Kingdom of Cambodia
Ministry of Public Works and Transport
Sihanoukville Autonomous Port

FINAL REPORT
FOR
THE PROJECT FOR THE STUDY
ON
STRENGTHENING COMPETITIVENESS
AND DEVELOPMENT
OF
SIHANOUKVILLE PORT
IN
THE KINGDOM OF CAMBODIA

Main Part

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JAPAN INTERNATIONAL COOPERATION AGENCY

The Overseas Coastal Area Development Institute of Japan
Oriental Consultants Co., Ltd.
Nippon Koei Co., Ltd.
Ides Inc.

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1 USD = 80.25 Yen （Average rate during 16-29, February 2012）
1 USD = 4,094 Cambodian Riel (Average rate during 10-17, January 2012)

List of Abbreviations

A	AASHTO	American Association of State Highway and Transportation Officials
	AC	Asphalt concrete
	ACI	American Concrete Institute
	ADB	Asian Development Bank
	AFTA	ASEAN Free Trade Area
	AHTN	ASEAN Harmonized Tariff Nomenclature
	APM	APM Terminals
	ASEAN	Association of South‐East Asian Nations
	ASYCUDA	Automated System for Customs Data
	ASW	ASEAN Single Window
B	BL	Bill of Lading
	BPR	Business Process Re-engineering
	BSAA	Bangkok Shipowners and Agents Association
	BSC	Balanced Scorecard
C	CBT	Cross Border Transport
	CBTA	Cross-border Transport Agreement
	CCTV	Closed Circuit Television
	CD	Capacity Development
	CDC	Council for the Development of Cambodia
	CDIT	Coastal Development Institute of Technology
	CDL	Chart Datum Level
	CEPT	Common Effective Preferential Tariff
	CFS	Container Freight Station
	CHE	Container Handling Equipment
	CIECC	China International Electronic Commerce Center
	CIQ	Customs, Immigration, Quarantine
	CLM	Cambodia, Lao PDR and Myanmar
	CP	Counterpart
	CSF	Critical Success Factor
	CT	Container Terminal
	CTIC	Chao Phaya Terminal International Co., Ltd.
	CTO Dept.	Container Terminal Operation Department
	CY	Container Yard
D	DBST	Double Bituminous Surface Treatment
	DD	Detailed Design
	DDT	Dichloro-diphenyl-trichloroethane
	DPW	DP World
	DWT	Dead Weight Ton
E	ECD	Empty Container Depot
	EDI	Electronic Data Interchange

	EIA	Environmental Impact Assessment
	EIRR	Economic Internal Rate of Return
	EPZ	Export Processing Zone
	ESCAC	Environmental and Social Consideration Advisory Council
	ESDC	Eastern Seaboard Development Committee
	ETA	Estimated Time of Arrival
	ETD	Estimated Time of Departure
	EU	European Union
F	FAO	Food and Agriculture Organization
	FCL	Full Container Load
	FDI	Foreign Direct Investment
	FIRR	Financial Internal Rate of Return
	FOB	Free on Board
	FOC	Flag of Convenience
	F/S	Feasibility Study
	FT	Freight Ton
	FZ	Free Zone
G	GCHO Dept.	General Cargo Handling Operation Department
	GDCE	General Department of Customs and Excise
	GDP	Gross Domestic Product
	GDT	General Department of Transport
	GMAC	Garment Manufacturers Association in Cambodia
	GMS	Greater Mekong Sub-region
	GOJ	Government of Japan
	GSP	Generalized System of Preferences
	GT	Gross Tonnage
H	HP	Horse Power
	HPH	Hutchison Port Holdings
	HWL	Highest Water Level
I	ICD	Inland Container Depot
	IEA	International Energy Agency
	IEE	Initial Environmental Evaluation
	IMF	International Monetary Fund
	IMO	International Maritime Organization
	ISO	International Organization for Standardization
	ISPS	International Ship and Port Facility Security Code
	IT	Information Technology
	IUCN	International Union for Conservation of Nature
	IWD	Inland Waterway Department
J	JASTPRO	Japan Association for Simplification of International Trade Procedures

	JETRO	Japan External Trade Organization
	JICA	Japan International Cooperation Agency
	JPY	Japanese Yen
	JSCE	Japan Society of Civil Engineers
K	KAMSAB	Kampuchea Shipping Agency & Brokers
L	LA	Los Angeles
	LCL	Less than Container Load
	LDC	Low Developed Country
	LLWT	Lowest Low Water Level
	LM Dept	Labor Management Department
	LoLo	Lift-on Lift-off
	LOA	Length Overall
	LPI	Logistic Performance Index
	LSCI	Liner Shipping Connectivity Index
	LWL	Lowest Water Level
M	M/M	Minutes of Meeting
	MAFF	Ministry of Agriculture, Forestry and Fisheries
	MEF	Ministry of Economy and Finance
	MFN	Most-Favored-Nation
	MIC	Ministry of Internal Affairs and Communications
	MLIT	Ministry of Land, Infrastructure, Transport and Tourism
	MMD	Merchant Marine Department
	MOC	Ministry of Commerce
	MOE	Ministry of Environment
	MOU	Memorandum of Understanding
	MoEYS	Ministry of Education, Youth and Sport
	M/P	Master Plan
	MPH	Movement Per Hour
	MPWT	Ministry of Public Works and Transport
	M&R	Maintenance and Repair
	MSL	Mean Sea Level
	MT	Metric Ton
	MTSA	Maritime Transportation Security Act
	NACCS	Nippon Automated Cargo and Port Consolidated System
N	NIS	National Institute of Statistics
	NPM	Net Profit Margin
	NR	National Road
	NSDP	National Strategic Development Plan
	NSW	National Single Window
O	O/D	Origin and destination

	OCDI	Overseas Coastal Area Development Institute of Japan
	ODA	Official Development Assistance
	OKM	Oknha Mong Port
	OSB	Oil (Offshore) Supply Base
P	PAA	The Pan-Asian e-Commerce Alliance
	P2M	Project & Program Management
	PARIS	Port and Airport Research Institute
	PAS	Sihanoukville Autonomous Port
	PAT	Port Authority of Thailand
	P/C	Pre-stressed Concrete
	PCA	Post Clearance Audit
	PCB	Polychlorinated biphenyl
	PCC	Port Clearance Committee
	PCU	Passenger Car Unit
	PDR	People's Democratic Republic
	PENPPAS	Project for Establishment of National Port Policy and Administration System
	PFSP	Port Facilities Security Plan
	PFSO	Port Facility Security Officer
	PIANC	World Association for Waterborne Transport Infrastructure
	PMB	Port Management Body
	PPAP	Phnom Penh Autonomous Port
	PPP	Public Private Partnership
	PR	Provincial Road
	PRC	People's Republic of China
	PSC	Port Security Committee
Q	QGC	Quayside Gantry Crane
R	RC	Reinforced Concrete
	RGC	Royal Government of Cambodia
	ROE	Return of Equity
	RORO	Roll-on Roll-off
	RRC	Royal Railway of Cambodia
	RTG	Rubber Tired Gantry Crane
S	SCOPE	Service Center of Port Engineering
	S/W	Scope of Work
	SEA	Strategic Environmental Assessment
	SEZ	Special Economic Zone
	SHM	Stakeholder Meeting
	SHV	Sihanoukville
	SLS	Serviceability Limit State
	Smax	Spreading Parameter

	SMB	Sverdrup, Munk, Bretschneider
	SME	Small and Medium Enterprise
	SPI	Structural Performance Index
	SPZ	Special Promotion Zone
	SRT	State Railway of Thailand
	SWOT	Strength, Weakness,Opportnunity and Threat
T	TBT	Tributyltin
	TC	Technical Committee
	T&G	Textile and Garment
	TEDMEV	Transferência Electrónica de Dados - Macau EDI VAN, S.A.
	TEU	Twenty-feet Equivalent Unit
	THC	Terminal Handling Charge
	TOC	Total Organic Carbon
	TPT	Thai Prosperity Terminal
	TR	Tomnop Rolok Port
	TRR	TOLL Royal Railway Cambodia
	TSA	Transportation Security Administration
	TWIC	Transport Workers Identification Credential
U	UN	United Nations
	UNCTAD	United Nations Conference on Trade and Development
	UNEP	United Nations Environment Programme
	US	United States
	USA	United States of America
	UTCT	Unithai Container Terminal
	ULS	Ultimate Limit State
V	VAT	Value Added Tax
	VICT	Viet Nam International Container Terminals
	VIWA	Vietnam Inland Waterway Administration
	VTMS	Vessel Traffic Management System
W	WB	World Bank
	WBS	Work Breakdown Structure
	WTO	World Trade Organization

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1. OUTLINE OF THE PROJECT

1.1. Background of the Project

Sihanoukville Port is the sole international deep sea port in the Kingdom of Cambodia (hereinafter referred to as "Cambodia"), supporting the national economic and industrial activities. Container throughput of Sihanoukville Port is expected to exceed its handling capacity limit in the year 2015, if the port succeeds in strengthening its competitiveness, and continuous growth of demand is forecasted for the years thereafter. Along with the Special Economic Zones (SEZ) and industrial developments being promoted in the vicinity of the port area, Sihanoukville Port is expected to be functioning as a logistics base to support those industrial developments.

On the other hand, Phnom Penh Port is a river port whose container throughput has already overrun its capacity limit owing to the increasing demand of feeder cargoes being connected with Cai Mep - Thi Vai Port in Vietnam. As further increase of cargo demand is expected in Phnom Penh metropolitan area, Phnom Penh Autonomous Port (PPAP) is now promoting the development of a new container terminal.

Thus, the cargoes originated in Phnom Penh are currently shared between those two public ports in Cambodia, while there is no clear distinction between the role of Sihanoukville Port and Phnom Penh Port.

In the circumstances above, The Royal Government of Cambodia (hereinafter referred to as "RGC") officially requested the Government of Japan (hereinafter referred to as "GOJ") to conduct the technical cooperation for "The Project for the Study on Strengthening Competitiveness and Development of Sihanoukville Port" (hereinafter referred to as "the Project"), based on the recognition that a new master plan of Sihanoukville Port needs to be formulated to cope with the changes of environments in international logistics and the national socio-economy.

In response to the official request of RGC, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of technical cooperation programs of GOJ, completed the discussions with RGC on February 21, 2011 and signed the "Scope of Work" (S/W) (see Appendix 1) and "Minutes of Meeting" (M/M), where the importance of strengthening competitiveness of Sihanoukville Port is stressed. The Project was implemented in accordance with those agreements.

1.2. Objectives of the Project

The objectives of the Project are to clarify the roles of Sihanoukville Port and Phnom Penh Port, and accordingly formulate a future vision of Sihanoukville Port (for the target year of 2030, middle term target year of 2020), and then to formulate the "Strategy for Strengthening Competitiveness of Sihanoukville Port" (a soft strategy with the target year of 2020), and the "Strategic Master Plan for the Development of Sihanoukville Port" (with the target year of 2030) for the purpose of realizing that vision.

1.3. Project Area

The study area is mainly around Sihanoukville Port. In addition, as it is essential to analyze role sharing with Phnom Penh Port and nationwide industrial trend in order to elaborate the strategies relevant to Sihanoukville Port, the study area entails the whole of Cambodia. The study area also extends to the ports in surrounding countries, as it is vital to analyze the competitive and cooperative relationship between Sihanoukville Port and Cai Mep-Thi Vai Port and Ho Chi Minh Port in Vietnam and Gulf of Thailand littoral ports.

1.4. Framework of the Project

(1) Counterparts

The counterpart (CP) agencies of the Project are the Ministry of Public Works and Transport (hereinafter referred to as "MPWT") and Sihanoukville Autonomous Port (hereinafter referred to as "PAS"). The implementation policies and other important issues of the Project were discussed at the Steering Committee which is composed of the counterpart agencies and authorities concerned as shown in Table 1.4-1. Four Steering Committee Meetings chaired by the Minister of Public Works and Transport were held in the course of the Project. JICA Cambodia office and the Project Team were invited to the meetings. Records of discussion are attached in Appendix 2.

PAS formulated the Counterpart Team, the Working Group and the Sub-working Group of Container Terminal Operation as listed in Appendix 3 for the implementation the Project including preparation, execution and evaluation of pilot projects for improving port service

Table 1.4-1 Members of the Steering Committee

Ministry of Public Works and Transport (MPWT)
Sihanoukville Autonomous Port (PAS)
Council for the Development of Cambodia (CDC)
Ministry of Economy and Finance (MEF)
Ministry of Commerce (MOC)
Phnom Penh Autonomous Port (PPAP)
Preah Sihanouk Province

(2) Stakeholders

The Project Team carried out hearing survey to stakeholders of Sihanoukville Port including those in neighboring countries.

Three stakeholders meetings, which mainly aim at forming consensus among local residents regarding future development of the port, were held in the course of the Project. Discussions at the stakeholders meetings are summarized in Appendix 4.

(3) Project Team

The Project Team consists of six members from the Overseas Coastal Area Development Institute of Japan, three members from Oriental Consultants Co., Ltd, three members from NIPPON KOEI CO., LTD, and three members from Ides Inc. Members and their specialties are listed hereunder;

Table 1.4-2 Members of the Project Team

Dr. Tadahiko Yagyu	Project Manager/Port Development Policy /Organization Strategy	OCDI
Mr. Takashi Kadono	Deputy Project Manager / Port Planning (1) / Demand Forecast/Market Research	OCDI
Dr. Koji Kobune	Port Planning (2)	Ides
Dr. Sumio Suzuki	Economic Analysis / Port Management / Finance	Ides
Mr. Naoya Takebe	Capacity Assessment	OC(IDCJ)
Mr. Kiyoshi Nakashima	Port Promotion / Port Sales	OCDI
Mr. Teruki Eto	Container Operation	OCDI
Mr. Naoki Kudo	Transport Planning（Roads）	NK
Mr. Makoto Yokota	Transport Planning（Railways）	NK
Mr. Tadahiko Kawada	Port Maintenance / Port Security	OCDI
Mr. Toshitsugu Shimodaira	Port Designing / Project Cost Estimation	OC
Mr. Shingo Shiratori	Natural Condition Investigation	OC
Mr. Takeshi Sato	Environmental Considerations	Ides
Ms. Kumi Saito	Social Considerations	NK
Mr. Kazumune Kotera	Coordinator / Assistant Port Planning	OCDI

(4) Project schedule

The Project was commenced in June 2011, and was completed in June 2012.

1.5. Precedent Projects and Studies

Major precedent projects and studies related with improvement of capacity of Sihanoukville Port were reviewed in advance of the work in Cambodia. Outlines and important results of the precedent projects and studies are as described below:

(1) The Study on Regional Development for the Phnom Penh - Sihanoukville Growth Corridor

The study was carried out by JICA and the final report was published in 2003. The objectives of the study were to formulate a master plan on regional development of the Phnom Penh - Sihanoukville Growth Corridor, mainly focused on industry development for the target year of 2015, and to conduct a feasibility study on the Sihanoukville Export Processing Zone (EPZ), which had been proposed as one of the key factors for corridor development.

The study estimated that a total area of 2,100 to 2,500 ha of industrial land would be necessary within the Growth Corridor Area by the year 2015. The required industrial land in Preah Sihanouk was estimated to be approximately 250 ha, which is much smaller than the industrial area being developed at present.

As shown in Table 1.5-1, the study selected 25 priority projects which had to be commenced before 2005 for the Phnom Penh - Sihanoukville Growth Corridor, of which 8 were economic development projects including Sihanoukville Special Promotion Zone (SPZ) Project, 7 were social development projects and 10 were infrastructure development projects. The progress of the 13 priority projects which are closely related with the competitiveness of Sihanoukville Port is shown in Table

1.5-2.

Table 1.5-1 Priority projects for the growth corridor

Type	Sector	Project Title	Objectives
Economic Development	Primary Industry	A-4 Outer City Agriculture Promotion Program	To enhance farm income through expansion of crop diversification and modernized agriculture in outer city area
		A-7 Vegetable and Fruit Processing Project	To increase the value of vegetables and fruits through processing activities
	Secondary Industry	B-4 Upgrading of Small and Micro Industries	To foster the traditional and new SMEs by small scale business incubation, rearing domestic capital and entrepreneurship and assist access to market and technology information
		B-6 Garment and Footwear Industry Revitalization Project	To promote the marketing of the products in markets other than USA; To provide vocational training to future and current garment workers for higher skills
	Tertiary Industry	C-4 Tourism Master Plan for the Greater Capital Area	To boost international tourism in and around Phnom Penh, capitalizing on the existing and potential resources
	Export Promotion	D-1 Establishment of Special Promotion Zone in Sihanoukville	To establish a SPZ in Sihanoukville to attract FDI and activate backward linkage and better use of locally available natural resources
	Legal and Institutional	E-1 Computerization of Customs Clearance Procedures	To computerize the customs clearance system to improve cargo reporting, shorten the clearance time, better valuate duties and taxes and facilitate effective Post Clearance Audit (PCA)
		E-2 Dispatch Experts from Japan for facilitating the Legal and Institutional Framework of the SPZ	To firmly establish the legal and institutional framework for the proposed SPZ.
Social Development	Urban Planning	F-3 Urban Master Plan for Sihanoukville	To facilitate sustainable management of urban development and devise good balance amongst the different economic activities
		F-1 Enhancement of Planning and Enforcement Mechanism of Urban Planning	To establish guidelines on formulating the master plan and land use plans, and to establish autonomous criteria for the provision of construction permissions

Type	Sector	Project Title	Objectives
	Human Resources Development	G-6 Assistance for Rural Entrepreneurship Development	To strengthen the capacity of provincial government officials and MoEYS through joint activities for identifying products, entrepreneurial training for women and exploring marketing of products
		G-3 Strengthening Sihanoukville Municipal Vocational Training Center	To provide practical vocational training primarily for garment production, but gradually shift to new types of industries
	Rural Development	H-2 Income Generation Activities for Farmers in Kandal Province	To improve livelihood of the vulnerable population in rural area through income generation activities
	Environment	I-1 Capacity Enhancement for Effective Enforcement of Environmental Legislation	To enhance the institutional capacity to conduct effective enforcement of environmental legislation
		I-3 Construction of Controlled Landfill Site	To provide with a controlled type landfill site in Sihanoukville for appropriate treatment of solid waste
Infrastructure Development	Transportation	J-2 Container Distribution Center Project	To improve and rationalize container inflows and outflows
		J-6 Phnom Penh Urban Transport Project	To mitigate traffic congestion
		J-9 Route 48 Upgrading Project	To upgrade the existing Route 48 to all-weather road, including 4 bridges
	Water Resources	K-1 Master Plan Study on National Water Resources Development and Management	To prepare an inventory of water users for all the river systems and groundwater and to formulate a master plan for integrated water resources development of the whole country
		K-4 Improvement of Urban Water Supply in Sihanoukville	To secure a water source to increase the capacity and service ratio and to improve the operation and maintenance of the existing system
	Electricity	L-5 F/S on Transmission Line between Kampot and Sihanoukville	To conduct a feasibility study for the extension of transmission lines between Kampot and Sihanoukville at 220 kV
	Telecommunications	M-1 Fostering of Qualified IT Related Human Resources	To train and foster one thousand information technology (IT) engineers

Type	Sector	Project Title	Objectives
		M-2 Development of Optical Fiber cable Network between Phnom Penh and Sihanoukville	To lay fiber optical cable between Phnom Penh and Sihanoukville to enable high speed and large capacity communication
	Free Zone Development in Sihanoukville	N-1 Development of Wastewater Treatment Plant for the Sihanoukville Port Free Zone	To plan, design and install a wastewater treatment plant for the Sihanoukville Port Free Zone. This will be a desirable project if the Free Zone is commercially financed.
		N-2 Development of Solid Waste Landfill for the Sihanoukville Port Free Zone	To plan, design and install an environmentally friendly landfill and its related systems for the Sihanoukville Port Free Zone. This will be a desirable project if the Free Zone is commercially financed.

Source: JICA

Table 1.5-2 Progress of priority projects for the growth corridor

A-7 Vegetable and Fruit Processing Project
The proposed project doesn't aim explicitly at the promotion of processed agricultural product exports; however, this project is included in the evaluation here since an increase of agricultural exports is expected as a result of qualitative improvement of agro-processing. RGC established a basic strategy for milled rice exports, which aims at the export of one million tons of milled rice per year before 2015. All efforts are being made to realize the target and private investment in this field is increasing. Besides milled rice, efforts are also being made for improvement of agro-processing supported by international development partners including JICA. Thus, efforts are being made to achieve the target of the proposed project.
B-6 Garment and Footwear Industry Revitalization Project
The project was proposed to help the Cambodian garment and footwear industry stay in business after the removal of preferential quota in 2005. GMAC has been playing an important role in the technical improvement of the garment sector in Cambodia supported by international development partners. As a result of the efforts toward qualitative improvement by GMAC and individual garment and footwear factories, Cambodian garment and footwear industries remained competitive in the world market even after the removal of quota, and garment and footwear exports to EU as well as USA are increasing. Thus the target set by the proposed project was achieved.
D-1 Establishment of Special Promotion Zone in Sihanoukville
The SPZ in Sihanoukville was aimed at attracting FDI and activating backward linkage and better use of locally available resources. The SPZs are special economic zones (SEZ) that denote a specific and clearly delineated area where different economic principles, taxation systems, FDI treatment and/or institutional procedures are applied. The proposed area of the Sihanoukville SPZ was basically the entire administrative area of Preah Sihanouk Province, excluding the area of two national parks and the designated forest management and water conservation area. The study also proposed to develop Sihanoukville Port Free Zone, which had two components; an export processing zone, where primarily export-oriented manufacturing industries would locate; and a free trade zone, where logistics service providers would be located. The proposed FZ was a separate customs territory, and provided with a linkage to Sihanoukville Port by a fly-over. The planned area was 43 ha. Although the establishment of SPZ was the most important proposal by the study, even the

institutional framework for SPZ has not been introduced yet. An institutional framework for SEZ which is entitled to individual industrial parks and was denoted as Free Zone in the study was established instead. Some SEZ projects in Preah Sihanouk have been approved by RGC. Factories have already located in two of them which include Sihanoukville Port SEZ. The Port SEZ was developed based on the proposed FZ; however, PAS revised the plan aiming at securing financial viability and established a new plan of Sihanoukville Port SEZ, in which the area was expanded to 70 ha and the SEZ was directly connected to the port without the fly-over, since the planned area of FZ was too small and the original plan included a costly fly-over. Based on the new plan, Sihanoukville Port SEZ was constructed utilizing Japanese ODA loan. There is an idea in RGC that measures for materializing SPZ shall be considered.
E-1 Computerization of Customs Clearance Procedures
Electronic system for customs procedures is being introduced supported by WB and UNCTAD. The electronic system so far introduced is only for internal procedures of Customs. EDI between customs and port users such as custom brokers has not been introduced.
E-2 Dispatch Experts from Japan for facilitating the Legal and Institutional Framework of the SPZ
Legal framework for SPZ has not been established as mentioned above. Regarding SEZ, Japanese experts were dispatched to Cambodia and the legal framework was established.
F-3 Urban Master Plan for Sihanoukville
An urban master plan of Preah Sihanouk was formulated. Although the master plan recognizes that the sole Cambodian port city of Preah Sihanouk shall accelerate growth of the corridor area, a land use plan for materializing it is not proposed. Land for logistics industry and coastal industries are reduced greatly compared with that in precedent urban plans. Based on this Project, revision of the master plan would be required.
G-3 Strengthening Sihanoukville Municipal Vocational Training Center
So far no specific measures have been taken for the functional improvement of vocational training centers. As more manufacturers occupy the SEZs in Preah Sihanouk, the function of the vocational training centers shall be strengthened in cooperation with SEZ developers.
J-2 Container Distribution Center Project
The proposed project is to provide bonded inland container depots at Phnom Penh International Airport and Port of Sihanoukville with one-stop service for all documentation of export and import by EDI. Private-owned inland container depots have been constructed in Phnom Penh mainly along NR4. In Preah Sihanouk, there is no ICD where LCLs can be consolidated. Sihanoukville Port SEZ project includes the construction of CFS for consolidation of LCLs. The one stop EDI system (single window system) has not been introduced yet. Customs' EDI system is being introduced.
J-9 Route 48 Upgrading Project
The suspended road rehabilitation project funded by the Government of Thailand was resumed and has been completed. However, further improvement of winding roads in the mountainous section is required for streamlined freight transportation.
L-5 F/S on Transmission Line between Kampot and Sihanoukville
The transmission line project has been implemented jointly by GOJ and ADB aiming at completion in 2013. Related to the transmission line project, a privately financed coal thermal power plant is being constructed in Preah Sihanouk. It is expected that the electric supply to the corridor area will be improved greatly by the completion of these projects.
M-2 Development of Optical Fiber cable Network between Phnom Penh and Sihanoukville
The optical fiber project was implemented by Japan's ODA. This increased the communications environment in the corridor area.
N-1 Development of Wastewater Treatment Plant for the Sihanoukville Port Free Zone
Since the Port SEZ was developed as an ODA loan project, the precondition of the selection of the priority project in the study is not met. A waste water treatment plant for the Port SEZ was constructed as a part of the ODA loan project.

N-2 Development of Solid Waste Landfill for the Sihanoukville Port Free Zone
Since the Port SEZ was developed as an ODA loan project, the precondition of the selection of the priority project in the study is not met. Solid waste generated in the Port SEZ will be disposed in an existing privately operated dumping site because the development of a dumping site only for the Port SEZ is not economically and financially viable.

Prepared by Project Team

The study recommended that RGC should take following measures for the development of the Growth Corridor. Except measures related to SPZ, all recommended measures have been implemented already.

- To make a formal decision to adopt the Sihanoukville SPZ as an official instrument for promoting export and facilitating industrial development in Cambodia;
- To enact a law which defines the authorities, functions and systems of operation of SPZs and coordinates its effects with the relevant laws and regulations, including the Amended Law on Investment;
- To establish an independent and autonomous organization for the management and operation of the SPZ with full commitment of the RGC to the governance thereof eliminating corruption;
- To materialize the proposed Sihanoukville FZ including preparing financing, making arrangements for implementation and providing a sustainable solution to the resettlement issue;
- To commence investment promotion for new industries to Cambodia;
- To initiate coherent economic development policies to enhance the competitiveness of Cambodia;
- To initiate social development policies to secure sustainable development;
- To undertake initiatives for planning and implementing effective and economical infrastructure development for transportation, water, power and telecommunication; and
- To advocate imperative development projects with possible external assistance.

(2) Other studies and projects

1) Master Planning and Feasibility Study of Sihanoukville Port

The study was carried out by JICA and the final report was published in 1997. The objectives of the study were to formulate the master plan of port development up to 2015 and to conduct the feasibility study for the short-term development with the target year of 2005. This was the first master plan of Sihanoukville Port after the civil war.

The study forecasted that the container throughput would grow up to 1.3 million tons in 2010 and 2.0 million tons in 2015 in the middle growth scenario. Though this was a rather ambitious forecast (container throughput was forecast to be 3.8 times larger than that of the base year of 1995), the actual container throughput of Sihanoukville Port (1.2 million tons in 2010) has proven the accuracy of the forecast.

