnel for smooth implementation of such policy. More specifically, it is imperative for Cambodia to have experts capable of drafting proposals for revision of the Law on Investment, SEZ law, and various other laws and regulations, and for their effective application. Cambodia also needs personnel who can do the job of investment promotion and conduct analyses of each sector. In connection with SEZs, which are going to be established for the first time, it must foster human resources with the ability to provide one-stop services in customs clearance and other areas, and nurture engineering skills for design of industrial estates and maintenance of their facilities.

Needs for HRD among ordinary firms are likely to deepen further along with the siting by foreign firms. If siting quickens in the electric/electronics and machine assembly industries, it will become increasingly vital to bolster activities for grooming entrepreneurs. The needs are hardly confined to workers and operators, who must perform production tasks with an understanding of production processes and equipment to a certain degree; there is bound to be a rising demand for all sorts of personnel. The list includes technicians and engineers with the ability to build and maintain production systems, and administrative people such as middle managers to run plants as well as accountants.

As for the approach, it goes without saying that, as a primary task, Cambodia could improve education on the primary and secondary levels in order to strengthen the underlying foundation for HRD. The production of personnel with scientific and technical expertise must be assured by improving university education and establishing professional colleges. Additional conceivable means of HRD include schemes for study abroad, overseas seminars, and programs run by chambers of commerce and industry as well as industry associations. Public-sector HRD programs could take advantage of the schemes of support for developing countries offered by the advanced countries. It would be most effective to draw on these schemes in furnishing HRD assistance through measures such as dispatch of experts, establishment of specialized technical centers, and acceptance of trainees.

4.3.4 Construction of an Industrial Vision (Master Plan)

While aware that the country has a developing status and that it has a certain role to play in promotion of industry through FDI attraction, the Cambodian government has not yet made concrete preparations or taken actual measures. It has does not have a good idea, for example, of what industries to target and how to go about attracting FDI in them and fostering the growth of export, because it lacks a firm grasp of the global realities in the major industries. This results in a lack of efficacy and consistency, as viewed from the standpoint of efforts to attract FDI, in the body of policies in areas such as foreign investment, commerce, infrastructure, and labor. Moreover, there is a lack of transparency and certainty at the stage of policy execution, and this is the biggest impediment to domestic and foreign corporate activities. To make an appeal for FDI, Cambodia must offer the kind of open and stable investment regime desired by foreign concerns, and thereby enable an across-the-board reduction of business costs. To erect such a regime as well, the Cambodian government must prepare a master plan with help from the business community, present a vision for industrial evolution, and share the orientation for future advancement with domestic and foreign firms.

Among the promising industries, the government must prepare industry-specific master plans at an early date for the footwear fields, where an industrial buildup has already been (or is in the process of being) formed, mainly by foreign firms. The same applies to the agricultural, fishery and food processing industry, which demands policy coordination among numerous ministries and agencies, inclusive of conformance with policy on domestic farmers and agriculture, in spite of the heavy dependence on FDI. The Cambodian government must set forth an industrial vision that can serve as a guideline for corporate investment. For this purpose, it must collect the latest detailed information on the trends in the domestic and international markets constituting the grounds of the vision, prepare the vision (master plan) to function as a guideline while constantly monitoring activities among domestic and foreign private enterprises, and hammer out proper industrial strategy in accordance with the vision. In the electric/electronics (simple assembly) and simple machining industries, participation by foreign capital is virtually non-existent. Therefore, precedence should probably be accorded to conditioning of the industrial infrastructure and promotional campaigns to attract FDI. It would be too early to undertake studies for preparation of master plans for them.

The following is a profile of the prospective master plan (framework).

(i) Global investment climate

- Medium/long-term outlook for the global market
- Economic integration and divisions of production labor in Asia
- Inclination of foreign concerns to site in Cambodia

(ii) Determination of actual circumstances in Cambodia

- Nature of the industrial buildup in each major field
- Related policy and condition of the infrastructural environment
- Analysis of factors discouraging investment

(iii) Preparation of a medium/long-term vision

- Research of precedent cases in forerunning Asian countries
- Analysis of Cambodia's potential for development and comparative advantage
- Scenario for future advancement and medium/long-term vision

(iv) Formulation of an action plan for realization of medium/long-term vision

- Related organizational setup, and division of capabilities and roles
- Review of related legislation and policies
- Reconditioning of the related infrastructures
- Plans for promotional campaigns to attract FDI
- Plans to nurture the growth of SI and SMEs
- HRD planning

(v) Schemes for assistance from foreign governments

Chapter 5
The Outlook and Recommendations on Investment Circumstances for Attracting Foreign Garment Manufacturers to Cambodia

5.1 Characteristics of Cambodia's Garment Industry

5.1.1 International Comparison of the Garment-Manufacturing Industry

- Generally speaking, the garment-manufacturing industry covers a broad range of fields, including clothing, footwear, socks, gloves, hats and caps, pillow cases, cushions, towels, bed sheets, curtains, hand towels to be used as steamed towels, tents, bags, carpets and fishing nets. Among these, our recommendation will cover garments and footwear, in which Cambodia has accumulated skills.

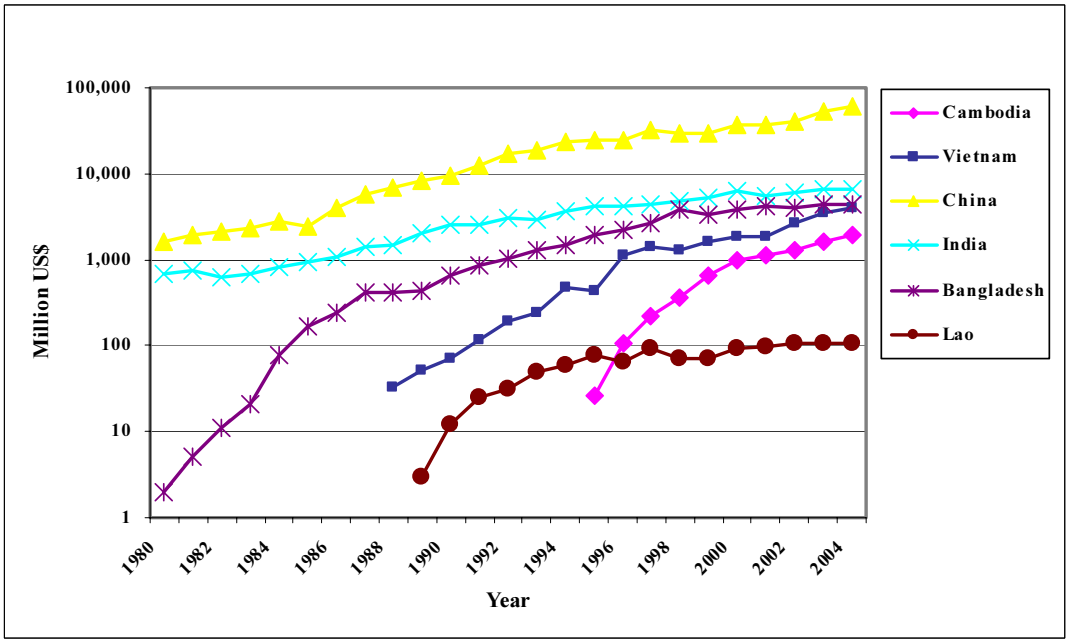
- Cambodia began garment exports in 1995. As it promised the United States to abide by the ILO standards, it has enjoyed one of the highest export growth rates in the world in the past 10 years, though its history is not longer and its technical skill is not more advanced than even that of Vietnam and Bangladesh. Therefore, knitwear garments have performed particularly well over time, because the machinery required is less expensive and the process is simpler than that of woven garments, an advantage because of the role of low-wage, unskilled labor in Cambodia.

Table 5-1-1 Trend of Garment Exports

	Cambodia	Vietnam	China	India	Bangladesh	LAO PDR
1980	0	0	1,625	673	2	0
1981	0	0	1,930	755	5	0
1982	0	0	2,140	625	11	0
1983	0	0	2,320	694	21	0
1984	0	0	2,755	831	77	0
1985	0	0	2,450	930	168	0
1986	0	0	4,050	1,061	236	0
1987	0	0	5,790	1,402	416	0
1988	0	33	6,990	1,508	416	0
1989	0	52	8,165	2,060	440	3
1990	0	72	9,669	2,530	643	12
1991	0	117	12,245	2,527	840	25
1992	0	190	16,704	3,099	1,042	31
1993	0	239	18,441	2,970	1,307	49
1994	0	476	23,731	3,701	1,479	58
1995	26	431	24,049	4,110	1,969	76
1996	106	1,150	25,034	4,217	2,218	64
1997	224	1,384	31,803	4,343	2,688	91
1998	355	1,302	30,048	4,782	3,786	70
1999	653	1,622	30,078	5,153	3,348	72
2000	970	1,821	36,071	6,178	3,907	92
2001	1,143	1,867	36,650	5,483	4,261	99
2002	1,313	2,633	41,302	6,037	3,947	105
2003	1,600	3,555	52,061	6,625	4,461	105
2004	1,981	3,982	61,856	6,526	4,442	108

Source: Compiled by JICA Study Team based on yearly statistical database by WTO

Figure 5-1-1 Past Growth Performance



Note: Unit= US$ Million
Source: Compiled by JICA Study Team based on yearly statistical database compiled by WTO

- Cambodia does not have state-owned garment manufacturers. Besides, as indigenous garment makers are weak, the operation of wholly-owned subsidiaries of foreign companies has been authorized from an early date. As a result, the production and exports of garment items have been carried out by foreign companies.

- One of the characteristics of Cambodia's products is that they center on knitted products. Knitted products do not require large investments and shipping cost is low due to their light weight. Additionally, production efficiency in knitted products can improve quickly, despite the fact that their production does not require high levels of skill. Generally speaking, the production efficiency of knitted products is approximately 10 percent higher than that of woven-fabric products. Bangladesh is similar to Cambodia in that in both countries garment products account for about 80 percent of total exports and exports are low-priced, basic items. However, since the Bangladeshi garment industry's history is more than 10 years longer than that of Cambodia, Bangladesh is now expanding production from knitted products to woven-fabric products, whose added value is higher. In the fiscal year 2004/2005, woven-fabric products accounted for approximately 70 percent of Bangladesh garment exports. By contrast, in Cambodia, exports of woven-fabric products accounted for a mere 30 percent of garment product exports in 2005. In the future, an expansion to woven-fabric products, which have relatively higher price levels than those of knitted products, will proceed. Garment factories will have to absorb the gradual rise in wages in Cambodia through an improvement of garment unit prices by woven-fabric products.

- At present, 80 percent of Cambodia's garment product exports are destined for the United States and

about 20 percent for Europe. In order to promote exports to Japan in the near future, it is imperative to extend items from knitted products (such as underwear, pyjamas, nightwear, shirts, children's socks, and baby wear) to woven-fabric products (such as work clothes, semi-business shirts and business shirts), which some Japanese enterprises are interested in producing in Cambodia.

- The second characteristic of Cambodia's products is that out of the three categories of garments, namely outer garments (uniforms, training wear, jackets, blousons, trousers and skirts), middle garments (pyjamas, T-shirts, white shirts and sweaters) and undergarments (underwear), the country started with undergarments, which are easy to produce and for which quality standards are not very rigorous, and has been shifting to middle garments and outer garments. However, out of outer garments, as Cambodia has not acquired sufficient skills for the manufacture of business wear, to no small extent factories have specialized in undergarments and middle garments, so far.

- As long as Cambodia abides by ILO standards, it can depend on small-variety, large-lot orders from the US. Although quality control standards for the EU and US markets are lax compared with Japan, since orders for EU market are large-variety, small-lot, the share of the EU in Cambodia's exports is small. The share of Japan is almost zero in Cambodia's exports due to large-variety, small-lot orders from Japan, which has tough quality control standards.

- Foreign garment makers in Cambodia are trying to maximize profits through mass production of low-margin basic items, against the backdrop of abundant, inexpensive labor. Since small-lot orders are not conducive to profit maximization despite the fact that they require more work, foreign garment makers in Cambodia have not been aiming for small-lot production of high-margin luxury items. At this point, there has been the mismatch of the business conditions of the garment industry in Cambodia and the business strategies of Japanese garment companies. In fact, Japanese companies have produced large lots of low-margin basic items in China and small-lots of high-margin luxury items in Vietnam.

- Cambodia depends on imports for all of its material and accessories and auxiliary material needs, because of the absence of the upstream sector (which produces yarn and fabrics) and supporting industries (which produce accessories and auxiliary materials) within the country. As a result, although production in Cambodia has the benefit of comparative low wages, the shipping cost of imports of materials, accessories and auxiliary materials is a demerit. After mainly taking these two factors into consideration, the amount of profits is determined by production efficiency.

- Due to difficulties in purchasing materials and making quick responses to product markets, operations in Cambodia are primarily sewing on commission for US brand items. As a result, there is very little businesses under the develop-and-export scheme, under which companies purchase materials at their discretion, develop markets with their own brands and offer diverse fashions of their own.

- In Vietnam, the high ratio of garment products to total exports is similar to Cambodia and Bangladesh. Vietnam and Bangladesh have accrued 20 years of experience since they began garment making in the 1980s. As a result, they both have domestic cotton knitting and weaving sectors and dyeing sectors to some extent, which is the main point of difference from Cambodia. Furthermore, in Vietnam, Japanese enterprises took note of the Vietnamese people's manual dexterity and fashion sense, introducing Japanese-style plant management methods that were accepted by Vietnamese workers. The result is a marked improvement in the level of skill, and Japanese enterprises are carrying out large-variety, small-lot production of high-margin, luxury items (women's suits, men's suits, children's wear and dress shirts) for export to Japan. In contrast, in Bangladesh, there are only a few cases of sewing-on-commission business or investment projects undertaken by Japanese enterprises, because the country is in the Islamic sphere and also because it is prone to labor strikes. The few Japanese companies investing in Bangladesh export mostly low-priced, basic items to the US and the EU.

- Out of garment products made in Cambodia, items of relatively high grade, such as jeans, compete with those of China and India. These countries have raw cotton, cotton spinning plants, cotton knitting and weaving plants, synthetic fibre knitting and weaving plants, etc., within the country and can purchase materials domestically. They are also similar in that they have huge labor forces and can engage in integrated manufacturing of garment products, including materials. Armed with their design capability and brand power, these countries sell their garment products in a slightly higher price range than those of Bangladesh and Cambodia even for the same products. When the top two products were identified based on 1st ranking and 2nd ranking in share of imports by garment product in the US market in 2005, it was found that India and China competed in cotton woven dress, cotton woven blouse, cotton woven skirts, etc. As a result, India has been the largest beneficiary in woven products after the imposition of safeguard regulations on China by the US and the EU in May 2005. The following table shows present differences between the garment industries of India and China. In a nutshell, while India excels in cotton materials and design, China excels in chemical fibre materials and brand names. The table below helps to understand the investment conditions of both countries as competitors in comparison with those conditions in Cambodia.

Table 5-1-2 Comparison of the Garment Industry in China and India

China	India
• While the numerical quotas for the U.S. and the European markets remain unchanged so far, China focused on raising unit prices and upgrading its garment products, and successfully developed non-quota markets, especially Japan. • In addition to privatized enterprises, large township and village enterprises, foreign companies export garments of even quality in large quantities. Therefore, the export ratio to the US is high. Obsolete equipment is being replaced. • In the 1980s, large amounts of foreign investment including Japanese were made in Nantong City and Ningbo City, etc., primarily in synthetic fiber plants, making China a major synthetic fabric supplier. • Successfully established Chinese brands (Shanshan, Yangar, Matsuoka, etc). • Marked improvement in garment-manufacturing skills, such as from men's shirts to women's dress shirts and ensembles. • A characteristic of China's garments is an extensive product line, from low-priced, basic items to high-priced, luxury items. In recent years, technology transfer from Japan has improved weaving technology (e.g., shrink-proof, loose-yarn proof) and garment-making skills (e.g., careful sewing), further upgrading products to high-priced, luxury items. In addition, about 2,000 Japanese garment companies run businesses in China. However, generally speaking, compared with luxury items from Poland, Romania, Morocco and Tunisia, which have long exported to the EU market, which traditionally has had rich culture and high fashion sense, unit prices of luxury items from China are 25% to 10% lower. Further improvements, therefore, are required. • In addition to the improvement in products, China made the following administrative reforms in the 1990s. -The Ministry of Spinning and Weaving Industry of the central government, which controls enterprises run by the central government, was scaled down to the Bureau of Spinning and Weaving Industry and placed under the State Economic and Trade Commission, to change its role from mainly administrative guidance to primarily industrial strategy. -The government has abolished the divisions of Spinning and Weaving Industry of local governments, which control regional state-run enterprises, and reorganized them into Textile and Garment Associations. The Associations, as semi-governmental trade associations under the central federation of associations, provide market information, support for new product development and management guidance	• As exports have increased steadily thanks to about 10 percent increases annually in numerical quotas to the US and the EU, India has not made much effort in raising prices and upgrading its products. It is weak in developing non-quota markets, including Japan. • Exports mostly consist of small-lot exports of products in different designs and colors by SMEs. The export ratio to the EU is high. It has been slow in replacing obsolete equipment. Production efficiency is lower than China and other South Asian countries. • However, there is strong US and EU demand for shirts, blouses, trousers and skirts made of soft Indian cotton, and India is highly competitive. In the US, India's cotton woven-fabric blouses and cotton dresses occupy first and second place, respectively, in their categories. In men's cotton woven-fabric shirts, India has the third largest share in the US. These products are also strong in the EU market. In both markets, export amounts of these products are the same or double those of China. • Soft cotton Madras plaid pants, made of fine gauge cotton fabric for export, are unrivalled. • As India has depended on Western buyers, it has been rather slow in establishing own company brands. • It has accumulated skills in making light garments, such as sari, but not in heavy garments, such as coats and suits. • India's production efficiency is the lowest among the four South Asian countries. In 2005, it was approximately 70% that of Bangladesh and an estimated 60% that of China, though India aims at improving it. Pro-labor laws and the lingering practice of not wanting to work with people from lower castes stand in the way of productivity improvement. • As many low-productivity shuttle spinners are used, the government, in anticipation of the abolition of the MFA in 2005, encouraged the shift to jet spinners with financial and fiscal measures. • The Ministry of Textiles presented New Textile Strategy 2010 and made the following proposals: - For technology modernization in the textile industry, an interest subsidy of 5% a year will be extended to plant and equipment investment through 2004. A 50% accelerated depreciation for plant and equipment investment in the textile and garment-making industries was authorized. For the textile sector, other than knitted products, 100% foreign-owned companies are to be authorized. Import tariffs on equipment to be used in the production of textiles and garment products for exports are to be reduced from 15% to 5%. - A sales tax exemption has been granted to smaller

China	India
to their member firms. They also encourage voluntary regulation by the industry.	enterprises, such as handicraft-type dyeing plants and also non-integrated dyeing plants. As this has hampered the improvement of dyeing technology, and because the government is aware that the dyeing sector is the sector that lags most, it abolished these tax incentives that hamper technology advancement. - There is no change in the strategy that earmarks cotton materials for exports and chemical and synthetic materials for domestic demand. - Apparel parks, apparel international marts and other facilities for export promotion should be established.

Source: Compiled by JICA Study Team

- Although no Japanese garment enterprise is now operating in Cambodia, Japanese enterprises are contemplating commencing 'sewing-on-commission' for basic items in Cambodia, given an improvement of investment conditions there due to the great efforts of CDC/CIB, rising wages and the appreciation of local currencies in Thailand and China, and rising wages, recruiting difficulties and an exodus of talented workers from the garment industry in Vietnam. The interview surveys conducted by the JICA Study Team found that sewing-on-commission of the items meeting the following criteria for export to Japan is attracting attention:
  - Items do not require high skill levels;
  - Demand does not fluctuate much;
  - Styles do not change, and
  - Quality standards are not rigorous. Items include, work clothes, uniforms, semi-business, business, casual, and polo shirts, T-shirts, trousers, socks, underwear and pyjamas.

5.1.2 SWOT Analysis of Cambodia's Garment Products

Table 5-1-3 SWOT Analysis

	Strengths	Weaknesses	Opportunities	Threats
Sales	・ Leveraged by low wages to meet US demand for low-priced items, it is strong as a production base of small-variety, large-lot orders. ・ Although the profit ratio before income tax is an average of 5-6%, the abundance of orders can maximize the amount of profits. ・ Since it abided by the ILO standards even before the abolition of MFA, US quotas have increased by an average	・ As 90% of orders are via Western buyers or agents, a few Cambodian firms have their own sales channels. Sales are primarily sewing-on-commission and there are very few develop-and-export schemes. ・ As production sites are far from export markets, it is difficult to make quick deliveries in response to changes in fashion.	・ If the garment industry establishes antenna shops in major overseas markets and builds its own sales channels, markets will develop. ・ Against the backdrop of rising wages, labor shortages and strong local currencies, some Japanese garment makers in China, Vietnam and Thailand are contemplating starting sewing-on-commission in Cambodia for exports	・ Future rivals to some extent are Bangladesh, which makes similar items, Vietnam after 2007 (WTO accession), and China after 2009 (removal of safeguards). ・ When the safeguards against China are removed in Jan. 2009, if the Chinese Yuan currency is not appreciated soon, garment exports from Cambodia may face a challenge.

	Strengths	Weaknesses	Opportunities	Threats
	15% per annum.		to Japan. If they enter Cambodia, it will provide quality improvements and market diversification.	
Production	・ Cambodia has an accumulation of garment-making skills for more than 250 foreign firms, which are bigger than those of Lao PDR. ・ In China, Vietnam and Thailand, talented workers go to the auto or electrical machinery and electronics industries, not to the garment industry, which has passed its peak. However, in Cambodia, since the garment industry is the largest exporter, it is comparatively easy to recruit talented workers,. ・ Although Cambodia's garment industry is only half as old as that of Bangladesh and Vietnam, its production efficiency is up to 90% of theirs. Though its productivity is lower at the 90% level than that of China, it is higher than that of Laos, which does not have the accumulation of skills. ・ Labor cost is lower than that in Thailand, China and Vietnam.	・ Since exports center on simple knitted products, in many items, unit prices are below the world average import unit prices in the Western markets, resulting in low added-value. At a minimum, it is necessary to upgrade to woven-fabric products. ・ Cambodia must import all materials due to the absence of the upstream sectors, such as knit yarn spinning plants, fabric weaving plants and the dyeing sector. ・ Lead-time for material imports and product exports is long, and shipping costs are high. As infrastructure cost is high due to its under-development, low wages are partly offset by such costs.	・ The introduction of Japanese quality control standards should contribute to increased unit prices of exports. ・ If offshore oil, which is under development, is used for electric power, power rates, which are in excess of 15 cents, should be reduced. ・ In the medium and long terms, if an East-West corridor is built in South Indo-China, it will enable purchases of Japanese firm-made, high- quality materials from Thailand via land. Inspection institutes at Ho Chi Minh and exports from HCM to the US, the EU and Japan are a possibility. ・ The government is promoting the establishment of Special Economic Zones (SEZs) which will be effective in drawing foreign garment companies.	・ Due to the long lead-time, it is difficult to quickly respond to fashion changes in the Western markets. ・ There is an increase in the minimum wage from $45/mo to $50/mo effective from January 2007. Production efficiency needs to be improved further.

	Strengths	Weaknesses	Opportunities	Threats
Government strategy	・ An improvement of investment conditions in Cambodia due to great efforts of CDC/CIB ・ Honoring the ILO standards is linked to US orders. ・ Due to GSP for the Western countries, import tariffs to these countries are low. ・ Business management in the garment industry is not interrupted, as in Myanmar, so that it is an insecure position, where ultra-legal changes in laws are frequent.	・ The number of legal holidays (national holidays and paid vacation) is one of the largest in Asia.	・ As the garment industry will remain the largest export industry, if main infrastructures such as SEZs are developed and the upstream sectors and supporting industrial sectors introduced, Cambodia's competitiveness will be enhanced further. ・ The government should continue to attract foreign firms that have new markets, new technology and new designs.	・ It is undeniable that under a pro-labor law, employee discontent tends to lead to labor strikes.

Source: Compiled by JICA Study Team

5.2 The Outlook for Cambodia's Garment Industry: Changes in the International Environment and a Scenario for Medium and Long-Term Development

The outlook for Cambodia's Garment Industry can be studied over six periods as follows**.**

5.2.1 The Impact of the Removal of MFA in January 2005

(1) Prior to the abolition of the MFA (Multilateral Fibre Agreement) (up to December 2004), exports to the US and the EU of, for example, Chinese garment products were held down.

Table 5-2-1 Growth Rate of US Base Quotas for its Main Asian Competitors

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005 first half
Bangladesh	8.1	8.1	8.1	10.2	10.2	10.2	10.2	12.9	12.9	12.9	21.5
China	-	-	1.7	0.1	1.7	1.7	1.7	0.4	2.4	2.0	94.3
India	6.7	6.7	6.7	8.4	8.4	8.4	8.4	10.6	10.6	10.6	34.4
Indonesia	6.2	6.2	5.5	7.7	7.7	7.7	7.7	8.3	9.8	9.8	15.1
Pakistan	7.6	11.9	7.6	9.2	9.4	9.5	9.5	14.9	12.0	12.0	6.9
Sri Lanka	6.1	6.2	6.2	7.7	7.7	7.7	7.7	6.3	9.7	9.7	16.4
Thailand	6.1	6.1	6.1	6.0	7.6	7.6	7.6	7.6	9.6	9.6	6.4
Vietnam	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	6.0	-0.9
CIB	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	1.2
Mexico											-9.4
World											9.5

Note : n.q. = non-quota. The Anti-China Safeguard is another quota system, only for China, that commenced in the second half of 2005. Table shows the percentage change per year.
Source: Compiled by JICA Study Team based on statistics of US Department of Commerce

(2) After the abolition of MFA, demand for products made in NAFTA countries, especially the Caribbean nations (CBITA: Caribbean Basin Trade Partnership Act), and, in the case of the EU, from North Africa, Eastern and Central Europe (OPT countries: Outward Processing Trade) has shifted to demand for products made in South Asia and Southeast Asian countries, including Cambodia.

(i) Under the NAFTA scheme, garments made in Latin American countries from US textiles were imported to the US with no quotas and import duty-free. Under the OPT scheme, garments made in North Africa, and the Eastern and Central Europe from EU textiles were imported to the EU with no quotas and import duty-free. The countries under these schemes have lost the benefits of non-quota status after the abolition of the MFA. As a result, the US and the EU demand for garments made within the NAFTA or OPT countries (where costs are relatively higher than those of Asian countries) is being replaced by demand for garments made in the Asian countries and other low-cost countries outside of these schemes. Accordingly, the US and the EU imports by region have been undergoing a big change.

Table 5-2-2 US Import Ratio by Region

	1995	2000	2004	2005
Asia	63.8	55.0	60.2	Increasing
Middle and South America	22.4	30.2	15.7	Decreasing
Western Europe	6.8	5.9	5.9	Stable
North America	2.2	3.0	11.5	Decreasing
Middle East	2.1	2.2	2.7	Stable
Africa	1.8	2.0	3.2	Stable
Central Europe, East Europe and Russia	1.0	1.2	0.8	Stable
Total	100.0	100.0	100.0	100.0

Note: No available figures for 2005. Unit: %.
Source: Compiled by JICA Study Team based on WTO International Statistics

Table 5-2-3 EU Imports Ratio by Region

	1995	2000	2004	2005
Western Europe	51.7	47.4	50.8	Stable
Asia	30.1	32.4	35.8	Increasing
Central Europe, East Europe and Russia	8.3	10.3	5.8	Decreasing
Africa	6.9	7.7	6.3	Stable
Middle East	1.2	0.9	0.5	Decreasing
North America	1.1	0.7	0.5	Decreasing
Central Europe, East Europe and Russia	0.5	0.4	0.3	Stable
Total	100.0	100.0	100.0	100.0

Note: No available figures for 2005. Unit: %
Source: Compiled by JICA Study Team based on WTO International Statistics

(ii) Quantitative regression analyses on the impact of garment exports from several Asian countries to the US market against the dummy variable taken as a proxy of MFA shows that

MFA effect in 2005 has a statistically significant positive impact on China (*"LnChinagarexp = 22.59 + 1.24 MFA"*)[21] and also on India (*"LnIndiagarexp = 21.47 + 0.78 MFA"*)[22]. It is also identified that the MFA effect in 2005 has a positive impact on some developing and underdeveloped countries whose garment manufacturing industries are found to be stronger than other underdeveloped countries, such as Cambodia (*"LnCamgarexp = 17.08 + 4.19 MFA"*)[23] and Bangladesh (*"LnBanglagarexp = 21.09 + 0.53 MFA"*)[24]. Hence it can be interpreted that the MFA effect in 2005 does not have an adverse impact on Cambodia due to its higher revealed comparative advantage in garment manufacturing products. It is evident that Chinese garment exports to the US increased by 53% in 2005 and Cambodian garment exports to the US increased by 20% in 2005 in value.

5.2.2 The Impact of the Safeguards Regulation on Chinese-Made Garments Since June 2005

Due to unprecedented influx of textiles and garment products from China in the post MFA period, the US and the EU started imposing restrictions. On 23rd May 2005, the US imposed restrictions on cotton knit shirts and blouses, cotton trousers, slacks and shorts, and cotton and MMF underwear made in China. On 27th May, it further imposed limits on cotton yarn, men's and boy's cotton and MMF shirts (non-knit), MMF knit shirts and blouses and MMF trousers. It thus appears that the categories on which limits have been reintroduced were among those for which quotas were the most restrictive during the ATC regime. Following these measures and subsequent additional requests for safeguard action, in November 2005 the US and China arrived at a broad pact. In exchange for guaranteed access to the US, China agreed for three years to limit its exports of 34 categories of garment, accounting for 46% of Chinese textiles and garment imports into the US, so that in 2006 they will not increase by more than 10 percent (average) above the previous year, and by no more than 12.5 percent (average) year-on-year in 2007 and by no more than 17 percent (average) year-on-year in 2008. On 10th June 2005, the EU and China also concluded a Memorandum of Understanding (MOU) that covered imports from China in 10 categories of products, setting a quota limit for the remainder of 2005 and for 2006 and 2007 allowing for an increase in import volume by 10% per annum.

[21] LnChinaexp stands for natural log of Chinese garment product exports to US market in quantity and MFA is the dummy variable representing the 2005 MFA effect

[22] LnIndiagarexp stands for natural log of Indian garment product exports to US in quantity and MFA is the dummy variable representing the 2005 MFA effect

[23] LnCamgarexp stands for natural log of Cambodian garment product exports to US market in quantity and MFA is the dummy variable representing the 2005 impact

[24] LnBanglagarexp stands for natural log of Bangladeshi garment exports to US in quantity and MFA is the dummy variable representing the 2005 impact

Table 5-2-4 Trends of U.S. Imports of Garment Products

	Jan. –May 2006 (Value)		Jan.-May 2006 (Unit volume)	
	million $	Y-o-y increase	Million m2	Y-o-y increase
World	25749	-0.9	8134	-3.0
China	5051	-8.1	1788	-12.6
Mexico	2128	-14.1	617	-14.0
Pakistan	4711	6.0	252	14.5
South Korea	372	-14.6	127	0.2
India	1549	19.5	395	13.4
Indonesia	1370	24.7	392	16.8
Honduras	919	-14.2	431	-14.2
Bangladesh	1074	25.1	499	17.9
Thailand	724	4.5	225	8.1
Vietnam	1222	28.9	359	24.9
El Salvador	498	-26.9	250	-29.8
Hong Kong	1094	20.9	196	20.0
Dominican Republic	617	-18.9	238	-20.3
Cambodia	767	30.0	309	32.3
The Philippines	769	16.1	236	23.1
Sri Lanka	766	1.1	182	-0.6

Source: 'Trade Data: U.S. Imports and Exports of Textiles and Apparel', (Department of Commerce in the US, July 2006).

Statistical regression of Chinese garment exports to the US against the dummy variable representing the impact of safeguard measures in 2006 (*"LnChinagarexpQ = 21.78 – 1.25 D"*)[25] shows negative relationship whereas regression of Cambodian garment exports to US against the same dummy variable (*"LnCamgarexpQ = 17.14 + 6.41 D"*)[26]. These statistical analyses show that safeguard measures imposed by the US have some kind of negative effect on Chinese garment exports to the US, while they have positive impact on Cambodian garment exports although statistical significance is not present. Hence, it is evident that demand for Chinese products might have partly shifted to that for garments made in Cambodia[27] and other countries.

5.2.3 Industrial Changes and Their Impact: Rising Wages, High Worker Turnover and Manpower Shortages in the Garment Industry in China, Vietnam and Thailand and the Appreciation of Local Currencies in China and Thailand

(1) In China, Vietnam and Thailand, the industrial structure is changing, with the electrical and electronics industry and auto industry replacing the garment-manufacturing industry as the major industry, and has been conspicuous since the beginning of 2006. As a result, in these countries rising wages, high worker turnover and manpower shortages in the garment industry are worsening, while local currencies are appreciating. For example, in China, in May Su Hai Nan, director of Institute for Labor and Wage studies under the Ministry of labor and social security, stated, "The

[25] LnChinagarexpQ stands for natural log of Chinese garment exports to the US in quantity and D is the dummy variable representing safeguard measures imposed by the US in 2006
[26] LnCamgarexpQ stands for natural log of Cambodian garment exports to the US in quantity shows positive relationship
[27] Statistical regressions are conducted through Minitab and Sgwin statistical software and data source is the US Department of Commerce.

labor cost in China can increase further. However, long-term development planning should not be based on dependence on the competitiveness arising from low wages." He argued for increasing value added of the industries, stating "the system for selling 1.2 billion shirts should be changed into a system for manufacturing one jumbo jet."

(i) Statistical regression analysis of Cambodian garment exports to the US against time-series of wage levels in China (i.e. *"Camexpgrowth = 8.66 + 50.40 Chinawage"*)[28] shows that the growth of wage levels in Chinese manufacturing sector historically is found to be positively related to Cambodian garment sector's export growth in the past, although such relationship is not statistically significant. It means that Cambodian garment exports tend to rise when the wage level in China increases. Increased level of wages in China might have shifted some industries from China to Cambodia resulting in increased level of Cambodian garment exports.

(ii) In Vietnam, the prime ministerial Decree No. 03/2006/ND-CP has requested to raise the minimum wage for unskilled and manual laborers in foreign enterprises. Previously, prior to such decree, workers' basic monthly wage was roughly VND 500,000 (US$ 31.6) at most Taiwanese companies, over VND 700,000 (US$ 44.35) at Japanese companies and VND 800,000 (US$ 50.6) at European companies[29]. With other allowances, most workers generally earned nearly VND 1 million (US$ 63) per month. Now, the decree has raised minimum wages from US$ 45 to US$ 55 monthly in urban Hanoi and Ho Chi Minh City, from US$ 40 to US$ 50 in suburbs of those cities and within many of Vietnamese major cities and ports, and from US$ 35 to US$ 45 in all other areas. With other allowances, workers will be paid around US$100, which is a significant raise. The Ministry of Labor, War Invalids and Social Affairs (Molisa) estimates the decree will result in an almost 40% raise. Such a raise is expected to trigger investors' decisions related to investment in foreign labor-intensive manufactures in Vietnam and relocation to other countries where the level of wages is still below Vietnam.

(2) As a result, Japanese garment manufacturers in China, Vietnam and Thailand are starting to shift their production to Laos and Cambodia in search of low wages, abundant labor forces and improved investment conditions.

5.2.4 The Impact of the Removal of Quotas on Vietnam (in January 2007) Resulting from the Country's Accession to the WTO

(1) The removal of quantitative quotas on Vietnam is expected to sharply increase the exports of garments made in Vietnam to the US and the EU.