The long-term plan consists of the construction of a 400 m long general cargo wharf (renovation of the revetment in front of Shed No.3), a 400 m long container terminal and a 300 m bulk terminal. According to the plan, the container terminal has been constructed utilizing Japan's ODA loan. A multi-purpose terminal, which possesses the function of the bulk terminal and the general cargo terminal, is also being constructed as a Japanese ODA loan project, though the location of the terminal is different from the planned one. Thus all major functional improvements proposed in the long-term plan have been materialized or are being implemented.

2) The Study on the Master Plan for Maritime and Port Sector

The study was carried out by JICA and the final report was published in 2007. The objectives of the study were to formulate a master plan for strengthening the international competitiveness of the

maritime and port sector in Cambodia. This master plan (target year: 2020) included the development strategies in three fields; namely, maritime sector, port sector and enhancement of administrative capabilities. In addition, a short-term action (target year: 2010) for the priority projects identified in the master plan were formulated in the Study.

Taking into account that the Sihanoukville Port should continue to play its leading role as the only deep sea port in Cambodia, the study assessed that its proper development would be essential for Cambodian trade and industry and that Sihanoukville Port should develop/provide industrial zones which have easy access to the port and encourage the location of export-oriented industry.

The study proposed the Short-term Action Plan from the viewpoint of strengthening the competitiveness of port and maritime services and compliance with the international maritime scheme. The action plan for the port sector was as follows:

- Upgrading the Sihanoukville Port as a major gateway port
  - To increase liner services and strengthen the connection with SEZs
  - To improve management and operation of container terminal
  - To develop multipurpose berth and terminal
  - To encourage the use of dry ports
  - To minimize port security levy on shippers and consignees
- Enhancement of container handling capacity of Phnom Penh Port
  - To develop a new container terminal and ICD
  - To improve the convenience of container transportation through the Mekong River
- Improvement of port security management
- Establishment of national port policy, port law, and administration on the development and management of private ports
- Improvement of maritime and port organization

The aim of the National Port Policy was proposed as follows:

- Strengthening the function of ports as the center for Cambodian trade;
- Providing efficient port service;
- Development of ports which support national and regional development;
- Securing port safety/security and preservation of environment;
- Compliance with the concept of coastal zone management;
- Ensuring efficient and effective investment in port development;
- Private and public partnership; and
- Strategic development of main ports

3) The Project for Strengthening Port Operation and Management

The project was implemented by JICA from 2007 to 2009 aiming at:

- Improving port operation and container cargo handling of Sihanoukville Port;
- Strengthening the function of newly installed container operation system and port security system in Sihanoukville Port; and
- Materializing the proposal made by "The Study on the Master Plan for Maritime and Port Sector".

A long-term expert and three short-term experts were dispatched to PAS in the course of the project and technical transfer was conducted.

4) The Project on formulation of National Integrated Strategy of Coastal Area and Master Plan of Sihanouk-ville for Sustainable Development

The project was carried out by JICA and the final report was published in 2010. The objectives of the project were to formulate "the national integrated strategy of Coastal area" and "master plan of Preah Sihanouk and other coastal cities for sustainable development", targeting the year of 2030.

Based on the development issues in Coastal area, the development goals were proposed as

follows:

- Strengthening the advanced gateway for national development;
- Facilitation of distinctive regional industry and economy in the coastal area;
- Conservation of safe and comfortable living environment; and
- Proper management of coastal resources and its hand-down to the next generation.

The project proposed infrastructure development strategies toward the target year of 2030, which include expansion of Sihanoukville Port and construction of an industrial road connecting the port and NR4 via Stueng Hav.

In the master plan for Preah Sihanouk, the development goals were set as follows:

- To function as the national gateway of international trade, economies, human resource and technologies;
- To be a national growth center with diversified economic activities and urban services;
- To be the national logistic center linked with world markets;
- To be an industrial center with modern & non-traditional manufactures and agro-industries;
- To be an internationally reputable marine resort harmonized with the most livable environment.

In order to achieve these goals, emphasis was laid on the development related to the seaport balanced with conservation of the nature in the spatial framework. However, comparing with previous urban plans, much smaller land area in the vicinity of the port was allocated for industrial and logistics use. The master plan allocated a large-scale industrial area only in Stueng Hav District which was assessed not to be suitable for port development due to the shallow water area in "The Master Plan for Maritime and Port Sector".

5) The Project for the Establishment of National Port Policy and Administration System

The project was implemented by JICA from 2009 to 2011 based on "The Master Plan for Maritime and Port Sector". The output of the project is described below:

- Establishment of the draft national port policy and its planning process;
- Development of the framework on collection of statistics required for national port policy planning; and
- Establishment of roadmap and essential features for enactment of port related law and regulation.

6) Data Collection Survey on the Integrated Physical Distribution System

The survey was carried out by JICA and the final report was published in 2011. The objectives of the survey were to identify the key-factors for establishment of the efficient logistics system with the aim of realizing sustainable economic growth under the rapid changes in international economic circumstances in ASEAN and GMS. The survey covered the following items:

- Identification of the bottlenecks in regard to logistics infrastructure, institutional organization and human resource, etc. and
- Compilation of basic information for Official Development Assistance (ODA) policy and for formulation of concrete projects in the future.

The survey identified the bottlenecks in logistics system in Cambodia as described below:

- Structural Problems
  - Some of the major problems of the Cambodian economy are directly caused by the high and unclear cost structure in physical distribution system. There are too many cross sections between transportation modes and they are fragmented into pieces. Lack of clear-cut regulations allows many public authorities to intervene too much. This makes logistics in Cambodia costly and unclear.
- Individual Issues

- High custom clearance cost;
- Unavailability of computerized custom clearance system;
- Complicated two step customs clearance procedure (in Phnom Penh and border posts);
- Low quality in logistics service, e.g., storage, transshipment, mix loading, management etc.;
- The collection of the road fee at the border between provinces conducted by the police and military police;
- Inefficient metage system for trucks conducted by public officers;
- Expensive fare system of cargo handling and the inefficient cargo handling within the port;

7) The Project on the Establishment of Master Plan for Waterborne Transport on the Mekong River System

The project was carried out in 2005 with the assistance of the Belgian Government. The aim of the project was to rehabilitate and improve the rural, domestic and international transport network using the Mekong River system in Cambodia.

21 regional cross-border waterborne transport actions, 25 rural and domestic waterborne transport actions and 14 institutional strengthening and capacity building actions were chosen as the "Actions for the Master Plan for Waterborne Transport on the Mekong River System in Cambodia".

2. STATUS QUO AND FUTURE TRENDS OF COMPETITIVE POSITION OF SIHANOUKVILLE PORT

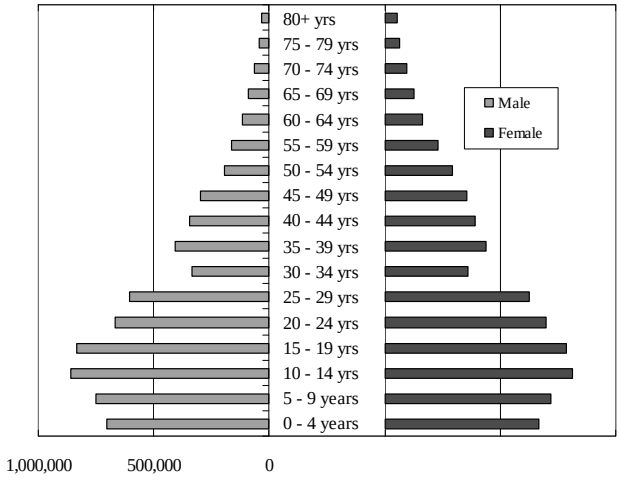
2.1. Socio-economic Trends

2.1.1 Cambodia

(1) National trends

1) Demography

The General Population Census in 2008 indicates that the total Cambodian population is 13.4 million. As shown in Figure 2.2-1 the population pyramid is in transition from a stable pyramid to constrictive pyramid due to a lower birth rate in recent years. The civil war affects the age distribution especially between 30 to 34 years old. As shown in Table 2.1-1, the majority of Cambodian people live in rural areas; though the percentage of people living in urban areas increased from 23.2% in 2004 to 24.2% in 2009.



Source: INE

Figure 2.1-1 Population pyramid of Cambodia

Table 2.1-1 Population by urban and rural

(unit: 1000 people)

	2009	2008	2007	2004
Total	13,966	13,389	13,230	12,657
Urban	2,722	2,692	2,583	2,387
Rural	11,243	10,697	10,647	10,269

Source: INE

According to UN Department of Economic and Social Affairs, the annual increase rate of Cambodian population up to 2030 is forecasted to be 1.1%, whereas that of the last ten years was 1.4% as shown in Table 2.1-2.

Table 2.1-2 Trend and forecast of population in Cambodia

Year	2000	2005	2010	2015	2020	2025	2030
Population (thousands)	12,447	13,358	14,138	15,015	15,893	16,687	17,363

Source: UN

2) Economy

Table 2.1-3 shows key economic indicators of Cambodia. The assessment on Cambodian economic performance by IMF is summarized as follows:

- Prior to the global crisis, Cambodia enjoyed a decade of high growth and relative stability. Real GDP growth averaged over 9 percent during 2000–07, the highest of any low-income country in Asia, enabling significant improvements in living standards and poverty reduction. Prudent fiscal policies underpinned macroeconomic stability with headline inflation well below Cambodia's peers.
- However, as a result of the global crisis output collapsed, exposing longstanding structural vulnerabilities. Cambodia was hit harder than comparator countries by the global recession. Fiscal revenues, that remain low regionally, limit the scope to fully address development priority needs. Growth and exports have remained narrow-based, offering limited benefits to the rural poor, Cambodia's vast majority. As a result, there are indications that poverty increased after several years of steady declines.
- In an effort to provide stimulus, the government raised wages and accelerated development spending, allowing the overall fiscal deficit to increase to over 8 percent of GDP in 2009, up by more than 5 percentage points over 2008. While the deficit was mostly financed by concessional loans and grants, there was also significant recourse to domestic financing (nearly 2 percent of GDP).
- A broadening export-led recovery has been taking hold in 2010. Garment exports and tourist arrivals are bouncing back, both growing between 10 to 20 percent (y/y) in the second quarter of 2010. The rebound of key export sectors in line with the global recovery suggests that Cambodia's external competitiveness has remained intact.
- Near-term risks are tilted to the downside. The fragility of the global recovery exposes Cambodia's narrow export base with its heavy reliance on the U.S. and European markets to significant downside risks, while limited fiscal policy space and financial system weaknesses further undercut the economy's resilience to shocks.
- Over the medium term, addressing longstanding structural weaknesses can improve the balance of risks. On the one hand, potential setbacks in efforts to strengthen the business environment and enhance public sector revenues and service delivery constitute major downside risks to growth. A better-than-expected return on medium-term investments in the power sector and rural infrastructure could offer significant upside potential. Under the baseline scenario, growth is expected to gradually return to potential of about 6–7 percent over the medium term.

Table 2.1-3 Key economic indicators of Cambodia

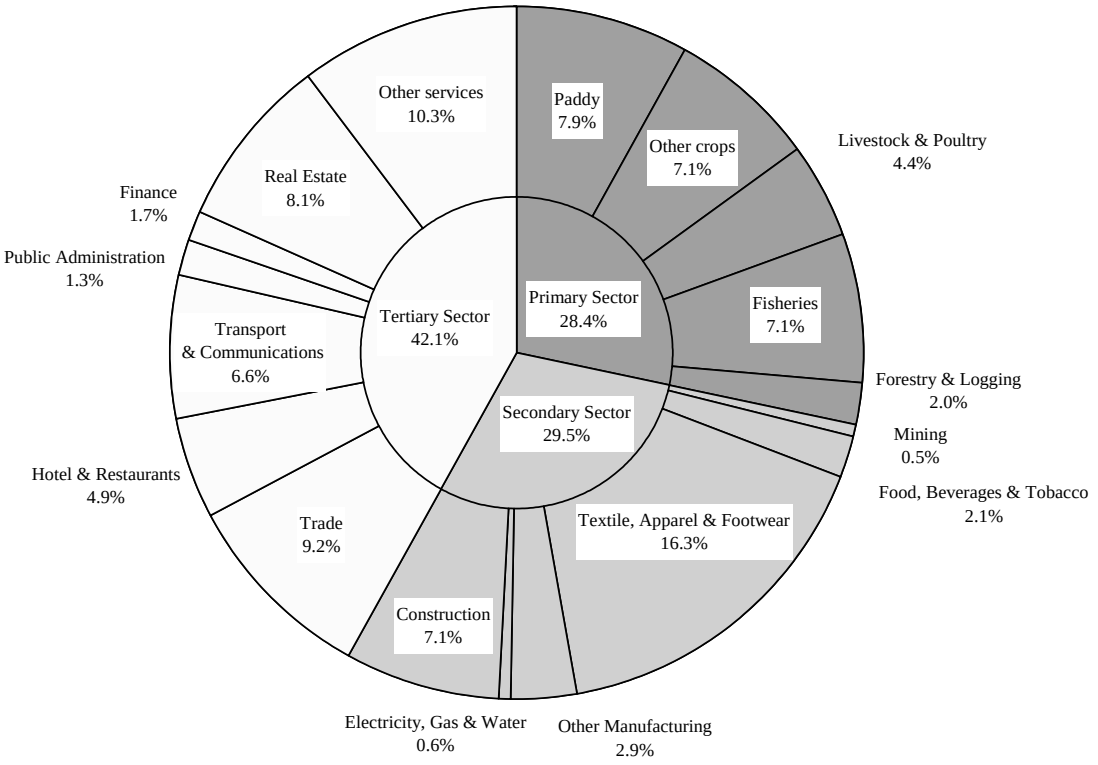
Economic Indicator	2006	2007	2008	2009	2010
Per capita GNI, Atlas method ($)	500	560	630	650	
GDP growth (% change per year)	10.8	10.2	6.7	0.1	6.3
CPI (% change per year)	6.1	7.7	25.0	-0.7	4.0
Fiscal balance (% of GDP)	-2.7	-2.9	-2.8	-6.4	-6.0
Export growth (% change per year)	26.9	10.7	15.1	-0.9	20.8
Import growth (% change per year)	21.8	13.8	19.8	-10.4	15.9
Current account balance (% of GDP)	-7.9	-8.0	-13.4	-11.6	-11.0
External debt (% of GNI)	31.5	32.0	31.8	33.6	

Source: ADB

3) Industry

According to the information provided by NIS, the tertiary industry is the largest industry in Cambodia in terms of the added value followed by the secondary industry as shown in Figure 2.1-2. Although the largest percentage of people work in the agricultural sector, the share of the added value of the primary sector is the smallest. Textile, apparel and footwear industry, which accounts 16.3% of total added value in Cambodia, is the largest sub-sector followed by trade. It should be noted that

added value of some sub-sectors shown in the graph is not accurate. For example, fishery which is depicted as large sub-sector as paddy, construction and transport seems to be overestimated. According to the information from MAFF, the added value of fishery is estimated from the number of fishing boats in Cambodia by multiplying assumed unit catch. Table 2.1-4 and Figure 2.1-3 show the trend of added value of each sector. The share of the primary industry has been decreasing and that of the secondary industry has been increasing, whereas that of the tertiary industry remains unchanged. The added value itself of the primary sector has been increasing as shown in Table 2.1-4. The most highly increasing sub-sector is finance followed by mining, though shares of both sub-sectors in the Cambodian economy are rather small.



Source: NIS

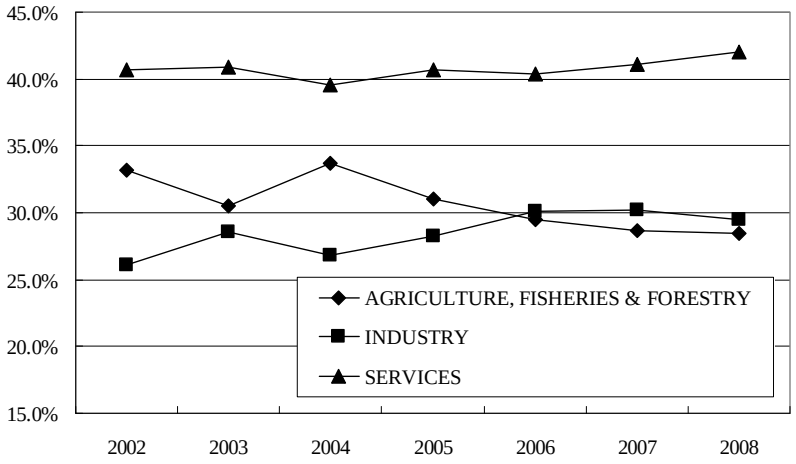
Figure 2.1-2 Percentage of value added by each sector

Table 2.1-4 Trend of value added by each sector

(million Riel)

	2002	2003	2004	2005	2006	2007	2008
AGRICULTURE, FISHERIES & FORESTRY	5,107,955	5,595,857	5,644,731	6,475,526	6,830,328	7,173,807	7,583,772
Crops	2,168,091	2,582,246	2,642,823	3,294,823	3,469,713	3,753,339	4,000,119
Paddy	1,175,626	1,261,645	1,436,911	1,812,535	1,891,428	2,033,094	2,116,451
Other crops	992,464	1,320,601	1,205,912	1,482,288	1,578,285	1,720,245	1,883,668
Livestock & Poultry	860,560	945,174	909,709	998,263	1,080,184	1,120,334	1,162,907
Fisheries	1,614,953	1,614,377	1,641,943	1,705,294	1,769,880	1,784,130	1,900,098
Forestry & Logging	464,351	454,060	450,256	477,146	510,551	516,004	520,648
INDUSTRY	4,006,900	5,235,077	4,489,595	5,899,651	6,977,461	7,563,899	7,869,800
Mining	46,951	68,890	55,462	87,039	100,908	108,715	125,892
Manufacturing	2,971,730	3,926,749	3,337,371	4,308,563	5,059,756	5,509,294	5,681,074
Food, Beverages & Tobacco	448,944	445,229	469,838	485,427	501,552	517,272	547,791
Textile,Wearing Apparel & Footwear	2,021,409	2,946,789	2,360,255	3,216,776	3,873,066	4,260,845	4,354,584
Wood, Paper & Publishing	93,830	83,783	80,418	92,188	99,923	104,835	110,077
Rubber Manufacturing	69,191	57,029	62,427	51,908	53,626	58,758	64,163
Other Manufacturing	338,356	393,919	364,432	462,264	531,590	567,583	604,458
Electricity, Gas & Water	75,462	91,535	82,348	102,951	135,550	151,199	164,050
Construction	912,756	1,147,903	1,014,415	1,401,099	1,681,246	1,794,692	1,898,784
SERVICES	6,258,841	7,501,639	6,627,184	8,483,531	9,341,482	10,288,846	11,217,428
Trade	1,606,083	1,762,622	1,665,314	1,912,764	2,049,231	2,243,952	2,454,883
Hotel & Restaurants	758,603	779,467	631,532	953,144	1,083,689	1,194,565	1,311,632
Transport & Communications	1,151,994	1,302,584	1,188,931	1,491,115	1,523,039	1,632,725	1,748,649
Finance	163,812	210,276	174,544	251,457	311,698	380,900	454,033
Public Administration	357,246	318,474	341,168	337,141	333,167	333,586	348,597
Real Estate & Business	1,046,465	1,552,722	1,290,714	1,673,457	1,855,977	2,055,112	2,157,868
Other services	1,174,638	1,575,494	1,334,981	1,864,453	2,184,681	2,448,006	2,741,767
Taxes on Products less Subsidies	1,004,247	1,288,112	1,009,795	1,366,629	1,470,228	2,142,773	2,338,291
Taxes on Products	1,053,473	1,345,968	1,066,742	1,438,750	1,582,556	2,178,353	2,374,405
Less: Subsidies	49,226	57,856	56,947	72,121	112,329	35,580	36,114
Less: FISIM	145,816	186,610	158,490	216,231	239,773	299,802	341,774
GROSS DOMESTIC PRODUCT	16,232,128	19,434,074	17,612,816	22,009,106	24,379,726	26,869,523	28,667,518

Source: NIS



Prepared by Project Team (based on the data provided by NIS)

Figure 2.1-3 Trend of percentage of value added by each sector

4) Trade

Cambodia became the 148th member of the WTO (World Trade Organization) in October 2004. Cambodia is the second LDC (Low Developed Country) to join the WTO.

Though Cambodia has been running a negative trade balance, it is worth noting that the 2010 exports has made a good recovery from 2009 when the country was once hit by the global recession. As a result, the value of exports has been increasing at the average yearly growth rate of 13.8% throughout the decade from 2000 to 2010. Table 2.1-5 and Figure 2.1-4 show the historical increase of

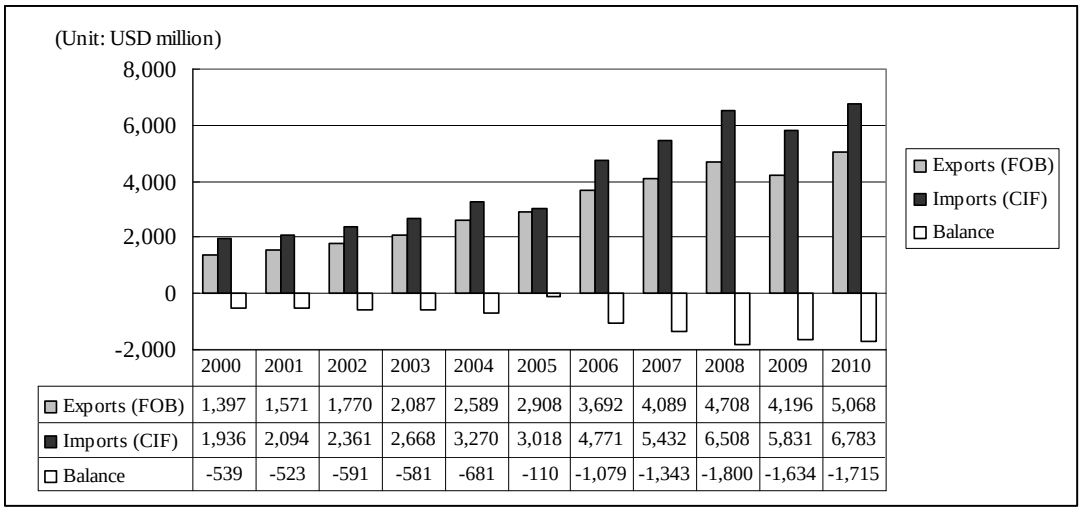
merchandise exports and imports.

Table 2.1-5 Merchandise exports/imports of Cambodia

(unit: USD million)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average growth rate
Exports (FOB)	1,397	1,571	1,770	2,087	2,589	2,908	3,692	4,089	4,708	4,196	5,068	13.8%
Imports (CIF)	1,936	2,094	2,361	2,668	3,270	3,018	4,771	5,432	6,508	5,831	6,783	13.4%
Balance	-539	-523	-591	-581	-681	-110	-1,079	-1,343	-1,800	-1,634	-1,715	

Source: ADB "Key Indicators for Asia and the Pacific 2011"



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Exports (FOB)	1,397	1,571	1,770	2,087	2,589	2,908	3,692	4,089	4,708	4,196	5,068
Imports (CIF)	1,936	2,094	2,361	2,668	3,270	3,018	4,771	5,432	6,508	5,831	6,783
Balance	-539	-523	-591	-581	-681	-110	-1,079	-1,343	-1,800	-1,634	-1,715

Source: ADB "Key Indicators for Asia and the Pacific 2011"

Figure 2.1-4 Merchandise exports/imports of Cambodia

Comparison of the scale and growth of trade with other Indochinese countries is made in Table 2.1-6 below. The scale of merchandise export of Cambodia is far smaller than the industrialized neighboring countries like Thailand and Vietnam; approx. 1/38 of Thailand's and 1/14 of Vietnam's. The growth rate of Cambodia is rather modest compared with Vietnam or energy-rich Myanmar.

Table 2.1-6 Merchandise exports/imports of Indochinese countries

(unit: USD million)

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average growth rate
Export (FOB)	Thailand	67,889	63,070	66,092	78,105	94,941	109,362	127,941	151,258	175,233	150,743	193,663	11.1%
	Vietnam	14,448	15,027	16,706	20,149	26,485	32,447	39,826	48,561	62,685	57,096	72,192	17.5%
	Myanmar	1,619	2,443	2,526	2,687	2,446	3,810	4,531	6,279	6,916	6,673	7,928	17.2%
	Cambodia	1,397	1,571	1,770	2,087	2,589	2,908	3,692	4,089	4,708	4,196	5,068	13.8%
	Lao PDR	330	320	301	336	363	553	882	923	1,092	1,053	1,746	18.1%
Import (CIF)	Thailand	62,423	60,576	63,353	74,346	93,481	117,616	126,947	138,476	175,604	131,355	179,632	11.1%
	Vietnam	15,637	16,218	19,746	25,256	31,969	36,761	44,891	62,765	80,714	69,949	84,801	18.4%
	Myanmar	2,135	2,384	2,147	1,898	1,982	1,772	2,335	3,027	3,888	3,951	4,430	7.6%
	Cambodia	1,936	2,094	2,361	2,668	3,270	3,018	4,771	5,432	6,508	5,831	6,783	13.4%
	Lao PDR	535	510	447	462	713	882	1,060	1,065	1,403	1,461	2,060	14.4%
Balance	Thailand	5,466	2,494	2,739	3,759	1,460	-8,254	994	12,782	-371	19,388	14,031	
	Vietnam	-1,189	-1,191	-3,040	-5,107	-5,484	-4,314	-5,065	-14,204	-18,029	-12,853	-12,609	
	Myanmar	-516	58	379	790	464	2,038	2,196	3,252	3,028	2,722	3,498	
	Cambodia	-539	-523	-591	-581	-681	-110	-1,079	-1,343	-1,800	-1,634	-1,715	
	Lao PDR	-205	-191	-146	-127	-350	-329	-178	-142	-311	-408	-314	

Source: ADB "Key Indicators for Asia and the Pacific 2011"

a) Analysis of cargo volume based on Custom's data

- Composition of products - exports

When categorized as per the ASEAN Harmonized Tariff Nomenclature (AHTN), Cambodia's major exports in 2010 (in order of weight) revealed such as "textile & textile articles" (namely, garments), "vegetable products" (rice), "vehicles" (bicycles) and "wood & articles of wood". Table 2.1-7 shows the weight of export products and composition ratios compiled by General Department of Customs and Excise of Cambodia (GDCE). Garments had a portion of 35.3% followed by rice and other vegetable products with 16.4%.

Table 2.1-7 Exports weight by product for the year 2010

(unit: '000 ton)

Category	Description	Weight	Composition ratio
Sec.1	Live animals; animal products	2	0.2%
Sec.2	Vegetable products	130	16.4%
Sec.3	Aminal or vegetable fats & oils	15	1.9%
Sec.4	Prepared food stuffs	42	5.3%
Sec.5	Mineral products	0	0.0%
Sec.6	Products of the chemical or allied industries	4	0.5%
Sec.7	Plastics & articles thereof	33	4.2%
Sec.8	Raw hides & skins; leather, furskins & articles thereo	2	0.2%
Sec.9	Wood & articles of wood	108	13.8%
Sec.10	Pulp of wood	7	0.9%
Sec.11	Textiles & textile articles	278	35.3%
Sec.12	Footware, headgear, umbrellas	25	3.1%
Sec.13	Articles of stone, plaster, cement, ceramic, glass	3	0.4%
Sec.14	Precious stones	0	0.0%
Sec.15	Base metals & articles thereof	6	0.8%
Sec.16	Machinery & mechanical appliances; electrical equip	10	1.2%
Sec.17	Vehicles, aircraft, vessels	117	14.8%
Sec.18	Optical, medical & musical instruments	0	0.0%
Sec.19	Arms & ammunition	0	0.0%
Sec.20	Miscellaneous manufactured articles	3	0.4%
Sec.21	Works of art	0	0.0%
Others		2	0.3%
Total		787	100.0%

Note: The figure of Sec.5 doesn't include 273,000 tons of natural sands exported to Singapore and Vietnam.
Source: GDCE

- Composition of products - imports

Among the imports in 2010, "mineral products" (fuel), "textile & textile articles" (as the material of garments), "articles of stone" (cement) are remarkable in weight. Table 2.1-8 shows the weight of export products and composition ratios. Fuel and other mineral products have a dominant portion of 52.4% followed by textile with 9.4%.

Table 2.1-8 Imports weight by product for the year 2010

(unit: '000 ton)

Category	Description	Weight	Composition ratio
Sec.1	Live animals; animal products	12	0.3%
Sec.2	Vegetable products	87	1.9%
Sec.3	Aminal or vegetable fats & oils	9	0.2%
Sec.4	Prepared food stuffs	266	5.9%
Sec.5	Mineral products	2,380	52.4%
Sec.6	Products of the chemical or allied industries	323	7.1%
Sec.7	Plastics & articles thereof	59	1.3%
Sec.8	Raw hides & skins; leather, furskins & articles thereof	6	0.1%
Sec.9	Wood & articles of wood	7	0.2%
Sec.10	Pulp of wood	88	1.9%
Sec.11	Textiles & textile articles	428	9.4%
Sec.12	Footware, headgear, umbrellas	13	0.3%
Sec.13	Articles of stone, plaster, cement, ceramic, glass	406	8.9%
Sec.14	Precious stones	0	0.0%
Sec.15	Base metals & articles thereof	187	4.1%
Sec.16	Machinery & mechanical appliances; electrical equipm	125	2.8%
Sec.17	Vehicles, aircraft, vessels	126	2.8%
Sec.18	Optical, medical & musical instruments	3	0.1%
Sec.19	Arms & ammunition	0	0.0%
Sec.20	Miscellaneous manufactured articles	22	0.5%
Sec.21	Works of art	0	0.0%
Others		1	0.0%
Total		4,547	100.0%

Source: GDCE

- Time series - exports

Table 2.1-9 shows the time series of the weight of exports. Garment has been constantly increasing at average yearly growth of 12.3%. Rice has grown at yearly 29.7%, especially in and after 2009. Remarkable growth was made for bicycles and wood in 2010.

Table 2.1-9 Time series of export weight by product

(unit: '000 ton)

Category	Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average Growth Rate
Sec.1	Live animals; animal products	10	10	4	2	10	7	4	2	2	3	2	-16.5%
Sec.2	Vegetable products	10	10	19	10	102	45	57	93	87	133	130	29.7%
Sec.3	Aminal or vegetable fats & oils	0	0	0	2	3	4	6	4	10	13	15	-
Sec.4	Prepared food stuffs	2	3	1	1	2	4	4	4	10	22	42	34.3%
Sec.5	Mineral products	0	0	0	0	0	13	0	0	3	0	0	18.4%
Sec.6	Products of the chemical or allied industries	0	0	0	0	0	0	1	1	2	2	4	31.0%
Sec.7	Plastics & articles thereof	58	53	48	24	36	32	28	24	14	34	33	-5.4%
Sec.8	Raw hides & skins; leather, furskins & articles thereof	2	1	1	0	0	0	1	1	1	1	2	1.4%
Sec.9	Wood & articles of wood	86	75	91	50	64	56	57	55	36	26	108	2.3%
Sec.10	Pulp of wood	0	0	1	2	1	2	3	3	5	3	7	45.0%
Sec.11	Textiles & textile articles	87	99	122	88	164	188	230	238	256	234	278	12.3%
Sec.12	Footware, headgear, umbrellas	10	11	11	8	12	11	14	15	15	16	25	9.3%
Sec.13	Articles of stone, plaster, cement, ceramic, glass	0	0	0	0	0	0	4	5	4	2	3	43.7%
Sec.14	Precious stones	0	0	0	0	0	0	0	0	0	0	0	7.0%
Sec.15	Base metals & articles thereof	2	1	1	1	5	4	7	13	13	13	6	12.8%
Sec.16	Machinery & mechanical appliances; electrical equipment	1	1	3	2	2	1	4	7	2	5	10	27.2%
Sec.17	Vehicles, aircraft, vessels	2	2	2	2	2	2	11	30	58	78	117	49.4%
Sec.18	Optical, medical & musical instruments	0	0	0	0	0	0	0	0	0	0	0	-14.6%
Sec.19	Arms & ammunition	0	0	0	0	0	0	0	0	0	0	0	-
Sec.20	Miscellaneous manufactured	0	0	1	1	2	2	1	1	1	4	3	31.2%
Sec.21	Works of art	0	0	0	0	0	0	0	0	0	0	0	-3.0%
Others		2	0	0	0	0	1	0	1	3	8	2	2.0%
Total		273	267	306	192	406	371	431	498	524	599	787	11.2%

Note: The figures of Sec.5 don't include the weight of natural sands which were exported mainly to Vietnam and Singapore, amounting to 964 for 2007, 5,468 for 2008, 6,614 for 2009 and 273 for 2010 (unit; '000 tons).
Source: GDCE

- Time series – imports

Table 2.1-10 shows the time series of the weight of imports. Garments has been constantly increasing at average yearly growth of 12.3%. Rice has grown at yearly 29.7%, especially in and after 2009. Remarkable growth was made for bicycles and wood in 2010.

Table 2.1-10 Time series of import weight by product

(unit: '000 ton)

Category	Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average Growth Rate
Sec.1	Live animals; animal products	48	7	6	8	11	9	7	5	5	11	12	-12.8%
Sec.2	Vegetable products	112	90	111	110	103	113	99	135	87	78	87	-2.5%
Sec.3	Aminal or vegetable fats & oils	13	14	15	19	16	20	12	11	9	9	9	-4.1%
Sec.4	Prepared food stuffs	126	201	410	109	120	152	239	197	247	208	266	7.8%
Sec.5	Mineral products	1,416	1,628	1,690	1,759	2,587	1,931	2,398	2,665	2,663	2,545	2,380	5.3%
Sec.6	Products of the chemical or allied industries	100	116	148	133	152	207	226	304	486	306	323	12.4%
Sec.7	Plastics & articles thereof	33	30	41	29	35	60	91	80	57	46	59	6.1%
Sec.8	Raw hides & skins; leather, furskins & articles thereof	2	1	1	2	2	2	4	9	4	4	6	10.6%
Sec.9	Wood & articles of wood	1	1	1	1	2	1	2	2	3	4	7	23.0%
Sec.10	Pulp of wood	74	44	41	50	45	130	172	100	314	405	88	1.7%
Sec.11	Textiles & textile articles	173	175	212	230	268	307	355	393	440	343	428	9.5%
Sec.12	Footware, headgear, umbrellas	8	8	8	7	6	5	7	7	6	9	13	5.3%
Sec.13	Articles of stone, plaster, cement, ceramic, glass	277	105	99	103	134	216	280	285	373	306	406	3.9%
Sec.14	Precious stones	0	0	0	0	0	0	0	0	0	0	0	6.1%
Sec.15	Base metals & articles thereof	141	143	115	357	120	149	170	185	333	212	187	2.8%
Sec.16	Machinery & mechanical appliances; electrical equipment	62	126	49	45	48	77	93	97	470	137	125	7.2%
Sec.17	Vehicles, aircraft, vessels	33	32	57	48	66	67	394	275	984	346	126	14.3%
Sec.18	Optical, medical & musical	1	2	1	1	1	1	2	2	3	3	3	8.1%
Sec.19	Arms & ammunition	0	0	0	0	0	0	0	0	0	2	0	54.0%
Sec.20	Miscellaneous manufactured	9	12	10	10	12	10	11	18	17	13	22	9.2%
Sec.21	Works of art	0	0	0	0	0	0	0	0	0	0	0	-6.4%
Others		0	0	2	0	1	0	1	1	1	1	1	5.6%
Total		2,630	2,738	3,016	3,023	3,730	3,459	4,563	4,769	6,502	4,986	4,547	5.6%

Source: GDCE

- Trade partners – exports

Table 2.1-11 shows the time series of region-wise weight of exports. Southeast Asia has been the largest destination of Cambodian exports throughout the years, followed by North America as a major buyer of garments. Significant growth was made for East Asia owing to robust purchasing power of China, Europe as well made a remarkable increase.

Table 2.1-11 Time series of export weight by region

(unit: '000 ton)

Origin Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average Growth Rate
East Asia	68	45	38	34	44	36	45	40	51	48	161	9.0%
Southeast Asia	112	119	140	123	192	147	148	220	202	290	264	8.9%
Europe	28	33	40	43	52	44	66	64	80	88	146	17.8%
North America	63	68	86	96	116	141	166	168	180	157	191	11.8%
Central/South America	1	0	0	0	0	1	2	1	2	2	3	17.6%
Oceania	0	1	1	1	1	1	1	1	2	2	3	21.8%
South/Central Asia	1	0	0	0	0	1	2	2	4	9	13	32.9%
Middle East	0	0	0	0	0	0	1	1	1	1	2	38.3%
Africa	0	0	0	0	0	0	1	1	2	1	3	37.1%
Total	273	267	306	298	406	371	431	1,461	523	599	787	11.2%

Note: The figures of Southeast Asia don't include the weight of natural sands which were exported mainly to Vietnam and Singapore, amounting to 964 for 2007, 5,468 for 2008, 6,614 for 2009 and 273 for 2010 (unit; '000 tons).
Source: GDCE

- Trade partners – imports

Table 2.1-12 shows the time series of region-wise weight of imports. Southeast Asia has been

the dominant origin of imports, 1.5 million tons of fuels are imported from Thailand, Vienam and Singapore, 0.8 million tons of cements from Thailand, and 0.1 million tons of coal from Indonesia are included. The second origin has regularly been East Asia with a steady growth.

Table 2.1-12 Time series of import weight by region

(unit: '000 ton)

Origin Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average Growth Rate
East Asia	401	417	430	457	564	688	786	985	1,124	831	1,027	9.9%
Southeast Asia	2,146	2,234	2,500	2,466	3,082	2,654	3,655	3,669	5,248	4,025	3,331	4.5%
Europe	26	41	23	40	23	27	45	34	36	42	55	7.9%
North America	26	15	21	21	21	28	18	23	46	34	43	5.3%
Central/South America	1	1	1	1	2	2	1	4	4	3	15	26.5%
Oceania	24	18	20	27	25	44	29	29	17	26	29	1.8%
South/Central Asia	5	9	20	9	11	11	20	19	21	17	33	20.5%
Middle East	1	1	1	1	1	5	9	4	4	6	11	28.9%
Africa	1	1	1	2	1	0	1	3	3	3	3	10.5%
Total	2,630	2,738	3,016	3,023	3,730	3,459	4,563	4,769	6,502	4,986	4,547	5.6%

Source: GDCE

b) Analysis of cargo value based on Custom's data

Analysis in value is made similarly for the statistics of GDCE.

- Composition of products - exports

In 2010, garments had a portion of 54.7% in value, while it was 35.3 % in weight. The second largest value of "Pulp of wood" was actually for "stamps" which were exported by air. Footwear came the 3rd largest in value with 3.3% portion. Table 2.1-13 shows the composition of the products in value for the year 2010.

Table 2.1-13 Exports value by product for the year 2010

(unit: KHR billion)

Section, HS code	Description	Value (FOB)	Composition
Sec.1	Live animals; animal products	12	0.1%
03	Fish & seafood	12	0.1%
Others		1	0.0%
Sec.2	Vegetable products	182	0.8%
10	Cereals	156	0.7%
Others		26	0.1%
Sec.3	Aminal or vegetable fats & oils	42	0.2%
Sec.4	Prepared food stuffs	148	0.6%
17	Sugars	22	0.1%
22	Beverages	52	0.2%
23	Food waste	24	0.1%
24	Tobacco	50	0.2%
Others		1	0.0%
Sec.5	Mineral products	3	0.0%
Sec.6	Products of the chemical or allied industries	16	0.1%
30	Pharmaceutical products	13	0.1%
Others		3	0.0%
Sec.7	Plastics & articles thereof	398	1.7%
39	Plastic	35	0.1%
40	Rubber	363	1.6%
Sec.8	Raw hides & skins; leather, furskins & articles thereof	6	0.0%
Sec.9	Wood & articles of wood	160	0.7%
44	Wood	159	0.7%
46	Straw, esparto	2	0.0%
Sec.10	Pulp of wood	7,442	31.8%
49	Books, newspapers	7,436	31.8%
Others		7	0.0%
Sec.11	Textiles & textile articles	12,789	54.7%
55	Manmade staple fibers	15	0.1%
60	Knit, crocheted fabrics	11	0.0%
61	Knit apparel	12,323	52.7%
62	Woven apparel	370	1.6%
63	Misc. textile articles	65	0.3%
Others		7	0.0%
Sec.12	Footware, headgear, umbrellas	770	3.3%
64	Footware	741	3.2%
65	Headgear	29	0.1%
67	Artificial flowers	1	0.0%
Sec.13	Articles of stone, plaster, cement, ceramic, glass	4	0.0%
Sec.14	Precious stones	16	0.1%
71	Precias stones	16	0.1%
Sec.15	Base metals & articles thereof	79	0.3%
72	Iron & steel	11	0.0%
73	Iron & steel products	40	0.2%
76	Aluminium & articles thereof	26	0.1%
Others		3	0.0%
Sec.16	Machinery & mechanical appliances; electrical equipm	625	2.7%
84	Machinery; reactor, boilers	601	2.6%
85	Electrical machinery, etc.	24	0.1%
Sec.17	Vehicles, aircraft, vessels	501	2.1%
87	Vehicles, not railway	435	1.9%
89	Ships & boats	57	0.2%
Others		9	0.0%
Sec.18	Optical, medical & musical instruments	22	0.1%
90	Optical, medical instruments	21	0.1%
Others		1	0.0%
Sec.19	Arms & ammunition	1	0.0%
Sec.20	Miscellaneous manufactured articles	70	0.3%
94	Furniture & bedding	56	0.2%
95	Toys & sports	5	0.0%
96	Misc. manufacturing articles	9	0.0%
Sec.21	Works of art	87	0.4%
97	Art & antiques	87	0.4%
Others		15	0.1%
Total		23,391	100.0%

Source: GDCE

- Composition of products - imports

When compiled in value, textile/fibers with 39.1% had a larger portion than fuel's, followed by 13.1% of machineries. Table 2.1-14 shows the composition of the products in value for the year 2010.

Table 2.1-14 Imports value by product for the year 2010

(unit: KHR billion)

Section, HS	Description	Value (CIF)	Composition
Sec.1	Live animals; animal products	36	0.2%
Sec.2	Vegetable products	166	0.8%
Sec.3	Aminal or vegetable fats & oils	26	0.1%
Sec.4	Prepared food stuffs	1,232	6.0%
23	Food waste	230	1.1%
24	Tobacco	668	3.3%
	Others	334	1.6%
Sec.5	Mineral products	1,731	8.4%
25	Salt; sulphur; earths & stone	218	1.1%
26	Ores, slag, ash	20	0.1%
27	Mineral fuel, oil	1,492	7.3%
Sec.6	Products of the chemical or allied industries	1,082	5.3%
30	Pharmaceutical products	434	2.1%
31	Fertilizers	161	0.8%
	Others	487	2.4%
Sec.7	Plastics & articles thereof	676	3.3%
39	Plastic	437	2.1%
40	Rubber	238	1.2%
Sec.8	Raw hides & skins; leather, furskins & articles thereo	183	0.9%
41	Hides & skins	164	0.8%
	Others	19	0.1%
Sec.9	Wood & articles of wood	22	0.1%
Sec.10	Pulp of wood	556	2.7%
48	Paper, paperboard	433	2.1%
49	Books, newspapers	123	0.6%
Sec.11	Textiles & textile articles	8,013	39.1%
52	Cotton & yarn, fabric	523	2.5%
54	Manmade filaments	145	0.7%
55	Manmade staple fibers	2,195	10.7%
58	Special woven fabrics	273	1.3%
59	Impregnated text fabrics	151	0.7%
60	Knit, crocheted fabrics	4,190	20.4%
63	Misc. textile articles	308	1.5%
	Others	228	1.1%
Sec.12	Footware, headgear, umbrellas	176	0.9%
Sec.13	Articles of stone, plaster, cement, ceramic, glass	263	1.3%
69	Ceramic products	136	0.7%
	Others	127	0.6%
Sec.14	Precious stones	705	3.4%
71	Precias stones	705	3.4%
Sec.15	Base metals & articles thereof	841	4.1%
72	Iron & steel	266	1.3%
73	Iron & steel products	253	1.2%
76	Aluminium & articles thereof	223	1.1%
	Others	98	0.5%
Sec.16	Machinery & mechanical appliances; electrical equipr	2,680	13.1%
84	Machinery; reactor, boilers	1,757	8.6%
85	Electrical machinery, etc.	923	4.5%
Sec.17	Vehicles, aircraft, vessels	1,580	7.7%
87	Vehicles, not railway	1,479	7.2%
	Others	101	0.5%
Sec.18	Optical, medical & musical instruments	165	0.8%
90	Optical, medical instruments	159	0.8%
	Others	7	0.0%
Sec.19	Arms & ammunition	29	0.1%
Sec.20	Miscellaneous manufactured articles	319	1.6%
96	Misc. manufacturing articles	242	1.2%
	Others	77	0.4%
Sec.21	Works of art	24	0.1%
	Others	9	0.0%
	Total	20,514	100.0%

Source: GDCE

- Time series - exports

Table 2.1-15 shows the time series of the value of exports. Garments has been constantly increasing at average yearly growth of 13.0%. Footwear has grown at yearly average of 18.7%, which is higher than the garments' growth rate.

Table 2.1-15 Time series of export value by product

(unit: KHR billion)

Category	Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average Growth Rate
Sec.1	Live animals; animal products	34	46	22	11	58	42	21	12	10	17	12	-9.5%
Sec.2	Vegetable products	7	14	22	10	52	38	46	63	39	88	182	38.2%
Sec.3	Aminal or vegetable fats & oils	0	0	0	1	4	3	5	6	36	29	42	-
Sec.4	Prepared food stuffs	11	12	16	7	18	36	38	41	38	105	148	29.6%
Sec.5	Mineral products	0	0	0	0	0	0	0	10	478	144	3	45.0%
Sec.6	Products of the chemical or allied industries	1	1	2	2	7	5	6	8	4	15	16	37.6%
Sec.7	Plastics & articles thereof	126	103	119	84	162	156	205	186	140	223	398	12.2%
Sec.8	Raw hides & skins; leather, furskins & articles thereof	10	7	6	1	2	2	10	3	4	5	6	-5.2%
Sec.9	Wood & articles of wood	133	91	64	27	38	39	41	38	14	23	160	1.9%
Sec.10	Pulp of wood	1,046	800	1,693	740	2,462	2,379	2,683	2,291	3,669	8,287	7,442	21.7%
Sec.11	Textiles & textile articles	3,751	4,514	5,207	4,090	8,038	9,155	10,937	10,881	12,280	10,151	12,789	13.0%
Sec.12	Footware, headgear, umbrellas	139	162	168	113	195	189	274	340	381	466	770	18.7%
Sec.13	Articles of stone, plaster, cement, ceramic, glass	0	0	0	0	0	0	5	5	5	3	4	39.9%
Sec.14	Precious stones	23	50	66	41	1	59	64	76	46	323	16	-3.4%
Sec.15	Base metals & articles thereof	8	7	5	8	11	10	17	68	67	54	79	26.3%
Sec.16	Machinery & mechanical appliances; electrical equipment	18	27	61	35	30	24	74	29	28	71	625	42.9%
Sec.17	Vehicles, aircraft, vessels	19	25	48	25	24	26	179	210	398	394	501	38.8%
Sec.18	Optical, medical & musical instruments	4	1	4	18	5	12	4	6	12	18	22	19.9%
Sec.19	Arms & ammunition	0	0	0	0	0	0	0	1	0	1	1	-
Sec.20	Miscellaneous manufactured	2	7	13	8	29	25	19	21	28	66	70	43.7%
Sec.21	Works of art	0	1	1	1	94	145	2	18	1	131	87	70.7%
Others		4	4	3	3	7	4	5	10	16	49	15	13.6%
Total		5,335	5,872	7,523	5,222	11,236	12,351	14,633	14,323	17,694	20,662	23,391	15.9%

Source: GDCE

- Time series – imports

Table 2.1-16 shows the time series of the value of imports. textile/fibers has been constantly increasing at average yearly growth of 15.3%.

Table 2.1-16 Time series of import value by product

(unit: KHR billion)

Category	Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average Growth Rate
Sec.1	Live animals; animal products	13	22	19	24	53	44	30	16	25	33	36	10.7%
Sec.2	Vegetable products	74	54	72	73	86	83	87	118	152	148	166	8.4%
Sec.3	Aminal or vegetable fats & oils	26	29	29	36	32	37	27	30	28	25	26	0.1%
Sec.4	Prepared food stuffs	427	481	474	408	480	615	711	733	1,048	1,099	1,232	11.2%
Sec.5	Mineral products	822	953	894	967	997	978	1,255	1,494	1,846	1,838	1,731	7.7%
Sec.6	Products of the chemical or allied industries	337	360	329	361	460	549	664	745	820	990	1,082	12.4%
Sec.7	Plastics & articles thereof	134	155	167	173	204	257	334	413	505	537	676	17.5%
Sec.8	Raw hides & skins; leather, furskins & articles thereof	50	43	49	66	86	75	121	121	121	143	183	13.8%
Sec.9	Wood & articles of wood	2	4	2	5	4	4	5	7	10	18	22	26.4%
Sec.10	Pulp of wood	188	169	165	183	183	256	302	775	871	498	556	11.5%
Sec.11	Textiles & textile articles	1,925	2,287	2,841	3,179	3,869	4,415	5,255	5,787	6,346	5,789	8,013	15.3%
Sec.12	Footware, headgear, umbrellas	36	28	29	23	21	18	23	33	48	63	176	17.0%
Sec.13	Articles of stone, plaster, cement, ceramic, glass	66	72	71	67	68	131	156	187	242	231	263	14.8%
Sec.14	Precious stones	133	49	31	68	66	20	11	17	146	220	705	18.2%
Sec.15	Base metals & articles thereof	215	242	264	230	295	427	483	557	879	709	841	14.6%
Sec.16	Machinery & mechanical appliances; electrical equipment	612	490	509	583	644	1,026	1,215	1,473	2,051	2,020	2,680	15.9%
Sec.17	Vehicles, aircraft, vessels	290	267	373	394	503	655	959	1,517	2,345	1,320	1,580	18.5%
Sec.18	Optical, medical & musical instruments	46	59	46	45	36	542	91	117	173	153	165	13.6%
Sec.19	Arms & ammunition	0	0	0	0	2	0	0	0	0	86	29	149.3%
Sec.20	Miscellaneous manufactured articles	122	132	153	174	191	211	244	268	268	240	319	10.1%
Sec.21	Works of art	1	0	0	0	0	94	161	1	1	1	24	38.0%
Others		5	5	5	5	6	4	131	7	6	8	9	6.5%
Total		5,525	5,901	6,523	7,065	8,289	10,442	12,265	14,418	17,931	16,166	20,514	14.0%

Source: GDCE

- Trade partners – exports

Table 2.1-17 shows the time series of region-wise value of exports. Cambodia's leading export markets in value has been North America throughout the decade. East Asia seems settled down at the second position, after leapfrogging with Europe till 2008.

Table 2.1-17 Time series of export value by region

(unit: KHR billion)

Origin Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average Growth Rate
East Asia	1,199	958	1,841	1,517	2,741	2,561	2,468	2,109	3,651	7,305	6,604	18.6%
Southeast Asia	298	286	372	405	335	585	987	980	1,280	2,672	2,943	25.8%
Europe	920	1,299	1,478	1,743	2,450	2,147	2,758	2,822	3,216	3,087	4,100	16.1%
North America	2,901	3,306	3,803	4,722	5,647	6,976	8,275	8,200	9,182	7,248	9,122	12.1%
Central/South America	4	10	9	10	19	34	70	95	174	151	258	53.2%
Oceania	7	7	7	9	16	23	29	43	48	79	101	29.9%
South/Central Asia	4	2	1	1	6	5	5	7	26	36	110	39.5%
Middle East	2	3	10	3	14	16	28	44	80	62	97	47.3%
Africa	1	1	3	4	7	5	14	23	36	23	57	47.7%
Total	5,335	5,872	7,523	8,415	11,236	12,351	14,633	14,323	17,694	20,662	23,391	15.9%

Source: GDCE

- Trade partners – imports

Table 2.1-18 shows the time series of region-wise value of imports. East Asia and Southeast Asia have kept the dominant portion with steady yearly growth.

Table 2.1-18 Time series of import value by region

(unit: KHR billion)

Origin Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average Growth Rate
East Asia	2,654	2,989	3,598	3,934	4,735	5,818	7,092	8,241	9,066	8,448	11,036	15.3%
Southeast Asia	2,159	2,294	2,343	2,586	2,824	3,239	4,211	5,052	6,884	6,021	7,046	12.6%
Europe	442	430	398	319	434	982	548	628	492	822	1,375	12.0%
North America	154	84	64	69	98	155	115	155	902	387	561	13.8%
South/Central Asia	45	68	82	94	127	116	188	217	447	247	316	21.7%
Oceania	53	26	25	48	43	76	56	62	80	132	79	4.1%
Central/South America	5	3	5	5	9	24	12	27	19	29	40	23.5%
Middle East	10	4	6	5	9	18	36	28	27	48	46	16.5%
Africa	3	2	3	4	9	13	8	7	15	34	14	16.1%
Total	5,525	5,901	6,523	7,065	8,289	10,442	12,265	14,418	17,931	16,166	20,514	14.0%

Source: GDCE

5) Investment

Table 2.1-19 shows the source country and the target sector of investment in Cambodia. The data include domestic investment. Predominant source country is China, of which the share is 3.5 times larger than that of the second largest source country of Korea. Tourism sector is by far the largest target sector, accounting for more than 70% of the total investment. Compared with this, the share of manufacturing is rather small.