(2) However, for the same products destined for the US and EU, export competition between

[28] Camexpgrowth stands for Cambodian garment export growth to US market and Chinawage is the growth of Chinese wage levels in manufacturing sector

[29] Source: Vietnam Investment Review (Jan 9~15, 2006)

Cambodia and Vietnam is not expected to intensify so much, because the Cambodian and Vietnamese revealed comparative advantages in some categories of garment products are not similar. For instance, Cambodia is stronger (having much higher revealed comparative advantage) in category 341 items (women/girls' non-knit cotton shirts/blouses), category 342 items (cotton skirts), category 348 items (women/girls' cotton trousers/slacks/shorts), category 351 items (cotton nightwear/pyjamas) and category 651 (MMF nightwear/pyjamas) than those of Vietnam. In other words, due to different level of specialization in different categories of garment products, Cambodia will not be seriously hurt by the Vietnamese accession to WTO that is expected to happen in 2006. This is why foreign garment companies differentiate their production items through taking investment circumstances of each country into account.

Table 5-2-5 Comparison of Vietnamese and Cambodian RCA in Different Garment Products

Year	RCA-338 M/B Cotton Knit Shirt Vietnam	RCA-338 M/B Cotton Knit Shirt Cambodia	RCA-339 W/G Cotton Knit Shirt Vietnam	RCA-339 W/G Cotton Knit Shirt Cambodia	RCA-340 M/B Cotton Woven Shirt Vietnam	RCA-340 M/B Cotton Woven Shirt Cambodia
1997	1.14	2.80	1.41	5.83	6.59	1.12
1998	1.70	9.80	0.73	25.90	5.07	2.06
1999	2.30	10.36	1.47	19.51	8.00	7.96
2000	2.01	10.97	1.80	14.48	7.49	14.70
2001	2.12	11.23	1.70	17.82	4.87	10.19
2002	9.90	9.55	11.29	12.88	5.90	8.38
2003	12.36	9.03	18.56	10.92	7.59	10.53
2004	12.50	8.53	17.55	12.05	10.41	9.50
2005	8.92	8.13	14.25	7.86	10.84	12.77

Year	RCA-341 W/G Cotton Blouse Vietnam	RCA-341 W/G Cotton Blouse Cambodia	RCA-342 Cotton Skirts Vietnam	RCA-342 Cotton Skirts Cambodia	RCA-347 M/B Cotton Pants/Shorts Vietnam	RCA-347 M/B Cotton Pants/Shorts Cambodia
1997	0.23	0.04	0.06	0.27	0.11	9.81
1998	0.24	0.13	0.08	2.49	0.09	22.05
1999	0.11	2.49	0.20	11.30	0.07	26.93
2000	0.05	11.20	0.03	34.75	0.39	24.01
2001	0.17	12.60	0.03	51.67	0.16	15.11
2002	3.45	8.05	5.71	38.07	6.90	13.88
2003	5.18	8.71	12.69	48.03	12.97	14.37
2004	3.68	14.19	5.35	51.98	7.55	10.74
2005	3.86	14.09	4.43	49.81	6.17	8.92

Year	RCA-348 W/G Cotton Pants/Shorts Vietnam	RCA-348 W/G Cotton Pants/Shorts Cambodia	RCA-351 Cotton Nightwear & Pajamas Vietnam	RCA-351 Cotton Nightwear & Pajamas Cambodia	RCA-651 MMF Nightwear & Pajamas Vietnam	RCA-651 MMF Nightwear & Pajamas Cambodia
1997	0.45	4.09	0.00	3.62	0.06	0.53
1998	0.23	12.24	0.00	4.46	0.10	1.39
1999	0.20	16.69	0.00	22.10	0.20	3.37
2000	0.38	19.84	0.00	48.81	0.23	14.68
2001	0.30	14.12	0.01	70.06	0.15	53.34
2002	10.30	16.56	3.23	74.27	4.96	82.02
2003	15.18	22.70	4.52	100.53	5.30	85.10
2004	11.73	20.08	1.61	101.56	3.28	116.38
2005	11.81	22.26	4.19	105.48	3.17	128.12

Source: RCA calculation based on data acquired from the US Department of Commerce

5.2.5 The Impact of the Removal of Safeguards on Garments Made in China after January 2009

As lifting of safeguards will remove quantitative regulations on garments made in China, exports of Chinese products to the US and the EU are expected to increase sharply. However, for the same products destined for the US and the EU, export competition between Cambodia and China is not expected to intensify too much. The reason is as follows. Statistical regression analysis *"LnCamgarexp = 17.08 + 4.19 MFA"*[30] shows that the MFA impact in 2005 did not have any significant negative effect on the Cambodian garment manufacturing industry as it even had a positive effect on Cambodian garment exports, although such effect is not statistically significant at the 95% confidence level. In other words, the Cambodian structure of export items to the US was not encroached upon by the Chinese structure of export items to the US after the abolition of the MFA in 2005. This was due to the differentiation between Cambodian and Chinese manufactured garment items. Cambodian garment exports to the US even rose by 20% in 2005 and 30% from January to June 2006 in comparison with the previous year or the period (of the previous year), though Chinese garment exports to the US rose 53% in 2005 and declined during January to June in 2006 in reaction to the safeguards regulation in 2005. Several foreign garment manufactures have gained increasing confidence in the improvement of investment conditions in Cambodia, and as a result they have been making decisions for relocation of their garment factories from China where wage levels are rising to Cambodia.

5.2.6 Impact of the Acceleration of the Revaluation of the Chinese Currency After January 2009

When quantitative restrictions on garment products made in China are removed, and the US presumably pushes for accelerated revaluation of the Chinese Yuan, there will be demand for Cambodian products to substitute for demand for Chinese products. To understand the nature of the impact of the Chinese currency's revaluation, we should first analyze the impact of its first revaluation in July 2005 on Cambodian garment exports. Since we are mainly concerned with the garment industry, we shall analyze the impact of the Chinese currency's first revaluation on Cambodian and Chinese garment exports to the US. With the aim of finding out the impact of the first revaluation of the Chinese currency on garment exports, the monthly quantitative growth of Chinese garment exports is regressed against the dummy variable that is taken as a proxy of Chinese currency revaluation that took place in July 2005. Statistical regression *"Chinagarexp = 0.12 – 0.11 D"*[31] shows that revaluation of the Yuan has a negative impact on the amount of Chinese garment exports, whereas it tends to have a positive effect on Cambodian garment exports, as proven by the statistical regression (i.e. *"Camgarexp = 0.03 + 0.01 D"*[32]). The above statistical regression analyses suggest that the first revaluation of Chinese currency in July 2005 had negative effect on Chinese garment exports growth whereas it had a positive effect on Cambodian garment exports growth. Hence, Chinese currency revaluation might have replaced demand for Chinese products with demand for Cambodian products. Hence the rapid acceleration of Chinese currency revaluation after 2009 is also expected to have the same effect on

[30] LnCamgarexp stands for natural log of Cambodian garment exports to US and MFA is the dummy variable representing 2005 MFA impact

[31] Chinagarexp stands for the growth of Chinese garment exports in quantity and D is the dummy variable representing Chinese currency revaluation in July 2005

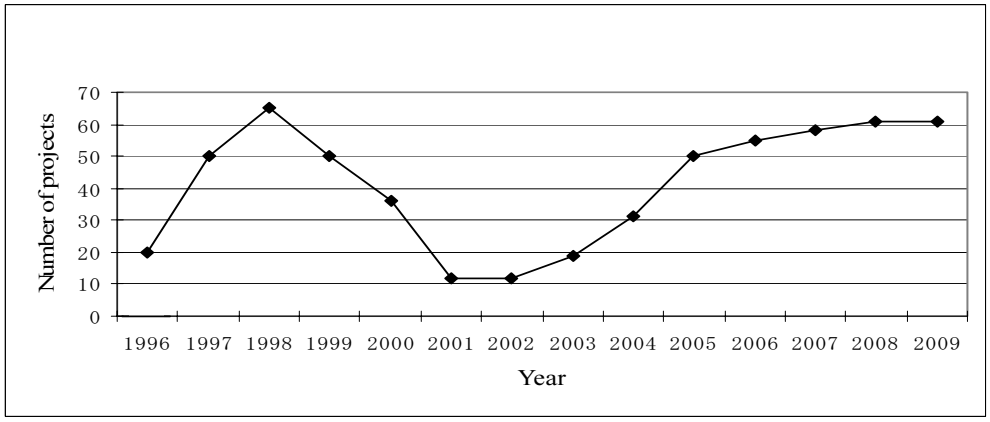
[32] Camgarexp stands for the growth of Cambodian garment exports to the US in quantity and D is the dummy variable representing Chinese currency revaluation in July 2005

Cambodian garment exports growth leading to a situation where Cambodian garment products exports are expected to gain an advantage from such revaluation.

5.2.7 A Forecast of the Volume of Investment in Cambodia by Foreign Companies Up to 2020

(1) Trend Analysis

Figure 5-2-1 Annual No. of Investment Projects in Cambodia by Foreign Garment Makers



Source: Charted by JICA Study Team based on GMAC materials

- 1996-1998: Non-quota period
- 1998-2001: Quota period (to be precise, 1999-2001). However, Cambodia secured an increase of approximately 15 percent in quota by committing to honor the ILO provision.
- 2002-2005: Negotiations for WTO accession and the transition to non-quota after the accession.
- 2006-2008: Period of safeguards on Chinese products (start of operations by Japanese enterprises).
- 2009-: Lifting of the safeguards against China, but also a period of accelerated appreciation of the Chinese Yuan (further increase in operations by Japanese enterprises).

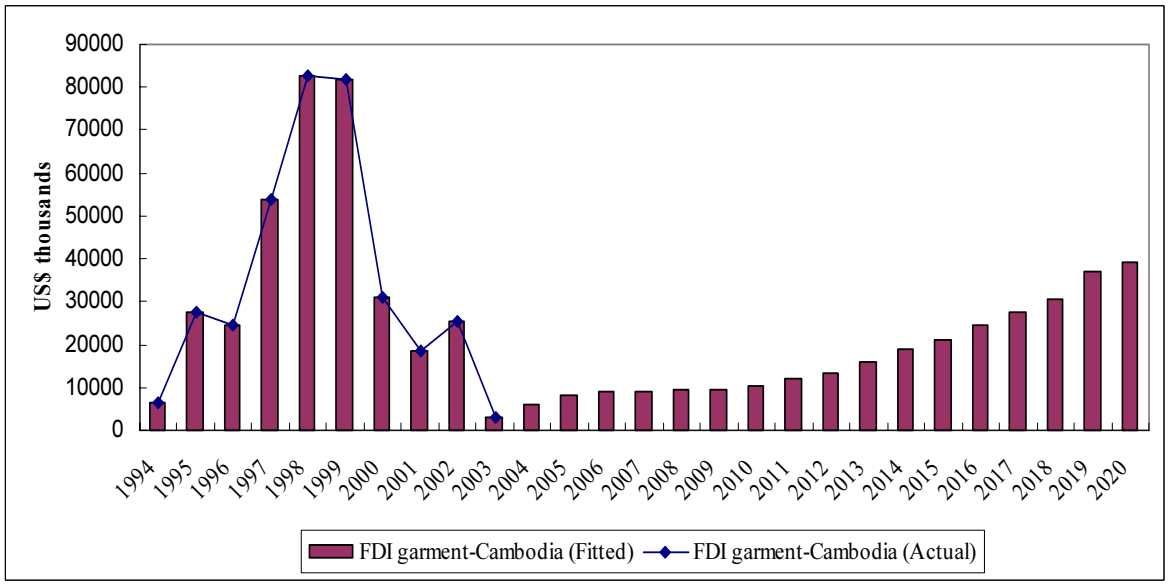
(2) A Forecast of the Value and Volume of Investment Through to 2020

(i) From Overseas

Compiling the quantitative forecast and the forecast taking into account qualitative international factors mainly during 2005 - 2009, a possible future trend of foreign investment into Cambodian garment manufacturing sector can be depicted. It should be noted that the qualitative forecast takes into account the impact of six possible future international events on the Cambodian garment manufacturing sector. A combination of quantitative forecast which takes into account the historical quantitative effects on the said sector and the qualitative forecast which takes into account subjective factors may get closer to the actual future trend[33].

[33] Taking calculated results footnote 20 to 27 into account, FDI is estimated based on CAMFDIGAR = 29.71 + 20.92 CAMCAPITA – 7.18 CAMECOFRE – 30.39 INFL + 0.39 CAMRCAUS + 37.79 CHIRCAUS – 48.56 THAIRCAUS – 6.12 VIETRCAUS. CAMFDIGAR is FDI flow into the Cambodian garment sector. CAMCAPITA is per capita GDP (World Bank). CAMECOFRE is economic freedom index (Heritage Foundation). INFL is Cambodian inflation rate (World Bank). CAMRCAUS is RCA from Cambodia to US in the garment sector. CHIRCAUS is RCA from

Figure 5-2-2 FDI in the Garment Industry of Cambodia



Sources: (1) FDI garment data (Actual): Council of the Development of Cambodia and other organizations
(2) FDI fitted data generated by the cross-sectional econometric model

(ii) From Japan

Japanese garment manufactures have made 40 investments in Vietnam, about 60 in Thailand, and about 610 in China. A JICA Study Team member interviewed about 70% of those with investments in Vietnam and about 60% of those with investments in Thailand. About 10% of the investors in China were interviewed in past surveys. The interview surveys show that Japanese garment manufactures which have possibilities of production on commission or investing in Cambodia within the next five years number about 5 from Vietnam, about 5 from Thailand, and about 20 from China, which means an annual average of about 6. If the average investment is assumed to be $500 thousand, the average annual investment will be $3 million. Next destinations for Japanese garment companies are Cambodia and perhaps Lao PDR, Myanmar and Bangladesh. However, each country has a lot of issues to overcome, such as small accumulation of skills in Lao PDR, trade sanctions imposed on Myanmar by US law, and difficulty in dealing with labor disputes experienced by Japanese companies in Bangladesh. As a result, further improvement of investment conditions will turn Cambodia into one of the big production bases for Japanese garment manufactures.

China to US in the garment sector. THAIRCAUS is RCA from Thailand to US in garment sector. VIETRCAUS is RCA from Vietnam to the US in the garment sector.

5.3 Evaluation of and Outlook for the International Competitiveness of Cambodia's Garment Industry

5.3.1 The Outlook for Production Costs and Production Efficiency

(1) Efficiency and Competitiveness for the Production of Major Garment Items by Country

As category 341 (W/G Cotton Blouse) is one of the high revealed comparative advantage items in Cambodia which are exported more to the US market, it is noteworthy to analyze the comparison of cost competitiveness of Cambodian and other countries' cotton blouses in the US market. It should be noticed that the comparison by purchasing prices in consuming countries are more significant than by FOB price in producing countries, because it is important to compare the competitiveness in the end retail market of export destination for evaluating export competitiveness. From this viewpoint, FOB prices in Cambodia have stronger price competitiveness compared with other countries. But purchasing prices of US retailers for the Cambodia item do not have significantly stronger price competitiveness compared with the same item of other countries.

Table 5-3-1 Cost Competitiveness of Imported W/G Cotton Blouse in U.S. Market in 2005

Exporting country	Cambodia	Thailand	China	Vietnam	Myanmar
Raw materials (including transportation)	2.7	2.2	2.0	2.5	2.7
Labor cost	0.6	1.4	1.3	0.8	0.3
Sub-total	3.3	3.6	3.3	3.3	3.0
Power charges	0.5	0.3	0.3	0.3	0.4
Depreciation	0.4	0.5	0.5	0.5	0.4
Overhead cost	0.4	0.7	0.6	0.6	0.4
Total production costs	4.7	5.1	4.7	4.7	4.2
Profits	0.3	0.5	0.4	0.5	0.3
FOB price	4.9	5.6	5.1	5.2	4.5
Shipping cost	2.7	2.2	2.1	2.2	2.6
Import tariff	0.2	0.4	0.4	0.4	0.4
Purchasing price	7.8	8.2	7.6	7.8	7.5
Sales price	15.0	15.0	15.0	15.0	15.0
Profit on sales	7.2	6.8	7.4	7.2	7.4

Note: (US$/piece)
Source: Compiled by JICA Study Team from various sources

The averaged FOB price between Cambodia and China products are more or less the same having a difference of only 20 cents. Totalling these two costs shows not so much difference among above-mentioned countries excluding Thailand and Myanmar. Such difference is mainly due to costs associated with raw material imports and labor cost, which are a major portion of production costs. Raw materials costs occupy about 60% of FOB price in Cambodia as they are imported from various countries especially from China, Taiwan, Korea, Indonesia, Malaysia, etc., whereas inexpensive raw materials for Chinese garment industries, which occupy only 40% of FOB price, are available domestically since domestic backward linkage is already developed in China. Unless the air-conditioning is turned off, power charges occupy only 3% of FOB price as sewing machines operate, though being apt to go to extremes.

Next, looking at the labor cost in order to analyze productivity (below table), Cambodia's monthly averaged labor cost is lower than those of Vietnam, China and Thailand. However, averaged productivity of Cambodian workers is lower than that of Vietnam, Thailand and China, leading to a situation where labor cost per piece does not make much difference with Vietnam after taking inexpensive labor cost in Cambodia into consideration. However, the largest problem for foreign-invested companies is that the garment industries in Vietnam, China and Thailand are no longer attractive enough to appeal to talented workers. As such, in the medium to long term, Cambodia has the potential for development because its garment industry has only a small labor force bottleneck.

Table 5-3-2 Labor Cost Performance Comparison of One-Piece W/G Cotton Blouse in 2005

	Myanmar	Vietnam	Thailand	China (Shanghai)	Cambodia
Production Pieces/ Per one person day (one day=9 hours)	6 pieces	9 pieces	9 pieces	10 pieces	7 pieces
Labor Cost/ month (U.S.$)	US$ 35	US$ 100	US$ 200	US$ 180	US$ 70
Labor Cost Performance (U.S.$ labor cost/piece)	US$ 0.23	US$ 0.44	US$0.88	US$ 0.72	US$ 0.40

Source: Compiled by JICA Study Team from data from various factories

(2) An analysis to select items in which Cambodia has export competitiveness

The selection of the items which are suited for production in Cambodia is a critical prerequisite for the development of projects, as it is impossible for Japanese garment makers to make a business plan (sewing-on-commission, develop and export, investment projects, etc.) unless items suited for production are identified. Firms will start operations in Cambodia if the selection is made.

(i) RCA forecast (till 2020)

(a) Since over 80% of Cambodian garment exports are for the US market, garment exports to the US are the main focus. Out of each category of garment products that Cambodia has exported to the US, 6 items are found to have secured higher export shares (over 5%). It is noted that garment items that have secured higher export shares out of Cambodian total garment exports to the US are category 338 items (men/boy's knit cotton shirts), category 339 items (women/girl's knit cotton shirts/blouses), category 347 items (men/boy's cotton trousers/breeches/shorts), category 348 items (women/girls' cotton trousers/slacks/shorts), category 351 items (cotton nightwear/pyjamas) and category 651 (MMF nightwear/pyjamas). The share of each category until 2005 can be seen in the following table:

Table 5-3-3 Export Value and Export Share of Cambodian Garments in the US

Category	2003		2004		2005	
	Exports to US (US$ mil)	Export share	Exports to US (US$ mil)	Export share	Exports to US (US$ mil)	Export share
334	6.97	1%	11.51	1%	13.11	1%
335	7.88	1%	10.26	1%	28.00	2%
336	11.89	1%	8.31	1%	6.39	0%
338	85.78	**7%**	91.08	**7%**	122.16	**7%**
339	113.63	**9%**	151.40	**11%**	246.09	**15%**
340	40.09	3%	46.31	3%	44.14	3%
341	22.89	2%	41.88	3%	43.94	3%
342	59.87	5%	87.66	6%	64.16	4%
345	5.41	0%	8.87	1%	6.17	0%
347	134.97	**11%**	111.16	**8%**	131.39	**8%**
348	260.67	**22%**	262.05	**19%**	347.85	**21%**
349	2.43	0%	2.02	0%	0.75	0%
350	8.79	1%	15.06	1%	24.61	1%
351	156.60	**13%**	171.41	**12%**	128.64	**8%**
352	17.62	1%	21.84	2%	31.57	2%
354	0.00	0%	0.04	0%	0.04	0%
359	18.13	1%	22.50	2%	25.48	2%
634	22.90	2%	15.57	1%	25.52	2%
635	2.46	0%	2.88	0%	6.92	0%
636	7.67	1%	7.79	1%	4.55	0%
638	6.46	1%	15.31	1%	18.83	1%
639	32.44	3%	46.54	3%	62.55	4%
640	10.67	1%	6.49	0%	5.26	0%
641	8.94	1%	15.38	1%	14.57	1%
642	29.38	2%	34.57	2%	17.21	1%
643	1.75	0%	1.34	0%	1.65	0%
644	9.04	1%	7.56	1%	3.64	0%
645	0.03	0%	0.00	0%	0.00	0%
646	1.41	0%	1.17	0%	1.64	0%
647	3.96	0%	5.28	0%	23.19	1%
648	9.01	1%	6.58	0%	24.89	1%
549	1.78	0%	3.49	0%	6.48	0%
650	10.47	1%	8.09	1%	18.39	1%
651	69.04	**6%**	107.87	**8%**	125.25	**7%**
652	2.37	0%	1.14	0%	4.77	0%
653	0.00	0%	0.02	0%	0.03	0%
654	0.31	0%	0.67	0%	1.11	0%
659	26.86	2%	44.62	3%	39.27	2%
653	0.00	0%	0.00	0%	0.00	0%
Total	1210.57	100%	1395.72	100%	1670.21	100%

Source: Compiled by JICA Study Team based on US Department of State

(b) Export trends of each category of garment products from Cambodia to the US in the past 10 years are depicted in the following chart.

(c) With a view to seeing Cambodian strength in each garment item that has secured higher export shares out of total garment exports to the US in the past three years, the dynamics

of RCA in each item are analyzed in the following table. The dynamic RCA analysis reveals that Cambodia is much stronger in cotton and man-made-fiber nightwear (category 351 and 651 items) compared to other items.

Table 5-3-4 Cambodian Revealed Comparative Advantages in Different Categories

Year	RCA-338	RCA-339	RCA-347	RCA-348	RCA-351	RCA-651
1997	2.80	5.83	9.81	4.09	3.62	0.53
1998	9.80	25.90	22.05	12.24	4.46	1.39
1999	10.36	19.51	26.93	16.69	22.10	3.37
2000	10.97	14.48	24.01	19.84	48.81	14.68
2001	11.23	17.82	15.11	14.12	70.06	53.34
2002	9.55	12.88	13.88	16.56	74.27	82.02
2003	9.03	10.92	14.37	22.70	100.53	85.10
2004	8.53	12.05	10.74	20.08	101.56	116.38
2005	8.13	7.86	8.92	22.26	105.48	128.12

Source: Calculated by JICA Study Team based on data from the US Department of Commerce

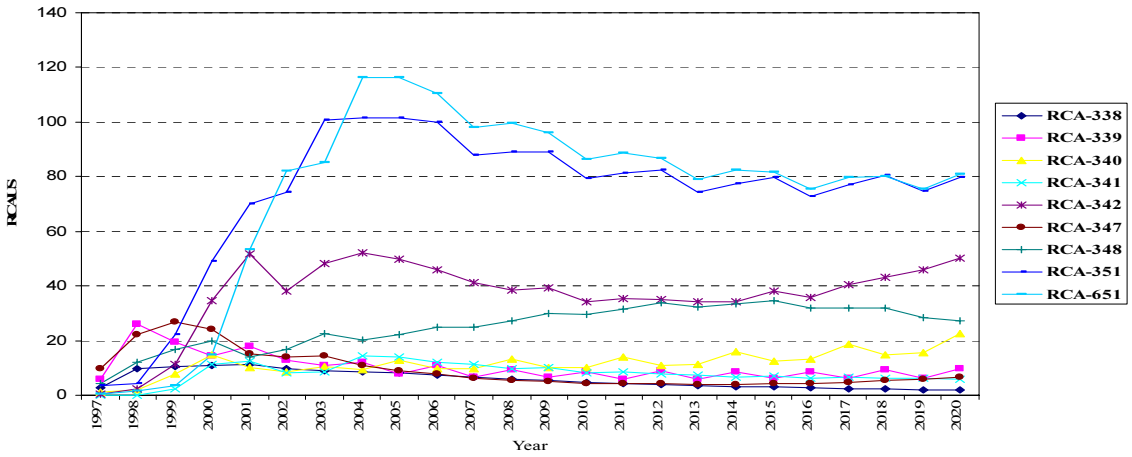
(d) We shall further see the future scenarios/trends of Cambodian RCA of nine categories including another three categories that have high RCA though they are slightly below 5%. It should be noted that such a forecast is conducted by taking into account the past trend and cyclical nature of Cambodian and global export trends and it takes into account as neutral any future qualitative effect on the Cambodian and global garment manufacturing sector for convenience. The quantitative forecasts of Cambodian RCA in each category of garment products that have secured higher export share out of its total garment exports can be seen in the following table.

Table 5-3-5 Cambodian Revealed Comparative Advantages, Cont.

Year	RCA-338	RCA-339	RCA-340	RCA-341	RCA-342	RCA-347	RCA-348	RCA-351	RCA-651
1997	2.80	5.83	1.12	0.04	0.27	9.81	4.09	3.62	0.53
1998	9.80	25.90	2.06	0.13	2.49	22.05	12.24	4.46	1.39
1999	10.36	19.51	7.96	2.49	11.30	26.93	16.69	22.10	3.37
2000	10.97	14.48	14.70	11.20	34.75	24.01	19.84	48.81	14.68
2001	11.23	17.82	10.19	12.60	51.67	15.11	14.12	70.06	53.34
2002	9.55	12.88	8.38	8.05	38.07	13.88	16.56	74.27	82.02
2003	9.03	10.92	10.53	8.71	48.03	14.37	22.70	100.53	85.10
2004	8.53	12.05	9.50	14.19	51.98	10.74	20.08	101.56	116.38
2005	8.13	7.86	12.77	14.09	49.81	8.92	22.26	101.47	128.12
2006	7.50	10.94	9.63	12.24	45.80	7.69	24.91	105.48	110.64
2007	6.46	6.71	9.66	11.26	41.21	6.16	25.08	88.03	98.13
2008	5.84	9.45	13.16	9.81	38.32	5.51	27.39	89.17	99.53
2009	5.56	6.55	10.06	10.11	39.15	5.13	30.08	89.32	95.88
2010	4.61	8.61	10.24	8.20	34.16	4.41	29.60	79.51	86.23
2011	4.34	6.00	14.15	8.44	35.38	4.25	31.52	81.66	88.67
2012	4.01	8.87	10.97	7.70	35.02	4.24	33.68	82.95	86.62
2013	3.48	5.74	11.32	7.35	34.14	3.92	32.20	74.88	78.99
2014	3.19	8.49	15.85	6.72	34.24	4.04	33.26	77.99	82.38
2015	3.08	6.16	12.46	7.19	37.97	4.32	34.43	80.34	81.61
2016	2.61	8.45	13.04	6.12	35.81	4.26	31.86	73.56	75.49
2017	2.52	6.13	18.54	6.55	40.36	4.70	31.83	77.71	79.86
2018	2.38	9.40	14.78	6.27	43.26	5.37	31.83	81.21	80.25
2019	2.12	6.31	15.70	6.22	46.01	5.66	28.43	75.43	75.30
2020	1.99	9.67	22.63	5.98	50.07	6.65	27.39	80.85	80.82

Source: Calculated by JICA Study Team based on data from the US Department of Commerce

Figure 5-3-1 Forecast of Cambodian RCA in Major Garment Categories in the US Market



Source: Calculated by JICA Study Team based on data from the US Department of Commerce

(e) The above-mentioned quantitative forecast suggests as follows*:*

- Cambodian RCA in category 351 and 651 (pyjamas) will gradually decline, because the Cambodian garment sector will develop from undergarments to middle garments, outer garments holding silhouette in high regard such as category 342 (cotton skirts) and category 340 (men/boys cotton woven shirts). In the future, an expansion to woven-fabric products whose price levels are relatively higher than those of knitted products will proceed, because garment factories will have to absorb the gradual rise in wages in Cambodia through an improvement of garment unit prices by woven-fabric products.
- Cambodian RCA of other major categories will remain stable though Cambodia will face intense global competition after 2009. Despite fierce global competition, Cambodian competitiveness as a whole will not fall due to the differential between Cambodian and Chinese competitive items as analyzed before.

5.3.2 Possible Pattern of Production in Cambodian (Business Model)

(1) Examples of Findings from the Interview Survey

In order to formulate an action plan for attracting Japanese garment manufactures to Cambodia, a consultant of the JICA Study Team conducted an interview survey of about 100 garment companies consisting of about 25 Japanese garment- affiliated companies in Thailand, about 35 in Vietnam, the headquarters of about 10 Japanese garment companies, and about 30 non-Japanese foreign garment companies in Cambodia. Findings, items and companies interested in starting operations in Cambodia are as follows:

(i) Work uniforms (companies: M Company in Thailand; Y Company in Ho Chi Minh; Japanese head office of M Company).

Reasons:

- These products do not require high skill levels or high quality control standards,
- There are no seasonal fluctuations in demand,
- There is no change in style.

(ii) Knit shirts, knit jerseys and trousers (company: Japanese head office of U Company)

Reasons:

- They do not require high skill levels or high quality control standards.
- Order lots are large
- Due to concern about the revaluation of the Chinese currency, the Yuan, the company plans to reduce its dependence on China in production from the present 90 percent to 60 percent by 2010 by increasing production in Southeast Asia.

(iii) Woven-fabric semi-business shirts and woven-fabric business shirts (company: Y Company in Thailand)

Reasons:

- The increase in labor cost in Thailand,
- The appreciation of the Thai currency,
- Low productivity at own factory in Laos.

(iv) Children's socks (company: L Company in Ho Chi Minh)

Reasons:

- The company has large-lot orders for low-priced, basic items from the US. However, since the profit margin is too thin to produce in Vietnam, the firm is taking note of Cambodia, where wages are lower.
- The prerequisite is the existence in Cambodia of strong embroidery firms (Actually the existence of Liya Embroidery, an indigenous firm: Started operations in October 1999, has introduced 30 Tajima IC embroidery machines <12 sequence~20 sequence, $70,000-80,000/unit>.

(v) Underwear, nightwear, pajamas, baby wear (company: Japanese head office of S Company, a wholesaler)

Reasons:

- Given the facts that the accessories and auxiliary materials industry is not yet developed in Cambodia and that Cambodia's international transportation environment is not favorable, Cambodia has a comparative advantage in innerwear, which does not require many accessories or auxiliary materials. Actually, S Company in Ho Chi Minh is studying supplying accessories and auxiliary materials in Cambodia. If this materializes, the situation will improve.

(vi) Golf gloves (companies: K Company and Y Company in Thailand)

Reasons:

- The ratio of labor cost to production cost is a high, approximately 20 percent, and sewing glove fingers requires a great deal of time and work.

(2) Business Plans for Japanese Garment Makers That May Start Operations in Cambodia

A consultant of the JICA Study Team conducted an interview survey on Japanese garment companies and Japanese garment-affiliated companies in Japan as stated above. The business plans for Japanese garment makers that may start operations in Cambodia are identified as follows.

Table 5-3-6 Business Plans for Garment Makers That May Start Operations in Cambodia

	Y Company (Thailand)
Product	・ Production and export of dress shirts
Export	・ 100% export to Japan, the E.U.
Ratio of labor cost	・ Labor cost/production cost is approximately 15 percent.
Raw material	・ 60% domestic purchasing
Problems in operation	・ Increasing labor cost and appreciating forex. both in Thailand

	Y Company (Thailand)
Solutions	・ Outsourcing or relocation <Invested already in Bandung (Indonesia), Shanghai, Bangkok and Chitagon (Bangladesh), Lao PDR> <Outsourcing in China and Vietnam.
Conditions for future operation at other sites	・ Japanese garment factories do not have a favorable impression of Cambodia due to high electricity costs, corruption, and the past civil war. Top management worries that these negative impressions will result in lowered export prices for Cambodian garments in the Japanese market. ・ Location outside of a SEZ is desirable for keeping a certain level of wages and avoiding workers easily drawn out to other industries. In the case of location inside a SEZ, a SEZ should be categorized as specializing in garment and footwear, etc. for keeping the same level of wages. ・ The cheap unit site prices (below US$10/sqm as seen recently in Bangladesh <US$7/sqm> and Lao PDR <US$2/sqm>) are favorable due to low margin of business
Possibilities of operation in Cambodia	・ Future possibility of outsourcing or relocation to Cambodia due to increasing labor cost and appreciating forex in Thailand. GSP in Cambodia is very attractive.
Business potential (3~5 years decision)	・ Y Company has just started up a factory invested in Lao PDR. However, productivity is lower than expected. ・ After five years, Company Y thinks of Cambodia as a candidate of future production bases. However, before five years Company Y hopes to try sewing-on-commission with its technical support in Cambodia. Y Company would like collect the list of shirt makers in Cambodia (focusing on mainly pure Cambodian factories, Taiwanese affiliated factories, Malaysian affiliated factories).

	H Company (Thailand)
Product	・ Production and exports of down quilts and lamb carpets
Export	・ 100% exports to Japan
Ratio of labor cost	・ Labor cost/production cost is approximately 10 percent.
Raw material	・ Imports from Australia and then imports to Thailand after partial processing in New Zealand.
Problems in operation	・ Because of a sharp increase in Thai labor cost (at the Thai factory, an average of $250/month, including fringe benefits), started sewing-on-commission in Vientiane, Laos PDR, in October 2004. (Problems in Laos: Female workers did not wash their hands; they did not have the custom of taking shower; and productivity is low.)
Solutions	・ The use of inexpensive, high-productivity labor force.
Conditions for future operation at other sites	・ Good ports (for raw materials imports and product exports). ・ Whether Japan's GSP could be applied to exports to Japan.
Possibilities of operation in Cambodia	・ Use land transport to a point close to the Thai border (e.g., Poipet) and have the products made on commission there. ・ If anything should happen to full-scale operation in Cambodia, the Thai plant may transfer to Sihanouk Ville SEZ.
Business potential (3~5 years decision)	・ Company H will examine the possible application of GSP to its products in the case of production in Cambodia. ・ If deemed satisfactory, Company H will have its products processed sewing-on commission at Thai border by way of trial. ・ If that is successful, H Company will think of Cambodia as a candidate for future production bases.

	W Company (Thailand)
Product	・ Production of special uniforms
Export	・ 100% supply to Japanese-affiliated companies in Thailand
Ratio of labor cost	・ n.a.
Raw material	・ General materials, purchasing from Thailand, special materials, import from Japan
Problems in operation	・ A sharp increase in Thai labor cost
Solutions	・ Due to high profitability special uniforms, the problem is not serious.
Conditions for future operation at other sites	・ Abundant, inexpensive workers.
Possibilities of operation in Cambodia	・ Production on commission stated from 2005 in Lao PDR. However, productivity is lower than expected. ・ Production in Cambodia is attractive, because there are over 250 foreign factories with an accumulation of garment skills.
Business potential (3~5 years decision)	・ It may be suitable in Cambodia to produce standard work uniforms. ・ The reasons are as follows. These products do not require high skill levels or high quality control standards. There are no seasonal fluctuations in demand. There is no change in style. ・ In order to export to Japan, it may be necessary to dispatch three Japanese technicians, enough to provide technical guidance and quality control to workers. It is better to select and bring Thai materials into the Cambodian factory.