Table 2.1-19 Investment in Cambodia

(1) Source countries/regions (million USD)

	2007	2008	2009	Average	Percentage
China	180.3	4,371.3	892.7	1,814.8	28.0%
Korea	148.1	1,240.1	120.6	502.9	7.8%
USA	2.9	671.7	1.2	225.3	3.5%
Vietnam	155.8	20.9	210.0	128.9	2.0%
Thailand	107.7	73.9	178.1	119.9	1.9%
Russia		102.4	234.7	112.4	1.7%
Singapore	2.0	52.5	272.5	109.0	1.7%
Israel	1.7	300.0		100.6	1.6%
Malaysia	241.4	2.7	7.1	83.7	1.3%
Japan	113.1	7.8	4.8	41.9	0.6%
France	35.0	6.2	49.7	30.3	0.5%
Taiwan	39.9	21.4	27.2	29.5	0.5%
Others	1,639.4	4,020.2	3,860.8	3,173.5	49.0%
TOTAL	2,667.3	10,891.1	5,859.4	6,472.6	100.0%

(2) Sectors (million USD)

	2007	2008	2009	Average	Percentage
Tourism	1,098.3	8,776.3	3,980.0	4,618.2	71.3%
Service	77.5	1,036.4	96.7	403.5	6.2%
Energy	3.1	468.0	664.7	378.6	5.8%
Communication	471.2	87.1	234.7	264.3	4.1%
Agriculture	159.9	106.7	589.9	285.5	4.4%
Garment	170.7	148.8	90.1	136.5	2.1%
Food Processing	207.9	3.7	11.9	74.5	1.2%
Construction	44.3	98.2		47.5	0.7%
Health Service	13.0	65.0		26.0	0.4%
Fertilizer			65.0	21.7	0.3%
Footwear	9.6	11.8	28.1	16.5	0.3%
Mining	30.8	4.7	11.9	15.8	0.2%
Others	381.0	84.4	86.4	183.9	2.8%
TOTAL	2,667.3	10,891.1	5,859.4	6,472.6	100.0%

Note: Domestic investment is included.

Source: JETRO

6) Food and energy

As shown in Table 2.1-20, besides combustible renewables, virtually all sources of energy in Cambodia are imported oil products. Small amount of electricity is also imported from Viet Nam. Around one third of imported oil products are used in power generation and the remaining portion is used mainly in the transport sector and by residents. Energy consumption in industrial sector remains rather small.

Table 2.1-20 Energy balance of Cambodia in 2008

(in thousand tonnes of oil equivalent (ktoe) on a net calorific value basis)

SUPPLY and CONSUMPTION	Coal and Peat	Crude Oil	Oil Products	Gas	Hydro	Geothermal, Solar, etc.	Combustible Renewables and Waste	Electricity	Heat	Total
Production	0	0	0	0	4	0	3,634	0	0	3,638
Imports	0	0	1,580	0	0	0	0	32	0	1,612
Exports	0	0	0	0	0	0	0	0	0	0
International Aviation/Marine Bunkers	0	0	-31	0	0	0	0	0	0	-31
Stock Changes	0	0	0	0	0	0	0	0	0	0
TOTAL PRIMARY ENERGY SUPPLY	0	0	1,549	0	4	0	3,634	32	0	5,220
Transfers	0	0	0	0	0	0	0	0	0	0
Statistical Differences	0	0	0	0	0	0	0	6	0	6
Electricity Plants	0	0	-540	0	-4	0	-2	126	0	-420
Other Transformation	0	0	0	0	0	0	-146	0	0	-146
Energy Industry Own Use	0	0	0	0	0	0	0	-6	0	-6
Losses	0	0	0	0	0	0	0	-17	0	-17
TOTAL FINAL CONSUMPTION	0	0	1,009	0	0	0	3,486	141	0	4,637
Industry	0	0	54	0	0	0	0	30	0	83
Transport	0	0	385	0	0	0	0	0	0	385
Other	0	0	570	0	0	0	3,486	111	0	4,168
Residential	0	0	452	0	0	0	3,486	64	0	4,002
Commercial and Public Services	0	0	0	0	0	0	0	48	0	48
Agriculture / Forestry	0	0	118	0	0	0	0	0	0	118
Fishing	0	0	0	0	0	0	0	0	0	0
Non-Specified	0	0	0	0	0	0	0	0	0	0

Source: IEA

Table 2.1-21 shows the food balance of Cambodia in 2007. Cambodia is self-sufficient in almost all major commodities of foods. Sugar is an exception, of which domestic production is just 6% of domestic consumption. All of wheat is also imported, though the volume of consumption still remains very small. It should be noted that a large volume of rice and cassava is classified into “Other Util”, which includes a considerable amount of informal export as will be discussed later in this chapter. Thus, Cambodia is a potential food exporting country.

Table 2.1-21 Food balance of Cambodia in 2007

(1000 tons)

item	Production	Import	Stock Variation	Export	Domestic Supply	Feed	Seed	Processing	Other Util	Food
Cereals - Excluding Beer	5,010	82	-289	83	4,720	142	94	20	2,012	2,451
Wheat		43	0	0	43				0	43
Rice (Milled Equivalent)	4,487	13	-129	2	4,368	90	86		2,012	2,180
Maize	523	6	-160	80	288	53	8			228
Cereals, Other		20	0	0	20			20		0
Starchy Roots	2,281	1	0	12	2,270	0			1,842	428
Cassava	2,215		0	12	2,203	0			1,838	364
Roots, Other	66	1		0	67				3	64
Sugarcrops	287				287	6	16	90	117	57
Sugar & Sweeteners	9	234	-87	0	157			32		125
Pulses	54	3	-25	0	32		3		1	28
Treenuts	3	1		0	3					3
Oilcrops	242	2	5	22	227		5	89	5	128
Soyabeans	117	2	0	22	97		3	42	2	49
Coconuts - Incl Copra	71	0		0	71			45		26
Oilcrops, Other	54	1	5	0	60		2	3	2	53
Vegetable Oils	24	18	7	3	47				10	37
Vegetables	487	3	0	0	490				49	441
Fruits - Excluding Wine	307	57	0	0	364				25	339
Stimulants	0	7		0	8					8
Spices	13	0	0	1	12				0	12
Alcoholic Beverages	121	67		0	189				0	188
Meat	218	0	13	0	231					231
Offals	22	0		0	22					22
Animal Fats	12	0		0	12	0			0	12
Eggs	17	0			17		1			16
Milk - Excluding Butter	23	53	6	0	82				1	80
Fish, Seafood	410	3	0	55	358				0	358
Aquatic Products, Other	16	0		1	15				15	0

Source: FAO

7) Transport

i) Road transport

The road network in Cambodia consists of 5,205 km of National Roads (2,119 km are one-digit and 3,086 km are 2-digit), 6,413 km of provincial roads and 33,005 km of rural roads (as of September 2010). The National Roads are mostly primary roads linking Phnom Penh to provincial capitals. More than 2,000 km of the primary roads are paved. The Government plans to have paved road of 4,100 km in 2015. The maximum Gross Vehicle Weight allowed on Cambodian roads at present is 20 tons. Ferries are operated by MPWT at key locations including Neak Loeung on NR1.

The number of registered automobiles has been increasing at a rate of about 19% each year, and almost 1,400,000 automobiles were on the roads in 2009.

Passenger transport suffers from a lack of adequate vehicles. Motor cycles with or without trailers carry significantly more passengers than private cars and pick-ups, although mainly for short distances. Shared taxi is the predominant mode transport for public, with some 50% of the total number of passengers-km on the primary roads.

On average for the main road network two-axle trucks constitute about half of the fleet and carry about one third of the goods volume in ton-km. On Road 4 linking Phnom Penh to Sihanoukville Port, in particular, many three-axle trucks also pull trailers for an additional ten ton capacity. The maximum size of trucks is formally restricted by the general 20 ton limit for the gross vehicle weight, and further by the load restrictions for individual bridges.

ii) Railway transport

The railway system comprises the northern line from Phnom Penh to Poipet (386 km) on the border with Thailand and the southern line from Phnom Penh to Sihanoukville port (264 km). The railway in Cambodia forms part of the GMS Southern Economic Corridor. The railway is now being

rehabilitated under a series of reforms and investments, with a private concession agreement for operations. Freight service was introduced on part of the railway in October 2010.

iii) Seaborne and waterborne transport

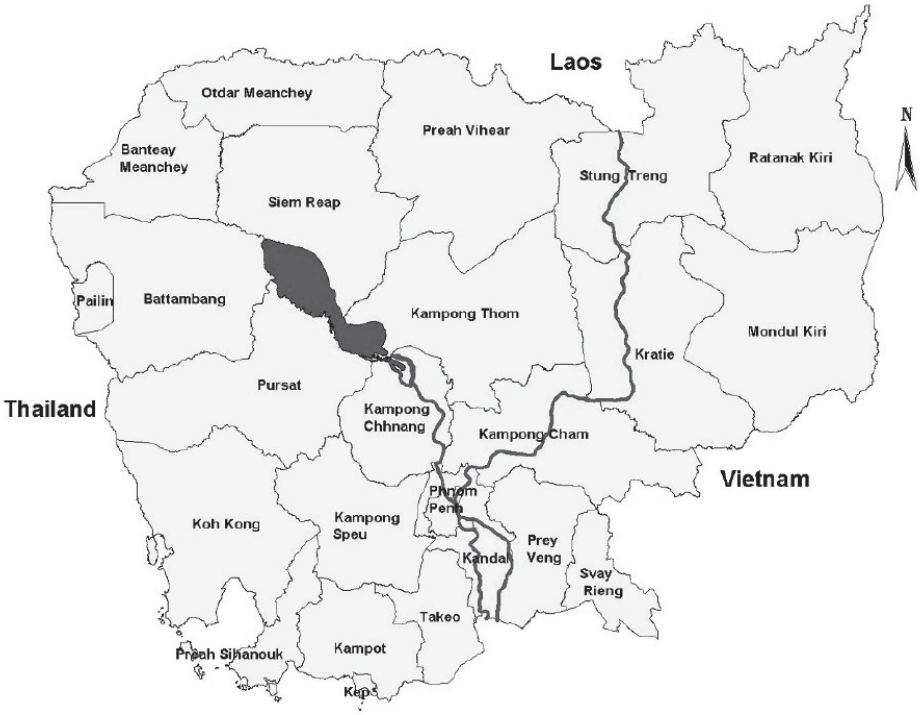
Among the ports in Cambodia, only Sihanoukville Port and Phnom Penh Port handle international container cargoes. Other ports besides the two autonomous ports are small sea or river ports. Two commercial sea ports have been constructed and are operated by private companies.

Cambodia's navigable inland waterways measure a total length of 1,750km. The Mekong mainstream accounts for 30% of the total, the Tonle Sap River 15%, the Bassac River 5%, and other tributaries 50%. Year-round navigation is possible over a distance of 580km and a third of the width of the river. Inadequate dredging and navigation aids have been impediments to increased use of these waterways.

(2) Regional trends

Cambodia is divided into 23 provinces and one municipality (Phnom Penh) as shown in Figure 2.1-5. The area and the population of each province are listed in Table 2.1-22. Since 80.5 percent of Cambodians reside in rural areas mainly depending on the agricultural sector, the population distribution in the country has been traditionally determined by the availability of arable land, quality of soil, availability of water resources, favorable climatic conditions, topography and availability of transportation facilities. On a geographic area of about 14 percent of the country, the plain region accounts for nearly 49 percent of the population. The coastal regions including Preah Sihanouk also account for population concentration though to a much lower extent. The peculiarity of population distribution in Cambodia is that no significant concentration is observed in the coastal area. The plateau and mountain region is characterized by sparse population.

The general patterns of population distribution had also undergone changes during the decades of war and Khmer Rouge occupation. Moreover there has been a considerable amount redistribution of population since the mid 1990s due to internal peace, development of free market economy, promotion of tourism, gradual clearance of land mines, growth of the garment industry, urbanization, etc. Figure 2.1-6 shows the comparison of each province's population in 1998 and 2008. Kampong Cham continues to be the biggest province in terms of population although it contains a lesser proportion of the country's population in 2008. Phnom Penh moved up to the second position. Preah Sihanouk recorded a population increase of 30 %.



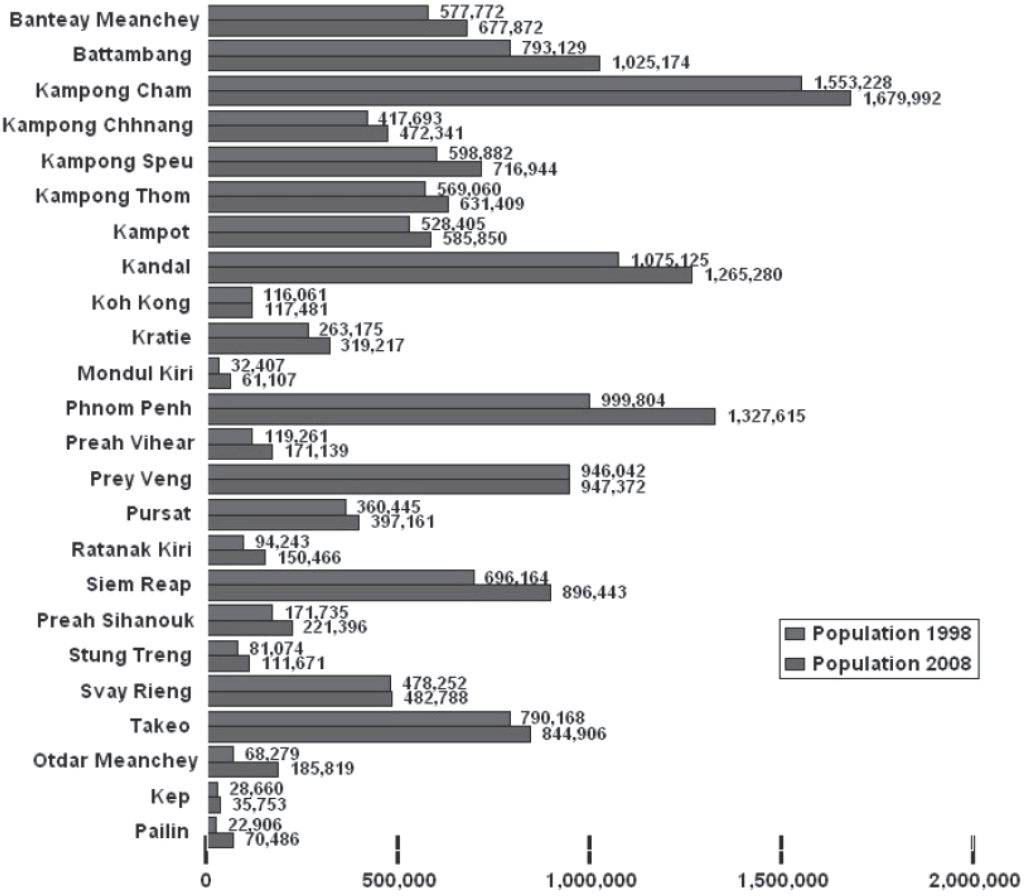
Source: MIC (GOJ)

Figure 2.1-5 Map of Cambodia

Table 2.1-22 Area and population of each Cambodian province

	Area (km2)	Population in 2008	Population density in 2008
Cambodia	181,035	13,395,682	75
Plain Region	25,069	6,547,953	261
Kampong Cham	9,799	1,679,992	171
Kandal	3,564	1,265,280	355
Phnom Penh	294	1,327,615	4,516
Prey Veng	4,883	947,372	194
Svay Rieng	2,966	482,788	163
Takeo	3,563	844,906	237
Tonle Sap Region	67,668	4,356,705	64
Banteay Meanchey	6,679	677,872	101
Battambang	11,702	1,025,174	88
Kampong Chhnang	5,521	472,341	86
Kampong Thom	13,814	631,409	46
Pursat	12,692	397,161	31
Siem Reap	10,299	896,443	87
Otdar Meanchey	6,158	185,819	30
Pailin	803	70,486	88
Coastal Region	17,237	960,480	56
Kampot	4,873	585,850	120
Koh Kong	10,090	117,481	12
Preah Sihanouk	1,938	221,396	114
Kep	336	35,753	106
Plateau and Montain Region	68,061	1,530,544	22
Kampong Speu	7,017	716,944	102
Kratie	11,094	319,217	29
Mondul Kiri	14,288	61,107	4
Preah Vihear	13,788	171,139	12
Ratanak Kiri	10,782	150,466	14
Stung Treng	11,092	111,671	10

Source: MIC (GOJ)



Source: MIC (GOJ)

Figure 2.1-6 Change of population in each Cambodian province

In March 2011, Economic Census of Cambodia was carried out by NIS with the assistance of JICA aiming at acquiring the fundamental statistics on the current status of business activities of the establishments. The Census covered all establishments which existed at the reference date in the territory of Cambodia. The following establishments, however, were excluded:

- Establishments classified into "Agriculture, forestry and fishing";
- Establishments classified into "Public administration and defense";
- Establishments classified into "Activities of households as employers; undifferentiated goods-and services-producing activities of households for own use";
- Establishments classified into "Activities of extraterritorial organizations and bodies".

As shown in Table 2.1-23, the biggest province in terms of the number of establishments is Phnom Penh with 95,467 establishments followed by Kampong Cham (55,903), Kandal (40,359), Battambang (33,982), and Siemreap (32,034). The percentage of establishment with 101 or more workers is highest in Phnom Penh followed by Sihanoukville, Pailin, and Svay Rieng. Table 2.1-24 summarizes features of establishment of each Cambodian province analyzed by NIS. Manufacturing is located in areas such as Phnom Penh and its surrounding provinces, Sihanoukville and provinces at major borders where electricity is supplied from neighboring countries.

Table 2.1-23 Number of establishment in each Cambodian province

Province	Total	Size of Persons Engaged				Percentage of establishments with 101 or more workers
		1 - 10 persons	11 - 50	51 - 100	101 or more	
Banteay Meanchey	21,619	21,252	325	29	13	0.06%
Battambang	33,982	33,424	489	46	23	0.07%
Kampong Cham	55,903	54,968	833	73	29	0.05%
Kampong Chhnang	19,655	19,475	171	4	5	0.03%
Kampong Speu	22,415	22,078	287	32	18	0.08%
Kampong Thom	22,256	21,970	270	11	5	0.02%
Kampot	16,900	16,443	423	22	12	0.07%
Kandal	40,359	39,667	571	72	49	0.12%
Koh Kong	5,014	4,945	64	3	2	0.04%
Kratie	11,038	10,915	119	1	3	0.03%
Mondul Kiri	2,221	2,206	12	2	1	0.05%
Phnom Penh	95,467	92,233	2,589	297	348	0.36%
Preah Vihear	5,310	5,192	104	12	2	0.04%
Prey Veng	29,863	29,434	398	22	9	0.03%
Pursat	12,007	11,773	217	14	3	0.02%
Ratanak Kiri	5,466	5,404	56	5	1	0.02%
Siemreap	32,034	31,304	627	64	39	0.12%
Sihanoukville	10,649	10,424	177	19	29	0.27%
Stung Treng	4,596	4,568	23	5		0.00%
Svay Rieng	15,054	14,750	248	24	32	0.21%
Takeo	31,802	31,459	319	18	6	0.02%
Oddar Meanchey	4,896	4,837	57	2		0.00%
Kep	1,634	1,574	59	1		0.00%
Pailin	2,868	2,822	38	1	7	0.24%
Total	503,008	493,117	8,476	779	636	0.13%

Source: MIC (GOJ)

Table 2.1-24 Features of establishment in each Cambodian province

Province	Features of establishments
Kampong Cham	The main industries are rubber, starchy food, animal feed, footwear, timber, and wearing apparel manufacturing. The power supply from Viet Nam enables local people to do business throughout the province.
Kandal	The two newly constructed bridges have brought about a slight increase in establishments in spite of a decrease of its area.
Phnom Penh	There are a huge number of establishments due to development as the capital of Cambodia, as observed in a remarkable number of retail shops and restaurants, etc. as well as in formulation of a SEZ.
Prey Veng	Wearing apparel is a main industry.
Svay Rieng	The main industries are casino and hotel. A growing industry is palm sugar production. Recently, establishments for production of footwear, wearing apparel, and painting as well as bicycle assembly have increased in SEZs.
Takeo	Rice milling, pure drinking water, wearing apparel, brick producing, and water supply are main industries. In addition, construction material center is an outstanding industry. Renovation of national road No. 2 and No. 3 has led to an increase in establishments.
Banteay Meanchey	The main industries are rice milling, trade, hotel, restaurant, and casino. The road improvement has brought about a remarkable increase in establishments. A SEZ near Poi Pet is already operating.
Battambang	Rice milling, long distance bus transportation, and hotel are the main industries.
Kampong Chhnang	Main industries are wearing apparel and textile, footwear, brewery, and medical supply manufacturing. Rice milling is decreasing.
Pursat	The main industries are rice milling, banking, and micro finance.
Siem Reap	Tourism is the main industry. The promotion of tourism has provided more opportunities for farmers to sell their own agricultural or handcraft products.
Oddar Meanchey	There are casinos, hotels, and guesthouses near the border with Thailand.
Pailin	Main industries are casino, guesthouse, restaurant, quarrying, and selling construction materials. In addition, power supply from Thailand is a notable industry.
Kampot	The main industries are cement, brick, fish sauce, furniture, and animal feed as well as agricultural machinery supply. Road improvements have brought about an increase in establishments in tourism sector.
Koh Kong	The main industries are sugar cane, tourism, and sea transport. The improvement of national road No.48 has brought about a remarkable increase in establishments. Furthermore, hydroelectric power generating stations and a SEZ have already functioned, and natural resorts have been developed.
Preah Sihanouk	There are three state-owned large-scale industries: autonomous port, water supply, and electricity supply, and four private large-scale industries: wearing apparel, footwear, beer manufacturing, and petroleum industry. By the promotion of tourism an increase in restaurants and drink shops is observed. SEZs are operated and being constructed.
Kep	There are three main industries: hotel, salt producing, and fish sauces. Increased number of tourists has expanded business opportunities for local people.
Mondul Kiri	The main industry is gold mining. Furthermore, a hydroelectric power generating station has already operated and natural resorts are under development. On the other hand, wooden furniture manufacturing has decreased.
Preah Vihear	Inflow of labors for road construction has led to a slight increase in establishments in spite of the border dispute since October 2008.
Stung Treng	Hotels, guesthouses, and retail shops are main industries. Recently, economic land concession has been issued to some companies in both agriculture and tourism sectors.

Source: MIC (GOJ)

2.1.2 ASEAN

(1) Cambodia in the framework of ASEAN

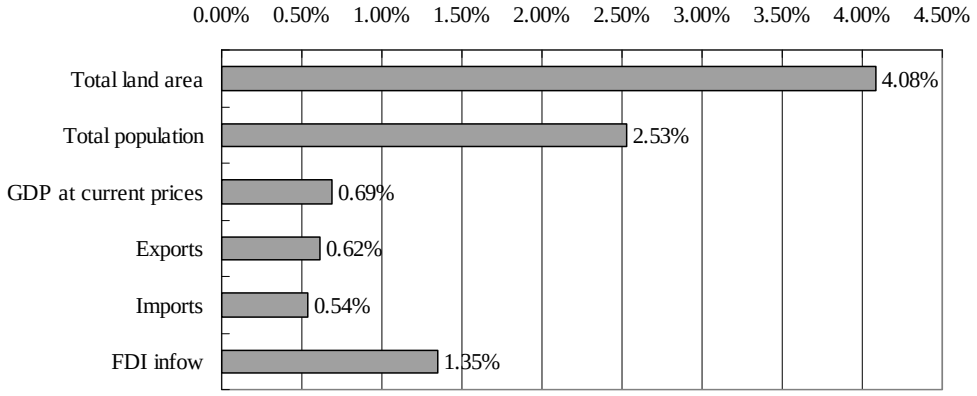
Table 2.1-25 shows the major socio-economic indicators of ASEAN countries. Cambodia, Lao PDR and Myanmar (CLM) are still less developed countries among ASEAN countries, though considerable economic development has been observed in Cambodia and Lao PDR in recent years. As

shown in Figure 2-1-7, Cambodia occupies 4% of land area of ASEAN region and 2.5% of total population of ASEAN countries. However, Cambodia's share of economic indicators such as GDP, external trade and FDI is still much smaller than these figures. Cambodia's share for FDI is larger than those for other economic indicators, though the FDI per capita is still lower than the average of ASEAN region.

Table 2.1-25 Socio-economic indicators of ASEAN countries

Country	Total land area	Total population	Annual population growth	GDP at current prices	GDP per capita at current prices	International merchandise trade			FDI infow
						Exports	Imports	Total trade	
	km^2	thousand	percent	US$ million	US$[2/]	US$ million	US$ million	US$ million	US$ million
	2009	2009	2009	2009	2009	2009	2009	2009	2009
Brunei	5,765	406.2	2.1	10,758.6	26,486.0	7,168.6	2,399.6	9,568.2	369.7
Cambodia	181,035	14,957.8	2.1	10,359.2	692.6	4,985.8	3,900.9	8,886.7	530.2
Indonesia	1,860,360	231,369.5	1.2	546,864.6	2,363.6	116,510.0	96,829.2	213,339.2	4,876.8
Lao PDR	236,800	5,922.1	2.8	5,579.2	910.5	1,237.2	1,725.0	2,962.1	318.6
Malaysia	330,252	28,306.0	2.1	193,107.7	6,822.0	156,890.9	123,330.5	280,221.4	1,381.0
Myanmar	676,577	59,534.3	1.8	24,972.8	419.5	6,341.5	3,849.9	10,191.3	578.6
The Philippines	300,000	92,226.6	2.0	161,357.6	1,749.6	38,334.7	45,533.9	83,868.6	1,948.0
Singapore	710	4,987.6	3.1	182,701.7	36,631.2	269,832.5	245,784.7	515,617.1	16,808.9
Thailand	513,120	66,903.0	0.6	264,322.8	3,950.8	152,497.2	133,769.6	286,266.8	4,975.6
Viet Nam	331,212	87,228.4	1.2	96,317.1	1,119.6	56,691.0	69,230.9	125,921.9	7,600.0
ASEAN	4,435,830	591,841.0	1.4	1,496,341.3	2,532.5	810,489.2	726,354.1	1,536,843.3	39,387.3

Source: ASEAN



Prepared by Project Team (based on the data provided by ASEAN)

Figure 2.1-7 Cambodia's share in ASEAN region

The average percentage of intra-ASEAN trade of ASEAN countries is around 25 for both import and export as shown in Table 2.1-26. Cambodian export shows lower dependency on the intra-ASEAN whereas the percentage of intra-ASEAN import is higher than the ASEAN average. This is caused by large amounts of exported garment products to the United States and Europe and imported oil products from Viet Nam and Thailand.

Table 2.1-26 Percentage of intra-ASEAN trade

Country	Intra-ASEAN exports		Intra-ASEAN imports	
	Value	Share to total exports	Value	Share to total imports
	US$ million	percent	US$ million	percent
Brunei	1,229	17.1	1,243	51.8
Cambodia	645	12.9	1,453	37.3
Indonesia	24,624	21.1	27,742	28.7
Lao PDR	997	80.6	1,481	85.8
Malaysia	40,365	25.7	31,700	25.7
Myanmar	3,197	50.4	2,066	53.7
The Philippines	5,838	15.2	11,561	25.4
Singapore	81,646	30.3	59,048	24.0
Thailand	32,491	21.3	26,760	20.0
Viet Nam	8,555	15.1	13,567	19.6
ASEAN	199,587	24.6	176,620	24.3

Source: ASEAN

(2) ASEAN Free Trade Area

The ASEAN Free Trade Area was established in January 1992 to eliminate tariff barriers among the Southeast Asian countries with a view to integrating the ASEAN economies into a single production base and creating a regional market of 500 million people. The Agreement on the Common Effective Preferential Tariff (CEPT) Scheme for the ASEAN Free Trade Area requires that tariff rates levied on a wide range of products traded within the region be reduced to no more than five percent. Quantitative restrictions and other non-tariff barriers are to be eliminated.