	U Company (Vietnam)
Product	・ Production of high-quality women's uniforms including JAL cabin crew uniforms
Export	・ Export ratio is 90 percent, with 90 percent bound for Japan and 10 percent for the U.S.
Ratio of labor cost	・ Labour cost/production cost is approximately 100 percent due to CMP bases production.
Raw materials	・ The materials of Vietnam are not useful for high-quality women's uniforms. All of them are imported, with 60 percent from Thailand and 40 percent from Japan, Korea, China and Indonesia.
Problems in operation	・ The minimum wage reached US$60 per month in Ho Chi Min City. The advantage of labour cost is diminishing in Vietnam.
Conditions for future operation at other sites	・ If Cambodia's infrastructure is developed, its import and export procedures will be simplified; it may worthwhile to operate there due to the availability of skilful labour.
Possibilities of operation in Cambodia	・ A small possibility. Products in Cambodia may be suitable for items that require little modification in design and for products that are not short delivery items among high-quality women's uniforms, on the condition these are not difficult to produce.
Business potential (3~5 years decision)	・ Not yet

	S Company (Vietnam)
Product	・ Suppliers of various kind of sub-materials to Japanese garment makers in Vietnam
Export	・ Sales to Japanese garment makers in Vietnam,
Ratio of labor cost	・ n.a.
Raw material	・ Import items from China, Korea and self-production items
Problems in operation	・ None
Conditions for future operation at other sites	・ Sales expansion to Japanese garment makers overseas
Business potential (3~5 years decision)	・ Not yet

	S Company (Japan)
Product	・ Production of underwear, knit shirts, woven shirts, children wear
Export	・ Almost all the above products are made at its own Qingdao factory in China and exported to Japan
Ratio of labor cost	・ n.a.
Raw material	・ Using Chinese materials mainly
Problems in operation	・ Qingdao factory being in the red due to a wage increase and a labor shortage
Conditions for future operation at other sites	・ Starting from production on commission somewhere in Vietnam, Cambodia, Myanmar, Lao PDR, or Bangladesh. ・ Selection of a site where wage level meets with productivity
Business potential (3~5 years decision)	・ Adverse to making a hasty conclusion

Source: Compiled by JICA Study Team

(3) Possible Business model for Japanese Garment Makers in Cambodia

Based on the interview survey as mentioned above, the possible Business model for Japanese Garment Makers in Cambodia could be thought as follows.

Table 5-3-7 Possible Business Models for Japanese Garment Makers in Cambodia

Constraints in Cambodia	Possible Business fields	Suitable Items
Long lead time order from Japane and deliver to Japan	Items not in season and not in fashion	Work uniform, Jersey
Lack of purchasing sub-materials in Cambodia	Items using embroidery technique	Children's socks, Dress shirt
	Items not using sub-materials in Cambodia	Underwear, Nightwear、pajamas, baby wear, Knitted-wear
Weakness of workers for complicated process	Items with simple but repeating process	Golf gloves

Source: Compiled by JICA Study Team

5.4 Recommendations to Promote Direct Investment into the Garment Industry

To date, the GMAC has made recommendations to the Prime Minister to reduce or abolish discouraging factors mainly for simplification of trade procedures on a continuing basis. A recent example is the urgent recommendations made on June 5, 2006. Theses are issues in common to Japanese garment companies which are ready to invest in Cambodia in the very near future. Problems in the legal system have been steadily solved in Cambodia. Next problems in the administrative system should be addressed in concert with solving those in the legal system.

In addition to the above, the JICA Study Team makes the following recommendations for promotion of direct investments in the garment sector in Cambodia from a medium and long-term perspective. These are based on an interview survey of Japanese garment companies operating in surrounding countries. These recommendations are not meant directly to eliminate negative factors but to develop effective promotional policies to attract direct investment in the garment industry.

(1) Improvement in Productivity in the Short-Term

It is not safe to say that productivity in Cambodia is higher than that in other countries. Some mainland Chinese garment factories in Cambodia indicate that quality of Cambodian workers should be improved to enhance productivity. Till now, a dispatched Japanese expert has taught basic sawing techniques in CGTC. However, only through this system in CGTC, it is not enough to export to Japan where quality standard is very high. Therefore, the JICA Study Team recommends dispatching a garment-making expert with high experience in quality control and productivity improvement to GMAC. In order to promote exports to Japan, the expert should visit factories under GMAC to provide guidance, mainly in production process analyses and standardization, to ensure the optimum arrangement of machinery and productivity management, and to realize productivity improvement. Productivity improvement is a major condition for inducing garment manufactures to get involved in production on commission and invest in Cambodia. In addition, as matter of future direction, the training should also start the program to focus on the enhancement of sewing technique and fashion design.

(2) Diversification of Export Markets in the Short Term

Weight of the U.S. market in Cambodia's exports is extremely high, approximately 80 percent. In order to expand the country's export markets, markets should be diversified, to include Japan, Russia and the Middle East. There should be created a course on quality control in CGTC designed to enhance export competitiveness in the US and the EU, and ultimately to export to Japan.

(3) Shift to Develop-and-Export in the Short and Medium Term

Inventory financing and plant and equipment financing are prerequisites for accelerating the transition from sewing-on-commission to develop-and-export.

(4) The Creation of Central-Bonded Warehouse Facilities in SEZs in the Medium Term

Central-bonded warehouse facilities should be established in order to shorten the time required for material imports. Central Bonded Warehouse (CBW): An innovative scheme as a solution to the

problem of long lead time is the establishment of central bonded warehouses. Conceptually, CBW is similar to the individual bonded warehouse in which each export-oriented factory is permitted to stock duty-free imported goods. The difference is that CBW can be set up by any firm and the imports of duty-free RMG and textile raw materials will not be conditioned on master LCs. The CBW operator could be permitted to stock up a whole range of T&C inputs such as finished and grey fabric, accessories, dyes and chemicals, yarm, RMG and textile machinery and spare parts in amounts determined by expected demand. The garment manufacturers can then purchase these inputs duty-free direct from the CBW. Some appropriate system will have to be put in place (such as sale against back-to-back LCs and locating the CBW in SEZ) to ensure that the duty-free inputs are actually used in the production of goods that are exported. It is also possible that in order to protect the interests of local competing industries some restrictions may be placed on the CBW regarding the range, amounts and types of goods it can store.

However, the operation of CBW by private entrepreneurs would also imply certain costs. Large inventories must be held if the system is to function efficiently. This obviously has financing cost implications. The entrepreneurs must be remunerated with sufficiently high profit margin for them to continue in the business. These will add to the cost of the inputs. Double trucking and clearance requirements could also raise the cost. The RMG producers will buy from the CBW only if the cost of procuring inputs from the CBW is less than the cost of procuring the same direct from overseas through their own bonded warehouses discounting for the lead time factor. If this is not the case the CBW cannot be sustained. Indeed, if such an outcome is foreseen by the entrepreneurs they will not invest in the CBW business notwithstanding any permission given by the Government; and if they have already made poor investments they will soon go out of business. No public funds should be committed in setting up a CBW.

They can procure their raw materials such as yam, grey fabric, dyes and chemicals etc. from a CBW. They would also get the raw materials bulk-purchased by the CBW at a reduced cost, and could service any orders from local garment firms in a shorter time and thereby save on the lead time of RMG exporters. CBW can significantly reduce uncertainties of importing inputs from overseas. There could be delays in shipment, shipping time, transhipment or port clearance when goods are imported from overseas. Such delays impose significant costs on exporters as they get less time for production and may be required to ship finished products by air at multiple cost. The delay could also result in the cancellation of the order. Profit margin is eroded due to such occurrences.

(5) Attracting Foreign Capital in the Upstream and Supporting Industry Sectors in the Medium and Long Term

One of the problems of the Cambodia's garment-manufacturing industry is that it has the middle stream (manufacturing sector), which is supported by abundant, inexpensive labor, but not the upstream sector (spinning and knitting and weaving) or the supporting industry sector (accessories and auxiliary materials). As such, it is necessary to attract foreign capital in some of the upstream sectors and the supporting industry sector to SEZ in order to produce materials locally and to reduce lead time. In the

near future, foreign capital should be attracted to such upstream sectors as knitting yarn spinning, cotton fabric weaving, and dyeing, which do not require very large investments. To make this possible, it would be necessary to use such tools including special depreciation for machinery and equipment.

Chapter 6
The Outlook and Recommendations for Investment Conditions for Attracting Foreign Agricultural, Fishery, Food Processing Industries to Cambodia

6.1 Characteristics of Cambodia's Agricultural, Fishery and Food Processing Industries

Cambodia is rich in agricultural and fishery resources. The ratio of agricultural and fishery sector to GDP accounted for 32.9% in 2004 (ADB, Key Indicators 2006). The ratio to labor force is even larger, having recorded 60.3% in the same year. Under the circumstances, it can be said that the expected economic growth depends on the promotion of agricultural, fishery and food processing industries. Characteristics of the Cambodian agricultural and fishery industry are mentioned below.

6.1.1 Rice Production

- The fertile land along the River Mekong is suitable for rice cultivation, and a little less than 50% of cropping acreage in Cambodia, 2,347 thousand ha, is used for the purpose[34]. Thanks to the political stability achieved through the 1991 Paris Peace Accords and 1993 general election, the production volume of rice has steadily grown along with the gradual expansion of cultivated area.

- In fact, the production volume increased from approximately two million tons to 3.45 million tons in 1995, and has remained approximately four million tons to date. Blessed with good weather, Cambodia posted a 44.0% increase over the previous year, resulting in a volume of 5.99 million tons in 2005.

- Self-sufficiency in rice was realized, and surplus of rice started to be exported to other countries. It should be noted, though, that the yield per unit of land area is the smallest in Indochina, approximately, two tons/ha (unhulled rice). In contrast, that in Vietnam is much higher at around five tons/ha.

Table 6-1-1 Rice Production

	1995	2000	2001	2002	2003	2004	2005
Demand	2,481	3,095	2,997	3,081	3,027	2,978	3,146
Production	3,448	4,026	4,099	3,823	4,711	4,170	5,986

Note: Unit = 1,000tons
Source: MAFF, "Agricultural Statistics"

- Due to the irrigation system, which needs to be improved (irrigation rate is assumed to be approximately 20%), the rice production heavily relies on weather (rainfall) in Cambodia.

[34] MAFF, "Agricultural Statistics 2004-2005"

Compared with the Cambodia's irrigation rate, those of the neighboring countries are much higher with 31% in Thailand and 45% in Vietnam.[35]

- The land of Cambodia is very flat, and therefore it is difficult to introduce the irrigation system using the altitude difference.

- Despite the above topographical disadvantage, it is vital to develop the irrigation system for effective rice production. One of the reasons for the poor quality of rice with lower moisture content produced in Cambodia is assumed to be its poor irrigation system.

- Other factors such as slow development of land law, a lack of agricultural technology and fertilizers, and ill-equipped irrigation system should also be improved to achieve increased production of rice and other crops.

6.1.2 Other Agricultural Products (Grains , Vegetables, etc.)

- In addition to rice, maize (corn), cassava, sweet potato, mung bean, vegetables, peanut, soybeans, sugarcane, sesame and tobacco are cultivated as major products, but each production volume is relatively small.

- Moreover, the commercial value of crops is small because of farmers' ineffective management of fertilizing, weeding and extermination of pests.

- Among the above agricultural products, a rise in the production volume of cassava is remarkable, owing to the increasing demand for tapioca starch. A substantial amount of cassava is assumed to be smuggled into Thailand and Vietnam. Companies active in cassava plantation within Cambodia are T.T.Y. Agriculture Plant Development and Imex and Cambodia CJ Corporation. The latter is a South Korean affiliated firm that exports tapioca starch, which is cultivated in Cambodia, to its Indonesian factory to produce monosodium glutamate solution.

- As for palm oil, there is merely one company, operating a plantation business in Cambodia: Mong Reththy Investment Cambodia Oil Palm Co., Ltd. The extraction rate to produce palm oil in Cambodia is five tons/hour, much lower than that of fifty tons/hour in Malaysia. Mong Reththy makes original palm oil refined by a Malaysian company, and imports completed products to be sold in Cambodia.

- Vegetables are not cultivated on large-scale farms for commercial purposes but for personal consumption by farmers. Most vegetables served in hotels or restaurants in Cambodia might be

[35] EIC, "Cambodia Agriculture Development Report", June 2006

imported from Thailand or Vietnam.

Table 6-1-2 Production of Other Agricultural Products (Grains, Vegetables, etc.)

	2000	2001	2002	2003	2004	2005
Cassava	148	142	122	331	362	536
Maize	157	186	149	315	257	248
Yellow corn	122	158	117	287	224	192
Vegetables	196	185	143	140	179	172
Sugar cane	164	169	209	173	130	118
Soybean	28	25	39	63	110	179
Sesame	10	9	10	22	55	90
Mung bean	15	17	24	32	45	45
Sweet potato	28	26	32	35	35	39

Note: Unit = 1,000tons

Source: MAFF, "Agricultural Statistics"

6.1.3 Tropical Fruits

- Cambodia is endowed with rich natural conditions where most tropical fruits can be grown, and, in fact, a wide variety of tropical fruits are grown throughout the country. However, because markets do not exist except for large cities, and most products are not exported but are consumed in the country, only a limited number of products such as cashew are commercially cultivated on a large scale.

- Because most fruits are grown by farmers on a small scale, the products are said to have problems, including poor quality and unstable supply. As a result, their market prices are low.

- Statistics on the production of tropical fruits are under developed in Cambodia. According to statistics compiled by FAO, Cambodia's exports of agro products accounted for merely 0.0091 percent of world agro product exports in 2004. The ratio of Cambodia's exports of tropical fruits (including vegetables) was much smaller with 0.0011 percent of global tropical fruit exports in the year.[36] On the other hand, the production of mangoes in Cambodia accounted for 0.14 percent in the world production in 2004, which is considered to be relatively high.[37]

- Domestic production of some fruits such as pineapples and oranges do not fulfil the domestic demand, and are imported mainly from Vietnam and Thailand. Meanwhile, mangoes are reportedly being smuggled to neighbouring countries such as Vietnam.

- As to the production of cashew, Agrostar, which has been set up jointly by ten farmers, runs a 2,000-hectare plantation. In addition, in Cambodia, Khmer Agriculture Product is solely engaged in the processing and packaging of cashew for export.

[36] EIC, "Cambodia Agriculture Development Report", June 2006

[37] FAO, "Current Situation and Medium-term Outlook for Tropical Fruits"

Table 6-1-3 Production Area of Major Tropical Fruits

(ha)

Item	2000	2001	2002	2003	2004	2005
Cashew nut	15,653	37,673	36,285	37,140	52,809	60,874
Banana	30,726	34,489	30,151	26,630	29,583	29,980
Coconut	31,621	33,950	14,664	27,054	28,399	28,424
Mango	21,533	27,004	9,903	14,068	13,740	13,701
Jack fruit	25,408	27,567	3,100	4,370	4,177	4,123
Custard apple	5,670	5,831	2,274	2,417	2,833	2,902
Orange	1,856	1,979	1,756	2,371	2,528	2,624
Longan	24,840	24,990	713	1,185	2,263	2,306
Guava	221	322	1,343	1,731	2,062	2,100
Sapodilla	3,720	4,027	1,100	2,153	1,536	1,565
Milk fruit	739	1,172	769	1,297	1,273	1,291
Durian	587	911	1,060	994	1,238	1,268

Note: Products for which production area was 1,000 ha or more in 2004
Source: MAFF, "Agricultural Statistics"

6.1.4 Food Processing

- The food processing industry in Cambodia is still in an early phase of development. For instance, banana, mango and rambutan, which are harvested in the country, are exported to Thailand and Vietnam to be processed as juice, canned food and dried fruit, and these completed products are re-imported to Cambodia. By the same token, some other agricultural products such as tapioca (a starchy obtained from treated and dried cassava root) are also manufactured in neighboring countries, and are re-imported.

- At the same, it should be noted that the import of processed foods in Cambodia is increasing with the advent of a market economy, and the value added to these products, which should be done in Cambodia, is being enjoyed by the surrounding countries.

6.1.5 Fishery Industry

- Freshwater fishes are caught in the River Mekong, the Tonle Sap River and the Tonle Sap (Great Lake), and saltwater fishes are caught in the Gulf of Thailand.

- Fish catches have been sluggish since the middle of the 1990s due to overfishing, inland development and environment deterioration, etc. The decrease in fish catches, especially that of large-sized fishes in the inland water fishing area, is conspicuous.

- Fish catches in the inland water fishing area during the period from January to September 2006 dropped to 250 thousand tons (or 79%) in comparison with the previous year, and those in the marine fishing area also decreased to 50 thousand tons (or 86%) compared to the previous year

in 2004. A bewildering phenomenon of 2004, lower water level due to a lack of rain, also triggered a drastic decrease in the fish catches. Notwithstanding, these catches slightly increased to 324 thousand tons and 60 thousand tons, respectively, in 2005. Marine products and fishery processed foodstuffs of 52 thousand tons were exported to neighboring countries in the same year.

- In response to the decrease in the fish catches, aquaculture, especially for native fish and shrimp, has been vigorously encouraged. Almost of all the aquaculture pursued in Cambodia is categorized in the group of inland water culture. The productivity of aquaculture is improved with technology enhancement and by breeding of species suitable for this fishing, accounting for one tenth of the entire fish catch in the country. The production volumes of fish and shrimp in the aquaculture field rose to 26 thousand tons, a 25% increase from the previous year. The volume of cultivated crocodile also increased by half to 120 thousand heads.

Table 6-1-4 Inland Water Fish Catch

		2004		2005	
		Planned	**Actual**	**Planned**	**Actual**
Total		295,000	250,000	350,000	324,000
	Commercial	80,000	68,100	100,000	94,500
	Fishing families	135,000	106,400	150,000	137,700
	Others	80,000	75,500	100,000	91,800

Note: Unit = Tonnes
Source: MAFF, "Agricultural Statistics"

6.1.6 Marine Product Processing

- It is assumed that approximately 40% of the fish catches in Cambodia is processed as food. Major processed foods are the sun-dried, fermented, smoked and fish sauce. It should be noted that the number of processed fishes cannot be accurately estimated due to a limited number of reliable statistics.

- With regard to some kinds of fish sauces, half-processed materials are exported to Thailand, and are processed there into finished products, due to a lack of processing factories in Cambodia.

- Processing is usually carried out by fishermen, but some is done by processing companies on a commercial basis. One of Hong Kong affiliated companies, Sun Wah Cambodia Ltd., processes and freezes marine foods (90%, shrimps; 10%, ligament of scallop, fish, squid, etc.) landed in Sihanoukville, and exports all of them.

- Generally speaking, marine products are purchased direct from fishermen. Fishermen tend to sell products to the customer who pays the most, and this makes it difficult to ensure the supply of marine products at a stable price. Furthermore, the production volume fluctuates, because the

amount of landed fish varies according to the season. The peak season is between May and August, and catches drastically fall in other seasons, resulting in a much lower rate of factory utilization.

6.1.7 A SWOT Analysis of Cambodia's Agricultural, Fishery, Food Processing Products

Cambodia's agricultural, fishery and food processing products have strengths, weaknesses, and opportunities and face threats, as shown in the table below.

Cambodia is able to promote the agricultural, fishery and food processing industries, if it overcome the weaknesses and make the most of the strengths, examining the potentiality of the environment (in terms of opportunities or threats).

Table 6-1-5 SWOT Analysis of Cambodia's Agricultural, Fishery, and Food Processing Products

Strengths:
・Rich in agricultural and fishery resources.
・Fertile land along the River Mekong.
・Large amount of fish in River Mekong, the Tonle Sap River, Tonle Sap and the Gulf of Thailand.
・Surplus of rice, which can be exported.
Weaknesses:
・Poor irrigation system that needs to be improved.
・Slow development of land law.
・ Farmers' ineffective management of fertilizing and extermination of pests, etc.
・No existence of markets except for large cities.
・Poor quality and unstable supply of agricultural and fishery products.
・Lack of cold chain system.
・Too much dependence on natural climate conditions
・ Lack of food evaluation standards and food inspection agencies.
・Underdevelopment of cooperative system.
Opportunities:
・Increase in demand for organic agro products.
・Taking advantage of GSP to export to developed countries.
・ Increase in demand for agricultural, fishery and food processing products at hotels and restaurants.
Threats:
・Influx of Vietnamese agro product into Cambodia.
・ Increase in import of processed foods from neighboring countries.

Source: JICA Study Team

6.2 The Outlook for Cambodia's Agricultural, Fishery, and Food Processing Industries: Changes in the International Environment and a Scenario for Short-, Medium- and Long-term Development

6.2.1 Changes in Environment

(1) Impact of WTO/AFTA

The Cambodian agricultural, fishery and food processing industries are threatened in fierce competition in the global market, responding to increasing economic interdependence in Asia.

Firstly, Cambodia is subject to drastic tariff reduction on agricultural products. Cambodia has obtained preferential tariff treatments (GSP), which were granted by ASEAN, the U.S., China and EU, which places lower tariff rates on agricultural products exported to these nations. In addition, Cambodia has substantially reduced tariffs on agricultural products, and divided them into four categories: 7%, 15%, 35% and 50% for accession to the WTO in October 2004. The average of Cambodia's tariffs of agricultural and marine products (average applied MFN tariff rates) is 19.5%, lower than that of Thailand (29.6%), Argentine (33%) or Vietnam (24.5%), which are major exporters of agricultural products in the world.[38]

Besides, in the U.S., Australia and New Zealand, subsidies are given for the export of agricultural products, whether directly or indirectly, while Cambodia abolished export subsidies for accession to the WTO. Considering the above, it is assumed that Cambodia's imports of agricultural products will continue to increase.

Cambodia has concluded the AFTA agreement, but has not signed an FTA with any country. It fears that enormous amount of low-cost agricultural products from Vietnam would poured into the market after implementing the CEPT scheme in 2007, except for live pigs, chickens, some live fishes and vegetables such as tomato and onion, which are excluded as sensitive agricultural products under the measurement.

(2) Change of FDIs by the Japanese Food Processing Industry in Asia

The total amount of Japanese FDIs in the food processing industry in Eastern Asia (ASEAN, China, South Korea) is 411.5 billion yen (Ministry of Finance, Japan) between 1989 and 2004. The top countries, of which cumulative total investments exceeds 50 billion yen during the period, are China (including Hong Kong) (318 projects, 128.5 billion yen), the Philippines (12 projects, 91 billion yen), Singapore (19 projects, 69.7 billion yen) and Thailand (144 projects, 54.3 billion yen).

[38] Economic Institute of Cambodia

Table 6-2-1 Japanese FDIs made in the Food Processing Industry in Eastern Asia (ASEAN, China, South Korea) (1998-2004: Notification Basis)

Ranking	Country	Cumulative Total of Investments (JPY 100 mil.)	Number of Investments
1	China (Hong Kong alone)	1,285 (273)	318 (42)
2	Philippines	910	12
3	Singapore	697	19
4	Thailand	543	144
5	Malaysia	257	13
6	Indonesia	192	37
7	South Korea	157	20
8	Vietnam	74	9
Others	Brunei, Cambodia, Laos, Myanmar	0	-
Total		4,115	572

Note: This table excludes investments less than 100 million yen.
Source: The JICA Study Team compiled materials provided by the Ministry of Finance, Japan "Outward and Inward Foreign Direct Investment".

The majority of the total investments for second-ranked Philippines and third-ranked Singapore was pursued through the acquisition of local entities and the participation of capital by Suntory Ltd. and Kirin Brewery Co., LTD, while other Japanese companies made inconsiderable contributions to these nations.

Among Japanese-affiliated food-related companies in Asia, China accounts for 50% of the total with 182 companies, as shown in the table below, while Thailand accounts for 17% with 62 companies. On the other hand, no Japanese-affiliated food-related companies is existing in Cambodia due to poor investment environment, including small scale domestic market, underdevelopment infrastructure, and unclear operation of legal system.

Table 6-2-2 Investment by Japanese Food-Related Companies in Asia

	Food Processing Company	Food Wholesaler	Total
Thailand	53	9	62
Singapore	14	11	25
Malaysia	13	1	14
Philippines	7	1	8
Indonesia	17	0	17
Vietnam	8	0	8
China	170	12	182
Hong Kong	11	7	18
Korea	8	1	9
Taiwan ROC	14	9	23
Subtotal	315	51	366

Note 1: Share of Japanese capital is 10% or more.
Note 2: Excludes food retailers and food service companies such as Japanese restaurants.
Source: Toyo Keizai Inc. "Directory of Japanese Companies Abroad" (Research conducted in Nov., 2004)

FDIs by the Japanese food processing industry are concentrated in China, including Hong Kong, and Thailand, excluding special types of FDIs pursued through major acquisition or large-scale capital participation in the Philippines and Singapore.

However, in recent years, target countries of the Japanese FDIs have somewhat changed. Going back in the history of Japanese FDIs in East Asia, Japan invested heavily in Thailand between the late 1980s and 1991, and in China afterwards. In recent years, Japan has shifted its focus to an old ally, Thailand, and to a new investment destination, Vietnam. This indicates that Thailand and Vietnam draw the attention of countries wishing to reduce the risk caused by investing in merely one nation, China.

In fact, in and after 2003, Japanese investments in Vietnam have drastically increased. Especially, Vietnam is highly appreciated for its cheap (one-twentieth of that of Japan) but diligent labor force, and as a potential market of 80 million people. It is, therefore, assumed that Japanese FDIs in Vietnam will continue to increase.

On the contrary, it is often pointed out that Vietnam still has a poor infrastructure, underdeveloped legal system, and weak supporting industries, compared with those of starting members of ASEAN or China. For that reason, for the time being, Japanese FDIs are not likely to concentrate in Vietnam, but keep steady growth so as to supplement Japanese investments in China and Thailand as "China Plus One" or "Thai Plus One."

6.2.2 The Short-, Medium- and Long-term Development Scenario

(1) Short-term scenario: Expansion of Agricultural Product Exports

Cambodia is historically famous for its exports of agricultural and fishery products, and has distributed these abundant rich materials to neighbouring countries. The top priority for further increasing distribution of these products should be placed on the reinforcement of the exports within Asia. To this end, Cambodia is required to establish a system to regularly supply products with a certain level of quality.

In this early stage, some foreign companies would invest in Cambodian to procure raw materials in the way of outsourcing their cultivation to local farmers before making full-scale investments, which is considered to take a while to be undertaken.

At present, a substantial part of agricultural and fishery products continue to be illegally exported from Cambodia to neighboring countries, while processed foods are smuggled. The first thing for the Cambodia government to do is to grasp the actual conditions of this informal trade, and proceed with the compilation of reliable statistics on imports and exports. Needless to say, collection of data on climate and natural resources is also important for the Cambodian government to pursue an effective agricultural policy as with the compilation of statistics of exports and imports.

Next, Cambodia should target the Asian internal market as a major destination of exports. Achieving these goals, system building to steadily supply products with a given level of quality is vital.

(2) Medium-Term Scenario: Import Substitution of Agricultural Processing Products/Diversification of Export Items

Diversification of export items to meet the needs of surrounding countries and Japan is identified as the goal of the mid-term scenario. While the agricultural industry lays disproportionate emphasis on rice cultivation, it is required to create high added value by diversifying products, including cash crops. Particularly, the expansion of production of fruits and vegetables would not only encourage exports but also promote import substitution.

In addition, Cambodia will make efforts to transform the system of food processing industry from household to modern industrial manufacturing. Furthermore, it is planned to establish a logistic system including a cold chain. Through these efforts, the food processing industry, using Cambodian resources with relative dominance, will be developed to export products to neighbouring countries.

It is assumed that the inflow of FDIs to Cambodia from abroad, including Japan, will increase in time. To this end, the following conditions are required: (i) infrastructure building, and (ii) high-quality and low-cost labor. As for (i), host countries, in general, would have a substantial need to reform their infrastructure as the food processing industry depends on the industrial infrastructure more than other industries, of which production depends on large-scale machinery. This is due to peculiarity in food processing business, which consumes more water and electric power (for refrigerating and freezing) compared with other industries even though the production lot or the production value is small. With regard to (ii), since the food processing industry is labor intensive, it requires a good but cheap labor force as a key to attracting investments.

(3) Long-Term Scenario: Competitiveness Enhancement of Cambodian Products

One of main objectives of the scenario is to foster the food processing industry with higher degree of expertise. Moreover, Cambodia aims to enhance its competitiveness by keeping its cost advantage and building brand strength, not only in the internal market, but also in the global market. As for agricultural and fishery products, their value will be reinforced by differentiating home products from those of other Asian countries, for example, through encouraging the production of organic agricultural items.

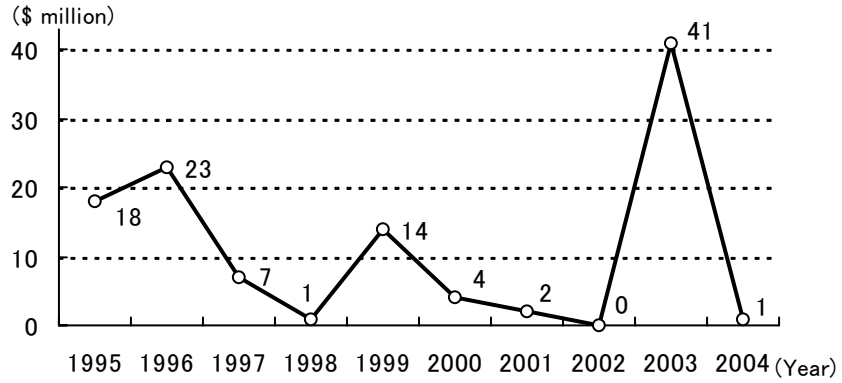
6.2.3 A Forecast of the Volume of Investment in Cambodia by Foreign Companies Up to 2020

(1) Trend Analysis

The food processing industry in Cambodia has been underdeveloped. Because of the small size of the home market and its poor investment environment, foreign direct investment to the industry has been stagnant. As shown in the figure below, the inflow of foreign direct investment to the industry fluctuated every year. In addition, as the case of Nestle Dairy (Cambodia) Ltd. reveals, some

companies have been obliged to withdraw from the Cambodian market because the business environment in Cambodia deteriorated after they invested there. As a result, the cumulative amount of foreign direct investment in the food processing industry is regarded as being relatively small.

Figure 6-2-1 FDI Inflow to Cambodia's Food Processing Industry



Source: CDC/CIB

Table 6-2-3 Foreign-Affiliated Companies in the Cambodia's Food Processing Industry

Company	Product Item	Location	Source of Investment
Sun Wah Fisheries Co., Ltd.	Frozen shrimp	Sihanouk Ville	China (Hong Kong)
Cambodia Hainin Group	Various farm products	Kampong Speu	China
Godkin Meat Processing Pl.	Sausage	Takeo	Taiwan ROC
Asia Flour Mill	Flour	Phnon Penh	France
L.Y.S. Pte. Ltd.	Fruits	Phnon Penh	Singapore
Taiwan Food Product	Biscuit, Jelly	Phnon Penh	Taiwan ROC
Nestle Dairy (Cambodia) Ltd.	Dairy products	Phnon Penh	Thailand
Sui Fen Beverage-Food	Soy milk	Phnon Penh	China
Cambodia Breve Ltd. CBL	"Tiger brand" Beer	Kandal	Netherland
Angkor Brewery	Beer "Angkor brand"	Sihanouk Ville	Malaysia

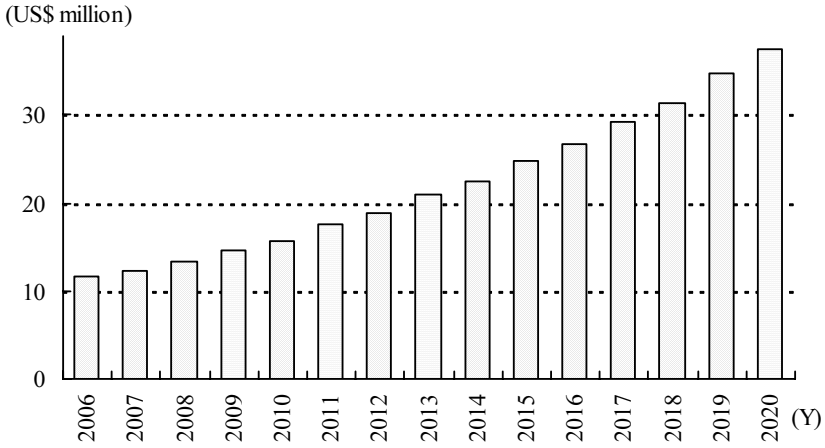
Source: Promar Japan, MOC, and JICA Study Team

(2) Forecast of FDIs through 2020

It is expected that foreign direct investments in the Cambodian food processing industry will increase in the future as the home market of the industry expands and industrialization in the neighbouring countries proceeds. However, in order to attract foreign direct investments, such conditions must be met as (i) to secure a stable supply of material of uniform quality which is required by the food processing industry, (ii) to develop industrial infrastructure which is crucial for the industry, and (iii) to establish food evaluation criteria and an inspection agency in the country. Therefore, it is very difficult to forecast an accurate volume of the future inflow of foreign direct investment in the industry.

In light of the lessons learned from the above, the Study Team roughly forecast the amount of investment inflow between 2006 and 2020, and showed the result in the table below. The table has prerequisite that the ratio of investment in the food processing industry over the total investment in Cambodia increases from 2.5% in 2006 to 4.0% in 2020 in proportion to that of its export volume over the total export volume of the country based on two data; (i) the actual amounts of investment inflow made in the industry between 1995 and 2004, and (ii) the forecast of total investment inflow in the country between 2005 and 2020 described in Chapter 2.

Figure 6-2-2 Projection of FDIs in Cambodia's Food Processing Industry



Note: 2000 year price
Source: JICA Study Team

Considering the above, export volumes and ripple effects in short-, medium- and long-terms are roughly forecast as shown in the table below.

Table 6-2-4 FDIs and their Ripple Effects in Cambodia's Food Processing Industry

	Short-term (around 2010)	Medium-term (around 2015)	Long-term (around 2020)
FDI	**US$ 15 million**	**US$ 25 million**	**US$ 35 to 40 million**
Export	US$ 110 to 120 million	US$ 200 to 220 million	US$ 300 to 350 million
Ripple Effect	Not expected	Import substitution, Job creation	Job creation, Foreign currency earnings

Source: JICA Study Team

6.3 Evaluation of and Outlook for the International Competitiveness of Cambodia's Agricultural, Fishery and Food Processing Industries

6.3.1 Analysis on Production Costs and Export Competitiveness

The agriculture and fisheries industry in Cambodia faces many problems both in production and marketing, which lowers the international competitiveness of the industry.

Especially, the lack of quality seeds, technology and information, and credit is a critical constraint on production, while the lack of market information, high transportation costs and fees, and poor relationships/mistrust between farmers and buyers/intermediaries are constraints on marketing. Besides, most agriculture-related exports are done without domestic processing because there are few agro-processing facilities in Cambodia. What's more, exports are subject to high informal fees at border crossings.[39]

It is therefore difficult to properly evaluate the international competitiveness of Cambodian agricultural, fishery and processing industries. Taking the above into account, the production costs of cassava, representing Cambodian crops, are compared with those in Vietnam and Thailand., based on the study conducted by the Cambodian Development Research Institute.

Firstly, profitability of cassava production is determined. As shown in the table below, productivity (average yield per hectare) in Cambodia is much lower than in the other two countries. On the other hand, total production costs in Cambodia are much smaller than in the other two countries, thanks to the very small consumption of fertilizers, pesticides and so on. As a result, net returns per hectare in the three countries remain at approximately the same level.

Table 6-3-1 Profitability of Cassava Production

	Cambodia	Vietnam	Thailand
Average Yield (MT/ha)	8.96	30.34	19.29
Total Production Costs ($/ha)	117	677	325
Gross Income ($/ha)	220	787	449
Net Return ($/ha)	103	110	124

Source: CDRI, "Annual Development Review 2004-05"

Meanwhile, transportation costs and the maximum amount of loans and interest rates of micro-finance differ greatly between Cambodia and the other two countries as shown in the tables below. In Cambodia, the maximum loan amount is relatively small while the interest on loans is very high. As a result, cassava production in Cambodia is not internationally competitive, although it has potential. This implies that the export of Cambodian cassava will pick up should these constraints be solved.