When the AFTA agreement was originally signed, ASEAN had six members, namely, Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand. Vietnam joined in 1995, Laos and Myanmar in 1997 and Cambodia in 1999. AFTA now comprises ten countries of ASEAN. All the four latecomers were required to sign the AFTA agreement in order to join ASEAN, but were given longer time frames in which to meet AFTA's tariff reduction obligations. The original deadline of tariff reduction was 2008, but this deadline was subsequently moved forward and AFTA became operational on 1 January 2003.

ASEAN members have the option of excluding products from the CEPT in three cases: 1.) Temporary exclusions; 2.) Sensitive agricultural products; 3.) General exceptions. Temporary exclusions refer to products for which tariffs will ultimately be lowered to 0-5%, but which are being protected temporarily by a delay in tariff reductions. Sensitive agricultural products include commodities such as rice. General exceptions refer to products which an ASEAN member deems necessary for the protection of national security, public morals, the protection of human, animal or plant life and health, and protection of articles of artistic, historic, or archaeological value.

It should be noted that the CEPT only applies to goods originating within ASEAN. The general rule is that local ASEAN content must be at least 40% of the FOB value of the good. The local ASEAN content can be cumulative, that is, the value of inputs from various ASEAN members can be combined to meet the 40% requirement.

ASEAN members have agreed to enact zero tariff rates on virtually all imports by 2010 for the original signatories, and 2015 for the CMLV countries.

The Project Team’s interview with the automotive industry revealed that they foresee a drastic change in the arrangement of industry in ASEAN countries by the progress of free trade in the framework of AFTA, where the existing large-scale production bases become much more competitive, whereas existence of middle or small scale production bases would become difficult. Although there are some unpredictable factors in the progress of AFTA, rearrangement of industry within ASEAN is expected to make headway.

As for Cambodia, the impact of AFTA would be rather moderate compared with other ASEAN countries since Cambodia's reliance on ASEAN countries as an export market is the smallest among the member countries as discussed in the former part of this sub-section, and domestic industries of which products can be substituted by imported goods from other ASEAN countries are also limited. On the whole, AFTA would bring positive effects to Cambodian economy through the economic growth of the region. Regarding AFTA, the Cambodian Commerce Minister stated as follows:

"*I strongly believe that Cambodia can maximize the benefits from AFTA. First, Cambodia should utilize its imminent accession to AFTA as a building block towards free and open trade. Cambodia can gain from the training and the actual experience as well as the development lessons from other ASEAN member countries. Second, Cambodia can help cut the administrative costs by multi-lateralizing its common effective preferential tariffs. This will pay off in the long term through efficiency. Third, Cambodia can gain from AFTA through the economies of scale because of the enlarged market to about 500 million. Fourth, I believe that Cambodia can better utilize its economic resources because of the need to have the most efficient allocation of resources when Cambodia joins ASEAN/AFTA. Finally, I believe that AFTA will contribute to the more sustainable flows of foreign direct investment and tourism to Cambodia.*"

2.2. Position of Sihanoukville Port in the National Policy Framework

2.2.1 Basic policy and institutional framework for Cambodian port sector

(1) Rectangular Strategy II

"Rectangular Strategy" for Growth, Employment, Equity and Efficiency Phase II established after the General Election in 2008 aiming at achieving national goals described below is the basic policy of RGC.

- Sustainability, peace, political stability, security and social order to promote rule of law and protect human rights and dignity and multi-party democracy.
- Sustainable long-term economic growth at a rate of 7 percent per annum on a broader basis and more competitive capacity in the context of one-digit inflation.
- Poverty reduction at a rate of over 1 percent per annum, and improvement of main social indicators, especially in education, health and gender equity.
- Increased outreach, effectiveness, quality and credibility of public services.

The four strategic "growth rectangles" of the Rectangular Strategy are (1) enhancement of the agricultural sector; (2) further rehabilitation and construction of the physical infrastructure; (3) private sector development and employment; and (4) capacity building and human resource development as shown in Figure 2.2-1. The Rectangular Strategy-Phase II maintains structure of the previous strategy and fine-tunes the prioritized policies in response to current conditions.

Source: MOP

Figure 2.2-1 Conceptual illustration of Rectangular Policy

Although Sihanoukville port is not specifically referred to in the strategy, recognizing that the transport network plays a role as "a Prime Mover of Economic Growth", high priority is put on infrastructure development including port expansion as shown in the box below. The strategy also stresses the importance of private sector participation in transportation services.

The Royal Government will continue to accord high priority to the maintenance of national roads, the reconstruction of provincial and rural roads, the expansion of ports and the rehabilitation of railways. The Royal Government will encourage private sector participation in the rehabilitation of infrastructure and in transportation services.

In addition, in the context of the facilitation of private sector development, RGC accords priority to the improvement of physical infrastructure including port through increased public investment as shown below.

To facilitate private sector development, the Royal Government will continue to accord priority to improve physical infrastructure through increased public investment in transportation networks, including roads, railways, waterways (river, sea), and air routes.

The strategy points out the importance of the establishment of legal and regulatory framework for transport infrastructure as shown in the sentence below. In the port sector, the basic regulatory framework has been elaborated in PENPPAS.

The Royal Government will speed up the adoption of the Law on Roads as well as supporting legal and regulatory framework for efficient management of transport infrastructure

Besides the sentences which directly refer to transport infrastructure including port, there are many sentences in the strategy having close relationship with Sihanoukville port.

As shown in the boxes below, RGC intends to liberalize the trade, diversify the industry and drastically increase rice exports. This will increase the importance of the port sector of Cambodia.

Since trade is a major source for economic growth and poverty reduction, the Royal Government will make further strides on the path of trade liberalization aimed at free movement of goods and services within the country and between Cambodia and her trade partners. The Royal Government will continue to create access for Cambodian products, without barriers and obstacles, to extensive regional and world markets. This will create opportunity to avail of economies of scales and bring other benefits to Cambodian economy in terms of increase in investment, jobs, income and economic growth as a whole. All these are critical to reduce poverty among our people.

The Royal Government continues to place priority on increasing agricultural productivity and diversification as well as promoting agro-industries. This is to increase production, employment, and rural income, and ensure food security as well as to increase export of agricultural products, especially finished goods, in particular rice.

As an important part of the policy for diversifying the economic base, the Royal Government will promote a favorable climate for developing the agro-processing industry, and assembling industry including electronic and machinery assembly. In addition, the Royal Government will continue enhancing necessary legal framework, especially creating the law for the efficient operations of Special Economic Zones.

Fighting corruption is one of the most important issues toward strengthening the competitiveness of Sihanoukville port. Lamentably, it is said that some officers of PAS as well as those of authorities concerned with port traffic are deeply involved in the corruption. In addition to the direct economic loss by the corruption, immense indirect loss is caused by inefficient port traffic in the course of bribe collecting by multiple parties. The Rectangular Strategy clearly mentions that RGC will prevent and fight corruption as follows:

The Royal Government will continue to raise awareness about all aspects of corruption, including its causes, impacts and consequences to encourage public participation in preventing and fighting corruption. Concrete measures will be pursued to encourage all levels of government officials to adhere to dignity, mortality, professionalism and responsibility in fulfilling their duties.

One of the largest disadvantages in industrial development in Cambodia is insufficient and expensive electric supply, which leaves manufacturing industry in littoral provinces undeveloped and

makes the growth of port traffic in Sihanoukville rather modest. The strategy declares that RGC will cope with this tough issue:

In the fourth legislature, the Royal Government will attach priority to increase electricity supply capacity and reduce tariff to an appropriate level while strengthening institutional mechanism and management capability. To this end, the Royal Government will encourage the construction of low cost electricity generating plants by using local energy sources such as hydro power, natural gas, and coal.

At present, Cambodian fishermen are generally poor and the spatial utilization of fishing villages remains disordered. Sihanoukville is not an exception. Settlements of fishermen near port facilities make rational spatial management of the port very difficult. The strategy for improving fish market mechanism and alleviating poverty of fishermen described below is also expected to help strengthen competitiveness of the port by normalizing its spatial management.

In order to ensure that the price of the fish reflects true economic value, the Royal Government will establish an effective fish market mechanism as fish is either income or expense for the poor.

(2) NSDP Update 2009-2013

The National Strategic Development Plan Update (NSDP Update) 2009-2013 has been prepared focusing on identifying who is responsible for implementing the priority policy or policies in each area of the Rectangular Strategy II; what specific actions the responsible institution(s) has/have planned to implement the priority policy(ies); and the responsible institution(s) best estimate on how much it will cost to implement the planned actions during 2009-2013.

The action plans for the waterway transportation and ports sector listed in NSDP Update are described below:

- Promote human development in navigation sector through the investment in the creation of domestic establishments for education and training on sea and river navigations.
- Encourage private sector to contribute to developing naval transport and ports as well as create an enabling environment for private-public partnership.
- Enforce the laws and regulations of the Kingdom of Cambodia and the procedures articulated in the Agreements and International Conventions on maritime transport, inland waterway transport and port, which Cambodia is a signatory to.
- Draft laws and regulations on maritime transport, inland waterway transport and port.
- Put in place and strengthen the management mechanism for maritime transport, inland waterway transport and port.
- Ensure the safety and security for ships and ports as well as contribute to environment protection including measures to prevent and reduce the CO2 emission in the navigation and port sectors.
- Foster the development and use and of modern technological system to facilitate the control procedures in a timely and effective manner.
- Pay further attention on the management of transport along the Mekong River from Phnom Penh to the Sea via Viet Nam.
- Finalize the Waterways Master Plan and be prepared for the implementation.
- Continue the implementation of the 2nd Project at Sihanouk Ville Port, funded by JICA: Construction of infrastructure for the settlement of a Special Economic Zone covering 70 hectares of port premises (in the first and second phases).
- A Construction Project of a Multi-purpose Port for serving logistical supports to the off-shore crude oil exploration, and a berth for special cargo in bulk.

Regarding Sihanoukville port, only continuation and commencement of the on-going and planned infrastructure projects are listed in NSDP Update. Plans for strengthening competitiveness or realizing synergy effect with the improvement of Phnom Penh port are not included in the action plan.

In addition, though they seem not to be fresh ideas, NSDP Update includes action plans for

freight transportation as follows:

- Prepare, in collaboration with other concerned ministries/agencies, a master plan on logistics supply and multi-modal transport in the country and region in order to enable trade facilitation;
- Increase the efficiency of freight sending service, multi-modal transport, logistics, and Kampuchea Shipping Agency & Brokers (KAMSAB);
- Support and promote the activities of KASAB in order to enable it to play its roles as freight sender, representative and service provider, on behalf of ship owners or ship chartering entities or freight owners, and as logistics provider according to the needs, as well as ensure efficiency, safety, quality, timely delivery to the destination, reasonable cost with competitive advantages.

(3) Speeches by the Prime Minister

It is important to analyze the context of speeches made by the Prime Minister, which reflect the most updated policy of RGC. Sentences related to Sihanoukville port or the port sector in general are extracted from the speeches of the Prime Minister as shown in the boxes below.

The Sihanoukville Autonomous Port is still the gateway of our nation economy which is strategic and have potential in supporting national and international trade activities of Cambodia and it is the center of Sihanoukville Industrial Zone which is the gateway in west of Cambodia in facilitating warehousing and distribution of goods within the country, in the region and the world; it is generating substantial revenues into the national budget, creating employments to our people and in particular providing direct 1273 jobs to workers and employees in the port and 169,000 jobs to the population living in the Sihanoukville.

On behalf of the Royal Government and my own self, I am please and have been providing full support to initiatives in development of the Sihanoukville Autonomous Port in the past and future.

The continued rehabilitation and development of physical infrastructures, including development of Sihanoukville Autonomous Port infrastructure is in line with the efforts put forward by the government to ensure that Cambodia has strong political stability, harmony and undertake reforms in every aspects to accomplish the objectives of the government's Rectangular Strategy aiming at accelerating "economic" growth, "employment" generation for our people, enhance "equity" in the society, also to improve "efficiency" in public sector.

I would like to express my conviction to support and set priority for planning and development of transport infrastructure, which is objective number two of the Rectangular Strategy for improvement, expansion and well connect transport movement to others regions and entire country, especially for region in northeastern and southeastern to gain access to Sihanoukville Autonomous Port, in order to quickly integrate Cambodia within the region and the world. In order to achieve this objective the government has invested to a great extent include public and private finance, foreign assistance and others loan to ensure the continuity of roads and bridges of entire country and especially national road that lead to Sihanoukville port. I would like to express my full support to MPWT to repair railroad in both direction, especially from Phnom Penh to Sihanoukville and connect directly to the port as quickly as possible.

I would recommend all relevant competencies and organizations put more effort and increase a close cooperation and coordination among each other in transparent manner and at high efficiency by making efforts to improve service delivery and management in the port, aiming at gaining confidence from customers, national and international investors and development partners in our commitment in rehabilitation and development of the nation.

(At the Ground Breaking Ceremony to construct a "One Stop Service" Administrative Building and Meeting with staff, workers and employees of the Sihanoukville Autonomous Port on 01 May 2006)

Because of my efforts and involvement in the re-starting and development of the Sihanoukville Seaport, I have been considered a father to all the development we have seen today in the port. Twenty nine years have gone by since when I chaired the transport commission to get the supplies from the port to inner land. That was how I became and continue to be involved in the management and development of the port.

The Sihanoukville is the country's main harbor and contact. I would say head of the dragon lies here if I may compare it. I have depicted the Cambodian geography and geo-strategy as a dragon where the head lies at Sihanoukville, its tail in Stoeung Treng and its body anywhere in between.

We have the plan of a Special Economic Zone (SEZ) here but as we know JICA also raised a good idea that we still have the need for multi-purpose station and development of oil and gas supply. This means we have to develop it into offshore fuel development site so that ships of all kinds - passengers or oil tankers included could access for their demands and requirements. We have to also pay attention to create equal footing competition situation for all the ports inside the country but also be prepared for the competition with those in the region.

(On the International Labor Day at the Sihanoukville Seaport in May 2008)

In any circumstances, the autonomous seaport of Sihanouk province still plays a role as an economic zone which is potentially strategic in sustaining national and international trade activities of Cambodia and is a core of industrial area because Sihanouk province is a west corridor and one of the 7 significant economic poles of Cambodia. The port has been facilitating to transfer, store and deliver various goods in all corners of the country, the region and the world, contributing to the collection of large amount of national revenues as well helping to create and maintain the professions and jobs for the people in the province and particularly directly employing 1068 people.

Continuous restoration and development of various physical infrastructures, including the Sihanouk Autonomous Port, is fully accommodating the Royal Government's vision and efforts in bringing about concrete political stability and guaranteed security, and pushing for reform in all sectors in order to strengthen governance, speed up growth and social development. The Royal Government fully supports and gives priority to the restoration and development of transport network, which is a component of the Rectangular Strategy, to interlink transport across the country, especially from the isolated northeastern and southeastern parts to the port to speed up Cambodia's regional and global integration. This vision can be realized through the utilization of all available means and resources such as government's budget, private sector capital, grants and loans from development partners, to maintain all roads and bridges in the country, especially those connecting to the port,

I am pleased to continue to support all initiatives designed to improve Sihanouk Port, including the expansion of container fields, launching of modern handling systems, utilization of computers in "One Stop Service" building, the utilization of electronic data interchange, the use of security utilities in order to increase service delivery in this port.

The port of Sihanouk province remains leading agency in fulfilling duties as successful public enterprise in terms of management, leadership, keeping solidarity, discipline and order, along with labor condition which is compliant with International Labor Convention.

I would like to suggest all Excellencies, Ladies and Gentlemen, officials, laborers and employees to pay attention and make utmost efforts to successfully compete in the framework of market competition in the capacity of Cambodia as a member of international communities and organizations in the world and the region. At the same time, I would like to request all private ports to carry out state principles and duties in order to ensure that competition in port sector is fair, transparent and equitable and to jointly cope with the impact from financial crisis and world economic downturn in a common goal to bring about national development, prosperity and rapid poverty reduction.

(At the Official Inauguration Ceremony of Container Lifting Facilities and Meeting with Official,

Laborers, Employees during the International Labor Day at the Seaport of Sihanouk Province in 2009)

I strongly believe the new container dock will increase the loading/unloading capacity of the Phnom Penh Autonomous Port. The new dock will become a main hub for distributing goods across the country that can push the internal integration, international trade and regional trade a step further, especially to realize our rice export target of 1 million metric tons per annum.

Among all transport means, waterway transport is the cheapest. In this sense, I think water ports link dry ports, airports and train stations to the region and the world. Water ports have played an important role in the development of the global economy by partly promoting regional integration through the expansion of market access and establishment of free trade areas.

The Royal Government has paid high attention to the construction of port infrastructures either sea port or river port to promote export, especially when Cambodia is improving its competitive advantage in the regional and global markets.

The connection of this new port with the water transportation along the Mekong to the sea can actually reduce the cost of petrol, cheap cost and more economically cost effective and efficient. Thus, the water transportation is the best and most effective mean to ensure the low cost and transportation of goods, which are of high quantity to reach the far-reaching destinations, and contribute to the reduction of Carbon Dioxide and Green House Gas, which is the source of global warming. At the same time, this kind of transportation will also help the Royal Government in reducing cost on road maintenance which have been broken because of the overweight transportation activities as well as contributing to reducing the land traffic accidents.

(At the Groundbreaking Ceremony for the Construction of a New Container Dock of the Phnom Penh Autonomous Port in March 2011)

(4) Proposals on the policy and institutional framework of port sector by PENPPAS

The project was implemented by JICA from 2009 to 2011 based on "The Master Plan for Maritime and Port Sector" aiming at:

- Establishment of the draft national port policy and its planning process;
- Development of the framework on collection of statistics required for national port policy planning; and
- Establishment of roadmap and essential features for enactment of port related law and regulation.

Proposals on the policy and institutional framework of port sector by PENPPAS are summarized as follows:

- Goals/objectives of Cambodian Port Policy
  - (a) Facilitating economic development and foreign investment through encouraging international trade
    - Establishment of competitive ports;
    - Promotion of international gateway ports;
    - Providing greater convenience to shippers, consignees and other port users;
    - Increasing port capacity to meet the future demand; and
    - Modernizing port facilities.
  - (b) Establishment of rational port system in Cambodia
    - Maintaining orderly port development;
    - Establishment of appropriate Public Private Partnership;
    - Introducing private operations/services;
    - Maintaining the safety of port operations and ship navigation;

- Ensuring the port facility security; and
- Protecting the port environment.

➢ Basic concept of port system reform

- Preparing national port master plan to coordinate port development plans;
- Encouraging private investment in port development;
- Organizing rules on port development, construction and operation;
- Publication of port statistics for policy makers, investors, port users and researchers;
- Minimizing regulations and levies on port services and pricing;
- Introducing private transport business in port operations;
- Ensuring fair competition between private port operators;
- Involvement of port users and shipping companies in port operations;
- Establishing and clarifying port management body;
- Establishing an organization responsible for maritime and port administration;
- Stationing a harbor master at each international port;
- Implementing appropriate supervision and inspection on safety and security of port;
- Regulating discharges from ships and inspecting water/air pollution in port; and
- Preparing necessary contingency plan and equipment for dealing with accidents.

➢ Primary actions

(a) Establishment of Port Management Body
- Public Port Management Body
  Autonomous port
  Provincial/municipal port
- Private Port Management Body
  Private company

(b) Stationing of a harbor master at each international port
- Autonomous ports: Port's own harbor master
- Others: Harbor master assigned by the MPWT

(c) Organization of maritime and port administration
- Establishment of an organization in charge of maritime and port administration under the MPWT

(d) Market-oriented decision on port dues and charges
- Freedom to decide port dues and charges within a range;
- To give port users special incentives to use the port;
- Port entry dues may be levied by the government to cover maritime and port administration expenses;
- The port management body shall not collect tonnage dues as a tax, but collect charges to cover their expenses.

(e) Private participation in port operation and port transport business
- Private participation in stevedoring work, cargo transportation in a port, and other port related services;
- Private operation of a terminal;
- In order to avoid failure in those services, appropriate license system will be introduced.

(f) Administration on port development planning and construction
- Technical examination on a port development project (port plan);
- Review and inspection of construction works;
- Approval on entering operation.

(g) Supervision on port operations

2.2.2 Policy on the functional demarcation among public ports

The basic port policy of Cambodia is "Open Sea Policy" with open access to all Cambodian ports by all port developers and operators, though it doesn't appear in the Rectangular Strategy. The policy is referred to in NSDP Update as an existing strategy. Open Sea Policy was advocated by the Ministry of Commerce as an analogy of "Open Sky" in the context of promotion of private

investment.

Since the fair competition on the basis of equal footing is the basic principle according to the Open Sea Strategy, RGC has hesitated to put political priority on a specific port whether it is a public port or a private port, even when it seemed necessary for securing the nation's competitiveness. In this relation, there is no policy paper which clearly defines the demarcation between Sihanoukville Port and Phnom Penh Port.

An exception is the policy document on rice export, which will be discussed in 2.3.1, where the use of Phnom Penh Port for rice export is suggested as follows:

"In order to diversify and identify potential rice export markets, taking into account the geographic locations of rice production, transport modalities and export destinations, the Royal Government will promote the use of Phnom Penh Port as an exit point, using feeder ships to load and transfer shipments into mother ships in a third country including Sihanoukville Port."

However, the justification of selection of Phnom Penh Port is not persuasive and the idea of transshipment of rice at Sihanoukville Port, which is loaded on a barge at Phnom Penh Port, is not realistic:

2.2.3 Role of Sihanoukville Port in achieving the national development targets

The role of Sihanoukville Port in achieving the national targets described in the Rectangular Strategy II was analyzed. The analysis in the context of the strategy revealed that the port has important roles in achieving all four aspects as well as the core of the strategy as listed below:

- The Core of the Rectangular Strategy: Good Governance
  - Exterminating corruption in Sihanoukville Port by the efforts of PAS and authorities concerned, the port shall be a successful example in combating corruption and enjoying economic prosperity.
  - Under the framework of the national port policy which is to be formulated based on the result of PENPPAS, fully complying with international conventions, national laws and regulations including the Port Act which is also to be established based on the result of PENPPAS, Sihanoukville Port shall be contributing toward achieving well-organized and synergetic development of the port sector in Cambodia, which maximizes the national benefit.
  - By intensifying port security, Sihanoukville Port shall be contributing toward securing social security.
  - By the trade facilitation through the efficiency improvement and the cost reduction of port operation, Sihanoukville Port shall be supporting Cambodia's integration into the region and the World
  - By export promotion through the efficiency improvement and the cost reduction of port operation as well as provision of SEZ, and by tourism promotion through receiving a greater number of cruise vessels, Sihanoukville Port shall be supporting the favorable macro-economic condition.
- Rectangle I: Enhancement of the Agricultural Sector
  - By the provision of efficient and low-cost port service, Sihanoukville Port shall be contributing toward the increase of export of agricultural products, especially finished goods, in particular rice.
  - By realizing well-harmonized spatial utilization between port and fishery, Sihanoukville Port shall be contributing to the improvement of productivity of fishery and supporting the reform of the sector.
- Rectangle II: Further Rehabilitation and Construction of the Physical Infrastructure
  - For enabling provision of convenient, stable, safe, economically efficient, lower cost transportation and logistics services network, aiming at trade facilitation, tourism promotion, rural development as well as regional and global economic integration,

Sihanoukville Port shall be expanded responding to its traffic demand and paying due attention upon social and environmental impacts.

- Encouragement of private sector participation in the rehabilitation of infrastructure and in the provision of transportation services at Sihanoukville Port shall be studied with due consideration on maximizing benefit to the nation's economy.
- By the provision of efficient coal unloading facility, Sihanoukville Port will be able to contribute to the promotion of thermal power generation aiming at increasing electric supply capacity and reducing tariff to an appropriate level as well as diversifying energy sources.
- By the provision of reliable and efficient supply base, Sihanoukville Port shall be contributing to the production of off-shore oil and gas with minimum impact to the environment.

➢ Rectangular III: Private Sector Development and Employment

- By improving operational efficiency and simplifying port procedures as well as upgrading physical infrastructure, Sihanoukville Port shall be contributing to the reduction of business transaction costs and the improvement of market access.
- For diversifying the economic basis, Sihanoukville Port shall be contributing toward the promotion of agro-processing industry, and assembling industry including electronic and machinery assembly through the efficiency improvement and the cost reduction of port operation as well as provision of SEZ.
- Through the provision of SEZ and the promotion of logistics industry, Sihanoukville Port shall be contributing to job creation.

➢ Rectangle IV: Capacity Building and Human Resources Development

- Sihanoukville Port shall be making continual efforts in improving the quality of technical and vocational training.
- By increasing the ratio of female staff members and promoting them to managerial posts, Sihanoukville Port shall be cooperating in the Implementation of gender policy of RGC.

In relation to the Rectangular I, RGC established a rice policy in 2010, where the formulation of an action plan to reduce infrastructure-related costs of export is instructed as follows:

"The Ministry of Public Works and Transport and other concerned ministries/agencies shall prepare plan of actions to reduce infrastructure-related costs of export including costs related to transportation, port handling, storage, port operations and other service charges by assessing the possibility of investing in infrastructure, transportation and port handling facility."

In the discussion of the future role of ports, profound understanding of the contents of Rectangle II and III is crucial, in which policies on the nation's industrial development are described. Although the Rectangular Policy doesn't refer to Sihanoukville Port specifically, Sihanoukville shall be a dragon head strongly leading the nation's industrial development as the Cambodian Prime Minister states.

In colonial times, the international gateway of French Indochina including current Cambodian territories was Saigon Port. In the year 1949, Cambodia regained its independence, while in another sense Cambodia came to lose the international gateway in its own territories. Though small scale port facilities have existed at Kampot since a long time ago, the sea off the coast of Kampot is very shallow and the area was not adequate to develop an international seaport. Consequently, RGC determined to secure a new international gateway within the country. After thorough perambulations along every coastline, the government finally selected an area of uncultivated jungle far away from the capital city, as the only suitable place for the development, and decided to build a new port and a coastal industrial city there. The construction works of the new port were commenced in 1956 and completed in 1961 which marked a brand new start for Sihanoukville Port and Sihanoukville City (Preah Sihanouk Province as known today). Since Sihanoukville Port was devastated by the civil war, government of Cambodia has made all efforts to rehabilitate and develop those facilities with positive support by the international community.

By the continuous efforts of RGC, Cambodia has secured the international gateway in its territory; however, the function of the gateway of Preah Sihanouk is still very weak as a dragon head leading the Cambodian economy. The economic power of the Cambodian dragon head is still much smaller than its body of Phnom Penh. This situation is completely different from that of other dragon heads in the world such as Shanghai in PRC, Ho Chi Minh in Viet Nam and Mumbai in India.