[39] Cambodian Development Resource Institute, "The Competitiveness of Cambodian Agriculture", Annual Development Review 2004-05.

Table 6-3-2 Transportation Costs by Road

($/Tonnes/100km)

	Cambodia	Vietnam	Thailand
Cost ($/tones/100km)	10 - 11	4 - 5	2.5

Note: Cost of fuel and truck fee only
Source: CDRI, "Annual Development Review 2004-05"

Table 6-3-3 Interests and Loans

	Cambodia	Vietnam	Thailand
Annual Interest (%)*	36 - 60	12 - 13.8	7 - 8
Minimum Loan ($)	20	318	750
Maximum Loan ($)	200	637	2,500

Note: Micro-finance institutions and associations
Source: CDRI, "Annual Development Review 2004-05"

6.3.2 Identification of Items with Export Competitiveness in Cambodia

For the selection of items with potential international competitiveness in the Cambodian agricultural, fishery and food processing industries, two kinds of items should be examined: (i) items which have already been exported, and (ii) items which have never been exported but are regarded as having potential global demand at present or in the future. Furthermore, it might be better to consider the degree of added value and the volume of job creation as conditions.

Taking into account the above-mentioned points, the JICA Study Team has selected the items with international competitiveness described below.

(1) Exports and Imports of Agricultural, Fishery and Food Processing Products

The ratio of agricultural and marine products among Cambodian export items is conspicuously small, staying at around 3%. This is closely related to its backwardness in meeting requirements not only on quality, price and stable supply of products, but also on establishing distribution networks and customs clearance and inspection systems.

Besides, a considerable amount of Cambodian exports and imports are carried out in an informal manner, which is not shown in statistics.[40] With such constraint, Cambodia's formal statistics of exports and imports show that imports of agriculture-related products (HS01-24, 40-43) have been approximately three times as big as exports each year between 2000 and 2004. In 2004, the export amount of agriculture-related products was 71.663 million US dollars while imports were 197.718 million US dollars, resulting in a trade deficit of 126.055 million US dollars [41].

However, some items, such as rubber/rubber products (HS40) and fish (HS03), recorded excess

[40] According to the World Bank "Toward A Private Sector-Led Growth Strategy for Cambodia: Value Chain Analysis", June 2003), shortage of rice milling facilities in Cambodia leads to illegal exports of rice into Vietnam and Thailand.

[41] Dept. of Foreign Trade, MOC

exports, which may suggest that some Cambodian agriculture-related products have international competitiveness. In addition, interview surveys conducted by the Study Team in neighbouring countries and Japan indicate that several products, including rice, cassava (tapioca starch), organic agro products, cashew, pepper, coffee, sesame and fish sauce, have export potential, in which Japanese food processing companies show interest.

Table 6-3-4 Imports and Exports of Major Agricultural and Fishery Items in Cambodia

(US$ 1,000)

HS	Items		2000	2001	2002	2003	2004
03	Fish & Crustaceans	Export	5,903	6,065	4,222	2,841	13,122
		Import	38	54	32	31	9,736
10	Cereals	Export	958	2,393	4,457	704	5,776
		Import	11,067	7,392	12,871	11,058	11,651
40	Rubbers & Articles Thereof	Export	31,993	25,857	29,741	34,731	38,284
		Import	9,364	10,543	12,434	13,997	14,466
Others		Export	8,868	11,763	8,237	8,318	14,481
		Import	143,944	152,899	153,040	141,415	161,865
Total		Export	47,722	46,078	46,657	46,594	71,663
		Import	164,413	170,888	178,377	166,501	197,718

Note: Items in the table are limited to those of which export amounts in 2004 exceed US$ 5 million.
Source: Department of Foreign Trade, MOC

(2) Identification of Items

(i) Cassava (Tapioca Starch)

Cassava is one of cash crops of Cambodia, and its production volume has risen to meet increased demand for tapioca starch. Cassava can be widely used in the form of forage, monosodium glutamate source and biofuel to enhance land efficiency. Moreover, reduced size of cassava by approximately 15% through drying to be chipped can be easily transported. In fact, cassava is exported to Thailand and Vietnam (half of it as contraband) in unprocessed form or in the form of tapioca starch. A South Korean affiliated company, C.J. Corp., operates a cassava plantation, and ships processed tapioca starch to its Indonesian seasoning factory.

Cassava is used not only as food but also as biofuel (biology fuel), which should be a very promising item for export. Biofuel includes alcohol and synthetic gases utilizing energy generated by biomass. It is mainly used as an alternative fuel for automobiles in the world. Especially, the demand for ethyl alcohol is expected to drastically increase, reflecting the global energy shortage. In fact, a Korean company is planning to build in Cambodia the first factory to produce ethyl alcohol from cassava. Besides, another Korean company and a Japanese company are now operating pilot plantations, where such plants as jatrophas and palms are grown for the production of biodiesel.

(ii) Palm Oil

Only one company, Mong Reththy, operates a palm oil plantation in Cambodia. Its palm plantation is approximately 5,000 ha in area, which is much smaller than the large-scale plantations in Malaysia, to produce approximately 5,000 tons of crude palm oil (CPO) in volume per annum. Due to a lack of appropriate factories, Mong Reththy has to make original palm oil refined by local companies in Malaysia, and re-imports completed products for sale in Cambodia.

The world demand for palm oil has steadily increased by an average of 9% annually since 2000 to be approximately 33 million tons in volume in 2005. The combined production volume of Malaysia and Indonesia constitutes approximately 85% of the palm oil production in the world. In other words, Cambodia has potential to expand export volume of palm oil. Unfortunately, the quality level of Cambodian products fluctuates due to a lack of palm oil-related inspection agency or institute. What is worse, their price competitiveness is weak in response to expensive imported fertilizer and high electricity costs. Nevertheless, it is clear that the export volume of palm oil would expand, if Cambodia got rid of these impediments.

(iii) Frosted Foods (Processed Fishery Products)

There are three companies which process/freeze and export marine products in Cambodian government. All of them operate business in Sihanoukville. The top product is shrimp, followed by ligament of scallop, fish (elephant fish, etc) and squid. Most of these marine products are purchased direct from fishermen, and therefore it is difficult to secure a regular supply. Furthermore, the production volume fluctuates, since the catches vary with the season.

The interview survey conducted by the Study Team for Japanese companies shows that large size of wild shrimp caught in the Gulf of Siam is a promising item, which can be distributed in the Japanese market. However, Cambodia is still struggling to establish the food evaluation system, which allows the issuance of an international certificate to prove food safety, and this results in a delay in launching export business to Japan. Conversely, the exports to Japan could increase if Cambodia addressed these impediments. As for freshwater fishes, they would not be popular in Japan, which has a different cuisine culture. The marketability of catfish caught in Cambodia also continues to be low for a time being.

(iv) Tropical Fruits

In Cambodia, most tropical fruits are grown by farmers on small scale. Farmers of such fruits as orange, durian and pineapple gather together to form large-scale cultivation areas.[42] The quality of these fruits, which are grown by farmers, varies widely, and the production of them is not stable. Some of them, such as mango, are mainly grown on consignment from Vietnamese companies, and most of them are not distributed in Cambodia but in Vietnam. Therefore, it is assumed that these fruits would be exported directly to other nations if improved quality and stable supply are achieved with the governmental support to provide technical guidance for farms.

Mango was the largest tropical fruit in terms of production volume, accounting for 36% of the total, followed by pineapple and papaya. Among these major tropical fruits, mango is most widely grown in Cambodia. In fact, Cambodia's production of mango accounted for 0.14 percent of world mango production in 2004, and thus the country is regarded as having export potential.

Table 6-3-5 Production of Tropical Fruits (2004)

Item	Production ('000 tonnes)	Ratio (%)
Mango	24,337	35.9
Pineapple	15,480	22.9
Papaya	8,505	12.6
Avocado	3,276	4.8
Others	16,102	23.8
Total Production	67,701	100.0

Source: FAO, "Current Situation and Medium-term Outlook for Tropical Fruits"

(v) Rubber

Rubber, which is produced with rubber plantation, has grown to be one of major export items since the French colonial era. While the production volume of rubber once gradually increased after having sharply dropped during the time of Pol Pot, it has seen sluggish growth in recent years.

As the productivity of rubber is low under the current system, the Cambodian government is currently transferring the business from seven state-owned enterprises into private hands with the support of ADB. The harvested area of rubber plants has been reduced in recent years because of the aging of trees. According to the statistics of MAFF, the production volume has reduced by half since 2000, from 42 thousand tons to 20 thousand tons in 2004. Approximately 95% of the domestic rubber production is exported.

While the export volume has also decreased in response to a drop in the production volume, the export value has levelled off due to the steep rise of international rubber price. Since the

[42] JICA, "Present Situation of Cambodian Agricultural and Marine Products, and Basic Data for Development", 2003 (revised)

Cambodian government has not established a certification system, rubber products are exported without obtaining internationally recognized certification. As a result, their competitiveness is relatively weak in terms of quality, and they are offered at a lower price, an approximately 20% discount.

The world demand for natural rubber is expected to steadily expand in relation to an increased production of tire in China. As it is assumed to grow by twice by the year of 2030[43], Cambodia will have a great opportunity to expand exports of rubber. To successfully make use of this advantage, Cambodia needs to enhance quality level, and increase the land for tree planting.

Table 6-3-6 Production and Exports of Natural Rubber in Cambodia

	Unit	2000	2001	2002	2003	2004	2005
Production Volume	tons	42,007	38,492	32,385	32,383	25,928	20,382
Export Volume	tons	40,067	35,673	37,136	32,764	26,029	21,071
Export Ratio*	%	95.4	92.7	114.7	101.2	100.4	103.4
Export Value	US$ mil.	22.3	17.8	23.7	31.1	30.6	29.3
Export Unite Value	US$/tons	556.6	499.0	638.2	949.2	1,175.6	1,390.5

Note: Export ratios of certain years exceed 100% due to statistical problems.
Source: MAFF

(vi) Rice

The full-scale liberalization of rice distribution has been already achieved. There is likely export capacity of rice, because domestic demand is sufficiently met and a part of the surplus of crop is smuggled to Thailand and Vietnam. Almost all of rice variety is Indica-type in the domestic market. In consideration of the fact that Japonica-type rice is cultivated in neighbouring countries such as Vietnam, this type of rice is assumed to grow in the Cambodian climate, too.

That is, the matter is not the climate but difficulty to produce such rice with high quality using the poor level of cultivation technology and undeveloped irrigation system in Cambodia, even though quality improvement is essential for export promotion. The price of rice currently cultivated is almost the same as those of Thailand and Vietnam, even though it is changeable according to variety and season.

Rice related products such as rice confectionery, processed rice products (pilaf, fried rice, etc.) and refined *sake* can be also exported.

(vii) Organic Agriculture Products

[43] International Rubber Study Group (IRSG)

The Cambodian government is actively promoting organic agriculture, formulating 12 action plans under the "National Action Plan on Organic Agriculture." Under the action plan, organic crops, such as rice, vegetables, fruits, herbs and cashew, are grown, and the government has a plan to diversify production in the future. Although the production volume of organic agriculture crops is small at present, and most of them are sold to visitors to the country, there is high potential to export in the future.

Fertilizers and pesticides, which are relatively expensive in Cambodia, are seldom used for the cultivation of such products as sesame and pepper since agro products are sold at low prices. On the contrary, this enables Cambodia to export these products as being organic or chemical free.

Meanwhile, MOC and MAFF are making efforts to set the internationally certified criteria for organic crops with support of a wide range of institutes and organizations of developed nations, such as Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ) and the EU, as well as NGOs.

A workshop on organic agricultural products was held by related governmental agencies and NGOs in Cambodia in May 2005, and marketable products were determined, as listed in the table below. Some organic products, which are not included in the table, such as vegetables, seafood (catfish, shrimp, seaweed) and animal products (chicken), were evaluated highly in that they are likely to be sold in the domestic market.

Table 6-3-7 Prospective Organic Agricultural Products

	Products	Major markets (near future: within 3 years)	
		Regional	International
Cereals	rice, maize (as fodder for animals)	Rice	rice
Fruits	mango, durian, orange, citron, papaya, jackfruit, passion fruit, rambutan, banana	mango, citrus, durian, banana	mango
Nuts	cashew, coconut, peanut	cashew, peanuts	cashew
Palm products	palm wine, granulated palm sugar	palm wine, granulated palm sugar	palm wine, granulated palm sugar
Spices	pepper, chilli	pepper	pepper
Essential oils	castor oil, lemon oil		castor oil, lemon oil
Oil fruits	Sesame	sesame	
Others	cassava/tapioca, soybeans, mung beans, coffee, tea, sugarcane, cotton	soybeans, mung beans	

Source: JICA Study Team compiled data of the "National Workshop on Organic Agriculture 2005".

(viii) Other Agriculture Products

As mentioned, organic agriculture products have high export potential if they are well differentiated from competing products. One Japanese trading firm, through an interview survey by the Study Team, suggested that organic crops, such as pepper, coffee and sesame,

could be sold in the Japanese market as nonessential groceries, which means a large amount of sales cannot be expected but sales at higher unit prices can be achieved. According to the survey, tropical fruits, such as cashew and mango, would also have export potential if they were set up as nonessential groceries.

Among fishery and related marine products, fish sauce, which is regarded as being a nonessential grocery item, may have a good chance to be sold in the international market. When these products are sold as nonessential groceries, the key issue to be addressed is how to establish the brand image of Cambodian products. Once good brand image is built, Cambodian products can be saleable.

For instance, Cambodia took fourth place as a pepper producer following India, Indonesia and Malaysia in the world during the golden age of the late 1960s. Unfortunately, the cultivation of pepper later passed away in the Pol Pot Era of the 1970s, and its production volume declined to be approximately 200 tons now, one tenth of that of best days. In addition, the majority of coffee beans produced in a province located close to the border with Vietnam, Rattanakiri, is assumed to be exported to Vietnam, and to be sold as Vietnamese coffee in the global market. Cambodia would be able to increase the exports of these products to other countries if improved quality and stable supply of these products were achieved with governmental support for providing technical guidance to farms.

6.3.3 Possibility to Export Products into Japan

According to Japanese trade statistics, the export volume from Cambodia to Japan is 10.8 billion yen in total in 2004, and the portion constituting agricultural, fishery and processing foods is remarkably small, less than 40 million yen (shrimp, 30.9 million yen; green coffee bean, 0.82 million yen; and beer, 0.75 million yen). Export volumes of some items newly added in 2000, such as crab, fish preparation, sesame, tuna and octopus, are small, too. While Cambodia exports most agricultural and fishery products to Japan without duty, taking advantage of preferential duties such as LDC, there is little demand for such export due to its limited supply capacity.

Next this report will explore which major Cambodian items can be exported to Japan, beginning with one candidate crop, rice. Unfortunately, its quality level is too low to be sold in the Japanese market. This is closely related to variety and inefficient irrigation system, which are issues to be coped with from a medium- and long-term perspective. Other prospective items, such as palm oil, rubber, coffee, cashew, all of which are cultivated on plantations, are required to meet the international criteria for quality and cost to be exported. To this end, infrastructure improvement to reduce distribution costs and establishment of inspection system to export certified products is crucial.

With regard to marine products, it is difficult to increase their export to Japan in the short term due to the underdeveloped aquaculture system and the lack of a scheme to ensure a stable supply of sources. In respect of vegetables, Cambodia will have to build a fumigation chamber to pass the Japanese

quarantine system.

Besides the above problems, the supply capacity of agricultural, fishery and processing products from Cambodia is too low to expand exports to meet Japanese demand.

6.4 Recommendations to Promote Direct Investment in the Agricultural, Fishery and Food Processing Industries

6.4.1 Formulation of Business Plans for Japanese Companies to Invest in Cambodia

Three types of investments in Cambodia are envisaged for Japanese food processing companies, as described below, and the business plan may vary according to the type of investment.

(1) Resource Seeking Investments

This type of investment aims at securing Cambodia's rich natural resources, and exports them as they are, or processes them into final products in the country for export to Japan and elsewhere in Asia.

A Company, which produces seasoning in neighbouring contries, examines the procurement of raw materials, tapioca starch, from Cambodia. If the domestic demand for seasoning expands in Cambodia, the company may cultivate cassava in Cambodia.

Table 6-4-1 Example of Business Plan Found in the Field Survey

A Company	
Product	**Seasonings**
Business in Cambodia	Production and sales of beverage
Business type & schedule of production in Cambodia Phase 1: Phase 2:	Phase 1: Production of tapioca and export to ASEAN countries within 3-5 years Phase 2: Production of seasonings made of tapioca, and their sale in Cambodia within 5-10 years
Investment amount	Not yet decided
Economic effects	Import substitution, job creation, and acquisition of foreign currency

Source: JICA Study Team

(2) Labor Seeking Investments

This type of investment seeks young people in Cambodia to work in production. The reason behind the investment lies in difficulty of the recruitment of young people in Japan, as the food processing industry is no longer attractive for the young generation. As a result, aging has progressed in the food processing industry in Japan.

The Japanese textile and the electronics industries relocated their production sites to Asian nations in the 1960s and 1970s, seeking lower labor costs, and the food processing industry followed suit 30 years later. It should be noted that the labor force is required to be capable as well as cheap. Nevertheless, there is often a trade off between the low cost of labor and the competence of the work

force. This is also true of intermediate level managers and engineers. Therefore, it is very important for the Cambodian government to improve the quality of its workers.

(3) Market Seeking Investments

This type of investment seeks markets in Cambodia to sell its products. In Japan, it is foreseen that the processing food market will no longer grow, but rather will shrink as birth rate declines, aging progresses, and health consciousness among people rises.

For instance, the above-mentioned acquisition of local companies by Kirin Brewery and Suntory was carried out not to bring finished products back to Japan but to market those elsewhere in Asia. Most Japanese food processing companies, who invested in China in the mid-1990s, initially regarded the country as a place for production, but they now see that the country is a place for both production and sales.

Likewise, one of the companies interviewed for this study, beverage manufacturer B, is planning the investment described in the following table in order to secure its share in the Cambodian market.

Generally speaking, the production of beverage is pursued in a consuming region due to high transportation costs incurred when products are exported. The demand for beverage is considered to be closely related to per capita GDP. The demand will rapidly increase if per capita GDP exceeds the US$3,000 to US$5,000 level, while it will decrease to be bypassed. if the above value is less than US$1,000. This implies that the demand for beverage in Cambodia continues to be small. Nevertheless, as per capita GDP in Phnom Penh has become close to US$1,000, it can be assumed that the beverage industry will grow in Cambodia in the near future.

Table 6-4-2 Example of Business Plan Found in the Field Survey

B Company	
Products	Beverages
Business in Cambodia	Production and sale of beverages
Size of site	10 hectares needed
Schedule of factory construction	Starts in 2007
Schedule of production and sales	Starts in 2009
Investment amount	US$30 million
Economic effects	Import substitution

Source: JICA Study Team

6.4.2 Development Measures for the Stable Supply of Materials

In the value chain for the agricultural and fishery industry in Cambodia, the linkage among producers of agricultural and marine products, food processing companies and distributors of processed foods is exceedingly weak.

The top priority of foreign companies for entry into agricultural, fishery and processing foods in Cambodia is to secure a stable supply of materials of uniform quality. However, several problems described below make it difficult to deliver Cambodian agricultural and marine products that meet specifications and quality standards of the food processing industry. Accordingly, the biggest issue, the lack of linkage between producers and processing companies in the agricultural and fishery industry, continues to discourage foreign companies from investing in Cambodia. Therefore, it is essential for the Cambodian government to first address these issues to lure foreign investment.

It should be noted, though, that increased volume of agricultural and marine products, thanks to the removal of these issues, would expand the supply, which tends to exacerbate the risk of violent fluctuations in market price. It is therefore required to build a domestic system to provide market information on agricultural and marine products to producers, which would help reduce risk.

From the viewpoint of the above, the following basic policies are formulated.

(1) Reinforcement of Agricultural and Fishery Cooperatives

The cooperative system in the form of a union of farmers and fishermen has yet to gain a foothold, and there is neither an Agricultural Cooperative nor a Fishery Cooperative in Cambodia. This reflects antipathy to union formation, which was compulsory during the Pol Pot era, and people still hesitate to organize. Therefore, the agricultural and fishery product processing industry needs to procure materials from individual farmers or fisherman, or from key personnel or a collaborator playing a role similar to leader of the union, which spends a good deal of time and money.

The Cambodian government should promptly review the system of Agricultural cooperatives and Fishery cooperatives. These cooperatives contribute not only to securing a stable supply of agricultural and marine products but also to playing the role of educator and instructor for farmers and fishermen.

With the enactment of general clause on the Agricultural Cooperative in 2001 and Sub-Decree on agriculture sector development program, including samples of the memorandum of partnership and bylaw, in 2003, nine cooperatives were established in 2003 and 2004. However, each of these is inactive. What is worse, the Cambodian government offers little financial aid because of budgetary constraints.

(2) Support of Guidance and Training for Farmers and Fishermen

Few farmers have know-how/skills and incentives on pest control, fertilizer application and quality improvement. This is due to a lack of guidance or education for farmers. In fact, the low level of quality control (size, weight, freshness, pest, agrichemical, etc.) decreases the commercial value of vegetables, and most of them are used for captive consumption by farmers, resulting in a reduction in the number of products shipped to a market. Accordingly, most vegetables consumed in cities are imported from other countries. Providing an opportunity to instruct and train farmers is important.

However, the number of testing laboratories, which play the role of educator and instructor, is small. What is worse is that the activities of these laboratories, excluding the one supported by an international agency, are in low gear due to a lack of financial and human resources, leading to insufficient spread of technology and guidance among farmers.

For example, there are approximately 500 extension officers for two million farming households in Cambodia under the Guidelines for Agricultural Extension in Cambodia formulated in 1997. In other words, the number of household per extension officer is 4,000, which is three times as many as in Vietnam (1,340 households per extension officer).[44] What is worse, these extension officers put an emphasis on the teaching of rice production, paying little attention to diversification of vegetable cultivation.[45]

One of the departments of MAFF, DAALI (Department of Agronomy and Agricultural Land Improvement) holds a training program "Long Farmer's Field Schools" to teach workers in agriculture how to cultivate crops. All the same, technical guidance or instruction for farmers is not sufficiently secured by provision of the program. Increased enhancement of the education and training system for farmers is desirable.

(3) Development of Agricultural Infrastructure (Improvement of the Irrigation System, etc.)

The delayed improvement of the irrigation system has an adverse affect on the production of agricultural and fishery goods and their quality. Cambodia had actively developed an irrigation system since its independence in 1953, but these systems were severely damaged during the subsequent civil war era. Water channels built in the Pol Pot era are considered to have technical problems. According to the study on actual conditions of the irrigation system conducted by the Cambodia National Mekong Committee during the period 1993-1994, the percentage of irrigation systems that properly work stands at only 21% of the total number of 841.[46]

A study undertaken by a private research institute in 2005 showed that short supply of water is the biggest issue. The study revealed that the major constraints on Cambodian agricultural and fishery production are as follows: (i) short supply of water (response rate: 84% (farmers)) (ii) shortage of agricultural machinery (response rate: 29%), (iii) shortage of fertilizer and pesticides (response rate: 18%), (iv) land scarcity (response rate: 5%), and (v) lack of technology (response rate: 4%).[47]

The improvement of irrigation system would bring the following merits: (i) stable rice cultivation and subsequent increase in its production volume, (ii) reduction of production surplus found in some provinces by changing the second crop during the rainy season from rice to vegetables, and (iii)

[44] Economic Institute of Cambodia
[45] International Development Centre of Japan, "Farming Village Support for Cambodia"（March, 2001）
[46] Ministry of Foreign Affairs, Japan "Japan's Country Assistance Program for Cambodia 2002"
[47] Economic Institute of Cambodia

reduction of household expenditures in farming and improvement of farmers' nutrition.[48]

The Cambodian government established an independent administrative agency, MoWRAM (Ministry of Water Resource and Meteorology), to promote the reform of the irrigation system. To date, it has just covered maintenance and repair of the existing irrigation system, but is expected to reinforce and enhance its function further.

6.4.3 Development Measures for Attracting FDIs

(1) Empowerment and Improvement of Agriculture-, Fishery-, and Food- related Inspection Agency

(i) Inspection Agency for Food Evaluation

In Cambodia, food evaluation criteria and an inspection agency are underdeveloped. As a result, it is not sufficient for government to provide food processors with guidance and instruction. Although there is only one national institute under MIME, Industry Laboratory Center of Cambodia (ILCC), to control diet and food industry, its employees mainly visit plants to train production line workers.

With a fear that food has a direct influence on our body, the worldwide rising concern over health accelerates to tighten inspection regulations in importing countries. For instance, as for the export of food products to Japan, it is required to submit a list of materials, ingredient labels, and process identification documentation as well as sanitary certificate. In some cases a safety inspection based on the food hygiene law is even conducted.

In Cambodia, MIME （Standard Department） makes efforts to improve food evaluation system by establishing hygiene inspection criteria, which are useful for the inspection, and ILCC conducts factory inspections based on the criteria. Besides, MAFF inspects pesticide residue, which is contained in agricultural products, and CAMCONTROL conducts the hygiene inspection of agricultural and fishery products in the market. These activities, however, are not sufficiently active due to restrictions on budget and human resources.

The Cambodian government should, therefore, first strengthen the function of these organizations, relating to domestic food hygiene. Then, it should reform the safety standard for food processing. For the purpose of protecting the health of consumers and ensuring fair trade practices in the global food trade, the Codex Alimentarius Commission was established in 1963 by FAO (Food and Agriculture Organization of the United Nations) and WHO (World Health Organization), whose main task is to develop food standards such as a CODEX standard.

[48] International Development Centre of Japan

The CODEX standard has no binding effect, but it can be used as judgmental standard to settle disputes in the food trade. It is, therefore, suggested that the Cambodian government should harmonize its own food standards with the CODEX standard.

(ii) Rubber-related Inspection Agency

There is neither inspection criterion nor inspection agency to evaluate rubber products in Cambodia. Under this circumstance, Cambodia is forced to export rubber products without global certificate at a lower price by approximately 20 to 30% than its international market price.

The irony is that only one rubber-related institute established under MIME, the Cambodian Rubber Research Institute (CRRI), is unenthusiastic about its activity due to financial, institutional difficulties and shortage of human resources. The Cambodian government is required to foster professional staff or engineers, and to establish the quality control system promptly, using CRRI as a core, aiming for the development of the rubber industry.

(2) Establishment of Low-Temperature Storage Facilities, Cold Storage and Refrigerated Warehouses, and Cold and Refrigerated Transport Systems

A lack of low-temperature storage facility, cold storage or refrigerated warehouse, or a cold and refrigerated transport system makes it impossible to transport landed freshwater fishes of the Tonle Sap (Great Lake) and saltwater fishes of the Gulf of Thailand such that they keep their freshness. Also, most damaged fishery products are abandoned, leading to the waste of resources.

Establishment of a cold chain is desired in Cambodia. These kinds of facilities and systems for storage are often arranged by a joint public-private venture in Japan. Given that Cambodia is going to enhance its international competitiveness, however, the system and facility should not heavily depend on governmental intervention but on investments made by the private sector in accordance with market mechanisms.

(3) Strengthening of Investment Promotion (Improvement of the Dissemination Capability of Food-Related Information)

Foreign food processing companies find it difficult to obtain sufficient support in investing in Cambodia.

In the first place, it is important for CDC/CIB to give foreign agricultural, fishery and food processing companies contemplating investment in Cambodia comprehensive consulting services, including investment site selection, investment procedures, formulation of feasibility studies, employment of workers and local financing. It is recommended that CDC/CIB be strengthened to have such functions.

Secondly, support for foreign companies, who have difficulty finding information sources in Cambodia and information on Cambodian food-related industries, is important. Especially useful is such information as food-related laws/regulations, food market information, material procurement and local food companies. The improvement of the information dissemination capability of governmental/public organizations, acting in conjunction with CDC/CIB, is recommended.

(4) Other Institutional Improvements

Another required improvement is institutional reform to ensure sustainable agricultural production. First of all, the government needs to build up its capabilities to make an appropriate agricultural policy and implement it effectively. The scope of the procedure includes a variety of works ranging from drafting of an agricultural development plan to analysis of relevant statistics. Another key to improvement is a commitment to reinforce an export promotion policy. Necessary measures taken for this end include capacity building to make policy for export expansion, study on export system/scheme, enhanced competitiveness and empowerment of institutions engaged in promoting exports (for instance, gathering of data on foreign markets).

6.4.4 The Development of Agricultural, Fishery and Food Processing Industries by Luring Foreign Investment

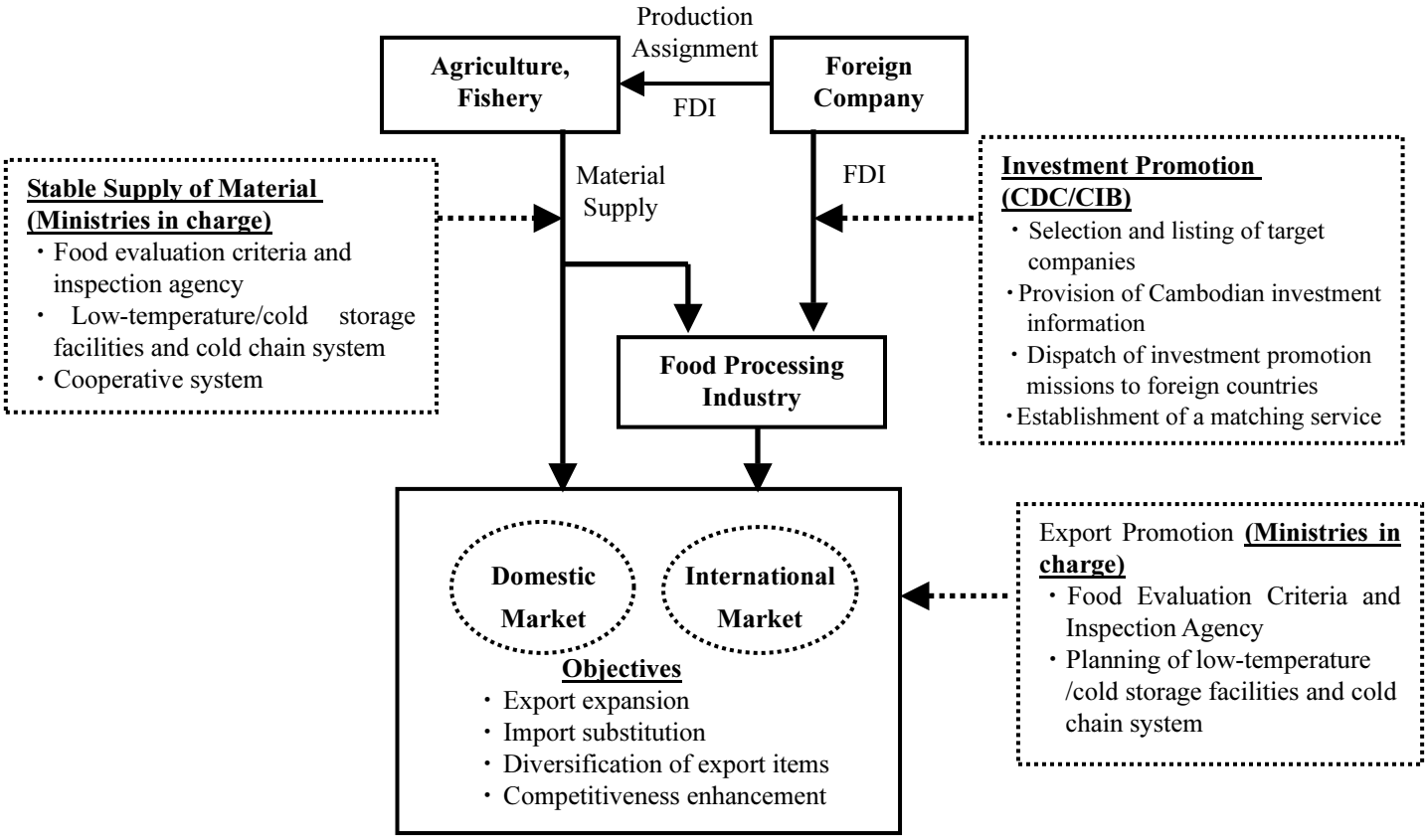
The flow chart below shows that the development of agricultural, fishery and food processing industries by luring foreign investment, which is envisaged by the Study Team through the project.

Food processing companies in Asia would start procurement of raw materials from Cambodia before they make direct investments, even though Cambodia's investment environment needs to be much improved to attract foreign investments at present. Prospective items to be procured from Cambodia in the near future include cassava, tropical fruits, pepper, sesame and coffee.

In the beginning, food processors would procure raw materials in the market. Then, they would start outsourcing the cultivation to Cambodian farmers to ensure stable supply. These outsourcing could result in local farm management by foreign companies with capital injection in the medium and long terms. It is vital to establish criteria for food evaluation in Cambodia to realize the above procurement.

The food processing industry will be growing along with the progress of the system to ensure stable supply of raw materials. The establishment of cold chain, which should reinforce the value chain between producers (farmers and fishermen), the agricultural and fishery processing industry, and distributors, can be driving force for the development.

Figure 6-4-1 Business Model for the Development of the Agricultural, Fishery and Food Processing Industries (The Development of the Industries by Luring Foreign Investments)



[Development Scenario]

	Short-Term	Medium-Term	Long-Term
Objectives	- Expansion of agricultural product exports	- Import substitution of agricultural processing products - Diversification of export items	- Competitiveness enhancement of Cambodian products
Agricultural and Fishery Industries	- System building to steadily supply products with a given level of quality - Export promotion within the Asian market	- Diversification of export items to meet the needs of surrounding countries and Japan	- Differentiating home products from those of other Asian countries, e.g. through encouraging the production of organic agricultural items - Building brand strength
Food Processing Industry	- Procurement of raw materials by the food processing industry of neighbouring countries (obtaining from market, outsourcing of cultivation, etc.)	- Transformation of the system of the food processing industry from household to modern industrial manufacturing	- Fostering the food processing industry with higher value added - Building brand strength

Source: JICA Study Team

Chapter 7
The Outlook and Recommendations on Investment Conditions for Attracting Foreign Footwear industries to Cambodia

7.1 Characteristics of Cambodia's Footwear Industry

7.1.1 International Comparison of the Footwear Industry

Like its garment industry, the Cambodian footwear industry imports almost all of its raw materials and is a typical labor-intensive industry using low-cost labor for processing and assembly. The Cambodian footwear industry holds several advantages. These include the supply of low-cost labor, incentives offered by the Law on Investment, and eligibility of Cambodian exports to developed-country markets (Japan, U.S., and EU) for the GSP. By the end of 2004, many foreign firms (including about 20 engaged in processing parts and materials) had sited in Cambodia. The foreign presence was led by Taiwanese capital with a store of experience and technology related to production of footwear. Ensuing strife between labor and management due to various factors reduced the number by more than half to nine as of late 2005.

Table 7-1-1 Foreign Footwear Company List in Cambodia

Company	Country and area	Capital (1000 US$)	Employees (persons)	Production (1000 piece/M)	Abstract
Chain Hwey Shoes	Taiwan	2,028	2,000	n.a.	
Focus Footwear	Taiwan	1,312	1,200	100	・ Leather shoes, sandals, sneakers, various other ・ 50% to the EU, 50% to Japan
Intech Footwear	Taiwan	1,026	630	100	・ 100% sports shoes (20% leather) ・ Almost all exported to the EU ・ Increase from 2 to 3 production lines
Global Footwear	Taiwan	1,004	735	n.a.	・ Investment application filed in 2004; preparations now under way for plant operation
Magnate Footwear	Taiwan	5,000	2,300	n.a.	
Ming Da Footwear	Taiwan	3,250	2,300	300	・ Sports shoes and leather shoes ・ 70% to the EU, 30% to Japan
New Star Shoes	Taiwan	5,115	3,000	320	・ Sited near Sihanoukville; 90% leather shoes ・ Consigned production for Regal and Japanese firms ・ 90% to Japan, 10% to the EU
Shoes Premier	Macau	1,000	2,800	n.a.	
Sky Star Footwear	Taiwan	2,000	800	n.a.	

Source: JICA Study Team

Export from the Cambodian footwear industry increased steady, and it exceeded 200 million dollars in 2003, in 2004, but dropped to 180 million dollars in 2005 as a result of the aforementioned strife and withdrawal by some foreign firms. Most of this export goes to the EU. Items such as sports shoes and sneakers account for the majority of the production. Lately, there has been an increase in

the share occupied by markets other than the EU, such as Japan, for which import of leather footwear from Cambodia delivers a big benefit. The future holds the prospect of an increase in the EU share due to expanded production in Cambodia by firms invested from China and Vietnam. The shoe import from China and ASEAN to the Japanese, U.S. and European markets increases every year and in 2005, it exceeded 25 %. On the other hand, there is very little import from Cambodia, accounting for 0.1 %.

Table 7-1-2 Cambodian Footwear Export Trend

(Million US$, %)

	2001	2002	2003	2004	2005	Influence factor for future change
EU	118	113	111	106	80	An anti-dumping problem of leather shoes export to EU from China and Vietnam
Japan	62	75	84	86	92	Leather shoes trust production for Japanese companies increases
Others	6	7	9	11	10	
Total	186	195	204	203	182	

Source:JICA Study Team estimation based on the material of MOC, UN and the Japanese import statistics

Table 7-1-3 Footwear Imports from ASEAN / China in Japan/US /EU Markets and Cambodia's Supply Share

(Billion US$, %)

	2000	2001	2002	2003	2004	2005
Import from World(Exc.US、EU、Japan)(A)	34.47	36.37	39.10	43.46	48.03	53.32
Import from ASEAN+China(B)	18.12	18.97	20.09	22.00	24.43	26.81
Import from Cambodia(C)	0.17	0.19	0.20	0.20	0.20	0.18
Ratio:Import from Cambodia/(A)*100	0.95	0.98	0.97	0.93	0.83	0.68
Ratio:Import from Cambodia/(A)*100	0.50	0.51	0.50	0.47	0.42	0.34

Source:JICA Study Term estimation based on the UN Commodity Trade Statistics

7.1.2 A SWOT Analysis of Cambodia's Footwear Products

The SWOT result of analysis of the footwear products in Cambodia is shown in the following table.

Table 7-1-4 Footwear Products SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
・ Low-waged labour with reasonable level of quality could still be one of the strengths of Cambodia making its sales prices more competitive. ・ An improvement in investment conditions in Cambodia thanks to great efforts by CDC/CIB ・ Honoring the ILO standards is linked to US orders. ・ Due to GSP for the Western countries, import tariffs to these countries are low.	・ Cambodian footwear exports/ sales are mainly concentrated in very few markets, namely, Japan and Germany. ・ Frequent interventions of labour unions should be improved ・ Labor strife and management failures in recent years have triggered a withdrawal by foreign firms and induced a phase of stagnation.	・ Anti-dumping measures against footwear industries in China and Vietnam are expected to force them to relocate to Cambodia, leading to increased sales and exports. ・ Rising costs in other countries such as China, Vietnam, etc., are expected to force footwear industries there to relocate to a lower cost country like Cambodia leading to increased sales and exports.	・ Minimum wage will be increased from $45/mo to $50/mo effective from January 2007.

Source: JICA Study Team

7.1.3 Features in the Footwear Industry and Cambodia's Footwear Industry

The footwear industry is characterized by a large number of components and production processes that are both diverse and complicated (including stitching of uppers, plastic or machine processing of soles, and press affixation with adhesives). As compared to the garment industry, it therefore has larger extended effects as regards employment, investment, and technology. Plants have about 500 workers per line for leather shoes and 700 per line for sports shoes/sneakers. Investment per line (excluding the building) comes to about 0.5 million dollars for leather shoes, assuming installation of used facilities (estimated to account for 80 % of the total).This is higher than the norm in the garment industry. With all new facilities, the requisite sum triples to about 1.5 million dollars. The corresponding sum for sports shoes etc. is 80 % as high as that for leather shoes.

The high components count means better prospects for a build-up of related part/material processors in the plant vicinity. The list of upper materials, for example, includes chemical fibres, synthetic leather, and natural leather. Similarly, stitching is preceded by tanning, dyeing, pasting, and other processes. There are various other components (e.g., eyelets, laces, insoles), each requiring their own processing. Sole materials include leather, rubber, and plastic (PVA etc.), and require various processes, including stamping, punching, and extrusion molding. The pasting of the uppers and soles together is also an important process. This processing with metal molds and plastics entails a lot of capital investment for the equipment and a high level of engineering. Although the footwear industry ranks alongside the garment industry as a labor-intensive one, it has a bigger ripple effect because it encompasses more parts, materials, and processes.

Even among the processes noted above, those that have been turned into equipment industries in other countries are often undertaken by the footwear manufacturers themselves in Cambodia. The Huanan region of China, a footwear center, has a huge build-up of industrial activities. The Taiwanese footwear manufacturers that sited there have been joined by small- and medium-sized enterprises doing such processing as well as indigenous Chinese firms. Usually, the single siting of a footwear manufacturer brings along about 10 firms to do processing (outsourced) for it. In Cambodia, too, processing firms could possibly follow footwear manufacturers in siting. At present, however, the footwear manufacturers number only about 10, and siting by processors (which number only about 5) is still limited. The fact is that footwear manufacturers are being compelled to perform even labor-intensive processes in-house.

7.2 The Outlook for Cambodia's Footwear Industry: Changes in the International Environment and a Scenario for Medium- and Long-Term Development

7.2.1 Investment Environment Change of Cambodia's Footwear Industry

Although Cambodia's footwear industry has the potential for expansion with FDI, the labor strife and management failures in recent years have triggered a withdrawal by foreign firms and induced a phase of stagnation. Nevertheless, there are signs of improvement as regards the strife, and the climate for investment in the footwear industry is embarking on substantial recovery. The climate in China and Vietnam is worsening due to anti-dumping problems and rising wages, and the flow of

footwear-related FDI into Cambodia is again starting to pick up. Production activities have apparently bottomed out and are beginning to make an upturn. The following have been pointed out as factors favoring the further development of Cambodia's footwear industry.

(1) Worsening of the Investment Climate in China and Vietnam

Many Taiwanese and Korean footwear firms have sited in China. The Huanan and Huadong regions have growing build-ups of industry in this field and have become hubs of footwear production. Although such foreign firms originally dominated export, the indigenous Chinese firms have become more export competitive. In addition, most of the parts and materials can now be locally sourced, and this assures the industry of a staunch competitiveness. As a result of China's galloping economic growth, however, labor costs are rising. Meanwhile, the rising interest in more capital- and knowledge-intensive industries in the IT and automobile fields is making it harder to recruit low-cost labor as desired in the regions that have been footwear centers. In the context of its medium- and long-term plan for industrial promotion, the Chinese government does not emphasize the labor-intensive footwear field. The climate of the industry in China will probably become harsher for Taiwanese and other foreign firms. In response, Taiwanese firms have begun to transfer some of their Chinese production to China's interior and neighboring countries such as Vietnam.

Taiwanese and other foreign firms have been worried about an over-concentration of their investment in China. As such, they have shown an interest in siting in Vietnam so far. In Vietnam, state-run and other indigenous firms are focusing on footwear production, and build-ups of footwear industry are taking shape in the Ho Chi Minh and Hanoi areas, based on domestic and foreign investment, as an extension of the garment industry. However, production depends on import from China and other countries for many materials, and the local contents rate is only about 20%. In early 2006, the minimum wage rose to about 60 dollars in cities, and export competitiveness sagged as a result. Moreover, like China, Vietnam was charged with dumping leather shoes on the EU market. With the recent improvement in the investment climate, FDI has gathered momentum in various fields. The Vietnamese government is showing a stronger tendency to emphasize knowledge- and facility-intensive fields such as IT and automobiles in its industrial promotion. It does not seem to have high expectations for promotion of the labor-intensive footwear industry.

(2) The Anti-Dumping Penalties on Export of Leather Shoes to the EU

Cambodia is receiving international aid for recovery, and its export of footwear and other products to developed countries will continue to be eligible for GSP application in the future. In contrast, China and Vietnam, which have highly competitive footwear exports to the EU, were saddled with anti-dumping penalties on exports of leather shoes to the EU from April to September 2006. Specifically, the import tariff, which is currently on the order of 4%, is to be hiked in phases to 19.4% for China and 16.8% for Vietnam over a period of five months ending in September. Even with the hike, Chinese and Vietnamese firms should not experience a big drop in competitiveness because the sources for mass orders are limited. However, some of the manufacturers of leather

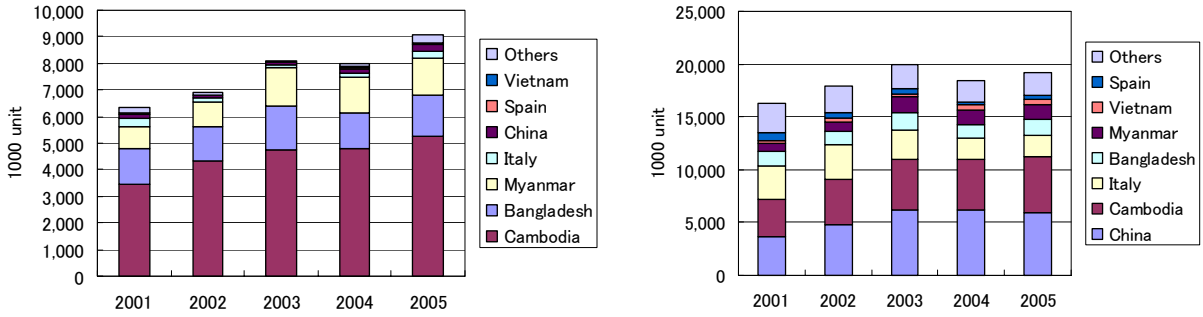
shoes sited in China and Vietnam will probably move part of their production to Cambodia, which offers an expanded tariff benefit. There is also a growing chance of siting by Vietnamese capital in industrial estates for development along the border with Cambodia.

(3) Increase in Outsourced Production for Japanese Firms

For import of leather shoes, Japan has applied a tariff quota scheme since 1986. The first quota (TQ1) it set came to 12 million pairs, and imposes a tariff of 21.6 %. For the second quota (TQ2), it imposes a tariff of either 30 % or 4,300 yen, whichever is higher. For footwear other than leather shoes, there is no import quota, but the import barrier is fairly high (with a tariff rate of 8 %). In spite of the high tariff, production outsourcing is steadily spreading among Japanese firms, and this is reflected in a rapid increase in import of sports shoes, for example, from China. In this situation, import from countries with most-favored-nation (MFN) status (e.g., Cambodia, Myanmar, and Laos) is exempt from tariffs because of GSP application. Import of leather shoes from Cambodia in particular is therefore quickly growing, and approaching that from China, which is competitive but restricted by the import quota. The certification of country of production is being strictly applied, but Cambodia currently meets the requirement and its export to Japan is on the rise.

Figure 7-2-1 Japanese Leather Shoes Import Trend in TQ1 and TQ2

(TQ2) (TQ1+TQ2)



Source: MOF in Japan

Overseas investment by Japan's footwear industry is limited, but outsourcing (production consignment) to Taiwanese firms in Cambodia could expand in the future. This is because the costs of outsourcing in China are expected to rise, and Cambodia holds a price advantage for leather shoes, whose import to Japan is restricted, due to GSP application as long as it is certified as the country of production. In actuality, about 10 Japanese firms, including major footwear manufacturers as well as trading firms and distribution brands, are outsourcing leather shoe production to Taiwanese firms in Cambodia (e.g., New Star Shoes, Chain Hwey Shoes). The volume of export from Cambodia to Japan is rising in the process. China remains by far the leading source of import for footwear as a whole, but import from Cambodia is coming to rival that from China for leather shoes taken separately.

7.2.2 Positioning of Cambodia FDI in the Footwear Industry

(1) Footwear Supply and Demand Outlook

Taiwanese, Korean, and Chinese footwear firms have large shares of the market for low- and medium-grade footwear in the EU, USA, and Japan. Many of these Asian firms have plants in China, where they can fulfil demand from developed-country buyers, recruit low-cost labor, and easily procure parts and materials. Recently, some of them have been transferring production to neighboring countries such as Vietnam in order to disperse the risk of concentration in China and to avoid the anti-dumping penalties imposed by the EU. The supply of low- and medium-grade footwear of all types (leather shoes, sports shoes, sneakers, etc.) to developed countries will continue to consist mainly of exports from China and other Asian countries. As production costs rise in China along with its economic growth, though, production will probably continue to gradually shift to countries with lower income levels, such as Vietnam and Cambodia.

Table 7-2-1 Footwear Import Forecast from the ASEAN Region and China to Advanced Markets

(Billion US$, %)

		2000	2001	2002	2003	2004	2005	2010	2015	2020
Country	US	15.0	15.9	17.0	17.8	18.8	20.1	27.4	34.4	43.3
	EU	16.7	17.6	19.3	22.8	26.2	30.0	41.0	52.0	63.0
	Japan	2.8	2.8	2.7	2.9	3.0	3.2	3.6	4.2	5.0
Type	Leather footwear	21.4	22.4	23.9	26.5	29.1	32.5	44.0	55.0	68.0
	Other footwear	13.1	14.0	15.2	17.0	18.9	20.8	28.0	35.6	43.3
Total		34.5	36.4	39.1	43.5	48.0	53.3	72.0	90.6	111.3
	Ratio of import from ASEAN +China in case of the whole import	52.6	52.1	51.4	50.6	50.9	50.3	53.2	57.3	63.2

Source: JICA Study Team Forecast based on UN Commodity Trade Statistics

(2) Scenario for Development of the Footwear Industry in Cambodia

(i) Short term (to 2010)

- Firms (mainly Taiwanese) sited in China and Vietnam shift some of this production to Cambodia to avoid the anti-dumping penalties that continue to be imposed on export of leather shoes to EU.
- In consigning production, Japanese footwear firms switch from China, whose export to Japan is under controls, to (Taiwanese plants in) Cambodia, whose export enjoys GSP treatment.
- Substantial increase in export of leather shoes by foreign firms (mainly Taiwanese) in Cambodia to the EU and Japan as a result.

(ii) Medium term (2010 - 2015)

- Currently, sites of footwear firms from Taiwan and other countries have to manufacture most of their own parts and materials, but there is increasing siting by subcontracting foreign firms (that process materials for the footwear firms) at the invitation of the latter.
- Production initially centers on leather shoes, which have the competitiveness needed for export to the EU and Japan. With a rise in its level of production technology and cost competitiveness over the medium term, Cambodia gains the competitiveness

needed for export of footwear made from synthetic and natural leather, as well as other materials.

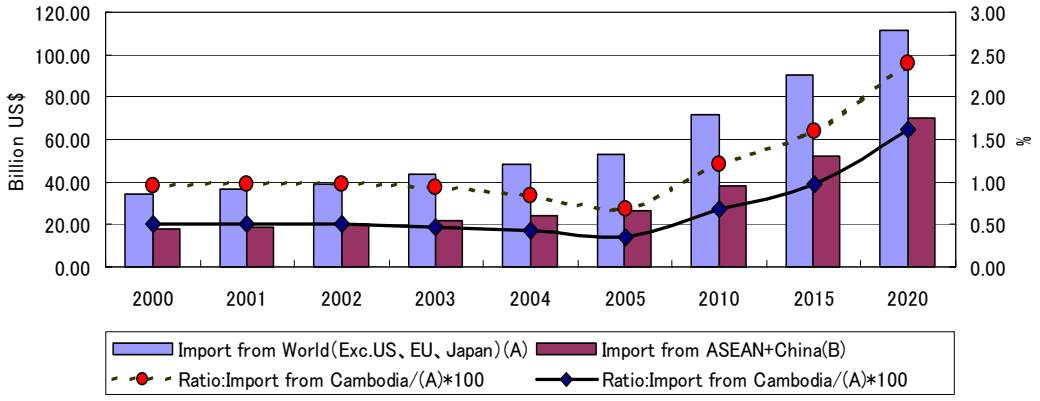
(iii) Long term (2015 - 2020)

- The build-up of the footwear industry in China and Vietnam suffers a relative loss of cost competitiveness as their economies grow. Taiwanese and other firms sited in them transfer more production to Cambodia and other countries offering lower labor costs.
- The foreign siting is accompanied by the spread of footwear production technology in Cambodia and an expansion of export opportunities. In response, some indigenous Cambodian concerns embark on footwear production and processing of parts and materials.

(3) The Outlook for Supply Shares in Cambodia's Footwear Industry

At present, Cambodia's share of the global market for imported footwear comes to only about 0.5 %. This situation is not going to change greatly as long as China remains a footwear-exporting giant, but the Cambodian industry could target a share of 1.6% in 2020 based on the aforementioned scenario for its development. Considering the advantageous investment climate surrounding Cambodia, this target is thought to be fully attainable. In the segment of sports shoes, it would be difficult for Cambodia to assure itself of competitiveness relative to China, for example. In that of leather shoes, on the other hand, Cambodia offers the advantage of avoiding the prevailing import controls in developed countries, and could get a fairly high share.

Figure 7-2-2 Footgear Imports from ASEAN / China in Japan/US /EU Markets and Cambodia's Supply Share Outlook



Source: JICA Study Team Forecast based on UN Commodity Trade Statistics

(4) Estimate of FDI Scale and Extended Economic Effect

Assuming that Cambodia attains the above supply share (target) in the global footwear industry, its footwear export would amount to 1.8 billion dollars in 2020. As of 2020, FDI would come to a cumulative 100 million dollars, and consist of siting by about 100 firms with a total of 150,000 employees.

Table 7-2-2 Cambodian FDI Forecast in the Footwear Industry and the 'Ripple Effect'

	2006	2010	2015	2020
Number of foreign firms	12	30	50	100
Number of line	20	60	100	200
Cumulative FDI（million US$）	10	30	50	100
Employees（1,000 persons）	20	50	80	150
Export（million US$）	220	490	1,000	1,800
Global share（%）	0.38	0.68	0.98	1.62

Source: JICA Study Team

7.3 Evaluation of and the Outlook for the International Competitiveness of Cambodia's Footwear Industry

7.3.1 Production Cost Analysis

At Taiwanese firms sited in Cambodia to produce leather shoes, the manufacturing cost structure is driven by materials, which account for an estimated 70 - 80 percent of the total, followed by personnel expenses at 10 - 20 percent and other items (e.g., depreciation costs, utilities charges, and logistics) at another 10 - 20 percent. The personnel expense share is slightly higher than in production of simple assembly components in the electric/electronics industry, but both are labor-intensive fields in which materials basically account for the vast majority of the cost and personnel expenses are not very high. Many of the materials needed for ordinary footwear production are made in China, and prices for them are essentially set. The production facilities are simpler, consisting mainly of sewing machines and the like, and do not use much electricity. As such, the main factors in cost fluctuation are personnel expenses, even though they do not carry a lot of weight. Footwear firms are oriented toward production in an investment climate offering wages that are as low as possible.

The wages for simple laborers in Cambodia are lower than those in China, which has a huge footwear industry, and Vietnam, where production has been expanding in recent years. Nevertheless, Cambodia could not necessarily be said to offer more competitive advantage for footwear production than these countries, considering factors such as the dependence on imports for materials, logistic problems, limited ability to outsource processing, and low worker productivity. For the time being, Cambodia's competitiveness would therefore be confined to the segment of leather shoes, where it has an edge for supply to the EU and Japan. The question is whether or not Cambodia will be able to lay the foundation for the entire footwear industry through production in the leather shoe segment, where it has a competitive advantage, and thereby become competitive as a site for production of a wider variety of footwear in the future.

7.3.2 Business Model in Cambodia's Footwear Industry

Because of the anti-dumping problems with the EU, three Taiwanese firms that have sited in China and Vietnam are anticipated to move to Cambodia. Many other Taiwanese firms could site in Cambodia, too. For siting in Cambodia, the anti-dumping penalties on China and Vietnam are no more than an added inducement; the worsening of the investment climate was pointed out as a main

background factor by Taiwanese firms in China. Opportunities for investment in Cambodia's footwear industry look very promising. The main firms investing in production in Cambodia are Taiwanese, and they want to spread the risks associated with their siting in China (Dongguan).

Apart from the Taiwanese firms, there is a potential for investment in production in Cambodia by other firms (Korean, Hong Kong, and even Chinese) sited in China and Vietnam owing to the impact of the anti-dumping measures taken by the EU. These measures are applied to leather shoes, for which Cambodian export to Japan receives GSP treatment. This suggests that the most aggressive investment in Cambodia will come from Taiwanese firms in the field of leather shoes. End-to-end production (with in-house processing of parts) should continue to dominate for the time being, but there is a good possibility of siting by subcontractors as the stock of footwear manufacturers builds. Taiwanese firms asked companies doing outsourced processing for them to site in China as their production there developed. This kind of pattern may be expected to unfold in Cambodia as well in the future.

Table 7-3-1 Rating of Prospects for Investment in Cambodia by Footwear Firms

Investing firms	Siting Possibility	Pattern of production	Siting factors	Type of footwear
Taiwanese firms	Quite high	Investment for construction of production lines	・ Increase in costs in China ・ Problem with anti-dumping penalties in the EU	Mainly leather shoes
Korean firms	Low	Investment for construction of production lines	・ Increase in costs in China ・ - Problem with anti-dumping penalties in the EU	Mainly leather shoes
Chinese firms	High	Investment for construction of production lines	・ Increase in costs in China ・ Problem with anti-dumping penalties in the EU	Leather shoes
Vietnames e firms	Low	Investment for construction of production lines	・ Problem with anti-dumping penalties in the EU	Leather shoes
Japanese firms	Low	Mainly consignment of production to Taiwanese firms, etc.	・ Controls on import in Japan (advantages of import from Cambodia)	Leather shoes

Source: JICA Study Team

Even the big Japanese footwear manufacturers lack a margin for investment, and as such, do not have a global business (their sales are completely confined to the Japanese market). Their overseas activities are likely to continue to center on outsourcing, meaning consignment of production to firms in China, which has the most developed footwear industry and cost competitiveness. Like FDI, however, consignment faces risks associated with concentration in China, albeit to a lesser degree. Considering factors such as the existence of diverse consignees, sources of various parts and materials, and cost competitiveness as well as Japanese policy on import, Japanese firms would have nothing to gain from siting in countries other than China for sports shoes and sneakers. For leather

shoes, on the other hand, there would be an advantage in siting in Cambodia, Laos, and Myanmar (CLM) and Bangladesh, which are eligible for GSP application for import tariffs, as related above. Although the controls on import from China could change over the long term, the advantages accorded to Cambodia and the other CLM countries should remain in place for a while.

Japanese firms have in mind Taiwanese firms sited in Cambodia as destinations for consignment of leather shoe production. Although the lots are small, Taiwanese firms see the prospective consignment from Japan as a chance to conclude a continuing relationship. In their eyes, it is also a golden opportunity to raise their level of technical expertise through the seconding of personnel to Cambodia for technical instruction. It takes up the case that reviews production investment in Cambodia and the other CLM countries in the Japanese footwear firm as the exception.

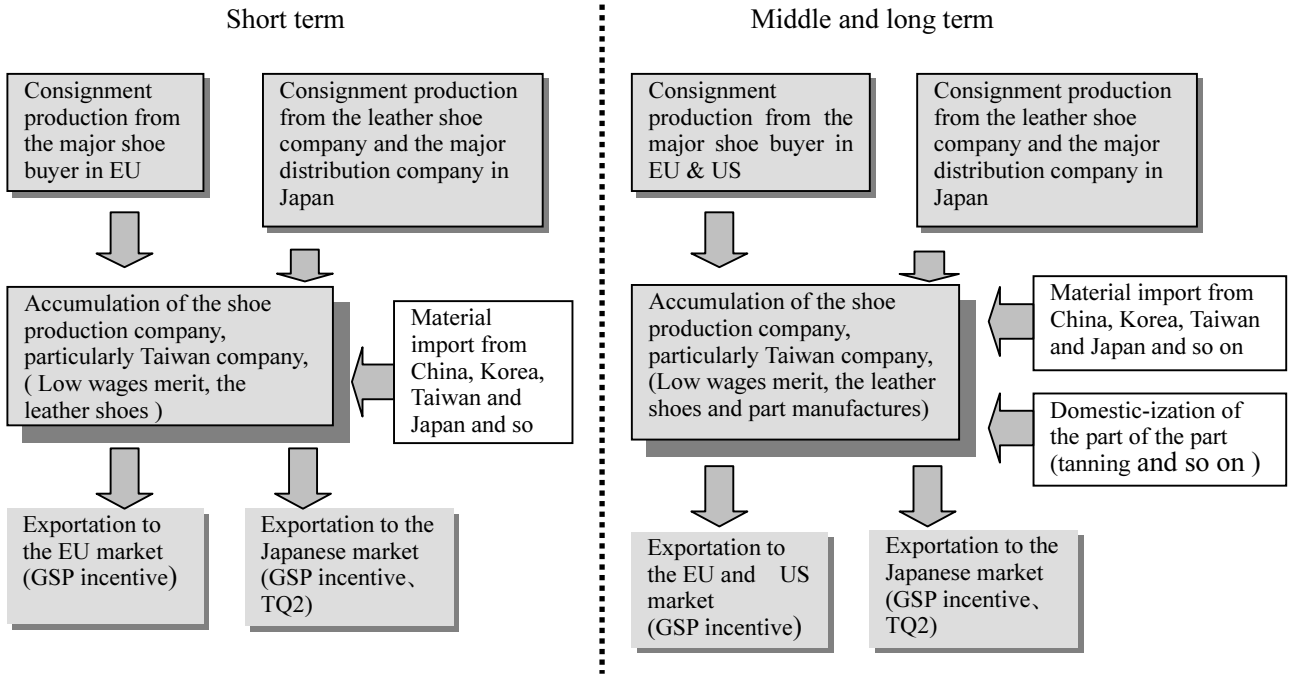
Table 7-3-2 Example of Business Plan for the Footwear Industry Found in the Field Survey

	M company (Japan)
Object product	Steel-toed shoes
Current production style	Production site: only in Japan、production capacity : 6 million pairs per year
Overseas investment plan	・ Consistent production factory of steel-toed shoes for the Japanese market ・ Material procurement: Japan, China, Taiwan, Korea and others
Problem on the business	・ In the footwear industry, steel-toed shoes manufacturing investment is large scale. ・ Securing of the workforce which is diligent and low in cost ・ Production process is composed of sewing construction, injection molding, and so on.
FDI condition	・ Reliability of the politico-social system ・ To attempt investment collection, being short term, or to raise an operating rate, the 3-shift system is indispensable. ・ Physical distribution system for parts procurement from a wide range of countries ・ Proper cost and moreover the stable power supply
Investment possibility in Cambodia	It is during the investigation and reviewing in the investment place in Cambodia, Laos, and Myanmar with the GSP application for export to Japan. The schedule calls for selection of an investment site during the next one or two years.
Business plan (3-5 years)	Investment scale: hundreds of millions of yen, production scale: 10,000 pairs/month, employees : 200

Source: JICA Study Team

The business model about the footwear industry in Cambodia is shown in below. Taiwan capital becomes a core, at present, by the part import from China and so on, it does a processing construction and exports to the Europe and America and Japan. As for the Japanese company, the direct equity investment participates in the form of the consignment production. In the long term, local-ization in the tanning process is expected.

Figure7-3-1 The business Model of the Footwear (Leather) Industry in Cambodia



Source: JICA Study Team

7.4 Recommendations to Promote Direct Investment into the Footwear Industry

7.4.1 Policy for the Promotion of the Footwear Industry

(1) Execution of Measures for Promotion of the Footwear Industry

The footwear industry is a typical labor-intensive industry, but has more types of parts and materials and more complicated production processes than the garment industry. For this reason, it has larger effects not only in the aspect of employment but also in those of investment, technology, and foreign currency earnings. The Cambodian government should make an objective study of the changes in the investment climate surrounding the footwear industry in China, Vietnam, and Japan, and give the industry a high priority for FDI attraction alongside the garment industry. In particular, it ought to consider diverse initiatives for effective promotion in regard to employment conditions, HRD, and industrial structuring.

A higher international competitiveness is indispensable for a continuous build-up of the footwear industry. Cambodia must take advantage of the current upturn in the investment climate to attract siting by not only footwear manufacturers but also the firms processing the related parts and materials. For the time being, it would be difficult to source the latter in Cambodia. Even if the production depends on imported materials, the presence of processing firms linked to certification of Cambodia as the country of production would be necessary to assure GSP treatment in developed countries and cost competitiveness. The government should consider finely-tuned measures to attract FDI for processing parts and materials, such as a higher level of investment incentives and provision of locations (sites in collective industrial estates).

(2) Arrangements for Human Resource Development (HRD) and Technical Training

In interviews with them, Taiwanese footwear manufacturers sited in Cambodia thought that the level of technical skill among workers was low overall. They considered the work efficiency poor due to insufficient elementary education and rated productivity at about 30 as opposed to 100 for China and 70 for Vietnam. It goes without saying that workers do their best to carry out assignments, and problems appear to derive entirely from the lack of elementary education and experience. The company side at first took the time (a few months) to provide new hires with education and training, but has lost the margin to do so more recently, and now put personnel on the regular line within one week. Therefore, efforts should be made to furnish fuller elementary education and build a setup for basic instruction to increase the literacy rate and enable workers to make simple calculations.

Table 7-4-1 General Information on the CGTC

- The GMAC set up a training center in 1999 with assistance from the Japanese METI and the Japan Overseas Development Corporation (JODC).
- The CGTC is housed in the Cambodia Chamber of Commerce and Industry. It has 7 instructors and has graduated an extended total of 2,200.
- Originally, the courses were designed mainly to groom those new hires regarded as relatively talented to be supervisors in place of Chinese personnel (whose wages are five times as high as those of Cambodians). There were also courses on quality control and business administration.
- For worker candidates coming from rural areas, courses consist mainly of instruction in basic stitching skills. The personnel take three courses in two months. Many of the graduates take jobs with garment firms. The companies give high marks to the courses, which make it unnecessary for them to start from the basics in their in-house education. An added benefit is that the program eliminates use of the services of sub-quality brokers.
- The number of students ranges from 40 to 45 per month. Basically, students pay 5 dollars for food and lodging, but scholarships are available, and students need not pay if the class is premised on hiring.
- Drawing on dues from members and financial aid from institutions including the ADB, the GMAC provides 5,000 dollars per month for the operation of the center.

Source: CGTC, the Garment Industry Human Resource Development Centre, CMAC

In response to the anti-dumping penalties imposed by the EU on imports from China and Vietnam, there is a good chance of a jump in orders to Taiwanese firms sited in Cambodia. This could also lead to an increase in additional investment, production line expansion, and rapid rise in hiring. Footwear manufacture involves not only stitching technology but also the processing of parts and materials for soles, plastics processing, and other components of equipment industry. There are consequently big ‘ripple effects’ accompanying an extensive transfer of technology. Because it would probably be hard to produce the needed personnel solely through in-house programs of education and training, the option of establishing such programs in public institutions should be studied immediately. The footwear industry is still not very large, and it would presumably be difficult to set up such a public institution especially for it. Capabilities ought to be strengthened while considering interaction with the Garment Manufacturers Association in Cambodia (GMAC) as the counterpart in the garment industry.

(3) Reconstruction of the Footwear Industrial Association

The association in the footwear industry is in effect dormant due to absence of a chairman. Association capabilities are essential for the government to deploy various measures and the industry

to make policy proposals to the government. The government should actively encourage reconstruction of the association, for orderly growth of the industry in Cambodia, even if it is with a high dependence on FDI. The case of Vietnam suggests that the association activities would include the holding of management and technical seminars, provision of programs for human resource development and technical training, staging of exhibits for sales promotion, and holding of regular conferences (for communication among member firms, policy proposals for government, etc.). HRD and technical training will be vital activities of the association over the longer term. For the time being, however, the focus will have to fall on contact with industry representatives for development of official policy in areas such as wages, labor disputes, and other union issues as well as country of production certification and other international matters surrounding GSP.

(4) Logistics Infrastructure

When foreign firms get orders for footwear from major buyers and produce them in members of the ASEAN, delivery usually takes about four months. Specifically, it takes about 40 - 50 days to source materials (at least 30 for leather alone), 30 days to transport materials, 10 days to manufacture, and 30 days to transport the products, for a total of 110 - 120 days. The lead time requirements are not as strict as in the electric/electronic industry, for example. To a degree, firms can have a planned production based on orders from buyers, with container carriers for material import and product export. A logistics network with a time frame of 3 - 4 months will do.

Proper assurance of the lead time noted above in accordance with production schedules would require a reorganization of cargo transport within Cambodia, to diversify transport networks while making them more efficient. This could be done by reconditioning truck and rail transport between Sihanoukville and Phnom Penh and building a network for international truck transport linking Phnom Penh with Bangkok and Ho Chi Minh. Because of the various sources of import for parts and materials, cargoes have to be transshipped using large harbor facilities at ports with extensive warehousing, such as Kaohsiung (Taiwan), Hong Kong, and Singapore. Steps must be taken to build up such facilities at Sihanoukville.

(5) Simplification of Import-Export Procedures

Foreign firms sited in Cambodia in the garment and footwear industries have to spend a lot of time to file import/export applications and get them approved. For example, even if additional fees are paid, export applications may not be approved on schedule (according to the rules), and it may take nearly a week to get a license. The resident firms are resigned to pay an extra cost for smooth approval of export and management of import and export in harbors, regarding such practices as a necessary evil. The Taiwanese footwear firms already in Cambodia are apparently not strongly seeking improvement in this situation. Japanese firms, on the other hand, have long experienced such problems in the ASEAN region, and have taken a very tough stance toward them in recent years from the standpoint of preserving compliance. The execution of a model project for procedural simplification at the port and harbor facilities in Sihanoukville was done last year. This project must

be led to success in order to attract new investment and make things smoother for the firms already in Cambodia. It must be followed by the prompt application at other organizations, simplification of related work, and correction of the malpractice of collecting extra fees.

(6) Preparation of a Master Plan for the Footwear Industry

To encourage FDI in the footwear industry, the Cambodian government should prepare its own master plan setting forth its vision for the development of the industry, the policies to be taken to attain this vision, and the improvements in the investment regime. For the time being, the industry would have to rely on siting by firms manufacturing footwear and processing parts and materials from Taiwan, for example, as well as production consignments from Japanese firms. Over the long range, it could promote participation by indigenous capital in processing and have the industry take root in Cambodia. Forming the guideline for investors (both domestic and foreign) and policymakers, a master plan would be indispensable to this end. The plan should be prepared by a unit assigned to analysis of major industries in the CDC. This unit should prepare a systematic plan for the footwear industry as soon as possible, with the power of the foreign capital of stepping forward.

(7) Local Supply of Parts and Materials

The footwear industry needs all sorts of parts and materials. The list includes natural leather, synthetic leather, and fabric for uppers; leather, synthetic resin, and synthetic rubber for soles; and paper and metal. Properly speaking, the ongoing advancement of the industry requires high local contents to solidify cost competitiveness. At present, though, the industry gets most of its medium-to-high-grade materials from Japan, Korea, and Taiwan, and most of its low-to-medium-grade ones from China. Under these circumstances, even with foreign help, it would be unreasonable for Cambodia to try to localize sources of parts and materials, judging from the size of the lots involved in foreign purchasing.