The history of Preah Sihanouk is completely different from other dragon heads in the world. Many dragon heads have been densely populated areas from ancient times and have been developed in line with the country's development utilizing their advantages of easy access to maritime transport network and flexible spatial utilization of littoral zones, whereas Preah Sihanouk was developed by the wise-decision of RGC to avoid becoming a landlocked country. Since Preah Sihanouk is not a spontaneously developed dragon head but a scientifically and politically selected candidate of the dragon head, continuous political and fiscal support from RGC is crucial until it becomes a real dragon head leading the nation's economy and starts its autonomous development.

Although "Equal Footing" is an important idea in many areas of national policies, "Selection and Concentration" reflecting firm intension of the government toward economic development and overcoming political difficulties would be much more significant under limited fiscal resources.

In this context, it is very important to materialize the development of Sihanoukville Special Promotion Zone (SPZ), which is a specific and clearly delineated area where different economic principles, taxation systems, FDI treatment and/or institutional procedures are applied, as proposed by "The Study on Regional Development for the Phnom Penh - Sihanoukville Growth Corridor". The proposed area of the Sihanoukville SPZ is basically the entire administrative area of Preah Sihanouk Province, excluding the area of two national parks and the designated forest management and water conservation area.

Then, Sihanoukville Port shall be a key facility of SPZ, which provides competitive and state of the art logistics service with frequent direct linkage to the maritime trunk line network. With the competitive port of Sihanoukville, Sihanoukville SPZ can be the head of dragon in the true sense.

2.3. Trends of Logistics in the Hinterlands of Sihanoukville Port and Phnom Penh Port

2.3.1 Business and logistics of the major shippers

(1) Garment and footwear

After the civil war, the first foreign investors to venture into the country are the garment manufacturers. There was no looking back since then. With the granting of MFN/GSP trade privileges to Cambodia in 1996 by both the USA and EU, the garment industry has maintained its pre-eminent position in the industrial landscape of Cambodia. Even the imposition of garment quotas by the USA in 1999 did not hamper this meteoric rise. In retrospect, the quota issue spurred on more investments into the sector as the quotas imposed upon Cambodia by the USA were, on a per capita basis, the most generous among all countries subjected to this unilateral quantitative restraint regime due to Cambodia's commitment to uphold fundamental labor standards. A special condition imposed by the US on Cambodia in return for obtaining generous garment quotas on a yearly basis was the bench marking of the improvements attained by the Cambodian garment sector in complying with cardinal ILO conventions.

Investors were encouraged by a business-friendly investment climate enshrined in the Law on Investment of 1994. Investors were able to overcome Cambodia’s disadvantages in infrastructure and human capital development, inter alia by bringing in technical and supervisory personnel from abroad.

The removal of Textile and Garment (T&G) quotas on the exports of all exporting countries at the beginning of 2005 in compliance with the WTO’s 1994 Agreement on Textiles and Clothing represents both an opportunity and a threat for Cambodia. Cambodia will be free to export beyond current quota limits to markets where these apply; but it will also have to compete with exports from other garment-exporting countries on which quotas bore more heavily, notably China.

Before the removal of T&G quota, there were discussions whether Cambodian garment industry can survive or not; however, the export of Cambodian garment products has been steadily increasing after the removal of quota in 2005 as shown in 2.1.1 (1). After the drop due to the global economic crisis in 2009 the garment export started growing again. This proves that Cambodian garment industry is competitive even without preferential quota system.

As shown in Table 2.3-1, the majority of garment export is knitted articles, which amount to 85% of total garment export. “Rags” are also an important commodity in terms of the trade volume. Though the footwear industry is the important exporting industry in Cambodia, the export is much smaller than garment products in terms of quantity and value.

Table 2.3-1 Garment and footwear export from Cambodia in 2010

	Exported Volume (ton)	Exported Value (1,000 USD)
Articles of apparel and clothing accessories, knitted or crocheted	230,238	2,941,703
Articles of apparel and clothing accessories, not knitted or crocheted	6,907	88,220
Other made up textile articles; sets; worn clothing and worn textile articles; rags	38,121	15,453
Footwear, gaiters and the like; parts of such articles	24,152	176,908

Breakdown of "Other made up textile articles; sets; worn clothing and worn textile articles; rags"

	(ton)
Blankets and travelling rugs.	293
Bed linen, table linen, toilet linen and kitchen linen	1,333
Curtains and interior blinds; curtain or bed valances.	2
Other furnishing articles	24
Sacks and bags, of a kind used for the packing of goods	912
Other made up articles, including dress patterns.	42
Worn clothing and other worn articles.	2,809
Used or new rags, scrap twine, cordage, rope and cables and worn out articles of twine, cordage, rope or cables, of textile materials.	32,705

Prepared by Project Team (based on the data provided by GDCE)

Table 2.3-2 shows trade partners of Cambodian garment and footwear industry in 2010. More than 50% of garment products are exported to USA reflecting the above-mentioned development history of Cambodian garment sector. EU is also an important trade partner of garment products. As an individual country, China is the second largest trade partner of garment products, since a considerable amount of trade of "rags" exists.

For footwear industry Japan and EU are major export partners since Cambodia produces high-end leather shoes and sport shoes.

Figure 2.3-1 shows the typical international logistics route for the garment/footwear industry in Phnom Penh. The major part of textiles and other raw material is imported from the East Asian countries and regions such as PRC, Hong Kong and Taiwan. In 2020, around 120 thousand tons of textiles were imported to Cambodia, of which 83% were imported from PRC, Hong Kong and Taiwan. Raw materials are mainly discharged at Ho Chi Minh port where frequent, economical and diversified liner services linking to East Asia are available. Once unloaded at Ho Chi Minh port, raw materials tend to be transported to Phnom Penh by road even though the land transportation is more costly than waterborne transport, since garment/footwear factories want to start production as earlier as possible to meet buyers' strict requirement on the time of delivery and to minimize overtime of their employees. As shown in Table 2.3-3, Sihanoukville port also handles a considerable amount of raw materials for garment/footwear industry utilizing its advantage of direct linkage to the East Asian major ports.

As for export of garment products and footwear, Sihanoukville port is the principal gateway to all destinations, handling more than 50% of garment products and footwear exported from Cambodia as shown in Table 2.3-4. Phnom Pen port also handles exported products to Asia via Ho Chi Minh port and to United States via Cai Mep port. The loading ports are assigned by buyers and not by manufacturers, since FOB term is generally applied in the trade of garment products and footwear in Cambodia. When a manufacturer misses a ship assigned by a buyer due to delay of production or other reasons, the buyer always request the manufacturer to ship the products by air. Then the manufacturer tries to negotiate to use land transport and Vietnamese ports, by which he can deliver the goods to the final destination as early as the originally scheduled date without using costly air transport. This would

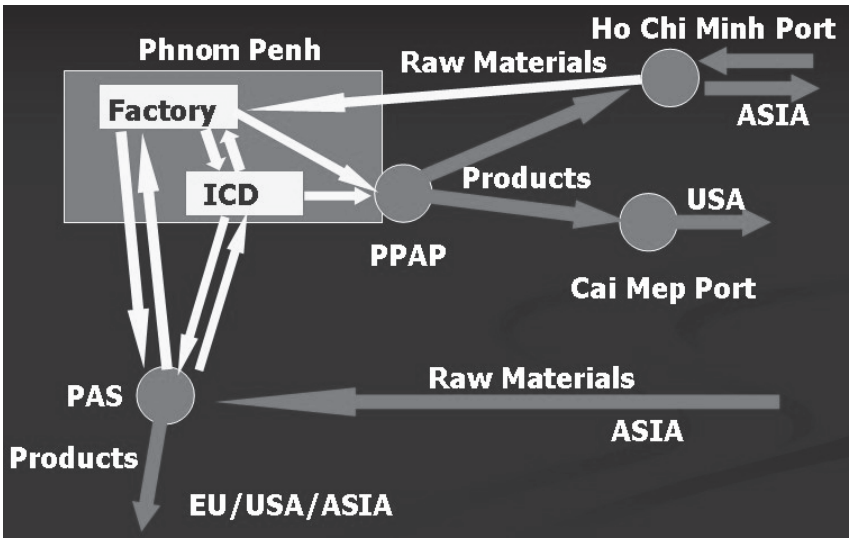
be a part of the reason why the cross border transport secures its market share.

Table 2.3-2 Trade partners of Cambodian garment and footwear industry in 2010

(ton)

	Articles of apparel and clothing accessories, knitted or crocheted		Articles of apparel and clothing accessories, not knitted or crocheted		Other made up textile articles; sets; worn clothing and worn textile articles; rags		Footwear, gaiters and the like; parts of such articles		TOTAL	
Europe	47,117		604		89		16,765		64,575	
Africa	245		142		279		91		757	
America	174,211		5,140		2,195		2,480		184,026	
Asia	7,599		902		35,336		4,721		48,558	
Oceania	1,066		119		221		94		1,500	
Total	230,238		6,907		38,120		24,151		299,416	
Top 10 Countries										
1	USA	153,903	USA	4,708	CHINA	28,059	UK	6,969	USA	161,734
2	CANADA	17,923	JAPAN	464	MALAYSIA	2,470	GERMANY	5,024	CHINA	29,059
3	NETHERLAND	12,629	CANADA	311	THAILAND	2,442	JAPAN	3,972	CANADA	19,089
4	UK	11,650	UK	170	VIETNAM	2,040	ITALY	1,510	UK	18,863
5	GERMANY	5,780	AUSTRALIA	118	USA	1,992	USA	1,131	NETHERLAND	13,383
6	SPAIN	4,615	NETHERLAND	113	SINGAPORE	229	FRANCE	861	GERMANY	10,831
7	JAPAN	3,395	JORDAN	101	AUSTRALIA	221	CANADA	656	JAPAN	7,832
8	BELGIUM	2,343	FRANCE	101	CANADA	200	NETHERLAND	640	SPAIN	5,175
9	ITALY	1,844	SINGAPORE	98	KENYA	123	SPAIN	499	ITALY	3,415
10	LUXEMBURG	1,783	BENIN	74	CONGO	74	BELGIUM	291	BELGIUM	2,640

Prepared by Project Team (based on the data provided by GDCE)



Prepared by Project Team

Figure 2.3-1 Typical international logistics route for garment industry in Phnom Penh

Table 2.3-3 Gateway of raw material import for Cambodian garment/footwear industry

	Gateway	Percentage
Seaborne Trade	Sihanoukville Port	41.0%
	Phnom Penh Port	2.6%
	CBT	51.3%
Regional Trade	Phnom Penh Port	1.3%
	CBT	3.8%

Prepared by Project Team

Table 2.3-4 Gateway for export of garment products and footwear from Cambodia

	Gateway	Percentage
Seaborne Trade	Sihanoukville Port	53.1%
	Phnom Penh Port	28.9%
	CBT	16.4%
Regional Trade		1.5%

Prepared by Project Team

(2) Rice milling

The global milled rice trade has been estimated to reach 31 million tons in 2010, in which Thailand and Viet Nam will remain the biggest source of milled rice export, and Cambodia and Myanmar are expected to become new leading milled rice-exporting countries in the near future. There are more and more countries such as the Philippines, Malaysia Indonesia and African countries that have become rice-importing countries. Long grain rice occupies the majority of the world's rice market. The percentage of fragrant rice in the market is around 10%.

Rice is Cambodia's main crop, accounting for about 50 percent of total crop production and some 7-8 percent of GDP. As shown in Table 2.3-5 and Figure 2.3-2, rice production in Cambodia has doubled in the last decade due to the increase of harvested area and productivity. In the lower Mekong basin in the southeastern Cambodia, long grain rice is mainly cultivated, whereas fragrant rice is mainly cultivated in the Tonle Sap area.

The food balance in Cambodia discussed in 2.1.1 (1) shows a surplus of rice, and Cambodia exports rice at present. Table 2.3-6 shows the volume of official rice export from Cambodia, which is recorded in the Customs' statistics. Major part of (officially) exported rice is semi-milled or fully milled fragrant rice, and the top exporting destination is France followed by Poland. Virtually all exported rice is shipped to Europe.

Factoring in domestic consumption and post-harvest losses, more than 3 million tons would be available for exports. However, according to the official statistics, the exported volume is only around 50 thousand tons as shown in Table 2.3-6, suggesting existence of informal export to neighboring countries.

Under the motto, "Rice - White Gold," the government's new rice policy adopted in 2010 is a five year plan that focuses on expanding the production and export of rice. The policy aims to transform Cambodia into a «rice basket» and key milled rice-exporting country in the global market. In this connection, the Royal Government has set the year 2015 as the target year to (1) reach paddy rice surplus of more than 4 million tons and achieve milled rice export of at least 1 million tons; and (2) ensure Cambodian rice to be internationally recognized.

The policy looks at all aspects of the value-chain and has the following key objectives:

Facilitating trade. Through reducing informal fees, eliminating illegal checkpoints, boosting warehousing and rice milling capacity, creating a one-stop service for export processing, and creating an independent body to certify and grade products according to standards of importing countries.

Raising productivity. Paddy rice yield in Cambodia is still low, only 2.9 tons per hectare compared with 4.9 tons per hectare in Vietnam. Most Cambodian farmers cultivate once a year in raining season, compared to 3.5 times a year in low land Mekong plain in Viet Nam. In the near term, using higher yield seeds, expanding irrigation systems, and facilitating quicker customs clearance for imports of inputs will help improve productivity. In the longer term, the policy aims at modernizing farming techniques. Through 2015 total rice production is targeted to increase by 24 percent to 9.1 million tons.

Addressing land issues. Only about 10 percent of farmers have land titles. The policy plans to use zoning to clearly demarcate land for agriculture while improving land titling to enable

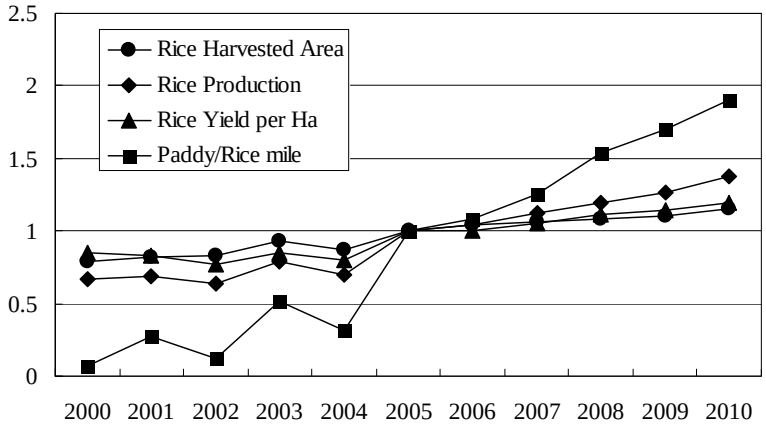
farmers to use land as collateral for loans to finance critical investments and working capital.

Improving the infrastructure including reducing energy costs. Energy costs account for about 25 percent of total production costs. Energy prices in Cambodia are generally double those in neighboring countries, primarily because of the heavy reliance on petroleum for electricity generation. Plans to build new hydropower plants with donor support over the medium term and use alternative sources of energy will help reduce costs.

Table 2.3-5 Time series of rice production in Cambodia

Year	Rice Harvested Area (ha)	Rice Production (MT)	Rice Yield (MT/ha)	Paddy/Rice mile (MT)
2000	1,903,159	4,026,092	2.12	91,185
2001	1,980,295	4,099,015	2.07	364,148
2002	1,994,645	3,822,509	1.92	156,006
2003	2,242,036	4,710,957	2.10	686,496
2004	2,109,050	4,170,284	1.98	416,118
2005	2,414,455	5,986,179	2.48	1,319,571
2006	2,516,415	6,264,123	2.49	1,433,880
2007	2,566,952	6,727,127	2.62	1,649,640
2008	2,613,363	7,175,473	2.75	2,025,033
2009	2,674,603	7,585,870	2.84	2,244,598
2010	2,777,323	8,249,452	2.97	2,516,752

Source: MAFF



Prepared by Project Team (based on the data provided by MAFF)

Figure 2.3-2 Indices of rice production in Cambodia (base year: 2005)

Table 2.3-6 Rice export from Cambodia in 2010

(ton)

	Husked (Brown) Rice	Milled Rice (Fragrant Rice)	Milled Rice (Others)	Broken Rice	TOTAL
TOTAL	33	29,087	19,115	2,946	51,181
Europe	0	27,710	15,790	2,946	46,446
Asia	33	847	974	0	1,854
Oceania	0	210	1,084	0	1,294
America	0	320	506	0	827
Africa	0	0	760	0	760
Top 10 Countries					
FRANCE	0	20,491	5,363	2,667	28,520
POLAND	0	1,200	2,928	0	4,128
LITHUANIA	0	0	3,768	0	3,768
PORTUGAL	0	1,324	1,055	0	2,379
RUSSIA	0	480	1,272	0	1,752
AUSTRALIA	0	210	1,052	0	1,262
NETHERLAND	0	1,127	0	0	1,127
MALAYSIA	0	572	503	0	1,075
USA	0	320	506	0	827
GERMANY	0	582	158	0	740

Prepared by Project Team (based on the data provided by GDCE)

2.3.2 Present status and development plans of SEZs

A sub-decree on the Establishment and Management of Special Economic Zones was adopted in December 2005. RGC has since approved a total of 21 Special Economic Zones (SEZs) located mainly along the border with Thailand and Vietnam and at the port city of Preah Sihanouk as shown in Table 2.3-7 and Figure 2.3-3.

Businesses within the SEZs benefit from a number of incentives such as up to 9 years tax holiday, 0% VAT, full import duty exemption for raw materials/machinery/equipment, no export tax, employment of expat workers allowed up to 10% of total workforce, permanent visa for families of investors, up to 99-year lease, free repatriation of profit.

In addition, for SEZ located within 20km from the official border including international ports, Special Customs Procedures stipulated in the Prakas No.3841, MEF, September 11, 2008 is applied as follows:

(Imports)
- Only duplicated copies of goods are required at border check point (no requirement for submission of customs declaration);
- No customs seal shall be affixed;
- At SEZ gate, only Customs Summarized Declaration is to be submitted, as the goods shall be transported through the Seamless Route;
- The goods are allowed to be transported to investor's premise (if customs officers preliminarily verify the identification of involved staff, mean of transport and related documents); and
- Importer can use the imported goods without the presence of customs officers.

(Exports)
- If no irregularity is found when the customs procedure is conducted in the SEZ, goods shall be immediately released to the border with copy of relevant export documents; and
- At border check point, the customs export documents are presented to customs officers for verification. The goods shall be released for export, if no irregularity is found.

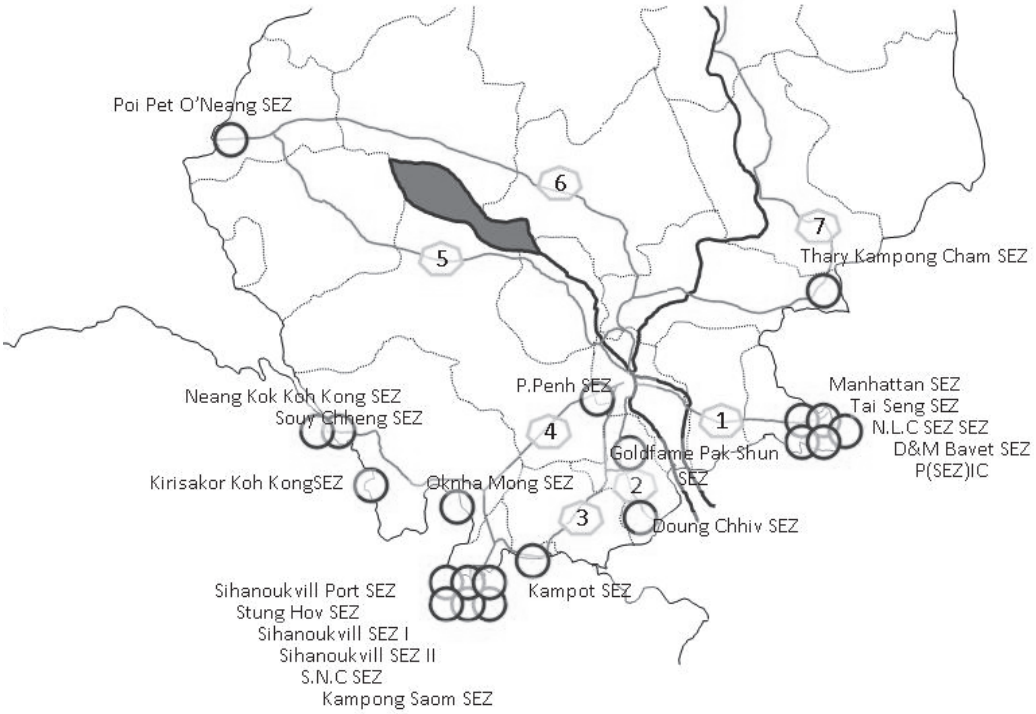
The SEZs offer a 'One-Stop Service' for imports and exports, with government officials stationed on-site providing administrative services. Applications to establish factories within the SEZs can be dealt with on-site as well as administrative clearances: company registration and investment

licenses/approvals, work permits and labor books for both expat and local workers, legal and administrative assistance. It should be noted, however, that all of these on-site services are not always provided.

Table 2.3-7 Special Economic Zones in Cambodia

No.	Name of SEZ	Developer	Area (ha)	Status	Location
1	Sihanoukville Port SEZ	Sihanoukville Autonomous Port	70	Operational	Khan Meattapheap, Sihanoukville
2	Sihanoukville SEZ 2	Cambodia International Investment Development Group Co., Ltd	1,114	Operational	Ream Commune, Prey Nop District, Sihanoukville
3	Neang Kok Koh Kong SEZ	Koh Kong SEZ Co.,Ltd.	336	Operational	Mundul Seyma District, Koh Kong
4	Suoy Chheng SEZ	Suoy Chheng Investment Co., Ltd.	100		Mundul Seyma District, Koh Kong
5	S.N.C SEZ	SNC Lavalin (Cambodia) Holding Ltd.	150		Sangkat Bet Trang, Khan Prey Nob, Sihanoukville
6	Stung Hav SEZ	Attwood Investment Group Co., Ltd.	192	Under Construction	Stung Hav District, Sihanoukville
7	N.L.C SEZ	N.L.C. Import Export Co., Ltd.	105		Srok Svay Teab, Sray Rieng
8	Manhattan (Svay Reing) SEZ	Manhattan International Co., Ltd.	157	Operational	Bavet Commune, Chantrea District, Svay Rieng
9	Poipet O'Neang SEZ	Chhay Chhay Investment Ltd	467	Operational	Poipet Commune, O' Chhrov District, Banteay Meanchey
10	Doung Chhiv Phnom Den SEZ	Doung Chhiv Special Economic Zone Ltd.	79		Kiri Vong District, Takeo
11	Phnom Penh SEZ	Phnom Penh SEZ Co., Ltd.	350	Operational	Khan Dangkao, Phnom Penh and Ang Snuol District, Kandal
12	Kampot SEZ	Kampot SEZ Co., Ltd.	145	Under Construction	Kampot district, Kampot
13	Sihanoukville SEZ 1	Cambodia International Investment Development Group Co., Ltd.	178		Stung Hav District, Sihanoukville
14	Tai Seng Bavet SEZ	Tai Seng Bavet SEZ Co., Ltd	99	Operational	Bavet District, Svay Rieng
15	Oknha Mong SEZ	Oknha Mong Port Co., Ltd	100		Srea Ambel District, Koh Kong
16	Goldfame Pak Shun SEZ	Goldfame Pak Shun SEZ Co., Ltd	80	Operational	Sa Ang District, Kandal
17	Thary Kampong Cham SEZ	Thary Investment Co., Ltd	142	Operational	Da Commune, Memot District, Kampong Cham
18	D&M Bavet SEZ	D&M Bavet SEZ Co., Ltd	118		Bavet commune, Chantrea District, Svay Rieng
19	Kiri Sakor Koh Kong SEZ	Koh Kong SEZ Co., Ltd	1,750		Srock Kirisakor, Koh Kong
20	Kampong Saom SEZ	Cambodia Catering and Supply Co., Ltd.	255		Sangkat Ortres, Khan Stung Hav, Sihanoukville
21	Pacific SEZ	Pacific (SEZ) Investment Co., Ltd.	107		Svayteab District, Svay Rieng

Source: CDC, Prepared by Project Team



Source: PAS

Figure 2.3-3 Location of SEZs in Cambodia

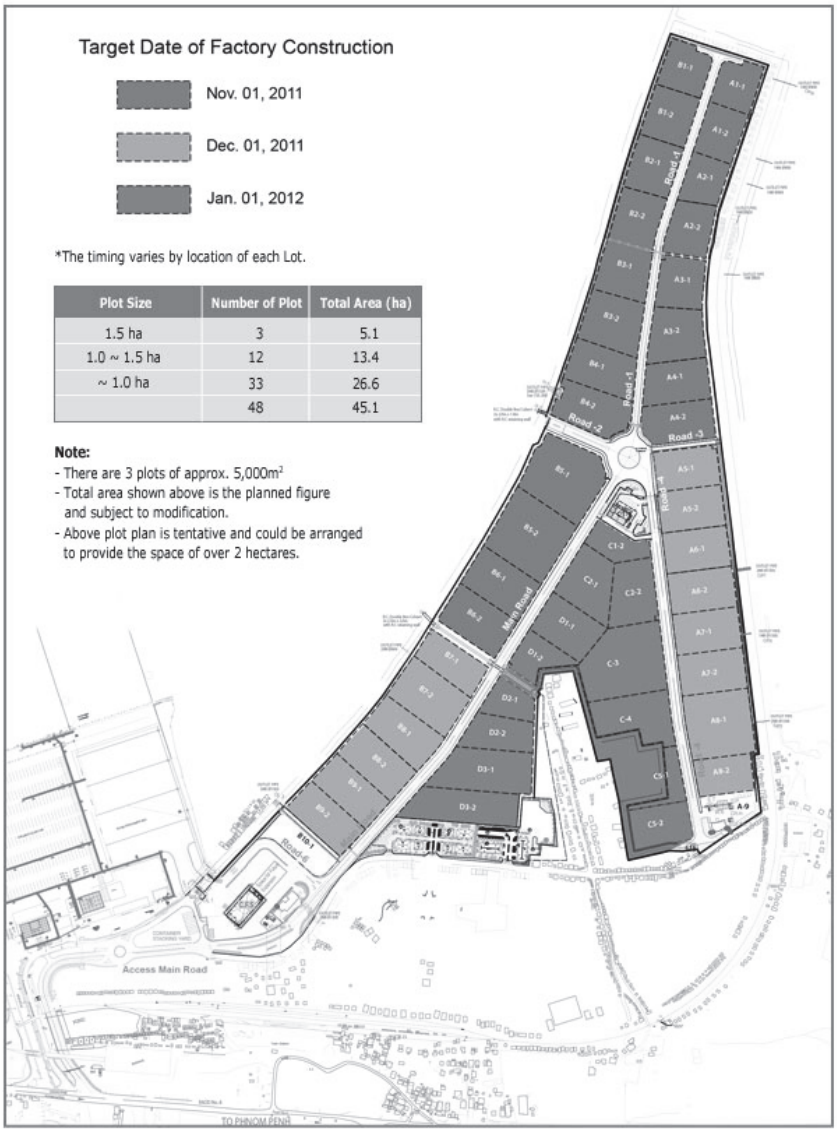
Outlines of major SEZs which are located on the Growth Corridor between Phnom Penh and Sihanoukville and are the present or prospective user of Sihanoukville Port are given below. Although SEZs located near the border cities of Bavet, Poipet and Koh Kong attract many manufacturers, they would not be constant users of Sihanoukville Port due to the proximity to the ports in neighboring countries.