Among the various parts and materials, there would be prospects for siting the tanning process in Cambodia. This process entails a harsh labor environment and requires sure measures to prevent pollution. As such, it is regarded as particularly burdensome even in China. In Vietnam, too, the rate of local leather content is only about 20 %, and wider domestic tanning is being sought. Nevertheless, technology transfer from overseas and waste liquid treatment carry a high cost, and official aid is not as high as desired. In contrast, in Bangladesh, which is eligible for GSP like Cambodia, there are plans to establish a tannery estate with official aid and technology introduced from Italy. Also, many tanning companies are accumulating the area of the neighborhood of Bangkok in Thailand But as the production cost rises, in the long-term, the possibility to be pressed to do the reorganization which contains production district transfer and so on is strong in.

The tanning process definitely demands sophisticated technology and expensive facilities for treating waste liquid. Moreover, it could be phased out in China and Vietnam as well as in Japan, Korea, and Taiwan. The competitiveness of Cambodian footwear could very well be best demonstrated in the

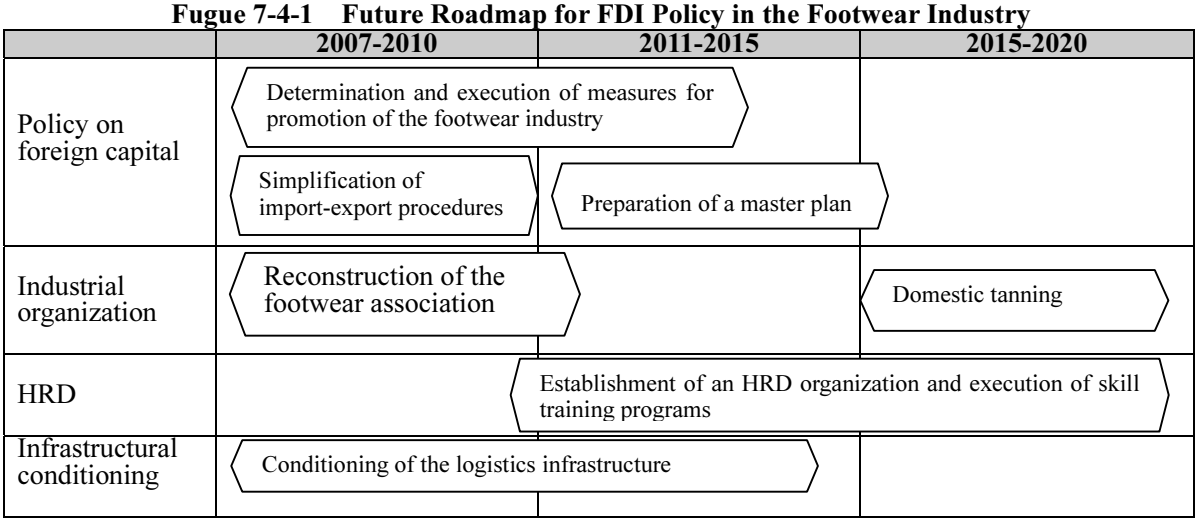
case of leather shoes. There is room to consider the option of setting up tanneries in Cambodia with ODA-funded technical assistance and financial support. The tanneries would import raw leather from South America or other regions, and supply tanned leather to meet the demand not only in Cambodia but also in peripheral countries.

7.4.2 Future Roadmap for FDI Policy in the Footwear Industry

Above section described measures for attraction of investment by footwear-related foreign firms. For the action plan, these measures were arranged in a time sequence over the medium and long terms (extending to 2020). For the immediate future, the investment climate in the footwear industry favors Cambodia, especially for production of leather shoes. To take advantage of this opportunity, the government would be advised to give the footwear industry the status of a key industry, and determine and execute hard-hitting measures for its promotion, including investment incentives and privileges for foreign firms siting to process parts and materials. In addition, the footwear industry association must be revived and start to function as a sure vehicle of communication between government and industry.

Over the medium term, the government ought to determine and implement public schemes in areas such as HRD and skill training while also preparing a master plan. CDC should start a professional team as soon as possible and should review a full-scale footgear master plan with the support of an expert. In the long term, it ought to consider developing tanneries as domestic sources for leather materials. For the logistics system, which is currently being conditioned partly for promotion of the garment industry, particular importance must be attached to preparation of the port and harbor facilities at Sihanoukville, and further improvement of the network of roads between Sihanoukville and Phnom Penh.

Fugue 7-4-1 Future Roadmap for FDI Policy in the Footwear Industry



Source: JICA Study Team

Chapter 8
Outlook and Recommendations on Investment Conditions for Attracting Foreign Electric /Electronics Industries to Cambodia

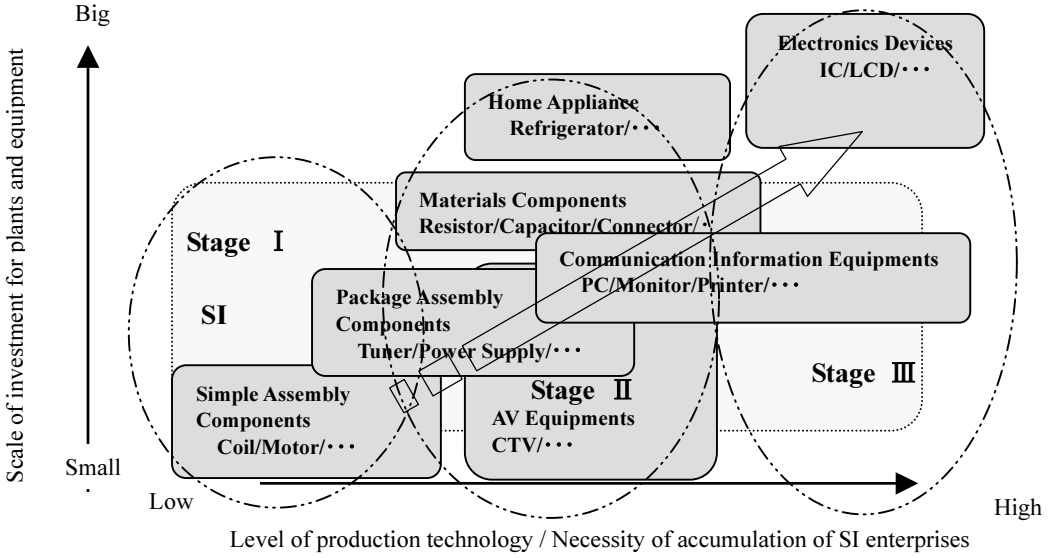
8.1 Characteristics of Cambodia's Electric/ Electronics Industry and Simple Assembly

8.1.1 International Comparison of the Electric/ Electronics and Simple Assembly Industry

Although the electric/ electronics industry is not yet developed in Cambodia, there is much potential for its development. Japanese firms in this industry operating in the Cambodian neighboring countries such as Thailand and Malaysia also show interest in Cambodia for investment extension or relocation of their industries in order to take advantage of Cambodian low-waged labor. As a result, the Cambodian electric/electronic sector will enter into the early stage of its development in which production of labor-intensive basic electronic components will commence.

The next figure shows a basic categorization of product fields in the electric/electronics industry in terms of technical level and scale of investment. Fields become more technology- and facility-intensive as one proceeds toward the upper right. This quarter is occupied by domains in which Japan and other developed countries are competitive (e.g., semiconductor front-end processes and LCD products). The lower left quarter consists of domains that are labor-intensive and provide avenues for advancement by developing countries with a supply of low-cost labor. The specific products are electronic components, and especially those requiring only a simple assembly by winding, such as wire harnesses, coils, transformers, and motors. To take Malaysia and Thailand as the standard, the ASEAN industry is now in this stage of development.

Figure 8-1-1 Scenario for the Evolution by Stages of the Electric and Electronic Industries



Note: IC-Integrated Circuit, PC-Personal Computer, CTV-Color Television
Source: JICA Study Team

Simple assembly components have great ripple effects for absorbing labor and diffusing technology with a scale of investment adapted to the stage of evolution. They have more power than other fields for breeding a beneficial cycle of foreign currency earnings and economic growth. Historically, this has been proven by Japan and ASEAN countries. In Vietnam as well, many assembly plants for such components have been sited in the vicinity of Ho Chi Minh, and are supporting the growth of the electric/electronics industry. Although the times and background are different, this pattern presumably also applies to a developing country such as Cambodia.

In the component field, Japanese firms are major players accounting for about 60 percent of the global market and have been the top contributors to industrialization in ASEAN countries such as Singapore, Malaysia, and Thailand. Labor-intensive component assembly, which has supported the initial stage of advancement in the forerunning ASEAN countries, is already losing competitiveness in Malaysia, for example. China has by far the strongest competitive strength in this field. The risks associated with concentrated investment in China, however, are expanding, and investment in Vietnam is building to avoid them. Although they cannot match China's cost competitiveness, the less-developed ASEAN countries have strength in the existence of customers for their components in neighboring countries. For electric/electronic components, price looms large as a factor of competitiveness, but lead time is even more important. Cambodia has an advantage in its proximity to Malaysia and Thailand, which have well-developed electric/electronic industries, and has the potential for supply of products with a shorter lead time than China.

8.1.2 A SWOT Analysis of Cambodia's Electric/ Electronics Products

The industrial production of the electric/electronics product doesn't exist in Cambodia. Therefore, it is a status which cannot be executed by SWOT analysis.

8.1.3 Possible Pattern of Production in Cambodia

It should be noted, though, that not all companies which are considering reconstruction and oriented toward such international divisions would choose to site in Vietnam. Cambodia also has ample opportunity to attract such companies. In building new plants, investors (companies) make in-depth examinations of the investment climate in candidate countries (such as Vietnam, Cambodia, Myanmar, and Laos) and select the optimal site. It would be fully possible for Cambodia, too, to attract siting by Japanese firms in the electric/electronics field if its investment climate is rated highly. Although Vietnam is running ahead in the task of improving this climate, Cambodia is thought to stand a good chance of attracting siting if it makes a point of improving conditions for investment.

There are estimated to be five patterns of such siting, as shown above, considering the possibilities of siting in Cambodia by Japanese electric/electronics firms as shown in next table (based on factors including fundamental siting conditions for electric/electronic products, inclination to construct divisions of production with other ASEAN countries based on interviews with firms in Malaysia and Thailand, and the latest trends in siting by electric/electronics firms in Vietnam). As for investment

for production of wire harnesses, coils, and transformers, it is thought that firms will effect divisions of production with existing plants in Malaysia, which is losing cost competitiveness. The supply would be direct mainly to ASEAN markets, with some export to other regions. Small electric products, half-finished goods (such as CCD modules for camera, BLUs, and power supplies), and information-communications goods go mainly to non-ASEAN markets, such as Japan, China, Europe, and North America. Investment for production of these articles would not necessarily be confined to the existing ASEAN plants for them. There is also a strong possibility of FDI from Japan because it often becomes necessary to cope with the expansion of new markets, including:

- Assembly of wire harnesses
- Assembly of coils and transformers
- Assembly of small electric products
- Assembly of half-finished goods (camera modules, BLUs, power supplies, etc.)
- Assembly of information-communications equipment (printers, mobile telephones, etc.)

Table 8-1-1 Possibility of FDI Siting Forward to Cambodia from the Production Location Requirement in Electric/Electronic Industry

		Main Product (Example)	Production Geographical Condition				Cambodia Opportunity
			Domestic Market	Labor	Component or Material	Production Facility	
Electric & Electronics Equipment	Audio & Visual Equipment	TV CD Player Car Stereo	○	○	◎	○	×
	Information Equipment	Main Frame PC	△	△	◎	○	×
		Monitor Printer Copy Machine	△	◎	◎	○	△
	Communicati on Equipment	Radar Switching Equipment	○	△	○	○	×
		Hand Phone Facsimile	△	○	△	○	△
	Home Electric Appliances	Refrigerator Washing Machine Microwave Oven	◎	○	◎	◎	×
		Hair dryer Lighting Equipment	△	◎	△	△	○
	Others	Medical Control Instrumentation	○	△	△	○	×
Electric & Electronics Component	Active Component	Semiconductor Display Device	△	△	△	◎	×
	Passive Component	Resistor Condenser	○	◎	△	○	×
		Coil Trans	○	◎	△	△	○
	Sub Assemble	Wire Harness High Frequency Module CCD Module Power Supply	△	◎	△	△	○

Note: ◎extremely important ○important △always not important ×not important
Source: JICA Study Team

(1) Assembly of Wire Harnesses

Wire harnesses are net-like cable components for inter-linkage of circuits and components within

electric instruments in automobiles and electric/electronic products. The structures and specifications differ depending on the manufacturer and product, and the production is consequently high-diversity, small-lot. The demand is led by automotive instruments, but harnesses are also in use as key components linking various circuit blocks and major components in electric/electronic products. The process of bundling cables of various lengths and thicknesses together in correspondence with the product design becomes more difficult to mechanize as product diversity rises. In spite of the use of special-purpose boards and other equipment, it is extremely labor intensive.

Y company, a top firm in this field, handles mainly wire harnesses for automobiles and motor scooters, and has a core factory specifically in Thailand in ASEAN.. It was among the first to site in less-developed ASEAN countries such as Vietnam and Laos in search of high-dexterity, low-cost labor. In Vietnam, it has a few plants that export to Japan and North America as well. It anticipates a further expansion of its sites. Judging from the pace of electronic equipment installation in automobiles, the production capacity for wire harnesses is expected to go on the short side in the near future. While keeping the core in Vietnam, Y firm and other Japanese harness firms will probably expand their production to neighboring countries.

The situation for automobiles also applies to wire harnesses for home appliances and other electric/electronic products. The major Japanese manufacturers of air conditioners sited in Thailand are considering assembly in Vietnam (the Hanoi area, for example) in order to reduce harness costs. In neighboring Thailand, there is an increasing production build-up for white goods, and automobile production is likely to rapidly expand in the future as well. However, the minimum wage in the Bangkok area is about 120 dollars a month, and wage levels come to about 200 dollars per month with the inclusion of overtime etc. It is highly possible that harness assembly in Thailand will eventually enter a difficult phase in the cost aspect. These points to good prospects for a transfer of labor-intensive harness assembly to Cambodia. Thai firms as well as Japanese ones are involved in harness production, and might be willing to site in industrial estates along the border.

(2) Coil and Transformer Winding Process

Electric/electronic products use various components produced by a winding process, such as coils, transformers, filters, converters, and vibration motors. The demand for these components is steadily growing. It is possible to mechanize the winding process so that it is completely automatic, but the most cost-effective pattern in ASEAN countries is the combination of a winding machine and an operator. This combination depends on the availability of dexterous yet low-cost labor. Leading Japanese component firms in this field are siting plants in China and Vietnam. The first Japanese plants for coils and transformers in the ASEAN region were sited in Singapore. As wages there rose, the production was transferred to Malaysia and Thailand. More recently, a lot of plants have been built in China. This transition was accompanied by a major change in the structure of application fields, whose center shifted from AV equipment to information-communications equipment. Meanwhile, production sites in the ASEAN region and China continue to expand along with the

regional and/or domestic demand.

Japanese T firm producing transformers for AV equipment in Malaysia is studying the option of moving to a site with lower personnel expenses. During the last few years, it has consigned some component assembly to an indigenous firm in Myanmar. The volume of such production at the latter has steadily expanded, but the Japanese firm is thinking of building its own plant. In light of the labor supply factors, the candidate sites under consideration are Vietnam, Myanmar, and Cambodia. Many firms have already sited in Vietnam, and there are doubts about the ability to maintain low-cost production into the future. In Myanmar, firms could gain capital participation in their outsource destinations, but there are high risks in aspects such as logistics and political stability. As regards Cambodia, firms have not made in-depth surveys and have only limited information. At the very least, they have not yet made a decision on its suitability as a site of production.

A semi-major Japanese manufacturer of coils has sited in Laos, on the outskirts of the capital of Vientiane, after cost circumstances became tough in its production in Thailand. It has transferred production of some components (such as coils for strobes) from the plant in Thailand to that in Laos. Laos was also thought to offer a stable supply of power from hydropower plants, but the supply was shaky in the initial phase of the operation. As a result, the firm had a fairly hard time increasing the level of operation. Cambodia, too, could have attracted this plant if it had sufficiently improved its investment regime.

(3) Assembly of Small Electric Products

This category consists of articles used for personal care such as hair dryers and relatively small products such as lighting fixtures. The prices are low to begin with, and competition with China is intensifying in developed-country markets. Manufacturers therefore want to produce in countries with low personnel expenses as far as possible. There are prospects for divisions of production with neighboring countries among Japanese firms (which are sited mainly in Thailand) and ASEAN (Thai and Malaysian) firms. The products involve the processing of metal and plastic parts, and this necessitates investment in fabrication equipment such as presses and extrusion molds. This must be joined by a stable supply of power for steady operation.

Firms will probably have to manufacture parts and materials in-house for the time being. Even so, the ability for smooth procurement of processed parts and materials from the external sources of the existing plants in Thailand and other countries (meaning the efficiency of material import) will be an important factor in siting decisions. To keep costs down into the long term, there should be local firms capable of performing outsourced processing (whether indigenous or foreign-affiliated) to bring freedom from import of parts and materials. As such, the keys to attraction of FDI in this field are the preparation of industrial estates with a sure power supply and EPZ (SEZ) functions, conditioning of the infrastructure for container transport, and prospects for the clustering of SI firms in the vicinity over the longer run.

(4) Assembly of Half-Finished Products

Collectively known as digital information appliances, products such as liquid crystal TV sets, mobile telephones, digital still cameras, and digital audio sets continue to find an expanding demand worldwide. Such products have circuits and structural blocks to perform diverse functions, and have bred various module components such as camera modules (CCD modules), BLUs, and power suppliers. Production of module components is hard to automate because of the varied item types and quantities. As a consequence, it is necessarily labor-intensive, while demand volumes run very high. Suppliers are struggling in the effort to find production sites. They are building additional plants of their own in China and ASEAN countries, and often outsource to manufacturing firms engaged in electronics manufacturing service (EMS).

Although maritime transport is the norm for import of materials and components for module products, transport to their users (the manufacturers of the finished products) is usually by air (international air cargo) because of the extremely strong needs for quick delivery. Cambodia's current logistics system cannot cope with such supply chain management requirements, and this would make it impossible to attract FDI. With the construction of industrial estates equipped with EPZ functions and the improvement of international logistics, however, firms could very well site new plants in Cambodia, with its labor cost advantage, as the global demand continues to expand.

(5) Assembly of Information-Communications Equipment

The demand for information-communications equipment, inclusive of various products known as digital information appliances, is widening from developed countries to the emerging markets of Brazil, Russia, India, and China (BRICs). In the process, the global market is further expanding. For this reason, the concerned firms will undoubtedly continue to seek supply sites that are competitive for assembly even as they receive core components from those in other countries. These sites could by no means all be located in China; some production could be transferred to Vietnam and other ASEAN countries as well as BRICs themselves. In this process, Cambodia could possibly become a part of these supply site chains.

Typical cases of such siting may be seen in the Huanan and Huadong regions of China, but production has also been moved to Vietnam (such as the Than Long industrial estate in the Hanoi area) in recent years. More specifically, Japanese C firm entered Vietnam for production of low-end printers and started up three plants within a short time. Besides creating employment and export, this production is having a major impact for inducing a build-up of firms processing the parts and materials. C firm decided to site in Vietnam even though it has large plants for printers in China (Huanan region) and Thailand. This decision was made under circumstances compelling it to build additional sites as its business expanded, and took account of various factors. These include the stabilization of the political situation and improvement of relations with external economies as represented by AFTA, the agreement with the USA, and WTO admission. C firm was also encouraged by the progress in development of industrial estates and the transportation network, and

the major improvement in elements of the "soft" infrastructure, such as the revision of investment legislation and procedures for control of import and export.

Cambodia has been lagging in construction of industrial estates fully outfitted with power and communications facilities and equipped with EPZ (SEZ) capabilities. For this reason, it would be hard for it to mount successful efforts to attract siting of such immense plants for assembly of information-communications equipment. In Vietnam, too, it took a lot of time to condition the "hard" and "soft" infrastructures. It was more than five years after siting by firms producing coils and transformers that it finally attracted siting by a firm such as C firm for assembly of information-communications equipment. Therefore, even if the task of conditioning the various elements of the industrial infrastructure goes smoothly, Cambodia should not expect to attract siting by such firms until 2010 or 2015.

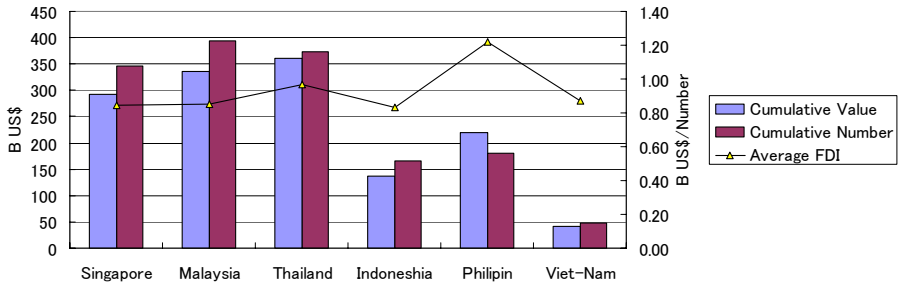
8.2 The Outlook for Cambodia's Electric/ Electronics Industry: Changes in the International Investment Environment and a Scenario for Medium- and Long-Term Development

8.2.1 Investment Environment Change of Cambodia's Electric/ Electronics Industry

(1) Trend of FDI in ASEAN Countries

Up to and including the early 1980s, Japanese firms made investments for production of home appliances and related components against the background of policy for replacement of imports among the more developed ASEAN countries. Subsequently, they shifted emphasis to export products and components to Europe and North America, which derived from the change in the tone of ASEAN industrial strategy towards attraction of FDI for promotion of export, and the decline in the international competitiveness of production in Japan, due to rising labor costs and revision of the yen-dollar exchange rate. The 1985 Plaza Accord triggered a sharp appreciation of the yen. To stay cost competitive, Japanese firms made a massive production migration to the ASEAN countries in which they had already invested, such as Malaysia and Thailand. In parallel, the ASEAN countries made efforts to condition their legislation on foreign capital and their infrastructures. This transformed Malaysia in particular into a huge center for the production of electric/electronic finished products and components, as well as related processing, mainly by Japanese firms.

Figure 8-2-1 Japanese FDI by ASEAN Countries for the Electric/Electronics Industry (until 2004)



Source: MOF in Japan

Various types of components have become available for procurement in ASEAN countries. This is behind the construction of many assembly plants for information-communications equipment (especially HDDs and other peripheral items) as well as home appliances. Such siting is widening from Singapore to Malaysia and Thailand, and further to Indonesia, the Philippines, and Vietnam. There are issues involving difficulties in recruiting low-cost labor in Singapore, Malaysia, and Thailand, and unstable socio-political situations in Indonesia and the Philippines. Lately, however, risks in China have begun to surface. In this atmosphere, Japanese firms have begun to assure their competitiveness by building extended divisions of production labor, making the most of the enormous stock of capital and technology from their investment in the ASEAN region.

(2) Dispersion of Risks Tied to Intensive Investment in China

In light of investment risks in China, Japanese firms began to site consigned production in the Huanan region, at first via Hong Kong. Beginning in the mid-1990s, they started to move en masse into the special economic zones in step with China's switch to a market economy. Investment by Japanese firms in China has been picking up with China's admission into the WTO in the early 2000s and the approach of the Beijing Olympics in 2008. Nevertheless, the risks associated with this investment have been magnified in recent years by various developments. These include the threat posed by SARS and avian influenza, power supply shortages, the appreciation of Yuan, anti-Japanese protests arising from doubt about Japanese remorse for the war (sparked by Prime Minister Koizumi's visits to Yasukuni Shrine), objection to Japan's admission to the UN Security Council, labor disputes fueled by demands for better employment environments, and revision of FDI policy (reduction of investment incentives). For Japanese firms, the risk of investment in China could steadily rise. In particular, the worsening of the employment environment and problems involving wartime accountability (which are faced only by Japanese firms) could very well turn into socio-political issues and become even more serious.

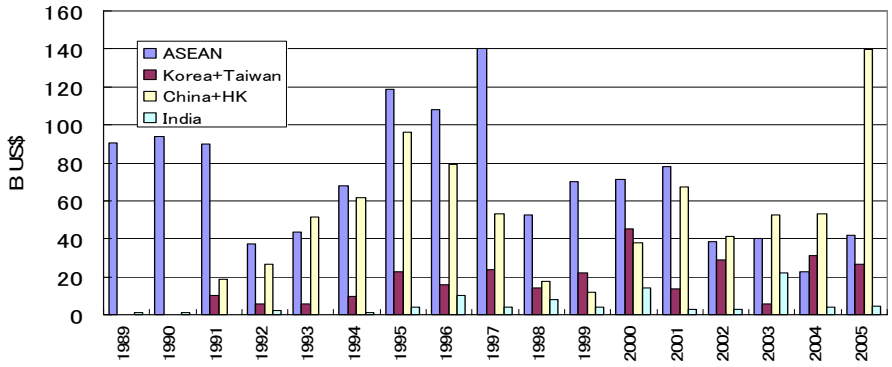
With the start of the mid-2000s, risks tied to intensive Japanese investment in China have begun to be actualized. In response, some export-oriented firms that have already made large investments in China are directing additional investment to ASEAN countries to disperse risk. Vietnam is rated as a promising "China plus one" among export-oriented firms that have concentrated their investment in China. It is a focus of especially strong interest among Japanese firms. Investment in Vietnam could possibly accelerate, depending on the degree of risk actualization in China. At present, Japanese N firm, C firm, and certain other firms are reportedly taking steps to disperse their investment. In the process, Vietnam could be transformed into a hub of ASEAN production as Japanese firms extend their divisions of labor in the region.

(3) Extended Divisions of Labor in Japanese Production in the ASEAN Region

On a cumulative basis, investment in ASEAN countries outweighs that in China in terms of both monetary amount and number of projects, and has formed an immense stock of assets. Moreover, siting began at an early date, and many of the production facilities have already been amortized.

Considering the emergence of the ASEAN market, a withdrawal from the region by most of these firms would be unthinkable in an objective view. This is all the more so given the rising risks of investment concentration in China. Among ASEAN countries, Singapore and Malaysia have long had a lot of IT and electronics firms, but siting has focused on Thailand in recent years. The trend goes beyond a mere transfer of production from Malaysia to Thailand or additional investment in Thailand. It is intended to devise divisions of production labor in the region while making the most of the existing stock. More specifically, segmentation is taking shape with the siting of development capabilities and high-VA processes in Malaysia, and mass production of mechanical components and sets in Thailand.

Figure 8-2-2 Japanese FDI to China/ASEAN/India for Electric/Electronics Industry



Source: MOF in Japan

In the electric/electronics industry, there has been more extensive investment in Thailand in recent years. Thailand offers many advantages for investment that have won it high ratings. Malaysia has a smaller population and retains policy according preferential treatment to Malays. As such, it has a stronger dependence on foreign workers, and a worsening shortage of labor. In contrast, Thailand has a larger population and still has more potential for supply of low-cost labor. In addition, it has maintained a basically consistent FDI policy, has a fairly well-developed base of Japanese-affiliated component and machining industries, and a serviceable logistics infrastructure. Thailand, therefore, has strong potential for advancement, but also presents the risk of difficulties in recruiting talented engineers and other personnel by electric/electronics firms because of the hiring climate, which is becoming harsher along with the build-up of the automotive industry in recent years.

To win in the cost competition with China, Japanese firms sited in ASEAN countries must restructure their extended divisions of labor while drawing on the stock from their cumulative investment in the region. The formation of extended divisions is expected to gather momentum with the rise of a common market under AFTA. The reduction of tariffs on intraregional component import heightens the possibility of inducing a flow in capital from countries with high labor costs to those with low ones for production activities. Investment in Thailand has recently increased, but the most promising destination for the coming years is Vietnam. In its dealings with Japan, Vietnam greatly improved its investment regime, which had been an agenda item, upon execution of the Japan-Vietnam Joint

Initiative Project beginning in 2002. This trend should deepen with its official admission into the WTO in 2006. Similarly, Vietnam concluded a trade and commerce agreement with the USA and is developing substantial export there. In Vietnam itself, the domestic market is expected to get to its feet eventually, but the growth of export industry is the focus for the time being. Investment by Japanese firms, mainly in the electric/electronics industry, is expanding, as suggested by the construction of a new plant for home appliances, communications equipment, and components by Japanese M firm, and the siting by companies delivering machined parts to Japanese C firm's printer plant. Investment by non-Japanese firms (e.g., Samsung and other Korean firms and IC firms such as Intel) also merits a lot of attention.

Table 8-2-1 Characteristics of Japanese Electric/Electronic Firms in ASEAN Countries

	Status of the Japanese industrial build up in major countries				Characteristics of the build up of Japanese firms
	Singapore	Malaysia	Thailand	Vietnam	
Audio & Visual Equipment	×	◎	○	△	・ Largest build-up in Malaysia ・ Much siting by component as well as set firms in Malaysia ・ Shift to China for production of low-cost audio products ・ Japanese firms in Vietnam taking aim at the Vietnamese market（TV）
Information Equipment	○	◎	○	△	・ Malaysia has a build-up of mass-production plants in fields enabling application of the store of technology for CD audio products, such as CD-ROMs and DVD-ROMs. ・ Production in Thailand is led by mechanical products such as HDDs. The country has replaced Malaysia as the world's biggest site of HDD production.
Communication Equipment	○	○	△	△	・ Siting of plants for production of mobile telephones mainly in Malaysia. ・ Build up of plants by Nokia, Motorola, and EMS rather than Japanese firms
Home Electric Appliance	×	△	◎	△	・ Build up of plants in Thailand under a strategy of selection and concentration after the economic crisis (rearrangement and consolidation in shift of orientation from import replacement to export) ・ Firms sited in Vietnam are currently selling to the domestic market and exporting to Japan (possibility of eventual growth into a huge production center for white goods).
Active Component	○	○	○	×	・ For semiconductors, Japanese firms (like European and North American firms) have sited back-end processes (assembly) in Singapore, Malaysia, and Thailand. ・ Malaysia and Thailand have CRT plants, but the demand for these is shrinking along with the trend toward FPDs.
Passive Component	△	◎	◎	△	・ Malaysia has a build-up of production for all kinds of components, and mainly resistors, condensers, coils, connectors, and switches (for both the domestic market and export mainly to other ASEAN countries). ・ Thailand has many component firms, but they generally produce items for export (PCBs, switches, transformers, etc.).
Cumulative number of FDI projects in the electric/ electronics industry	346	395	373	47	・ Foreign firms (major and semi-major) that have sited in Malaysia and Thailand number about 1,000 each. There are about 5 times as many smaller firms.

Note: ◎advancing fairly ○advancing △not advancing too much ×advancing hardly
Source: JICA Study Team

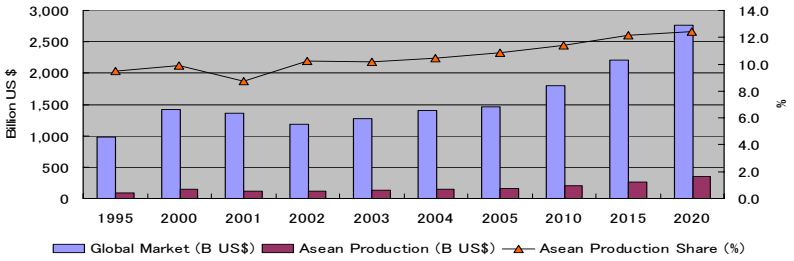
The big current toward the formation of extended divisions of production in the ASEAN region by Japanese firms is quickening the flow of investment from Singapore and Malaysia to Thailand, and further to Vietnam. The climates for investment in Indonesia and the Philippines have also been a focus since the 1980s, and there has been a lot of investment in these countries, too. In both, however, unstable socio-political situations are a barrier to inclusion in the extended divisions by Japanese firms. Myanmar has a lot of potential for future development, but the presence of its military regime and the sanctions imposed by Western countries are discouraging siting by foreign firms. As for Cambodia and Laos, it is still uncertain what role they will play in extended divisions. With its small population, Laos has a limited potential for advancement. Cambodia lies between Thailand and Vietnam, and could very well meet the requirements for siting by Japanese electric/electronics firms for such divisions, provided that its investment regime undergoes enough improvement.

8.2.2 Positioning of Cambodian FDI in the Electric/Electronics Industry

(1) Outlook for Supply and Demand in the Electric/Electronics Industry

In 2005, sales in the world electric/electronics industry were estimated to be 1.47 trillion dollars. Growth is expected to continue at an average annual rate of 4-5%. The figure below shows the forecast for market expansion as of 2010, 2015, and 2020. The ASEAN region accounted for under 11% of the production in 2005, but its share is expected to grow to 13% by 2020. This growth would be influenced by an increase in value-added production and the construction of extended divisions of production.

Figure 8-2-3 Global Market and ASEAN Production Share Forecast Electric/Electronics Industry



Source: JICA Study Team (forecasts based on document by Reed Research Institute)

(2) Scenario for Advancement of the Electric/Electronics Industry in Cambodia

The next table presents the scenario for the electric/electronics industry over the short, medium, and long terms (to 2020). This scenario is premised on certain changes in ASEAN investment regimes and conditioning of Cambodian infrastructure. Investment in Thailand and Vietnam is forecast to gather momentum and then taper off. In the process, investment by Japanese firms in Cambodia is expected to pick up, assuming the construction of industrial parks and improvement of the logistics infrastructure there. Japanese firms sited in ASEAN countries are leaning more toward divisions of production in the region, partly to counter Chinese inroads. Cambodia, too, could prepare a scenario for development as a producer country by riding this wave.

Table 8-2-2 Scenario for Development of the Electric/Electronics Industry in Cambodia

	2006-2010	2010-2015	2015-2020
Changes in the ASEAN investment climate	・ Promotion of AFTA among the more-developed countries ・ Tapering off of FDI in Malaysia and Thailand	・ Promotion of AFTA including the less-developed countries ・ Extensive FDI (from Japan, US, and European firms) in Vietnam	・ Promotion of FTA with countries inside and outside the ASEAN region ・ Tapering off of FDI in Vietnam
Infrastructural conditioning in Cambodia	・ Construction of industrial parks with EPZ functions (Sihanoukville SEZ, PPSEZ, etc.) ・ Strengthening of organizations to promote FDI and fuller OSS capabilities	・ Conditioning of the logistics infrastructure (Sihanoukville port, network of international road transport with BKK and HCMC) ・ Conditioning of public service infrastructures (power, communications, etc.)	・ Construction of additional SEZs ・ Conditioning of the international logistics network (air cargo) ・ Preparation of organizational capabilities for HRD and skill training
Prospects for siting by Japanese firms	・Assemblers of wire harnesses and coils/transformers	・ Assemblers of small electric products and half-finished goods (camera modules, power sources, etc.)	Assemblers of information-communications equipment (printers, mobile telephones, etc.) and firms processing related parts and materials

Source：JICA Study Team

(3) Outlook for Supply Shares in Cambodia's Electric/Electronics Industry

At present, Cambodia does not have any electric/electronics firms. Assuming widening divisions of production in the ASEAN region and conditioning of the investment regime in Cambodia, FDI by Japanese and other firms would probably build even in the electric/electronics industry. It is, of course, difficult to accurately forecast the scale of production by these firms. The production in Vietnam in 2005 came to 2 billion dollars (about 0.5 percent of the ASEAN total), and this could be taken as a benchmark for Cambodia in 2020. Although it would be nice if Cambodia could gain a 1-percent share like Vietnam, a share of 0.5 percent 20 years later was thought to be realistic given Cambodia's current status. It should be added that exports worth 2 billion dollars would be roughly the same in value as exports by the Cambodian garment industry in 2004.

Table 8-2-3 The Global Market, ASEAN & Cambodian Production Share in the Electric/Electronics Industry

(Billion US$、%)

	1995	2000	2001	2002	2003	2004	2005	2010	2015	2020
Global Market	984	1,422	1,367	1,188	1,275	1,402	1,470	1,800	2,210	2,770
Asean Production	94	141	119	122	130	147	160	205	268	345
Asean Production Share	9.5	9.9	8.7	10.2	10.2	10.5	10.9	11.4	12.1	12.4
Cambodia production	−	−	−	−	−	−	−	0	0.5	1.7
Cambodia Production Share	−	−	−	−	−	−	−	0	0.2	0.5

Source: JICA Study Team forecasts based on document by Reed Research Institute

(4) Calculation of the FDI Scale and Extended Economic Effects

If the Cambodian electric/electronics industry actually achieves the export value forecast, it is estimated that cumulative FDI by Japanese and other firms would hit 100 million dollars in 2015 and 340 million dollars in 2020. In this case, the number of firms is forecast to be in the range of 15 - 20 in 2015 and 60 - 70 in 2020. Employees would number, respectively, 25,000 - 30,000 and 80,000 - 90,000. Although the investment is smaller than that in the garment industry, Cambodia's biggest, it would contribute to exports. The next table shows figures for FDI and export in Vietnam and the Philippines applied as references in the forecast.

Table 8-2-4 Cambodian FDI Forecast in the Electric/Electronics Industry and the 'Ripple Effect'

		2010	2015	2020
Cumulative FDI Company	Number	3-5	15-20	60-70
Cumulative FDI	Million US$	20	100	340
Number of Employees	1,000 persons	3-5	25-30	80-90
Export Value	Million US$	-100	500	1,700

Source: JICA Study Team forecast

8.3 Evaluation of and Outlook for the International Competitiveness of Cambodia's Electric/ Electronics Industry

8.3.1 Production Cost Analysis

In Malaysia and Thailand, the makeup of manufacturing costs at Japanese (and Japanese-affiliated) firms engaged in production of assembly components in the electric/electronics field is led by materials, which account for 70 - 80 percent of the total, followed by personnel expenses at 5 - 15 percent and other items (e.g., depreciation costs and utility charges) at 10 - 20 percent. The parts and materials used in assembly are out-sourced from other countries in the region and Japan, and have a high share of the manufacturing cost. In contrast, the share occupied by personnel expenses is relatively low even if many workers are hired, because the work consists mainly of simple assembly processes. Similarly, in the electric/electronics industry, the personnel expense share is usually even lower. In the case of production plants with processes entailing huge amounts of capital investment, the share held by depreciation costs is magnified, but material costs continue to carry a lot of weight.

In Cambodia's garment industry, the minimum wage is 45 dollars per month, or about one-fourth as

much as in Thailand. This comparison indicates that Cambodia definitely offers low wage levels and suggests that it is truly cost competitive. Many Japanese firms, however, stated that wage levels were not their top priorities. Because of the heavy weight carried by materials in the cost structure, they attach importance to degree of efficiency in procurement of parts and materials. They also accord top priority to logistics issues, including transport of the finished products to clients/customers. It should be added that there is little point in merely comparing prevailing wage levels in different countries. Wages may be anticipated to rise eventually along with economic growth. There is also the issue of productivity. Low levels of education and work efficiency end up inflating labor costs beyond expectations. As this suggests, the underdeveloped state of setups for international logistics and low level of education among workers in Cambodia are big obstacles to siting by firms in the electric/electronics industry. Quite possibly, these firms would not consider the low wage levels to be a very big advantage.

8.3.2 Business Model in Cambodia's Electric/Electronics Industry

There are Japanese-affiliated firms who might potentially advance into the electric/electronics field from other countries (Malaysia, Thai, Vietnam) in ASEAN. They are presented below. Also, in the electric electronics industry, it gathers the overview of the business model to the following table in relation to five promising business fields.

Table 8-3-1 Example of Business Model for the Electric/Electronics Industry Found in the Field Survey

	T company (Malaysia)
Object product	Electric/electronic component (transformer for the audio visual)
Current production Style	In ASEAN, producing various transformers at the two factories in Malaysia. Also, it is part consignment production in Myanmar company. The main supply place is ASEAN within the region and a European and American area.
Overseas investment Plan	In ASEAN except Malaysia, it has begun to search for a new production site for labor-intensive transformers.
Problem with the business	In Malaysia, the personnel expenses have risen and it is difficult to secure labor. (Dependence on foreign workers is growing.).
FDI condition	・ Securing a workforce which is diligent and low cost ・ Physical distribution infrastructure to procure material and to deliver product.
Possibility of investment in Cambodia	Vietnam and Myanmar are candidates. As for Cambodia, there was little information on the investment environment, and it was outside the assumption as the producing country.
Business plan (3-5 years)	Undecided

	Y company (Thailand/Vietnam)
Object product	Electric/electronic components (wire harnesses for automobiles)
Current production style	In ASEAN, there are many factories in Thai, Vietnam and other countries. It also has production plants in Laos, etc.. The main supply place is ASEAN within the region, Japan and the U.S.
Overseas investment plan	In ASEAN, it is production system reinforcement in Vietnam at present. It is reviewing the construction of a 3rd factory and wire factory construction from the present 2-factory system.
Problem with the business	Rise of the personnel expenses and the difficulty of securing labourers
FDI condition	・ Securing a workforce which is diligent and low cost (2 shifts) ・ Physical distribution infrastructure to procure materials and to deliver product. ・ It doesn't want to site a factory in a serviced industrial park (To secure workforce).
Possibility of investment in Cambodia	A company executive remarks that it hopes for factory construction anywhere except Vietnam in the future. Also, when assuming the strategy of stepping forward in ASEAN, there is possibility of advancing into Cambodia in the near future.
Business plan (3-5 years)	Undecided. But the company's factory will employ 3,000 to 4,000 workers

Source: JICA Study Team

Table 8-3-2 The business Model of the Electric/Electronics Industry in Cambodia

Promising Assembly Process	Assumed main foreign capital	Place of the procurement of the part and material	Major exportation place	Characteristic for production form
Assembly of wire harnesses	Japanese	ASEAN, China	Thailand, US	labor intensive work
Assembly of coils and transformers	Japanese, Korea, Taiwan	Japan, ASEAN, China	ASEAN, China	labor intensive work accompanied by the automatic machine
Assembly of small electric products	Japanese, Taiwan, ASEAN	Japan, ASEAN, China	EU, US, Japan	Inner production of plastic parts and metal component
Assembly of half-finished goods (camera modules, BLUs, power supplies, etc.)	Japanese, Taiwan	Japan, ASEAN, China	Japan, ASEAN, China	Introduction of the advanced assemble equipment
Assembly of information-communications equipment (printers, mobile telephones, etc.)	Japanese	Japan, ASEAN, China	EU, US	Introduction of the advanced assemble equipment, Inner production of plastic parts and metal component

Source: JICA Study Team

8.4 Recommendations to Promote Direct Investment into the Electric/ Electronics Industry

8.4.1 Recommendations for FDI Attraction in the Electric/Electronics Industry

The criteria applied in decisions on sites for plants by Japanese firms in the electric/electronics industry reflect the relatively large scales of investment, the diverse supply sources and product export destinations, and the short lead time resulting from the contraction of design cycles. The concrete criteria include the stability of the sociopolitical situation, incentives for FDI for production,

low-cost but diligent labor, industrial parks with good infrastructures, international logistics network enabling SCM with short lead times, and residential environments enabling home-country employees to live comfortably and securely. Along with low-cost yet dependable labor, the especially essential requirements are the presence of industrial parks with a stable supply of power and water that also offer EPZ (SEZ) functions, and an international logistics network for transport by land, sea, and air. The next table presents the differences between the garment industry, in which many foreign firms have already sited in Cambodia, and the electric/electronics industry, in which there has not yet been any such siting, in respect to the aforementioned requirements.

Table 8-4-1 Differences Between the Garment and Electric/Electronics Industries for Siting Requirements

	Garment industry	Electric/electronics industry (especially Japanese firms)
Labor	Wages should be as low as possible	Wages must be at low levels, but high productivity is even more important
Export markets	GSP application for export to Western markets is a big benefit	Finished products are often exported direct to Western markets, but indirect export from other countries inside and outside the region is the norm for components. GSP is not applied to such export
FDI incentives	Incentives (e.g., deductions/exemptions for the corporation tax and tariff on import of producer goods) are a big benefit.	Incentives (e.g., deductions/exemptions for the corporation tax and tariff on import of producer goods) are a big benefit.
One-stop services	The production process is comparatively simple, and there is little need to apply for permits from many different agencies.	The production process is complex and utilizes a variety of producer goods. There is also a need to apply for permits from many different agencies in regard to indirect export and environmental regulations.
Industrial parks	Firms do not necessarily desire to site in industrial parks (in many cases, plants are constructed on sites provided by private-sector investors.	Precedence is accorded to siting in industrial parks run by the host-country public sector (public corporations etc.) or Japanese trading firms.
Power supply	A stable supply is preferable but not a must	A stable supply of power is indispensable (the more facility-intensive the production is, the more outages lower the working rate and yield).
Logistics infrastructure	Material import and product export can basically be done with international container carriers.	Material import and product export can basically be done with international container carriers, but users frequently prefer international air cargo transport for high-tech and small components.
Labor conditions	The required scale of investment is relatively low, and one or two shifts is the norm.	The required scale of investment may be high due to shorter lead times and higher degrees of mechanization. In such cases, a three-shift setup is the norm for earlier recovery of investment.

Source: JICA Study Team

The current status in Cambodia is essentially satisfactory as regards sociopolitical stability, FDI incentives, and low-cost labor, but is not up to the levels required by Japanese firms in other respects. Even as compared with neighboring countries, the lack of industrial parks with good infrastructures and international logistics networks with smooth links among points inside and outside the country are fatal deficiencies. As such, in the case of the electric/electronics industry, the action plan to attract FDI mainly from Japanese firms must focus on the need for construction of the most fundamental infrastructural elements.

Through various examinations based on the findings of interviews with Japanese firms and concerned public institutions in neighboring countries, the JICA Study Team conducted a study to determine FDI initiatives and related policy recommended to the Cambodian government to attract siting in the electric/electronics industry. The following sections set forth the advisable directions for studies of aspects of the "hard" infrastructure (industrial parks, power supply, and international logistics) and "soft" infrastructure (FDI policy organization, promotional activities for FDI attraction, HRD and skill training, and labor conditions).

(1) Conditioning of the "Hard" Infrastructure

(i) Industrial parks

In the event of siting by Japanese electric/electronics firms, it would be difficult for them to source parts and materials within Cambodia, and the production would therefore take the pattern of import of all parts and materials, assembly of the same, and export of the entire output. As compared to the garment industry, even simple assembly requires a big investment for production facilities (a few hundreds of millions of yen per line as compared to a few tens of millions in the garment industry). The amount is further magnified if facilities for in-house processing of parts and materials (e.g., extrusion molds and stamping presses) are added to the assembly facilities. Furthermore, ongoing improvement of production processes for lower costs and higher quality demands a stock of engineering skills accumulated over many years.

For these reasons, once Japanese firms in this industry choose a site, they build a setup for production into the long term. Typically, they continuously improve processes, expand capacity, process parts and materials in-house, and may even add product development capabilities over the long range. As such, the level of requirements for industrial zones is inevitably high in both the "hard" and "soft" aspects. This is why they generally site in industrial parks that have EPZ (SEZ) functions and good infrastructures. In Malaysia, Thailand, and Vietnam, many Japanese firms have become tenants in industrial parks that are run by public corporations or other public-sector entities or otherwise have a high reliability and meet the aforementioned infrastructural requirements, as shown in next table.

In light of the precedents in neighboring countries, it would be preferable to leave the development and operation of industrial parks to public corporations, local governments, or specialized firms (such as trading firms) as opposed to carrying it out under the jurisdiction of the national government. In Thailand, a public corporation is involved in developing and running industrial parks throughout the country and has won the trust of foreign firms. In Vietnam, many Japanese and other foreign firms are sited in industrial parks that are under the jurisdiction of provincial people's committees or run by Japanese firms. There is a strong tendency for Japanese firms to regard industrial parks run by host-country public

institutions or specialized trading firms with a wealth of know-how in the area as more trustworthy and as places where they can site with confidence. Another benefit in having industrial parks run by third-sector parties or Japanese trading firms is that these operators are more likely to engage in more vigorous activities to attract FDI and offer all sorts of incidental services to siting firms in order to get the park business on track.

Table 8-4-2 Preparation and Management of Industrial Parks in Neighboring Countries, and Siting by Japanese Electric/Electronics Firms

Country	Park preparation and management	Parks with siting mainly by Japanese electric/electronics firms
Malaysia	There is no national agency for development of industrial parks on the national level. Park preparation and management are performed by the state economic development corporations (SEDC) and regional development agencies (RDA) on the state level. In addition, there are some industrial parks that were developed by private firms.	Industrial parks under the SEDCs and RDAs on the state level
Thailand	Thailand makes a distinction between industrial estates and industrial parks. The former are managed and operated either directly by the Industrial Estate Authority of Thailand (IEAT) or jointly by the IEAT and a private firm which developed it in line with IEAT standards. The latter are run by private firms. Nationwide, there are about 100 estates and parks.	Industrial estates managed and operated either directly by the Industrial Estate Authority of Thailand (IEAT) or jointly by the IEAT and a private firm which developed it in line with IEAT standards
Philippines	The Philippines Economic Zone Authority (PEZA) certifies industrial parks developed by the private sector as special economic zones (about 100 nationwide) and encourages export-oriented FDI in them. Apart from those under PEZA jurisdiction, EPZs are being developed on the sites of former US military bases (Subic and Clark). PEZA is a public entity under the Department of Trade and Industry (DTI), but its EPZ management is autonomous in respect of income, for example, PEZA engages in activities developed from the investor's standpoint, for smooth promotion of investment, including application procedures, one-stop services, and promotional campaigns.	Industrial parks under PEZA jurisdiction
Vietnam	There are many (about 100) industrial parks managed and operated by the boards of management (BOMs) attached to the people's committees in areas such as Hanoi and HCMC. There are also a few private parks that were developed and operated by Japanese firms (Sumitomo Corporation and Nomura Securities). The BOMs are delegated the authority to screen and approve FDI projects by the MPI. The major BOMs are the HCMC Export Processing & Industrial Zone Authority (HEPZA) and the Dana (Dong Nai) Export Processing & Industrial Zone Authority).	Parks developed and operated by foreign parties (Japanese firms, Singaporean government, etc.) and parks under the subcommittees for running industrial parks in the people's committees

Source: JICA Study Team

Cambodia currently has about 10 industrial parks that have already been developed or are now under development. All of them were/are being developed by private-sector firms for their own profit. Many are sited along the borders with Thailand and Vietnam. Compared to the industrial parks in neighboring countries where many Japanese firms have sited, they are saddled with problems in various aspects, such as land rights and assurance of long-term continuance of the operation in addition to the issues involving the fundamental infrastructure (power, etc.).

The following may be cited as attributes that Japanese firms in this field expect from industrial parks:

- Managed and operated by a public entity (public corporation etc.) or developed-country institution (the government of Singapore etc.) or organization (Japanese trading firm);
- Assurance of the reliability and long-term continuance of management and operation;
- EPZ (SEZ) capabilities (incentives for export processors, simplification of import/export procedures and reports, etc.);
- Stable supply of electrical power (effect on facility working rates and product yield);
- Stable supply of water (no difference between the dry and rainy seasons) and wastewater treatment facilities (for a BOD of no more than 20 ppm);
- Communications facilities (use of high-speed Internet for international SCM)
- Residential environment (food, housing, etc.) suitable for employees from Japan, coupled with adequate lifeline services (schools, hospitals, etc.);

It is hoped that the functions noted above will be built into the Sihanoukville SEZ, which is being developed with the assistance of the Japanese government and should be completed within a few years, and the Phnom Penh SEZ outside Phnom Penh, which has capital participation by Japanese firms. The SEZ to be completed in Sihanoukville by 2009 will have to clearly establish the standard for EPZ functions and other elements of the management scheme as well as industrial infrastructural elements such as electrical power, water, and wastewater treatment. The industrial park levels defined in this process should be taken as a standard to be applied in turn to the existing industrial parks. At the same time, additional industrial parks built in the future should be up to the standard set by the Sihanoukville SEZ. In this way, Cambodia must raise the level of its industrial infrastructure.

The supply of electrical power, communications, and water (treatment) in industrial parks must be up to international standards. Firms have particularly strict requirements regarding electrical power. Frequent outages cannot be tolerated. Every time fabrication equipment stops in the simple assembly process due to outage, a production loss results. Similarly, in processes including plastic formation, plating, and the like, outages are linked to defects and bring down the yield. As compared with neighboring countries, the power supply situation in Cambodia is harsher. In industrial parks, too, the supply would presumably consist mainly of power purchased from IPPs. Besides stability, a key factor in this case would be the level of price for this supply. Cambodia should instead attach more value to employment expansion and foreign currency earnings from export brought by the siting firms, and set power tariffs on levels in neighboring countries. Instead of seeking optimal solutions for individual problems (such as electrical power), Cambodia ought to consider siting and SEZ operation from the perspective of overall ripple effects.

(ii) International logistics network

In the investment climate, Japanese electric/electronics firms place the greatest emphasis

on the presence of industrial parks with EPZ functions and good infrastructures, along with an international logistics system enabling import of materials and components from other countries and efficient export of the products. Because the conditioning entails a huge expense, it would have to depend on ODA. With aid from the advanced government, the work of improving ports and trunk road networks is anticipated to make considerable progress by 2010. Cambodia must quicken the pace of this work for completion at an earlier date.

Generally speaking, in production of electric/electronics equipment and special-purpose components whose materials and components are procured only after getting orders from customers, it takes about one month to procure materials and components, 1-2 months to procure semiconductors, 1-2 months for assembly, and 1-1.5 months for marine transport (by container carriers). Thailand and Malaysia have better port facilities, and the lead time from order receipt to delivery is about 3 months. In contrast, the lead time in use of the port at Sihanoukville would be about 1 month longer (4 months) due to the need for container reshipment in Singapore. For this reason, Cambodia must provide for the smooth progress of the plans for expansion of facilities in the port of Sihanoukville with JBIC assistance, and streamline import and export operations. The scheme for customs clearance in countries such as Malaysia and Thailand reflect long years of experience. The daily routine of inspecting documents is executed without delay and presents almost no hindrance to the corporate activities of production and import/export. The time lag of 1-2 weeks required for export application and permission in Cambodia's garment industry, for example, must be promptly resolved.

In the advanced components segment of the electric/electronics industry, SCM considerations require a shorter lead time in supply to their users. Although the length varies with the component, in the case of lightweight general-purpose components used in the information-communications field, it is about one week (from official order receipt to delivery) in Asia. This means that the goods must be delivered to clients no later than two days after production. For example, in component transport from ASEAN countries to Japan, the goods would have to be flown to Narita on a late-night international flight and delivered to the clients in Japan by express delivery trucks that left on the next morning and reached their destination no later than that evening. The same lead time would apply in delivery to clients in other ASEAN countries. This would make it necessary to construct networks for international air cargo and international truck transport. Assuming that efforts are made to attract siting by Japanese firms in the Sihanoukville SEZ further in the future as well as in Phnom Penh, the small airport planned for construction adjacent to the SEZ would have to be capable of handling landings and takeoffs by international cargo flights.

It is thought that plants in Cambodia would import some materials and components from distant countries (such as Japan and China) and others from neighboring countries (such as

Malaysia and Thailand). Similarly, the export of finished products and components they produce would be directed either to distant or to neighboring countries. In transport for import from or export to distant countries, container carriers would be the basic means, given the cost advantage. For lightweight components, however, clients have strong preferences for shorter lead times, and transport by international cargo flights is on the rise. In addition, many of the components produced are transported to neighboring countries. In such transport, the major means would presumably be container carriers and trucks. Therefore, it would be essential to condition the southern corridor links with Bangkok and Ho Chi Minh (to enable transport within 0.5 - 1 day) as well as augmenting the functions of the port of Sihanoukville.

Table 8-4-3 Conditioning of International Logistics Networks - Orientations and Tasks

	Orientations	Tasks
Marine transport	・ Augmentation of facilities and functions of the port of Sihanoukville (to be completed by 2009)	・ Transshipment of container cargo at Singapore in long-distance transport ・ Streamlining of customs clearance work (OSS for import/export applications)
Overland transport	・ Conditioning of the network of roads linking Phnom Penh with Bangkok and Ho Chi Minh ・ Conditioning of the network of roads between Phnom Penh and Sihanoukville	・ Mutual international truck service (to be achieved by the end of 2006) ・ Study of prospects for conditioning the railway network
Air transport	・ Conditioning of international air cargo functions at Phnom Penh airport ・ Expansion of the small airport in the vicinity of Sihanoukville	・ Use of the adjacent airport built under the Pol Pot regime ・ Prospects for use for passenger transport for the time being

Source: JICA Study Team

(2) Conditioning of the "Soft" Infrastructure

(i) Promotional activities for FDI attraction

FDI attraction requires promotion, by all means, of the advantages offered by Cambodia and its investment climate as it moves toward improvement. More specifically, the recommended activities (which do not apply solely to the electric/electronics industry) include the holding of seminars for FDI attraction hosted by the Japan ASEAN Center, the holding of investment seminars hosted by the CDC/CIB in Japan and neighboring countries, establishment of a "Japan desk" (including the dispatch of JICA experts) aimed at attracting investment from Japanese firms, better organizations for encouraging FDI in Cambodian embassies in neighboring countries, top-level diplomatic overtures to heads of state and ministerial officials for attraction of investment, tie-up with Cambodian or foreign counting houses in investment-attracting campaigns, and preparation of (Japanese-language) investment guidebooks. Naturally, promotional activities must reflect a full understanding of the electric/electronics industry, production by concerned Japanese firms in neighboring countries, and Japanese extended divisions of production. For this purpose, it is necessary to equip the CDC/CIB with capabilities for analysis of major industries.

(ii) HRD and skill training

In the eyes of foreign electric/electronics firms, Cambodia's low-cost labor is a siting inducement, but not a fully sufficient one in itself. Other basic labor-related prerequisites include the ability for a continuous supply ranging from hundreds to thousands of workers per plant, strong willingness to work and low job-hopping proclivity, high literacy rate (ability to read and understand instruction sheets in the production process), fundamental arithmetic skills, and arrangements facilitating overtime and night shifts to increase the facility working rate (depending on the product). Productivity in the garment industry is low and estimated to be only about 30 percent as high as in China. As a primary task in this connection, steps should be taken to improve education at the elementary and junior high school levels in order to increase the literacy rate and impart basic knowledge in the sciences. Although production in the electric/electronics industry is basically labor intensive, plants are installed with a lot of production facilities, and production and processes are strictly controlled and managed. In addition to excellent workers, it is vital to have first-rate technicians and engineers. There is consequently an intense need for the establishment and reinforcement of vocational schools and universities of science and engineering.

(iii) Labor conditions

The labor law also stipulates that work duration is not to exceed 8 hours per day and 48 hours per week. Legally, the overtime can not exceed 2 hours but at the origin of the discussion of the labor and management, it is possible to be equal to or more than 2 hours overwork, too. As compared to neighboring countries, however, there are many holidays with pay. For example, Article 166 stipulates that employees have the right to take 1.5 days off per month and 18 days per year, and that these numbers are to increase by one day each every three years. There are additional provisions for special leave (Article 171). For example, employees are allowed to take leave for care of sick family members and maternity leave for 90 days with 50 percent of their regular pay.

For foreign firms considering investment in Cambodia for cost-competitive production employing low-cost yet diligent labor, work duration and provisions for paid leave/holidays could dampen inclinations to invest. It was also pointed out that improvements must be made as regards problems with labor unions, which are triggering sharp disputes in the garment industry. For aggressive attraction of FDI in the electric/electronics industry, the Cambodian side should therefore consider permission for work duration and paid holiday arrangements on a par with those in neighboring countries, and labor union setups based on ties of trust with management.

8.4.2 Future Roadmap for FDI Policy in the Electric/Electronics Industry

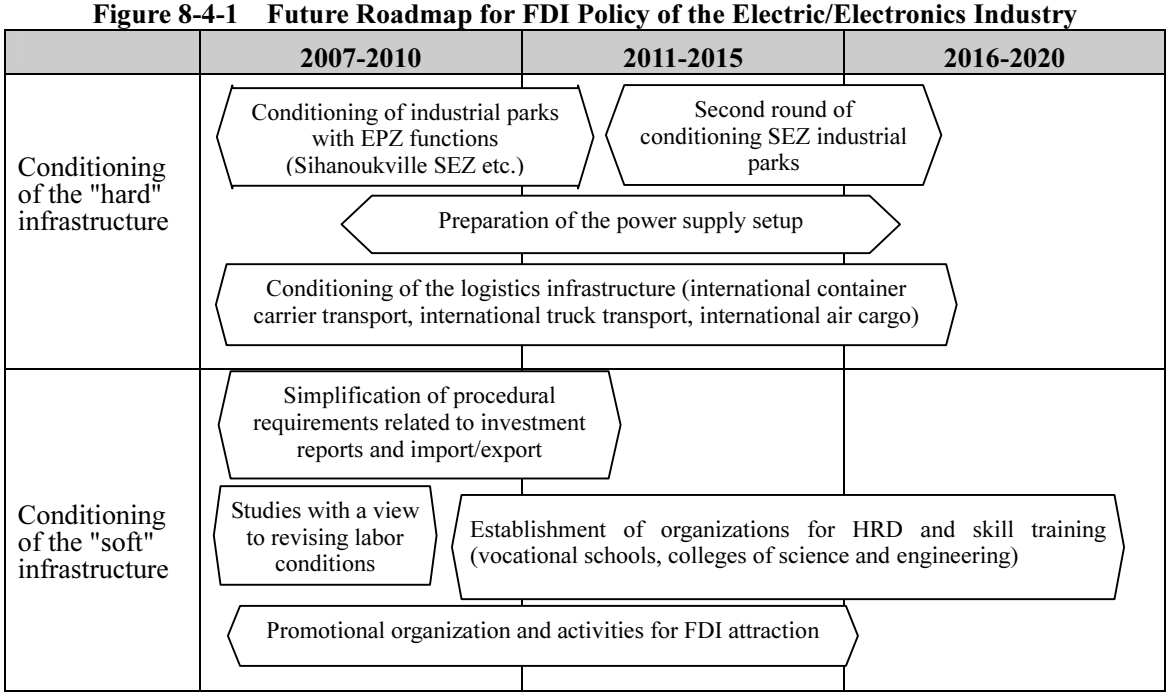
The preceding sections commented on conditioning of the "hard" and "soft" infrastructures to attract

FDI in the electric/electronics industry. This section presents concrete measures for such conditioning arranged in a time sequence over the medium and long terms, extending to 2020.

In the "hard" aspect, steps ought to be taken for full outfitting of the Sihanoukville SEZ, PPSEZ, etc., which are to be completed by 2010. These zones will form the industrial park standard, which must be applied to the construction of additional ones. As for the international logistics setup, the conditioning of ports and the trunk overland transport network should run its course by 2010, but the road network must be expanded on an ongoing basis. Cambodia should fully condition the network for international cargo in accordance with a long-term plan adapted to needs.

In the "soft" aspect, the chief short-term task is to make procedures related to investment reports and import/export simpler and more efficient in order to pave the way for genuine one-stop services. Over the short term, the Cambodian side should consider adjustment of labor conditions to a par with neighboring countries. Together with such systemic conditioning for FDI attraction, it would also be advisable to establish promotional organizations and deploy aggressive campaigns. Because of the budgetary limitations, it will be essential for ranking government officials to actively publicize and provide information on occasions such as visits to other countries. Over the longer term, organizations must be set up for HRD and skill training. It will become indispensable to have specialized organizations outside companies to produce operators, technicians, engineers, and other personnel needed by the electric/electronics industry.

Figure 8-4-1 Future Roadmap for FDI Policy of the Electric/Electronics Industry



Source: JICA Study Team

Chapter 9
The Outlook and Recommendations for Investment Conditions for Attracting Foreign Machinery Industry to Cambodia

9.1 Characteristics of the Cambodia's Machinery Industry

9.1.1 Present Situation of the Machinery Industry

The machinery industry is still under-development in Cambodia. According to data of the MIME, there are 372 manufacturing factories, which were registered from 1994 to the end of 2003 in Cambodia. Among them, only 12 engage in the machinery industry (factories for fabricated metal products). The breakdown of these factories is as follows: four for steel sheet processing, three for motorcycles, and one each for the remaining items: construction materials, kitchen appliances, water tanks, TVs/PCs and welding electrodes. Automobiles are not manufactured in the country. Electric and electronic products are not domestically manufactured, either, and even the fabrication of products manufactured without high-technology such as electric fans and smoothing irons is not undertaken in Cambodia.

The number of foreign companies active in the Cambodian machinery industry is very small. Taking into account Japanese-affiliated companies, there are only two manufacturing in Cambodia: Suzuki Motor Corporation, a manufacturer of motorcycles, and Eastern Steel Industries, a processor of galvanized steel sheet (partially invested by Sumitomo Corporation). Besides, Honda, which has been invested through Thailand, assembles motorcycles in Cambodia. And, Yamaha, also, is about to assemble motorcycles in the country. The investment in the Cambodian machinery industry by countries other than Japan is virtually zero.

9.1.2 Present Situation of the Supporting Industries

That there are only a small number of assemblers hinders the development of supporting industries. Several field studies by the Study Team indicate that almost all raw materials, ranging from steel sheet to screws, are imported in Cambodia. In fact, Suzuki Motor Corporation imports all parts for motorcycles (displacement capacity: 110 cc and 125 cc), which are manufactured by its group company in Thailand. Eastern Steel Industries also procures abroad almost all materials, including galvanized steel sheets, steel coils and zinc ingots, to be used in production.

FDIs in the Cambodian machinery industry are stagnant because of the small-scale local market and underdeveloped investment climate. So it would seem to take a while to accelerate the development of supporting industries.

9.1.3 Business Conditions of Major Domestic/Foreign Companies

The above two Japanese motorcycle companies have dominant shares in the Cambodian market, though they are constantly exposed to severe price competition caused by a torrent of imports including second-hand and contraband products from China, Vietnam and Thailand.

They keep their prices competitive under the condition that the import tax rate on CKD parts of motorcycles assembled within Cambodia is 96 US dollars/unit, while that on completed products is 192 US dollars/unit. If a large number of contraband products should flow into the Cambodian market, however, they would lose their competitiveness.

9.1.4 A SWOT Analysis of Cambodia's Machinery Industry

Cambodia's machinery industry has strengths, weaknesses, and opportunities and also faces threats, as outlined below.

Table 9-1-1 SWOT Analysis of the Cambodia's Machinery Industry

Strengths:
・Labor force has strong competitiveness in the Asian region.
・Geopolitical merit; located between Thailand and Vietnam.
・Increase in demand for durable consumer goods along with increase in consumer income.
Weaknesses:
・Underdevelopment of industrial infrastructure.
・High energy costs, especially electricity tariff.
・Absence of supporting industry.
・Cumbersome procedures for exports and imports.
・Underdevelopment of industrial parks.
Opportunities:
・Increase in trade in ASEAN.
・Advance of the division of labor in ASEAN.
・Growth of the Thai automobile and electronics industries
・Increased labor costs in Thailand and Vietnam.
・Ripple effects related to oil-well drilling and natural gas extraction.
・Progress of mechanization in agriculture.
Threats:
・Influx of low-cost contraband.
・Reduction of tariffs under the AFTA scheme.

Source: JICA Study Team

9.2 The Outlook for Cambodia's Machinery Industry: Changes in the International Environment and a Scenario for Short-, Medium- and Long-term Development

9.2.1 Change in International Environment

The environment surrounding the Cambodian machinery industry is undergoing drastic changes. In accordance with the progress of economic cooperation among ASEAN countries under AFTA, the development of infrastructure in the region is being accelerated.

(1) Efforts Toward the Implementation of AFTA

ASEAN has laid out a comprehensive program of regional tariff reduction under the Common Effective Preferential Tariff (CEPT) scheme. Six founding member countries started to reduce tariffs in January, 2003, and, in fact, tariffs on goods (excluding some specified goods) traded within the ASEAN internal market were eliminated to 0-5% in January 2003. Four CLMV countries also agreed on tariff reduction to 0-5% by the year 2006 for Vietnam, 2008 for Laos and Myanmar, and 2010 for Cambodia. The ASEAN members proclaim the elimination of tariffs on all goods and the creation of an integrated market by the year 2015 is their final goal. Trade in the ASEAN market is expected to rapidly increase along with gradual tariff reduction within the region.

If the AFTA program is implemented on schedule, the Cambodian machinery industry is expected to develop through the above-mentioned trade expansion, in parallel with the advance of the division of labor. In addition, the market integration will give Cambodia the opportunity not only to increase its trade but also to achieve economies of scale, which would attract FDIs and the technology transfer necessary for its sustainable development.

(2) Concentration of the Machinery Industry (Transportation Equipment Industry) in Thailand

One of the noteworthy movements in ASEAN is industrial accumulation in the sectors of automobile and electricity in Thailand, which becomes the centre of production and sales in the ASEAN market. The production volume of automobiles in 2005 is 1,122 thousand in units, a 21% increase over the previous year. Four hundred and forty-one thousand units, a 33% increase from the previous year, were exported, which means the automobile industry has become one of the major Thai exporters.

Table 9-2-1 Automobile Production in Major Asian Countries (Units)

Country	Year						
	2000	2001	2002	2003	2004	2005	yr/yr (%)
Thailand	411,721	459,283	584,897	742,062	928,081	1,122,395	20.9
Malaysia	359,195	428,701	456,822	424,107	471,975	563,408	19.4
Philippines	68,832	62,460	75,119	86,067	78,531	71,212	(-9.3)
Indonesia	299,514	279,187	296,509	322,044	422,099	500,710	18.6
Vietnam	13,956	19,556	26,873	42,556	40,141	35,264	(-12.1)
China	2,069,423	2,347,616	3,286,804	4,443,686	5,070,527	5,707,688	12.6
Korea	3,114,998	2,946,329	3,147,584	3,177,870	3,469,464	3,699,350	6.6
Taiwan	372,613	271,704	333,699	386,686	430,821	446,345	3.6
India	896,733	840,259	924,463	1,173,467	1,521,487	1,643,670	8.0
Total	4,384,344	4,058,292	4,405,746	4,738,023	5,421,772	5,789,365	6.8

Notes: Figures for the Philippines and Indonesia are estimates.

Source: FOURIN's monthly report on the global automotive industry (Original source: automobile manufacturers associations in each country)

A wide range of Japanese automobile assemblers have aggressively invested in Thailand based on their globalization strategies since the end of 1990s. With the expansion of European and U.S. automobile manufacturers, the concentration of the auto industry in Thailand has rapidly progressed, especially in areas surrounding Bangkok, which is called the "Detroit of Asia" nowadays. The amount of direct investment from Japan into ASEAN in 2004 is 296.8 billion yen and approximately one-fourth, 127.3 billion yen, was invested in Thailand. Of this, the ratio of the automobile industry constitutes a significant fraction.

Furthermore, Toyota and Isuzu, the first- and second-ranked automakers, respectively, in the Thai market, have their production bases in one of surrounding provinces of Bangkok, Samut Prakan. AutoAlliance (a joint venture of Mazda and Ford), General Motors, BMW and Mitsubishi operate assembly plants in another province, Rayong. Approximately 2,000 automotive parts manufactures are concentrated in Bangkok to undertake work from these companies (Thai Automotive Institute).