(1) Sihanoukville Port SEZ

The Sihanoukville Port SEZ (SHV Port SEZ) was established for materializing the concept proposed in "the Master Plan (MP) Study for Phnom Penh - Sihanoukville Growth Corridor Development" carried out in 2003 by JICA. One of the MP's concepts was to establish a special promotion zone which develops new industries in Cambodia in order to diversify the export commodities and accumulate new technologies by promoting FDI in Preah Sihanouk.

SHV Port SEZ was developed by PAS utilizing Japan's ODA loan and operated directly by PAS since seamless logistics service between the port and SEZ is a source of competitiveness of Port SEZ. The SEZ is the only Cambodian SEZ which is located just adjoining an international deep seaport. It is expected to attract the foreign investors especially for export-oriented and non-traditional industries. The SEZ was completed in 2011.

The area of the SEZ is 70 ha furnished with One Stop Service Station, container freight station (CFS), SEZ administration center (bank / post office / vocational training rooms), maintenance house and service apartment & dormitory. The SEZ has a water supply system with the capacity of 2,000 m3/day, power supply system and wastewater disposal system with 2,000 m3/day capacity. Roads are designed for heavy trucks with the design speed of 35 km/h.



Source: PAS

Figure 2.3-4 Layout of Sihanoukville Port SEZ

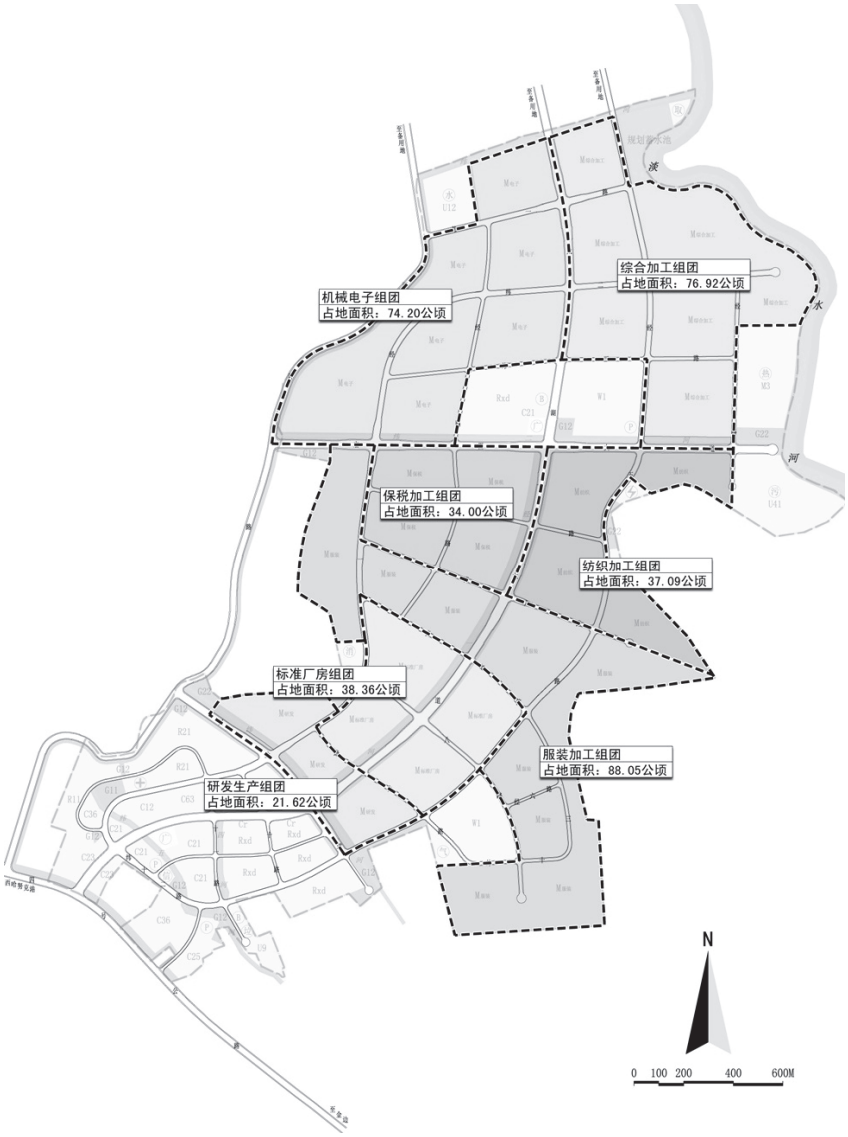
(2) Sihanoukville SEZ 1

Sihanoukville SEZ 1 is one of the first batches of overseas economic zones approved by the Ministry of Commerce of PRC. Chinese companies which operate in the SEZ can enjoy the privilege of soft loan and subsidy in the prior period of investment provided by the government of PRC

The SEZ is located along NR4 within 20 km from Sihanoukville Port and therefore the SEZ is entitled to utilize the above-mentioned simplified customs procedures. The total area of the SEZ is 1,114 ha, of which 528 ha is being developed in the first phase. Around 100 ha of land have been leased already where 9 factories are operating or preparing to operate. These factories include garment, footwear, bicycle manufacturers. The time frame of the second phase project is not fixed yet.

The SEZ has One Stop Service Building and dormitories for 1,000 workers. The SEZ also provides lease service of ready built factories.

Factories operating in the SEZ normally use Sihanoukville Port; however they also use Phnom Penh Port occasionally.



Source: Sihanoukville SEZ

Figure 2.3-5 Layout of Sihanoukville SEZ (Phase 1)

(3) Phnom Penh SEZ

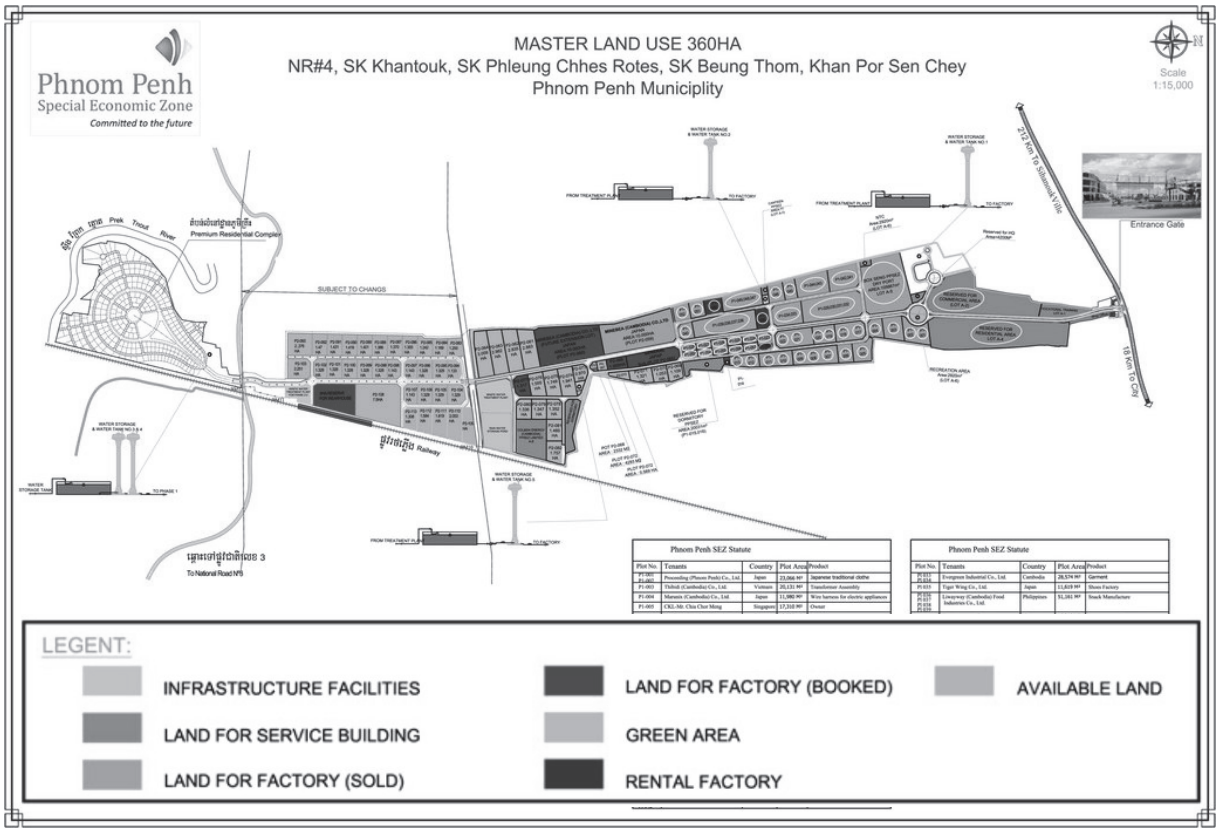
Phnom Penh SEZ was established in 2006 as a Cambodian-Japanese joint venture private project on the outskirts of the capital Phnom Penh along NR4 and the South Line of National Railway, 8 km from Phnom Penh Airport. Among them, Cambodia holds 78% of the capital, with the remaining 22% belonging to Japan.

Totaling 365 ha, Phnom Penh SEZ is being developed in three phases, with phase 1 providing 58 factory lots, and a further 20 ha set aside for residential and commercial development to support and provide the factories, their management and workforce. Currently available factory lots range from 0.4 ha to 1.6 ha in size. The whole zone is protected against flood by dikes and equipped with a drainage system. The SEZ has its own electricity and water supply system.

99-year lease of land for foreign individuals and company's is allowed. The lease is renewable for another 99 years, and transferable. The SEZ is equipped with an on-site dry port.

There are totally 26 companies from Japan, South Korea, Singapore, Malaysia and Taiwan, etc., registered to enter the SEZ. The involving sectors included garment manufacturing factories, shoes manufacturing factories, motorcycle equipping industry and food industry.

With the first phase of development finalized and all lots fully purchased, booked or with factories in operation, phase II of the development was launched ahead of schedule in February 2011. Phnom Penh SEZ has achieved both ISO 9001 and ISO 14001 certificates in early 2010.



Source: PPSEZ

Figure 2.3-6 Layout of Phnom Penh SEZ

2.3.3 Business trends of logistics industries

(1) Land transportation companies and freight forwarders

1) Trucking company

In the past, most of the trucks in Cambodia were managed by self-employed owners. Due to the increase in container cargoes being transported to/from Sihanoukville Port along with the economic growth in Cambodia, a truck owners association to assist the development of the required service level for consignor/consignee was demanded. Therefore, the Cambodian Trucking Association (CAMTA) was established based on the said circumstances. It is now composed of the following seven trucking companies, five of which have their own dry port:

- So NGUON Group
- Sokorn
- UNION、
- TEC SRUN
- TENG LAY
- BOK SENG
- OL AIR

So NGUON Group is the largest with 200 container trucks and 3,000 m^2 of warehouse. TENG LAY is the second largest with 150 container trucks.

For container transportation on roads, fastening device called twist lock pin is normally used to secure containers onto vehicle chassis. Disappointingly, there are some cases where containers are transported on flat-body trailers without the use of this fastening device in Cambodia (see the picture below).


Prepared by Project Team

Figure 2.3-7 Flat-body truck without twist lock pins

In the survey carried out in the vicinity of Sihanoukville Port, the percentage of flat-body trailers without any securing devices was found to be 10% of all heavy vehicles carrying containers. Although, there were some cases observed where container is fastened to chassis using chains alike on flat-body, still there are major concerns of accident due to insufficient fastening. Some trucks are found to be in a very dangerous condition without any fixing of containers on the flat-body.

Even on the trailers with container securing device, it is a known fact that some containers do fall off if the twist lock pin is not locked correctly, which may lead to accidents on the road. Besides the risk of accident caused by unsecured containers, there is also the potential for accidents due to the loaded heavy vehicles speeding around the corners. It is important that drivers travel at a safe speed and ensure proper container fixings on the trailer to prevent any further heavy vehicle accidents.

2) Freight forwarder

In Cambodia, a freight forwarder and forwarding agent is a person or company that organizes shipments for individuals or companies and it may also act as a non-vessel operating common carrier (NVOCC). They generally arrange cargo movement of domestic/international trades with expertise that allows them to prepare and process the documentation and perform related activities.

The Cambodia Freight Forwarders Association (CAMFFA) has been established since 2001. It is the official representative of freight forwarder companies in Cambodia. At present, 25 companies have been registered as members. The main objectives of CAMFFA are the following:

- To promote engagement in enterprises related to the freight forwarding industry by rail, road, sea and air, including customs clearance and warehousing,
- To support and assist members in solving various problems and obstacles, including negotiations and undertaking agreements with non-members in the interests of members' commercial activities,
- To monitor developments in trade and markets related to freight forwarding, both within and outside Cambodia, in order to provide benefits in the pursuit of trading, industrial, financial and economic affairs,
- To join together in harmony and to mutually exchange views in technical and practical matters, information, and research, related to freight forwarding in general,
- To exchange with government institutions consent statistics and/or documents and/or any information related to freight forwarding operations, and
- To promote international freight forwarding in general and bring local freight forwarding activities towards international standards.

(2) Waterborne transportation companies

1) Mekong River barges

Barge services through Mekong River waterways are now broadly used by the major ocean container lines as a feeder from Phnom Penh Port to Cai Mep and Ho Chi Minh Port. Transportation of containers through this route was started by Sovereign Base Logistics Holdings Co., Ltd., a Taiwan-based barge operator in August 2002. However, this transportation route had long been neglected by major ocean container lines until MOL started to provide regular service to the garment factories for their exports to North America in November 2009. Since then, as the reliability and cost-efficiency of this transportation mode has become well-known among the garment exporters in Phnom Penh, the barge operators have been expanding their fleet of barges to meet potential needs of garments and shoes manufacturers. Consequently, as far as the cargoes to be transshipped at Cai Mep or Ho Chi Minh Port are concerned, this transportation mode has become a competitive route on a par with the legacy routes via Sihanoukville Port or road transportation to/from Ho Chi Minh City.

2) Barge operators

Four* barge operators are currently deploying self-propelled container barges between Phnom Penh Port and Cai Mep-Thi Vai Port / Ho Chi Minh Port through Mekon River waterways. The fleet and service of each company are shown in Table 2.3-8 below.

Table 2.3-8 Barge services calling at Phnom Penh Port

Shipping line	Frequency	Turnround	Interval (days)	Vessels deployed	Fleet capacity (TEU/ service)	Average capacity/vessel (TEU)	Number of voyages /year	Fleet capacity /year (TEU)	Calling ports	Vessel name (capacity; TEU)	Departure day
Gemadept	weekly	7	0.8	9	728	81	469	37,960	Phnom Penh-Cai Mep-Ho Chi Minh-Phnom Penh	Gemadept 18 (112) Song Xanh 18 (112) Phuoc Long 16 (72) Phuoc Long 18 (72) Phuoc Long 20 (72) Phuoc Long 22 (72) Phuoc Long 24 (72) Phuoc Long 26 (72) Phuoc Long 28 (72)	Mon, Fri, Sat
Sovereign Base Logistics	weekly	7	2.3	3	312	104	156	16,269	Phnom Penh-Cai Mep-Ho Chi Minh-Phnom Penh	Golden Fortune 1 (96) Golden Fortune 2 (96) Golden Fortune 8 (120)	Thu, Sat
SNP-Cypress	weekly	7	3.5	2	168	84	104	8,760	Phnom Penh-Cai Mep-Ho Chi Minh-Phnom Penh	Tay Nam 08 (84) Cai Mep 06 (84)	Tue, Sat
Hai Minh	weekly	7	7.0	1	72	72	52	3,754	Phnom Penh-Cai Mep-Ho Chi Minh-Phnom Penh	Hai Minh 08 (72)	n/a
Mekong River Waterway Total				15	1,280	85	782	66,743			

Prepared by Project Team

Out of the 4 companies, only Sovereign Base Logistics is registered in Cambodia, operating Cambodian flag barges. Other 3 companies are registered in Vietnam and operating Vietnamese flag barges.

*Note: Through the hearings with the parties concerned in November 2011, Project Team found that Hai Minh, one of the 4 barge operators, pulled out of barge operations between Cambodia and Vietnam. See more details in 2.7.2 (3)-3).

Fifteen barges are deployed in total by the 4 companies. Their services are much the same; each barge has 7-day turnaround with the same route and port rotation. Majority of the barges are sailing Phnom Penh Port on Friday, Saturday or Sunday early morning to meet the cargo readiness of the garment factories who usually stuff the products into containers from Thursday to Saturday, based on the weekly-order from the overseas buyers.

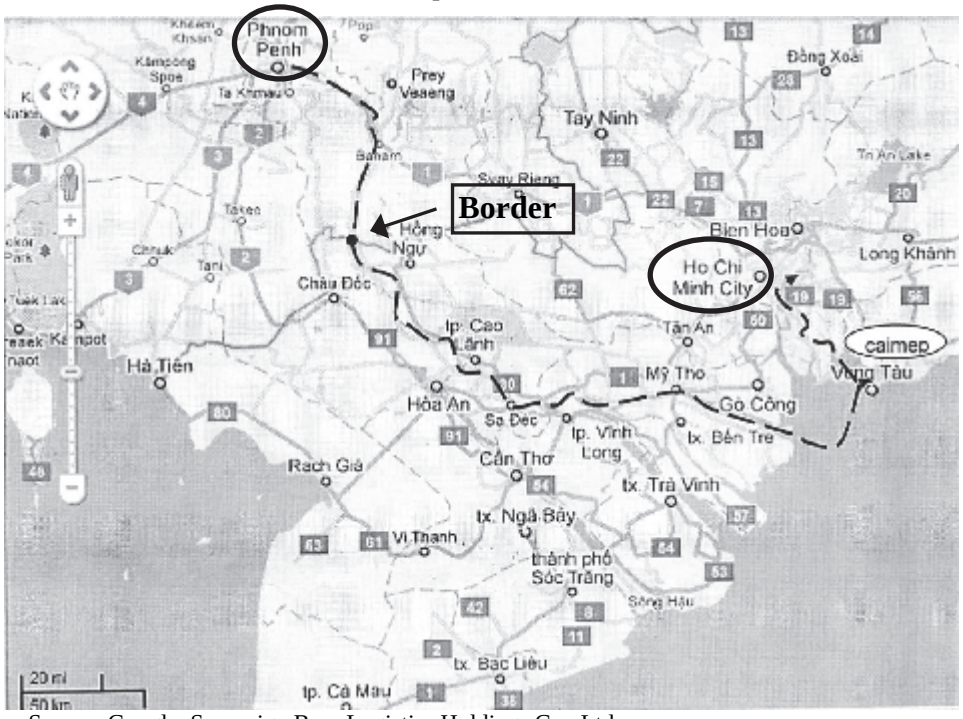
3) Particular of barges

Capacity of barges is in the range between 72 TEUs and 120 TEUs. The dimensions of the barges operated by Sovereign Base Logistics are shown in the following table. Every barge has a light draft suitable for navigation on the Mekong River in the dry season.

Name	Capacity (TEUs)	Loading plan	DWT	LOA (m)	Width (m)	Draft (m)	Number of crew
Golden Fortune 1 Golden Fortune 2	96	6 (L) x 4 (W) x 4 (H)	1,500	49.82	12.98	3.60	8
Golden Fortune 8	120	6 (L) x 5 (W) x 4 (H)	1,854	49.82	15.60	3.60	8

4) Navigation route and transit time

Navigation route of the barges is depicted in Figure 2.3-8 below. After going out of the river mouth of Mekong, the barges steam offshore up to the Cai Mep river mouth. Total turnaround time is 6 days with the rotation of Phnom Penh - Cai Mep – Ho Chi Minh – Phnom Penh.



Source: Google, Sovereign Base Logistics Holdings Co., Ltd.

Figure 2.3-8 Navigation route of barges

Terminals of calling at Cai Mep/Ho Chi Minh Port vary by voyage depending on the cargoes on board. Transit time from Phnom Penh to Cai Mep is approx. 25 hours, and to Ho Chi Minh 33 hours subject to the terminals of calling at Cai Mep. The table below shows a typical sailing schedule of barges.

Sunday	01:00	ETD	Phnom Penh
Sunday	07:00	ETA	Border
	09:00	ETD	Border
Monday	02:00	ETA	Cai Mep
	05:00	ETD	Cai Mep
Monday	10:00	ETA	Ho Chi Minh
Wednesday	24:00	ETD	Ho Chi Minh
Friday	07:00	ETA	Border
	09:00	ETD	Border
Friday	20:00	ETA	Phnom Penh

The barges currently take 2 hours at Cambodia/Vietnam border for outbound and inbound respectively. At the border, barge operator is required to submit the cargo manifest which is just the same as that required at each calling port.

The bilateral agreement on waterway transportation was concluded between Cambodia and Vietnam in December 2009. As a result, CIQ procedures for the barges at the border have been simplified from previous 2 stops to single stop. However, office hours of border customs are still limited from 08:00 to 17:00. If a barge arrives at the border outside of office hours, it needs to wait until next morning.

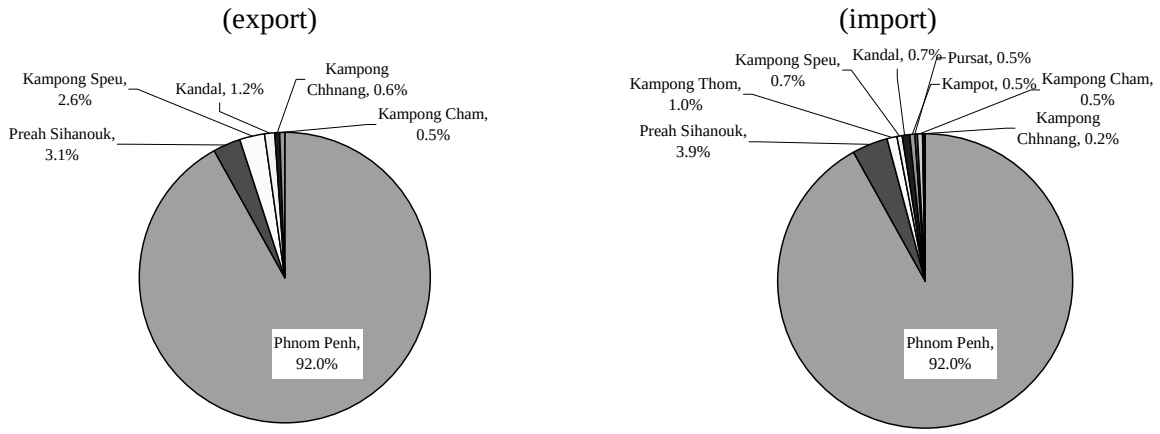
Further facilitation of the border procedures will be discussed at "The Mekong Navigation Facilitation Committee" which is supposed be formed within the year 2012 in accordance with the provisions of Chapter 4 of the said Agreement. Being nominated as one of 2 secretariat members of the Committee, PPAP is expected to take a leading role in the discussions there.

2.3.4 Hinterland transport of seaborne cargoes handled in Cambodian ports

(1) Hinterland transport for Sihanoukville Port

PAS, PPAP and the Project Team carried out a survey on hinterland transport of containerized cargoes handled in Sihanoukville Port and Phnom Penh Port.

Figure 2.3-9 shows the result of the survey for Sihanoukville Port. For both export and import, more than 90% of containers are to/from Phnom Penh, where a lot of garment factories export their products to USA and EU and import raw materials from East Asia. Export/import cargoes from Preah Sihanouk, which Sihanoukville Port can handle without major competition, is less than 4%.



Ref. Laden container throughput in 2010

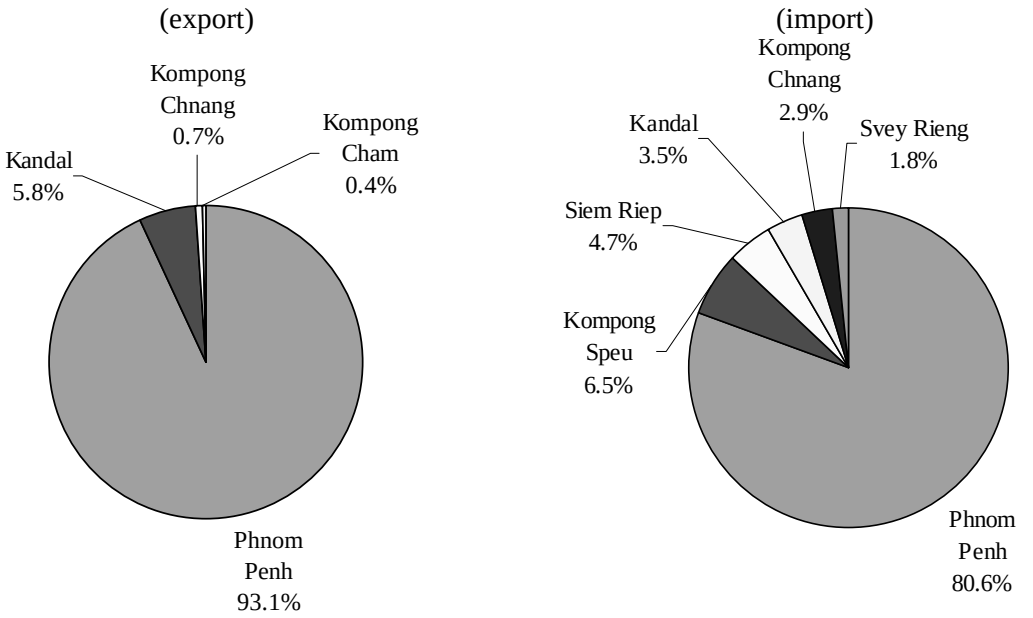
export	62,371 TEU
import	96,005 TEU

Prepared by Project Team

Figure 2.3-9 Source provinces of containerized cargoes handled in Sihanoukville Port

(2) Hinterland transport for Phnom Penh Port

Figure 2.3-10 shows the result of the survey for Phnom Penh Port. For export, more than 90% of containers are from Phnom Penh as observed in the data of Sihanoukville; however, the destination of imported cargoes through Phnom Penh Port is slightly more diversified than those through Sihanoukville Port.



Ref. Laden container throughput in 2010

export	24,276 TEU
import	21,369 TEU

Prepared by Project Team

Figure 2.3-10 Source provinces of containerized cargoes handled in Phnom Penh Port

2.3.5 Cross-border cargo transport

The main cross-border routes to and from Cambodia are the following: 1) Bavet–Moc Bai, 2) Poipet–Aranyaprathet and 3) Koh Kong–Hat Lek. The commodity-wise trade volumes in 2009/2010 of the above three routes are discussed below. The analysis in this sub-section is based on the customs

statistics at each border post. Therefore, cargoes cleared at inland customs such as Phnom Penh are not included in the data. Actual cross border cargo volume is larger than the data analyzed below.