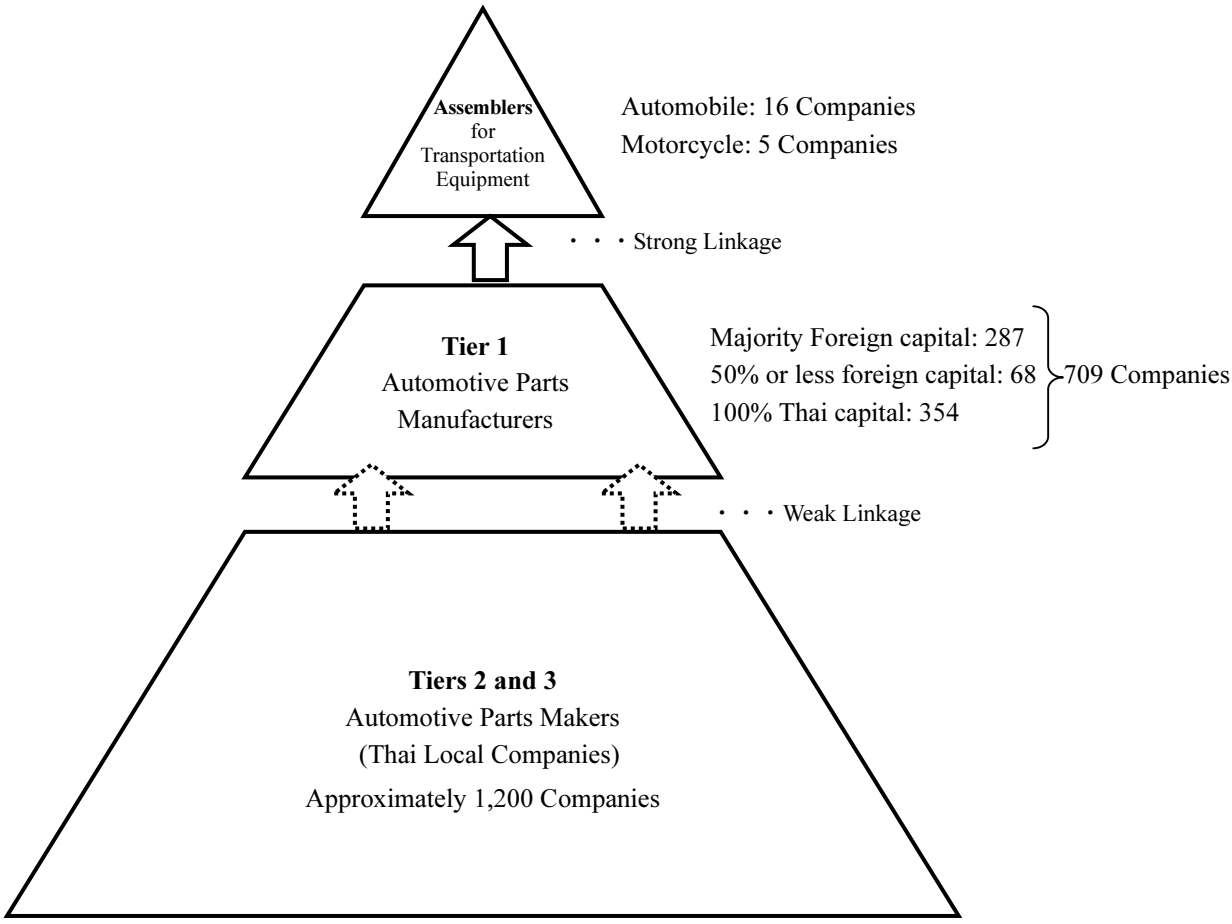
Noteworthy is that Toyota selected Thailand as the site for global-scale production of pickup trucks under the IMV（International Innovative Multipurpose Vehicle）project. Following large-scale investment by Toyota itself, more than fifty automotive parts manufacturers made investments, and the production of pickup trucks was launched late in 2004. Nissan Motor Co, Ltd. is planning to invest a large amount of capital in Thailand to begin the production of a new type of pickup truck late in 2006, according to JETRO's information. [49]

As mentioned, the automotive parts industry, including firms to support assemblers, also started to set up businesses in Thailand in a concentrated manner. According to the Thai Automotive Institute,

[49] JETRO "FTA policy of BRICs and ASEAN Countries and Strategies of Japanese Companies," December 2005

there are 16 automobile assemblers and 5 motorcycle manufacturers in Thailand, all of which are foreign-affiliated companies, as shown in the figure below. These assemblers are supported by 709 companies in the automotive parts industry, serving as primary subcontractors (Tier 1). In the lowest echelon, there are approximately 1,200 Thai local companies, working as secondary or tertiary subcontractors (Tiers 2 and 3).[50]

Figure 9-2-1 Structure of the Transportation Equipment Industry in Thailand



Source: JICA Study Team based on information by JETRO (Original source: Thai Automotive Institute)

At the same time, the total number of manufacturing companies, which were invested by member companies (458 overall as of April 2005) of the Japan Auto Parts Industries Association in ASEAN, is 373. Almost half of them, 186 companies, are located in Thailand. Since the total number of foreign-affiliated automotive parts manufacturers is calculated to be 355 based on the data provided by the Thai Automotive Institute, it can be concluded that the majority of the above manufacturers in Thailand are Japanese affiliates.

[50] JETRO "East Asia Economic Integration and the Roles of JETRO," September 2006 (Original source: Thai Automotive Institute)

Table 9-2-2 Japanese Affiliated Automotive Parts Manufacturers in Asia

Country/Region			Production	Sales	Technology Agreement	Others
	ASEAN	Thailand	186	19	40	6
		Indonesia	84	4	28	0
		Philippines	43	1	5	6
		Malaysia	34	4	39	1
		Vietnam	18	0	3	1
		Singapore	8	23	0	5
		Sub total	373	51	115	19
	Other Asia	China	294	17	25	12
		Hong Kong	3	19	0	2
		Taiwan	66	6	69	1
		Korea	55	6	79	5
		India	55	1	36	2
		Pakistan	3	0	13	0
		Subtotal	476	49	222	22
Asia (total)			849	100	337	41
Oceania			9	16	14	3
North America			310	69	42	58
Latin America			77	12	29	3
Europe			166	72	53	29
Others			17	2	19	1
Total			1,428	271	494	135

Source: Japan Auto Parts Industries Association (surveyed in April 2005)

(3) Progress of Logistic System

The GMS (Greater Mekong Sub-region) project is undertaken to support the integration of markets within ASEAN members as well as integration between ASEAN and China in terms of infrastructure linkage. It is a cross-border scheme to develop the Mekong Sub-region (Vietnam, Cambodia, Thailand, Myanmar, Laos and China's Yunnan Province) under the initiative of ADB. The main focus of the project is to improve the road network of the internal market (total road length: approximately 4,500 kms), and to facilitate logistics through maintenance of major roads such as the North-South Economic Corridor and the East-West Economic Corridor.

Japan also gives a wide variety of support to the GMS projects, focusing on the original East-West Corridor (Vietnam to Myanmar via Laos and Thailand) and the second East-West Corridor (Vietnam to Thailand via Cambodia). Besides, the Japanese private sector, the real actor, has started to cooperate with the GMS project through trade and investment promotion.

It is easy to understand how important the reform of logistic infrastructure based on the GMS project is. In the case of transport from Bangkok to Ho Chi Minh or Da Nang, the time will be shortened from about one week to just three days if truck transportation via the second East-West Corridor replaces the current ocean transportation, which involves time-consuming clearance procedures in two countries. Subsequently, a company in the GMS will be able to export parts from Thailand and

assemble them into completed products in Cambodia or Vietnam.

It should be noted, however, that the transport time will not be shortened drastically as expected, according to the table below, which shows the result of a simulation test conducted by Japan's Ministry of Economics, Industry and Trade (METI). Firstly, although Cambodia, Vietnam and Thailand plan to introduce a seamless transportation system, which covers these three countries, the first named, i.e. the country of transit point, is ill-prepared for the implementation. More specifically, a ban on the transit of a dispatcher to transfer items to other countries (without undergoing import clearance procedures) in Cambodia forces transporters to import first and then export, which doubles clearance procedures and custom duty payment. Another reason is the extension of the distance by 80 kms for transportation between Thailand and Vietnam through Cambodia, because transporters cannot go across countries unless they take a detour to pass through "Spin Kizuna" due to the absence of a bridge over the Mekong River on the second East-West Corridor and the limited ferryboat service, which is only available during the daytime. Nevertheless, if these issues are addressed, the division of labor, especially in labor-intensive industries, between Thailand and Cambodia will be promoted, and this is expected to accelerate the concentration of subcontracting in Thailand.

Table 9-2-3 Simulation Test of Transport (Between Bangkok and Ho Chi Minh)

Mode	Route	Distance (km)	Period	Transport Cost (US$)
Land	Bangkok - Ho Chi Minh	913	Min. 2 days	1,390
Sea	Bangkok - Saigon	-	2 to 3 days	580

Note: Land transportation uses 10-ton trucks. Sea transportation uses 20-ft containers.
Source: Japan's Ministry of Economics, Trade and Industry

A couple of industrial areas have already been developed near the border between Cambodia and Thailand, reflecting the establishment of such a road network in the ASEAN. In Neang Kok (Koh Kong Province), approximately 2 km away from the Thailand border, Koh Kong SEZ has been approved, and infrastructure is now under construction. The development of the road, connecting to Thailand, enables people there to reach Laem Chabang Port in three hours. Electrical transmission from Thailand to the industrial park is expected to start soon. In Poipet, Chhay Chhay SEZ has been approved. If a Thai-affiliated firm in a labor-intensive industry operates its business in the above SEZs, it would enjoy the merit of GSP (generalized scheme of preferences), which is currently granted to Cambodia.

In addition, extension of piers, repair of existing buildings and improvement of container yards is being carried out in Sihanoukville with the assistance of yen loan and ADB's financing. Sihanoukville SEZ has been approved, there. Paving of highways, i.e. national highway No. 1 (Phnom Penh → Svay Reing → Bavet: 167kms) and No. 5 (Phnom Penh → Battanbang → Sisophon → Poipet: 408kms) in the case of Cambodia, is also being pursued with international support. In Bavet (Svay Rieng Province), Manhattan SEZ has already begun operation. Meanwhile,

there has been a delay in construction of cross-linkage of roads and reform of highway branch lines, which remains to be solved.[51]

(4) Increased labor costs in Thailand and Vietnam

Division of labor, particularly in labor-intensive industries, has been accelerated in CLMV countries because of increased labor costs (wages and land prices) in Thailand, the appreciation of the baht based on steady economic growth, and the need to cut costs to face growing competition from Chinese products.

While Japanese-affiliated companies in the transport machinery sector regard Thailand as a main production base, they are promoting the horizontal division of labor to cut production costs through mutually complementary relations with their group factories or automotive parts manufactures scattered over ASEAN.

Vietnam, with a relatively developed infrastructure, is being integrated into the division of labor network among the above four countries. Several production sites to manufacture items such as wire harness using a large number of people have been relocated to Laos.

Labor costs have increased in Vietnam, too, on account of manpower shortages triggered by rapid expansion of investment. The minimum wages of employees of foreign companies and international institutes/organizations rose in February 2006. In fact, the minimum wages of employees in Hanoi and Ho Chi Minh rose from 626 thousand dong to 870 thousand dong. Although this had only a subtle impact for most Japanese-affiliated firms, those engaged in labor-intensive industries were damaged by the high wage level. Production bases will be transferred from Vietnam to Cambodia as the investment climate in the latter improves.

Table 9-2-4 Increase in the Minimum Wages in Vietnam (Effective on February 1, 2006)

Area	Minimum Wages		Percentage Increase
	Before	After	
Hanoi, Ho Chi Minh	626,000	870,000 (approx. $55)	39%
Local Cities	556,000	790,000 (approx. $50)	42%
Others	487,000	710,000 (approx. $45)	46%

Note: Currency = Vietnamese Dong
Source: MPI, Vietnam

(5) Deepening of the Division of Labor between Thailand and Vietnam

Under the circumstance that Thailand plays the role of "China Plus One," it would be best for the Cambodian machinery industry to be partially in charge of the above role as a member of the Thai economic grouping. More specifically, Cambodia would take up work of the automobile industry,

[51] Overseas Agricultural Development Association "The Study Report on the Investment Promotion for Overseas Agricultural and Forestry Industry" March 2003

which especially flourishes in Thailand.

The questionnaire survey conducted by the Japan Bank for International Cooperation (JBIC) in 2005 i.e. "FY2005 Survey: The Outlook for Japanese Foreign Direct Investment (17th Annual Survey) - 'Japanese Manufacture's Overseas Business Operation 2005'" rated Thailand the second most promising country after China for Japanese companies to expand overseas business operations over the medium term (next three years). The main reasons for the popularity of Thailand are as follows:

- low-cost labor force (50.3%),
- potential for market expansion (46.2%), and
- political and social stability (43.4%). Thailand is appreciated not only as production base but also as promising market and important source of materials. Japan would make investments into the ASEAN, with emphasis on investments in Thailand.

Table 9-2-5 Promising Countries for Japanese Companies to Expand Business Operations

	2005		2004		2002		2000	
	Country	(%)	Country	(%)	Country	(%)	Country	(%)
1	China	82	China	91	China	89	China	65
2	India	36	Thailand	30	Thailand	28	U.S.	41
3	Thailand	31	India	24	U.S.	26	Thailand	24
4	Vietnam	27	Vietnam	22	Indonesia	15	Indonesia	15
5	U.S.	20	U.S.	20	Vietnam	15	Malaysia	12
6	Russia	13	Russia	10	India	13	Taiwan	11
7	Korea	11	Indonesia	10	Korea	8	India	10
8	Indonesia	9	Korea	9	Taiwan	8	Vietnam	9
9	Brazil	7	Taiwan	8	Malaysia	8	Korea	9
10	Taiwan	7	Malaysia	6	Brazil	5	Philippines	8

Note: Figures are for the next 3 years.
Source: Japan Bank for International Cooperation

(6) Ripple Effects on the Machinery Industry Related to Oil-well Drilling and Natural Gas Extraction

Experimental drilling for oil and natural gas in the Gulf of Siam proved successful. If the oil-well drilling and natural gas extraction are launched on a commercial basis, there will be a need for related machinery such as machinery for building plants. For instance, machinery used for construction of LNG terminals, gas/oil pipelines, etc. would be required.

9.2.2 The Short-, Medium- and Long-Term Development Scenario

The Cambodian machinery industry is still in its infancy. It is suffered from a lack of technology and capital for development. Hence, it is required to introduce capital and technology through the introduction of FDIs, aiming for the growth of the Cambodian machinery industry.

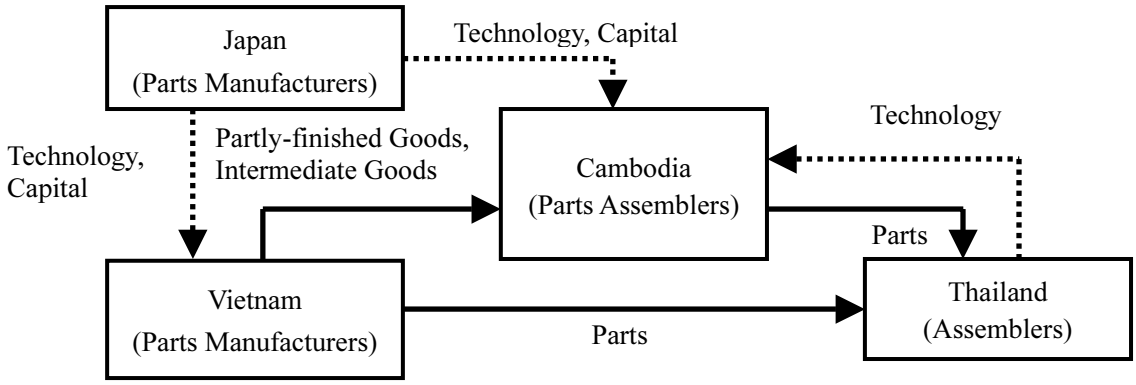
Looking back at the history of the machinery industry in the ASEAN developing countries, they have utilized technology transfers as well as direct investments as driving forces for their industrial

development. They first launched import substitution industries, and then developed export-oriented industries to become a leading force in the Asian economy.

While Cambodia is assumed to follow this development plan undertaken by the ASEAN developing countries, except for transportation equipment, foreign companies may not seek the small Cambodian market but instead take advantage of its comparatively cheap labor costs to manufacture and export.

At the same time, Cambodia has a geopolitical interest, sitting in the area between Thailand and Vietnam. Cambodia may take advantage of this geopolitical merit as a major development scenario. Since the infrastructure for land transportation in Indochina is rapidly reformed, a scheme to make Cambodia a key junction of trade between Thailand and Vietnam should be implemented under the development scenario, as shown in the figure below.

Figure 9-2-2 Cambodian Development Scenario Utilizing its Geopolitical Interest



Source: JICA Study Team

Given the above-mentioned points, sophistication of manufacturing technology and addition of a new category of elaborate products are promoted in three stages: short-, medium- and long-term scenarios.

(1) Short-term Scenario (2006-2010)

The focus is placed on the labor-intensive works within the Asian division of labor network. It will be appropriate for Cambodia to take charge of the transport machinery industry, especially the production of parts, which requires a large labor force. Cambodia will import all of necessary materials and parts because there is no local company with the advanced technology to perform subcontract works allocated by foreign companies, and pursue CKD (completely knock down) production by using domestic low-cost labor.

(2) Medium-term Scenario (2011-2015)

Cambodia will start domestic production of material and parts at this point. Also, the SKD (semi knock down) production will be autonomously carried out with use of parts manufactured by foreign companies advanced in Cambodia as well as imported materials/parts. Some of Cambodian companies would have accumulated technology, and started manufacturing items with higher value.

(3) Long-term Scenario (2016-)

The industrial concentration would have been promoted in Cambodia, resulting in a wider range of products including functional components and high value-added parts. Cambodia would have been one of main exporters within the frameworks of AFTA and FTA. A study of essential technologies, such as molding, casting and hammering, will have started in parallel with the development of supporting industry.

Table 9-2-6 Business Model for the Development of the Machinery Industry

Time	Promising Item	Potential Source of Country	Procurement of Parts/Material	Sales Target	Production
Present	Vehicle assembling	Japan	Import (Japan, ASEAN, etc.)	Domestic	CKD, Simple assembling
Short-term	Transportation equipment (simple parts)	Japan, Korea	Import (Japan, Korea, ASEAN, etc.)	Domestic, Export (Thailand, Vietnam, etc.)	CKD, Simple assembling
Medium-term	Transportation equipment (important parts)	Japan, Korea, Taiwan	Domestic, Import (Japan, Korea, ASEAN, China, etc.)	Domestic, Export (ASEAN, China, etc.)	SKD (increase value added)
Long-term	Agro-machinery	Japan, Korea, U.S.	Domestic, Import (Japan, ASEAN, India, China, etc.)	Domestic, Export (ASEAN, China, etc.)	SKD (development of key technology)

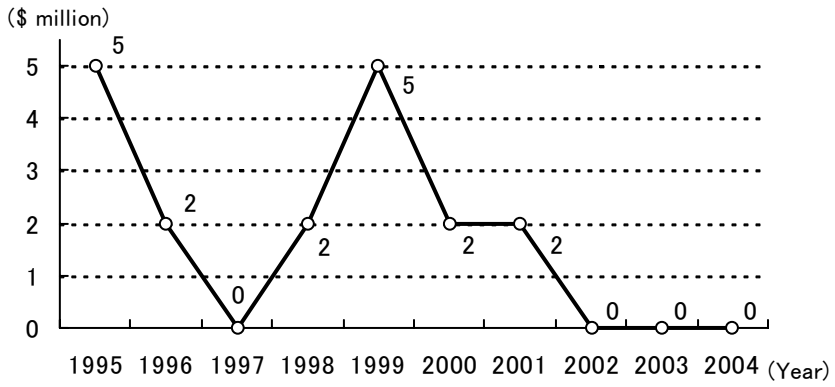
Source: JICA Study Team

9.2.3 A Forecast of the Volume of Investment in Cambodia by Foreign Companies Up to 2020

(1) Trend Analysis

The machinery industry in Cambodia has been underdeveloped except for a few assemblers. Because of the small size of the home market and its poor investment environment, foreign companies have been unwilling to invest in Cambodia's machinery industry. In fact, there have been no foreign investments at all in the field of machinery since 2002.

Figure 9-2-3 FDI Inflow in the Cambodia's Machinery Industry



Source: CDC/CIB

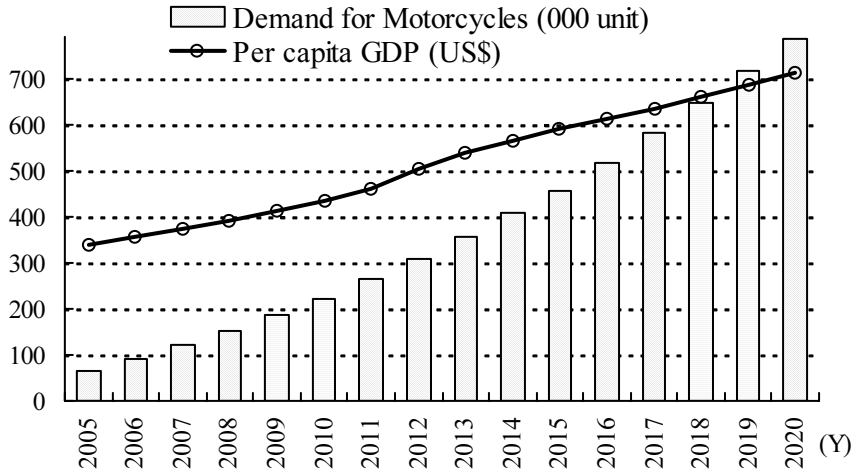
(2) Forecast of FDIs through 2020

It is expected that foreign companies, including Japanese companies, will invest in Cambodia in the field of machinery as the domestic demand of machinery expands and the division of labor within the ASEAN area progresses around Thailand as the pivot.

In the machinery industry, relatively large amount of investment is expected in motorcycle assembling, targeting the Cambodian domestic market. On the other hand, demand for automobiles in the country is considered to be small for the time being, since the demand is said to pick up if per capita GDP exceeds the US$3,000 level.

Demand for motorcycles in Cambodia in 2005 was approximately 65 thousand units, being equivalent to 4.7 units per 1,000 people. The rate of increase of motorcycle demand is considered to be closely related to that of per capita GDP. Then, based on two data, (i) the relation of these two figures in neighboring countries, and (ii) the forecast of per capita GDP in Cambodia between 2005 and 2020 calculated in Chapter 2, the demand for motorcycles in the country between 2005 and 2020 is forecast, as shown in the table below.

Figure 9-2-4 Demand for Motorcycles in Cambodia



Source: JICA Study Team

In addition to investment in the transportation equipment industry aiming for the domestic market, it is expected that subcontractors of assemblers, which are located in Thailand and Vietnam, will set up factories in Cambodia. However, in order for foreign companies to invest in the Cambodia's machinery industry, constraints such as underdeveloped infrastructure, high energy costs and underdeveloped supporting industry must be solved. Therefore, it is very difficult at this moment to forecast an accurate volume of the future inflow of foreign direct investment in the industry. In addition, investment inflow to Cambodia may stagnate in 2010 and after 2015 due to a possible sharp increase in imports of machinery under the AFTA scheme. To be specific, the import tariff is scheduled to be lowered to 5% or less in 2010, and 0% after 2015.

Considering the above, the flow of future foreign direct investment and the trend of exports are roughly forecast in three different terms as shown in the table below.

Table 9-2-7 FDIs in the Cambodia's Machinery Industry

	Short-term (around 2010)	Medium-term (around 2015)	Long-term (around 2020)
FDI	US$ 4 to 6 million	US$ 8 to 10 million	US$ 15 to 20 million
Field of FDI	Transportation equipment	Transportation equipment, Agricultural machinery, Infrastructure related machinery	Transportation equipment, Agricultural machinery, Infrastructure related machinery
Export to Assemblers in Neigboring Countries	Very small amount	Gradual increase (transportation equipment, etc.)	Rapid expansion (transportation equipment, etc.)

Source: JICA Study Team

9.3 Evaluation of and Outlook for the International Competitiveness of Cambodia's Machinery Industry

9.3.1 Analysis on Production Costs and Export Competitiveness

The machinery industry is only in its initial stage, and its competitiveness is virtually nil at present. However, it has the potential to grow. Its competitiveness would be reinforced by improving the quality and cost of work forces to meet the requisites of foreign companies along with the reform of the industrial infrastructure if it capitalizes on its geopolitical merit.

(1) Labor Cost

The minimum wage of the machinery industry is almost the same as that of apparel manufacturers, 45 US dollars/month, and therefore it is assumed that unskilled workers can be hired at a wage of 45-50 US dollars/month in Cambodia. Having conducted an interview survey of local companies, the Study Team learned that the average wage of workers at one foreign-affiliated manufacturer in the industry is 120-140 US dollars/month (including allowances such as social insurance).

As the below table of comparison analysis of wages of labor forces in Asia shows, wages in Cambodia are lower than those in Thailand and Malaysia. In addition, Cambodian labor costs are low compared to those of Vietnam and China.

Table 9-3-1 Comparison of Wages of Labor Forces in Asia

		Bangkok	Kuala Lumpur	Hanoi	Ho Chi Minh
Worker (US$/mo.)		146	205	80 – 163	111 – 185
Engineer (US$/mo.)		316	790	201 – 385	249 – 373
Manager (US$/mo.)		584	1,643	451 – 661	572 – 1,054
Statutory Minimum Wage		4.40/day	-	54.84/mo.	54.84/mo.
Bonus		2.6 months	1.8 months	1 - 2 months	1 - 2 months
Social Security	Employer	5%	12%	17%	17%
	Employee	5%	11%	6%	6%

Source: JETRO, "Investment Cost Comparison of Asian Major Cities (Nov. 2005)"

Table 9-3-2 Wages of Labor Forces in China

		Peking	Shanghai	Shenzhen
Worker (US$/mo.)		84 – 164	172 - 301	100 – 247
Engineer (US$/mo.)		223 – 470	334 - 593	186 – 620
Manager (US$/mo.)		334 - 1,769	772 – 1,521	496 – 991
Statutory Minimum Wage		71.73/mo.	85.50/mo.	85.51/mo.
Bonus		1.9 months x 2	1 - 3 months	1 mo. +/- 10%
Social Security	Employer	30.5 - 32.7%	44.0%	33.0 - 34.0%
	Employee	10.5%	18.0%	7.0%

Source: JETRO, "Investment Cost Comparison of Asian Major Cities (Nov. 2005)"

(2) Electricity Cost

Stable supply of inexpensive quality electricity is a must for the machinery industry. Due to a shortage of electricity, manufacturers have the option of using their own generators, connecting to private generation facilities, or relying on the EDC grid. The electricity tariff for the EDC is high, at approximately US$0.18 per KWh, while the electricity tariff in Hanoi is US$0.07; in Bangkok, US$0.04; in Kuala Lumpur, US$0.05; in Jakarta, US$0.04; and in Singapore, US$0.07.

9.3.2 Identification of Items with Export Competitiveness in Cambodia

Cambodia is required to upgrade supportive infrastructure and diversify its industrial areas, with the aim of reforming the industrial structure, in which the apparel manufacturing industry accounts for a large ratio. One of effective strategies to achieve this goal is the attraction of labor-intensive machinery processing companies from Thailand, Malaysia and Vietnam, whose competitiveness has diminished in their domestic markets. This could also be beneficial for foreign companies as a tactic to launch businesses in Cambodia.

(1) Automotive Parts Industry

Increased labor costs in the light manufacturing industries made it difficult to maintain manpower on a regular basis in Thailand. The Thai light manufacturing industries seek places in surrounding countries to transfer labor-intensive works and regards as a promising candidate Cambodia, where Special Economic Zones (SEZ) are planned in order to receive FDIs. Incidentally, SEZs in Cambodia have no tax incentives in the nature of things, but are ready to be established with infrastructure, and simplification of investment and trade procedures. Therefore, they are categorized as industrial zones in the WTO concept.

Especially, the automobile manufacturing industry looks favorable, as it is rapidly developing and concentrates in Thailand on a large scale. This could be applied in the case of the automotive parts industry. Although some assemblers have already started relocating to surrounding countries, labor-intensive automotive parts manufacturers are likely to choose Cambodia as a production site to tighten their purse strings by taking advantage of the local low-cost labor force.

More specifically, items which need high-labor-intensity tasks but can be manufactured with lower level of technology such as “chassis and auto body component” and “electrical component” in general are likely to be chosen among these automotive parts manufacturers for short-term relocation. On the other hand, the fabrication sites of items produced with sophisticated technology to ensure a high degree of precision, intensity and endurance such as engine components, parts for drive units, transmission components, and steering device, parts for suspension and braking devices and electrical components for internal combustion will be relocated to Cambodia under long- and medium-term strategy. In fact, Japanese-affiliated automotive parts companies still manufacture the majority of the latter at home.[52]

[52] Japan Finance Corporation for Small and Medium Enterprise, Research Institute, “Status quo and future direction of Japanese Automotive Parts Industry” (JASME Report, August 26, 2006)

Table 9-3-3 Major Automotive Parts by Category

Category	Major Parts
Engine Component	Piston, Piston ring, Valve, Metal bearing, Gasket, Fuel pump, Carburetor, Fuel injection Device, Radiator, etc.
Parts for Drive Unit, Transmission component, and Steering Device	Clutch, Automatic transmission, Universal joint, Propeller shaft, Steering device, etc.
Parts for Suspension and Braking Devices	Shock absorber, Brake, etc.
Electrical Components for Internal Combustion	Generator, Starter, Distributor, Ignition coil, Spark plug, etc.
Chassis and Auto Body Component	Fuel tank, Exhaust pipe, Muffler, Window frame, Seat, Air bag, etc.
Other Electrical Components	Switch devices, Instrument panel, Windscreen wiper, Horn, Air conditioner, etc.

Source: Japan Finance Corporation for Small and Medium Enterprise, Research Institute, "Status quo and future direction of Japanese Automotive Parts Industry" (JASME Report, August 26, 2006)

In addition to automotive parts manufacturers, labor-intensive toy manufacturers may choose Cambodia as a candidate site for relocation of their factories from neighboring countries. The table below provides the business plan of a company that is considering investment in Cambodia based on the field study conducted in neighboring countries. A Company manufactures automotive parts in Vietnam and delivers them to automotive assemblers in Thailand. The company is examining the plan to establish its satellite plant in Cambodia, midway between Vietnam and Thailand, aiming at the reduction of production costs and delivery lead time.

Table 9-3-4 Example of Business Model Found in the Field Survey

A Company	
Product	Automobile parts
Business in Cambodia	Production of automobile parts
Investment amount	Approximately US$3 million
Employment	100 (at the beginning of the operation)
Sales amount	Approximately US$6 million per year
Sales targets	100% export to automobile assemblers in Thailand
Economic effects	Job creation, and foreign currency earning

Source: JICA Study Team

(2) Agricultural and Fishery Related Machinery Industry

Other profitable business opportunities can be found in agro-business, since Cambodia is one of the great agricultural countries. For instance, business related to agricultural machinery and food processing machinery is promising in the machinery field. The potential demand for machinery to process fishery and forestry resources such as marine products and timber is also large.

Taking a closer look at agricultural machinery, it is clear that machinery for rice cultivation such as tractors is the most promising. The main product in Cambodian agriculture is rice, of which acreage

under cultivation accounts for almost half of the whole. Given the prospect for such acreage to continue to be large for the time being, even though agricultural production is diversified, the tools for rice production will remain in demand in the agricultural machinery market.

Also in demand is machinery for irrigation systems. A constant supply of water is required to plant crops in months other than monsoon season between June and September. According to the data of the MAFF, the area under irrigation as percentage of cultivated area is just 20%. As the establishment of such a system is said to be one of the most important policies, the demand for relevant machinery and equipment such as feed pumps will increase.

9.4 Recommendations to Promote Direct Investment in the Machinery Industry

9.4.1 Development Measures for Industrial Infrastructure

The Cambodian labor force with strong competitiveness, which is highly appreciated in the Asian market, will support the development of domestic labor-intensive industry. Capital injection and technology transfer through the receipt of FDIs are essential to further promote industrialization in Cambodia. Nevertheless, constraints on the receipt of direct investment are imposed by the high price of energy, the influx of low-cost contrabands, import restrictions on materials and manufacturing machinery, cumbersome procedures for exports and imports, the absence of supporting industry, a variety of institutional constraints as well as high production costs on account of poor infrastructure. Hence, the first thing for the Cambodian government to do is to remove these constraints on the attraction of FDIs into the country.

Among them, construction of infrastructure, development of the supporting industry, and measures to remove institutional constraints, all of which are regarded as closely related to the development of the machinery industry, are discussed below.

(1) Electric Power Supply

Many infrastructure facilities damaged by civil war in Cambodia have been reformed and improved since the conclusion of Paris Peace Accords in 1991, but most of them are still in poor shape. Especially, the lack of a road network and power shortage is a major issue for foreign companies, increasing their production costs.

The absolute amount of power supply is still remarkably low, and there are few companies which have access to reliable electricity supply. The cost of producing electricity in Cambodia is higher by about half than that in Vietnam due to reliance on diesel electric power generation and poor transmission network, and this also constitutes a hindrance to business activity.

In order to address the power shortage, the implementation of comprehensive measures such as conclusion of power purchase agreement with surrounding countries and the construction of generation plants by foreign companies under the scheme of IPP are necessary. IPP in SEZs should

generate electricity at a reasonable rate of return in the light of competition from neighboring industrial parks.

(2) Industrial Parks

To attract overseas machinery industry, industrial parks should be established in tandem with reform of infrastructure facilities. In Cambodia there are some industrial parks developed by local companies, but foreign companies have been hesitant to site there, because these parks do not meet requirements to operate businesses, such as supply of sufficient power, access to major ports, supply of industrial water, and provision of a telecommunication network.

It is expected that the number of industrial parks developed for trade with foreign companies will increase through the enactment of the SEZ Sub-Decree. That is, further development of the current relative laws and sub-decrees under the initiative of the government should expedite the development of these industrial parks. As far as actual development is concerned, the work should not be carried out by the government but by the private sector to ensure prompt completion.

9.4.2 Development Measures for Supporting Industries

The Cambodian machinery industry is still at an early stage of development in regard to number of companies and production scale. While the number of assemblers is gradually expanding, especially in the production of motorcycles and bicycles, the supporting industry for these emerging companies has not grown to where there are subcontractors.

The medium- and long-tem development of the supporting industries to supply the motorcycle industry in Cambodia with parts and components as well as to strengthen the division of labor relationship with the Thai automobile/motorcycle industries is important. For that reason, the establishment of overall assistance measures for the supporting industries, which place a further emphasis on linkage formation with foreign-affiliated companies, should be taken by encouraging capital and technology injection through the attraction of foreign automotive parts makers. Such supportive measures shall include the following: (1) formation of a comprehensive policy to nurture the supporting industry, (2) advancement of technology in the supporting industry, (3) improvement of management skills, and (4) development of human resources.

9.4.3 Development Measures for Attracting FDIs (Supportive Actions to Lure Investments of Foreign Companies)

One issue that retards FDIs into Cambodia is the small amount of investment-related information provided overseas. The Cambodian government should proactively transmit such information, especially details of investment incentives, trends in industrial infrastructure and overviews of relevant industries. It is suggested that the government should take such measures as the expansion of investment promotion activities.

The provision of information on the Cambodian investment climate for foreign machinery and automotive parts manufacturers is indispensable as is specialized support for companies, which are engaged in the production of prioritised items shown in this report.