1) Bavet–Moc Bai route

The total export volume in 2010 was 4,106 tons. Of the total, 3,392 tons (83%) are "textiles and textile articles" (garments) and 311 tons (8%) are "vegetable products" (oil seeds etc.), the total import volume in 2010 was 32,540 tons. Of the total, 18,358 tons (56%) are "textiles and textile articles" (cotton etc.), 2,873 tons (9%) are "vegetable products" (cabbages etc.), 2,795 tons (9%) are "chemical products" (carbonates etc.), and 2,571 tons (8%) are "machinery or related products" (electric accumulators etc.).

Table 2.3-9 Commodity-wise trade volume of the Bavet–Moc Bai route (2009/2010)

unit: ton

Year	2009		2010	
Commodities of Cargo	Exprot	Import	Export	Import
Live animal, Animal products	9	0	0	0
Vegetable Products	0	4,341	311	2,873
Animal or vegetable fats and oils and their cleavage products, prepared edible fats, animal or vegetable waxes	0	0	0	0
Prepared foodstuffs, beverages, spirits and vinegar, tobacco and manufactured tobacco substitutes	0	478	0	68
Mineral products	0	529	28	482
Products of the chemical or allied industries	3	3,979	2	2,795
Plastics and articles thereof, rubber and articles thereof	411	1,864	1	1,188
Raw hides and skins, leather, furskins and articles thereof, saddlery and harness, travel goods, handbags and similar containers, articles of animal gut	110	182	0	45
Wood and article of wood, wood charcoal, cork and articles of cork, manufactures of straw, of esparto or of other plaiting materials, basketware an wickerwork	0	83	0	114
Pulp of wood or of other fibrous cellulosic material, recovered (waste and scrap) paper or paperboard, paper and paperboard	6	2,228	6	794
Textiles and textile articles	1,624	11,954	3,392	18,358
Foot wear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and articles made therewith, artificial flowers, articles of human hair	577	583	0	370
Articles of stone, plaster, cement, asbestos, mica or similar materials, ceramic products, glass and glassware	0	368	0	499
Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof, imitation jewellery, coin	0	1	0	1
Base metals and articles of base metal	860	2,249	0	431
Machinery and mechanical, appliances, electrical equipment, parts thereof, sound recorders, television image and sound recorders and reproducers, and parts and accessories of such articles	456	66,025	123	2,571
Vehicles, aircraft, vessels and associated transport equipment	6,324	3,787	237	980
Optical, photographic, cinematographic, measuring, precision, medical or surgical instrument and apparatus, clocks and watches, musical instruments, parts and accessories	3	139	4	115
Arms and ammunition, parts and accessories thereof	0	7	0	0
Miscellaneous manufactured articles	29	687	0	857
Works of art, collector's pieces, and antiques	0	0	0	0
Special transactions not classified according to kind	0	4	2	0
(Total)	10,413	99,488	4,106	32,540

Source: General Department of Custom and Excise, Ministry of Economy and Finance

2) Poipet- Aranyaprathet route

The total export volume in 2010 was 11,490 tons. Of the total, 3,302 tons (29%) are "articles of stone/plaster/cement" (ceramic products), 3,097 tons (27%) are "chemical products" (fertilizer), 2,439 tons (21%) are "textiles and textile articles" (worn clothing etc.), and 684 tons (6%) are "vehicles or associated transport equipment" (special purpose motor vehicle etc.). On the other hand, the total import volume in 2010 was 781,898 tons. Of the total, 456,707 tons (58%) are "mineral products" (cement), 91,131 tons (12%) are "chemical products" (fertilizer etc.), 77,105 tons (10%) are "prepared foodstuff/beverages" (animal fodder etc.), and 65,674 tons (8%) are "articles of stone/plaster/cement" (ceramic products).

Table 2.3-10 Commodity-wise trade volume of Poipet–Aranyaprathet route (2009/2010)

unit: ton

Year	2009		2010	
Commodities of Cargo	Exprot	Import	Export	Import
Live animal, Animal products	193	90	0	3,809
Vegetable Products	50	15,072	50	9,716
Animal or vegetable fats and oils and their cleavage products, prepared edible fats, animal or vegetable waxes	0	332	0	140
Prepared foodstuffs, beverages, spirits and vinegar, tobacco and manufactured tobacco substitutes	0	83,537	1	77,105
Mineral products	0	505,089	0	456,707
Products of the chemical or allied industries	1,905	74,601	3,097	91,131
Plastics and articles thereof, rubber and articles thereof	5	2,846	6	4,230
Raw hides and skins, leather, furskins and articles thereof, saddlery and harness, travel goods, handbags and similar containers, articles of animal gut	165	83	194	254
Wood and article of wood, wood charcoal, cork and articles of cork, manufactures of straw, of esparto or of other plaiting materials, basketware an wickerwork	0	331	0	708
Pulp of wood or of other fibrous cellulosic material, recovered (waste and scrap) paper or paperboard, paper and paperboard	1,000	16,565	1,100	20,707
Textiles and textile articles	2,349	6,702	2,439	10,614
Foot wear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and articles made therewith, artificial flowers, articles of human hair	0	22	0	29
Articles of stone, plaster, cement, asbestos, mica or similar materials, ceramic products, glass and glassware	1,753	76,600	3,302	65,674
Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof, imitation jewellery, coin	0	0	0	0
Base metals and articles of base metal	346	17,660	284	5,008
Machinery and mechanical, appliances, electrical equipment, parts thereof, sound recorders, television image and sound recorders and reproducers, and parts and accessories of such articles	1,485	8,367	331	18,386
Vehicles, aircraft, vessels and associated transport equipment	1,277	11,632	684	17,122
Optical, photographic, cinematographic, measuring, precision, medical or surgical instrument and apparatus, clocks and watches, musical instruments, parts and accessories	12	25	0	47
Arms and ammunition, parts and accessories thereof	0	0	0	0
Miscellaneous manufactured articles	0	2,304	0	508
Works of art, collector's pieces, and antiques	1	0	1	1
Special transactions not classified according to kind	0	23	0	0
(Total)	10,541	821,881	11,490	781,898

Source: General Department of Custom and Excise, Ministry of Economy and Finance

3) Koh Kong–Hat Lek

The total export volume in 2010 was 379,803 tons. Of the total, 269,600 tons (71%) are "mineral products" (natural sand) and 95,019 tons (25%) are "vehicles or associated transport equipment" (ships and boats). Meanwhile, the total import volume in 2010 was 131,480 tons. Of the total, 106,830 tons (81%) are "mineral products" (cement) and 8,802 tons (7%) are "chemical products" (fertilizer etc.).

Table 2.3-11 Commodity-wise trade volume of Koh Kong–Hat Lek route (2009/2010)

unit: ton

Year	2009		2010	
Commodities of Cargo	Exprot	Import	Export	Import
Live animal, Animal products	0	1,025	0	1,150
Vegetable Products	0	0	0	100
Animal or vegetable fats and oils and their cleavage products, prepared edible fats, animal or vegetable waxes	0	195	0	84
Prepared foodstuffs, beverages, spirits and vinegar, tobacco and manufactured tobacco substitutes	0	3,281	14,000	4,753
Mineral products	940,800	64,913	269,600	106,830
Products of the chemical or allied industries	0	31,082	0	8,802
Plastics and articles thereof, rubber and articles thereof	509	154	0	296
Raw hides and skins, leather, furskins and articles thereof, saddlery and harness, travel goods, handbags and similar containers, articles of animal gut	0	0	0	0
Wood and article of wood, wood charcoal, cork and articles of cork, manufactures of straw, of esparto or of other plaiting materials, basketware an wickerwork	1,900	0	0	0
Pulp of wood or of other fibrous cellulosic material, recovered (waste and scrap) paper or paperboard, paper and paperboard	0	0	0	1
Textiles and textile articles	0	3	0	21
Foot wear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and articles made therewith, artificial flowers, articles of human hair	0	0	0	0
Articles of stone, plaster, cement, asbestos, mica or similar materials, ceramic products, glass and glassware	0	1	0	1,311
Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof, imitation jewellery, coin	0	0	0	0
Base metals and articles of base metal	0	64,206	128	2,621
Machinery and mechanical, appliances, electrical equipment, parts thereof, sound recorders, television image and sound recorders and reproducers, and parts and accessories of such articles	780	1,395	1,056	935
Vehicles, aircraft, vessels and associated transport equipment	60,631	110,470	95,019	4,416
Optical, photographic, cinematographic, measuring, precision, medical or surgical instrument and apparatus, clocks and watches, musical instruments, parts and accessories	0	2	0	31
Arms and ammunition, parts and accessories thereof	0	0	0	0
Miscellaneous manufactured articles	0	0	0	130
Works of art, collector's pieces, and antiques	0	0	0	0
Special transactions not classified according to kind	0	0	0	0
(Total)	1,004,619	276,728	379,803	131,480

Source: General Department of Custom and Excise, Ministry of Economy and Finance

2.3.6 Generation of seaborne cargoes in Cambodia

(1) Seaborne cargoes to/from Cambodia

The Project Team estimated the total volume of seaborne cargoes to/from Cambodia. The "seaborne cargoes" in this report denote the cargoes which utilize maritime transportation at least one time in the movement from the origin to the final destination. Therefore, cargoes transported from Cambodia to China via NR1 and Ho Chi Minh Port or cargoes from Cambodian seaports to Ho Chi Minh Port by sea are seaborne cargoes, whereas cargoes from Phnom Penh Port to the final destination of Ho Chi Minh by river barges are not seaborne cargoes. The volume of seaborne cargoes was estimated using the following manner:

- Calculation of total weight (net weight) of imported and exported cargoes using customs' data
- Elimination of the volume of cargoes to/from Vietnam or Thailand, in which non-seaborne cargoes are included from the total weight
- Conversion of net weight data into gross weight data
- Addition of the weight of cargoes transported between Cambodia and Thailand/Viet Nam by sea.

The row A of Table 2.3-12 and Table 2.3-13 show the trade volume of Cambodia in 2010 listed in the statistics book prepared by GDCE. Prior to the estimation of seaborne cargo volume, the data was modified as follows (see the row B of the tables):

- Around 20 million tons of "Glazed ceramic flags and paving, hearth or wall tiles; glazed ceramic mosaic cubes and the like", which accounts around 80% of total import volume was imported from China in 2010. However, this huge amount of import flow was eliminated from the data, since this flow has not been observed in the customs statistics in the previous years and this is supposed to be an occasional movement of cargoes or a statistical error. (code 13 in Table 2.3-12)
- Around 103 thousand tons of exported vessels and 22 thousand tons of imported vessels are also eliminated from the data because this flow is occurred by the trade of flag of convenience vessels, which doesn't cause any movement of cargoes in the territory of Cambodia. (code 17 in Table 2.3-12 and Table 2.3-13)
- Cambodia has exported a large amount of sand to Singapore and Viet Nam. Although the exported volume has been decreasing, Cambodia still exported 273 thousand tons of sand in 2010. Since sand is transported directly from excavation sites of rivers or the sea without being handled in ports, the exported sand was eliminated from the data. (code 05 in Table 2.3-13)

Next, the volume of cargoes to/from Vietnam or Thailand, in which non-seaborne cargoes are included, is calculated from the GDCE's data as shown in the rows C and D of the tables. The influence of the trade of FOC vessels and sand export is also eliminated. Since the amount of trade volume to/from Lao PDR is very small (0.5 thousand tons for import and 0.4 thousand tons for export in 2010) and its influence on the total cargo volume to/from Cambodia is negligible, the data of total cargo volume was not modified by Lao data.

In order to calculate the gross weight which includes the weight of packages, the conversion factor of 1.3 is applied for commodities which are likely to be transported in containers, whereas the factor of 1.0 is assumed for what would be transported in bulk. Thus, the gross weight of imported/exported cargoes except those to/from Thailand and Viet Nam is obtained as shown the row G of each table.

Table 2.3-14 shows the volume of seaborne cargoes between Cambodia and Thailand or Viet Nam in 2010. The data is estimated from port statistics of Sihanoukville Port, Oknha Mong Port and Tomnop Rolok Port from October 2010 to March 2011 prepared by PENPPAS. There is some cargo flow from Thailand through Koh Kong Port, Sre Ambel Port, and Kampot Port though, these cargoes

were not considered here because the handling volume is relatively small.

Table 2.3-15 summarizes the estimated volume of seaborne cargoes to/from Cambodia. The estimated import cargo volume is 4.7 times lager than export cargo volume due to large inflow of oil products, construction materials, and consumer goods.

Table 2.3-12 Imported cargoes to Cambodia except those from Thailand and Viet Nam in 2010

IMPORT (1000 tons)

		A	B	C	D	E	F	G
code	Commodity	Customs Statistics	Modified Customs Statistics	Cargoes from Viet Nam	Cargoes from Thailand	B-C-D	Conversion Factor from Net to Gross	Total Imported Cargoes except Those from Viet Nam and Thailand (E x F)
01	Animal Products	12	12	4	5	3	1.3	4
02	Vegetable Products	87	87	17	14	56	1.3	72
03	Fats and oils	9	9	2	1	6	1.3	8
04	Foodstuffs	266	266	35	119	112	1.3	146
05	Mineral products	2,380	2,380	775	1,189	416	1.0	416
06	Chemical products	323	323	126	126	71	1.0	71
07	Plastics, rubber articles	59	59	8	9	42	1.3	54
08	Raw hides, skins, leather	6	6	0	1	5	1.0	5
09	Wood	7	7	1	1	5	1.3	7
10	Pulp, paper	88	88	7	22	59	1.3	77
11	Textiles, textile articles	428	428	14	12	402	1.3	522
12	Footwear, headgear, umbrellas	13	13	4	0	8	1.3	10
13	Stone, plaster, ceramic, glass	19,937	235	37	107	91	1.0	91
14	Pearls, precious stones	0	0	0	0	0	1.3	0
15	Base metals	187	187	71	16	99	1.0	99
16	Machinery, electrical equipment	125	125	18	27	80	1.3	104
17	Vehicles, transport equipment	126	104	15	20	69	1.0	69
18	Optical, medical instruments, etc.	3	3	0	0	2	1.3	3
19	Arms, ammunition	0	0	0	0	0	1.3	0
20	Miscellaneous manufactured articles	22	22	2	11	8	1.3	10
21	Works of art, antiques	0	0	0	0	0	1.3	0
22	Others	1	1	0	0	1	1.3	1
	TOTAL	24,078	4,354	1,138	1,681	1,535		1,770

Prepared by Project Team (based on the data provided by GDCE)

Table 2.3-13 Exported cargoes from Cambodia except those to Thailand and Viet Nam in 2010

EXPORT (1000 tons)

		A	B	C	D	E	F	G
code	Commodity	Customs Statistics	Modified Customs Statistics	Cargoes to Viet Nam	Cargoes to Thailand	B-C-D	Conversion Factor from Net to Gross	Total Exported Cargoes except Those to Viet Nam and Thailand (E x F)
01	Animal Products	2	2	0	0	1	1.3	2
02	Vegetable Products	130	130	18	57	55	1.3	71
03	Fats and oils	15	15	0	0	15	1.3	19
04	Foodstuffs	42	42	11	4	27	1.3	35
05	Mineral products	273	0	0	0	0	1.0	0
06	Chemical products	4	4	0	3	1	1.0	1
07	Plastics, rubber articles	33	33	22	1	10	1.3	13
08	Raw hides, skins, leather	2	2	1	0	1	1.0	1
09	Wood	108	108	17	0	92	1.0	92
10	Pulp, paper	7	7	6	1	0	1.3	0
11	Textiles, textile articles	278	278	2	2	273	1.3	355
12	Footwear, headgear, umbrellas	25	25	0	0	25	1.3	32
13	Stone, plaster, ceramic, glass	3	3	0	3	0	1.0	0
14	Pearls, precious stones	0	0	0	0	0	1.3	0
15	Base metals	6	6	1	0	5	1.0	5
16	Machinery, electrical equipment	10	10	0	7	3	1.3	4
17	Vehicles, transport equipment	117	14	3	2	9	1.0	9
18	Optical, medical instruments, etc.	0	0	0	0	0	1.3	0
19	Arms, ammunition	0	0	0	0	0	1.3	0
20	Miscellaneous manufactured articles	3	3	0	0	3	1.3	4
21	Works of art, antiques	0	0	0	0	0	1.3	0
22	Others	2	2	0	0	2	1.3	2
	TOTAL	1,060	684	82	81	521		646

Prepared by Project Team (based on the data provided by GDCE)

Table 2.3-14 Seaborne cargoes to/from Thailand and Viet Nam in 2010

Import (1000 tons)

	From Thailand				From Vietnam
	via SNV	via OKM	via TR	Sub Total	via SNV
Containers and General Cargoes	63	740	161	964	20
Liquid Bulk	240	0	0	240	59
Total	303	740	161	1,204	79

Export (1000 tons)

	To Thailand				To Vietnam
	via SNV	via OKM	via TR	Sub Total	via SNV
Containers and General Cargoes	1	0	0	1	1
Liquid Bulk	0	0	0	0	0
Total	1	0	0	1	1

Prepared by Project Team (based on the data provided by PENPPAS

Table 2.3-15 Estimated volume of seaborne cargoes to/from Cambodia in 2010

(1,000tons)

		Import	Export
A	Except Thailand or Viet Nam	1,770	646
B	Thailand or Viet Nam	1,283	2
C	**Total (A+B)**	**3,053**	**648**

Prepared by Project Team

(2) Seaborne cargoes to/from each province

Since the statistical data on seaborne cargo generation in each Cambodian province is not available as of the date of the Project Team's analysis, the Project Team estimated it by developing two scenarios described below:

- Scenario A: The volume of seaborne cargo generation is in proportion to the province's share of container origin/destination measured in the container flow survey of this Project described in 2.3.4.
- Scenario B: The volume of seaborne cargo generation is in proportion to the number of large establishments with 101 or more workers in the province, which was discussed in 2.1.2.

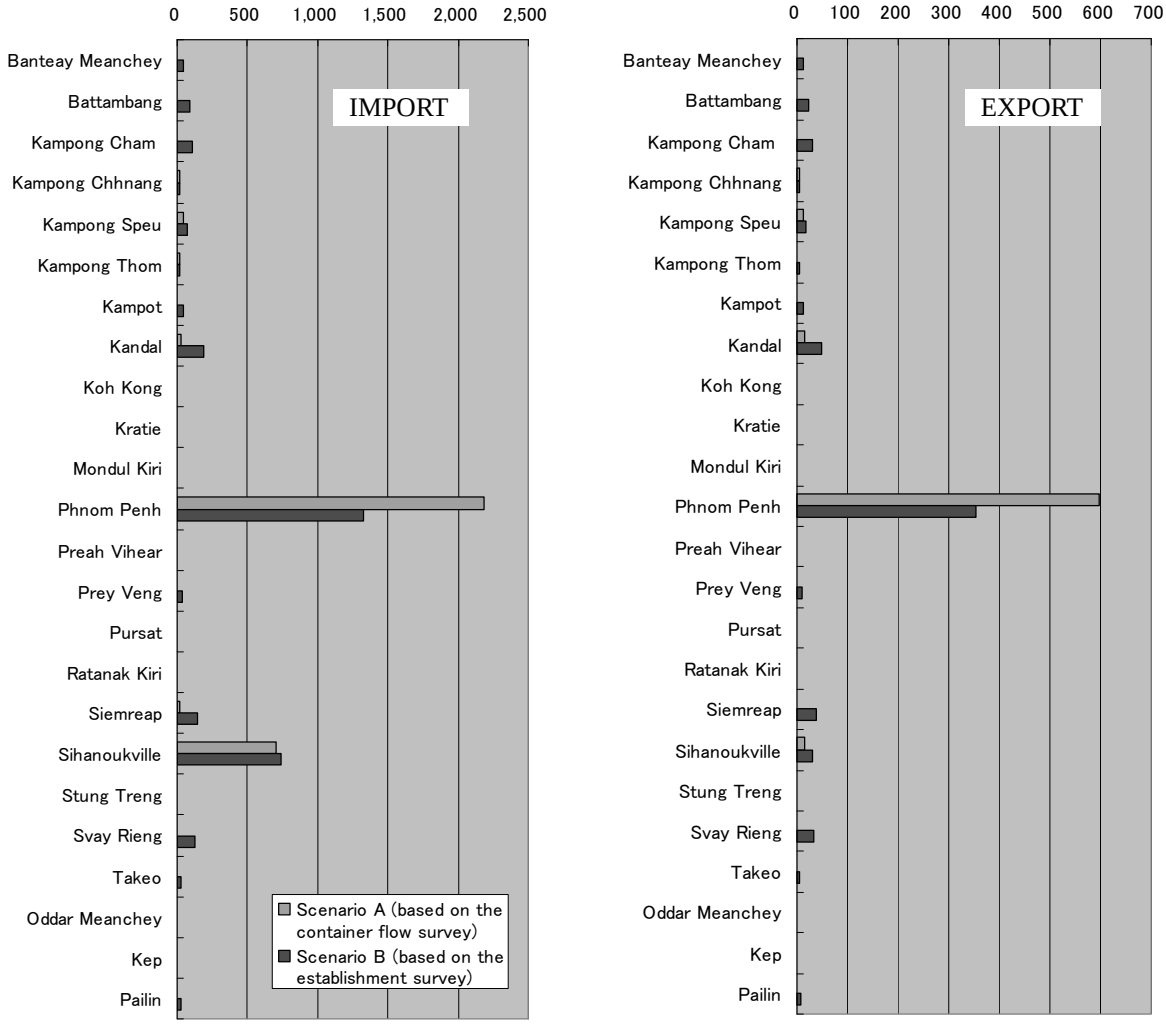
For both scenarios, the destinations of imported oil products were separately assessed, because the destination of imported oil is the oil storage facilities located adjacent to the ports where oil cargo is discharged.

Figure 2.3-11 compares the estimated results by Scenarios A and B.

Scenario A would be slightly more reliable because this is based on the data on actual movement of seaborne cargoes, though the data cover only containerized cargoes and the duration of data collection was just four days. The problem of Scenario A is that the data were collected only at the gates of Sihanoukville Port and Phnom Penh Port, and therefore the data don't reflect hinterland transport of seaborne cargoes without being handled in Cambodian public ports. For example, cargo generation of Svay Rieng Province where many manufacturers locate and export and import a considerable amount of goods through Vietnamese ports is estimated to be very small when Scenario A is applied.

Under limited availability of data regarding export and import to/from each Cambodian

province, the estimated result by Scenario B can also be used for reference, though the correlation between the volume of seaborne cargo generation and the number of large establishments is not confirmed.



Prepared by Project Team

Figure 2.3-11 Estimated seaborne cargo generation in each Cambodian province (unit: 1,000 tons)

(3) Market share of gateway ports

The Project Team estimated the handling volume of seaborne cargoes at each gateway port as shown in Table 2.3-16. Handling volume at Sihanoukville Port can be obtained from port statistics. Phnom Penh Port's statistics are also available, but the data contain non-seaborne cargoes, namely regional trade between Phnom Penh and Ho Chi Minh. Therefore Phnom Penh's data were modified by using the seaborne ratio calculated from O/D data obtained by PENPPAS as shown in Table 2.3-17. The handling volume of the largest provincial port of Tomnop Rolok and the largest private port of Oknha Mong can be calculated from the data collected by PENPPAS. Since the data on other provincial or private ports are not available, their handling volume was assumed based on the data of Tomnop Rolok and Oknha Mong taking account of the dimensions of facilities of each port. Finally, the volume of cargoes transported by road and loaded/discharged in Vietnamese ports was calculated be eliminating handling volume of all Cambodian ports from the total seaborne cargo volume. It should be noted that this methodology can cause the accumulation of errors on the estimation of

volume of cargoes via NR1 and Vietnamese ports.

Figure 2.3-12 depicts the share of each gateway port. Regarding the handling of seaborne cargoes, Sihanoukville Port accounts for 60% of the total volume. Private ports have an unexpectedly large market share for imported cargoes. Phnom Pen Port handles a considerable amount of cargoes; however, around three quarters of them are regional cargoes between Phnom Penh and Ho Chi Minh. Therefore, the market share for the handling of seaborne cargoes is still rather small. The share of land transportation for seaborne cargoes is smaller than that of waterborne transportation through Phnom Penh Port, though errors in the estimation might affect the result.

Table 2.3-16 Estimated handling volume of seaborne cargoes at each gateway port in 2010

(1000 tons)

		Total Seaborne Cargoes	Sihanoukville	Phnom Penh	Provincial Ports	Private Ports	Vietnamese Ports via Roads
Import	Container, Dry Bulk, Break Bulk	2,424	1,176	183	160	686	219
	Liquid Bulk	629	627	2	0	0	0
	Total	3,053	1,803	185	160	686	219
Export		648	415	130	0	8	95
Total		3,701	2,218	315	160	694	314

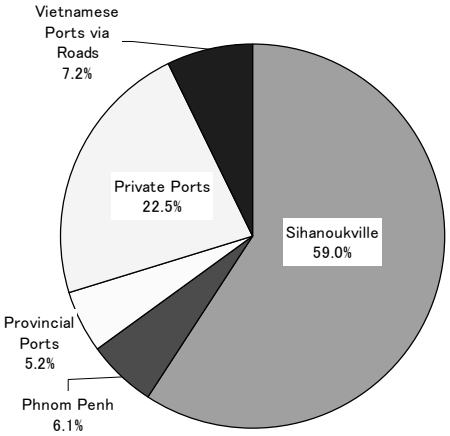
Prepared by Project Team

Table 2.3-17 Estimated seaborne cargo volume handled in Phnom Penh Port in 2010

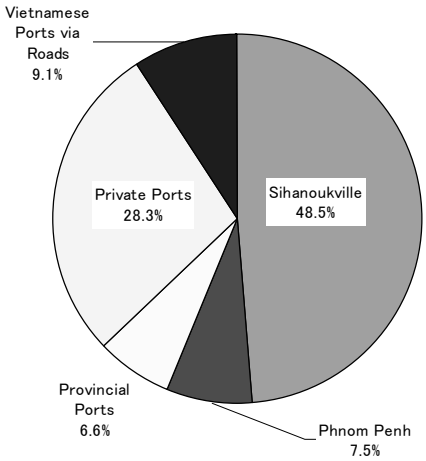
		Total Cargo Volume in 2010 (tons)	Ratio of Seaborne Cargoes (%)	Estimated Total Seaborne Cargo Volume in 2010 (tons)
Import	Containers	255,035	70.0%	178,413
	Break Bulk and Dry Bulk	67,324	7.2%	4,816
	Liquid	777,868	0.2%	1,921
Export	Containers	151,401	85.5%	129,521
Total		1,251,628		314,671

Prepared by Project Team

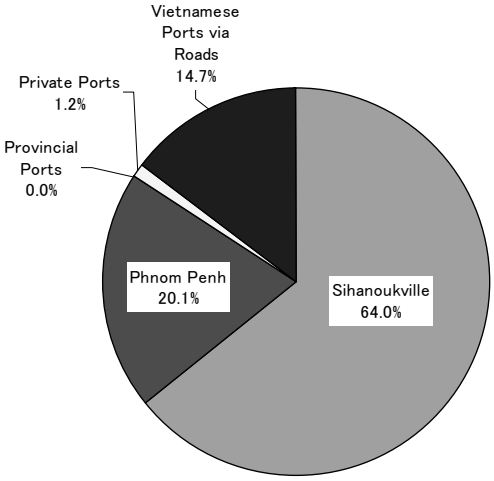
Import
<Total: 3,053,000 tons>



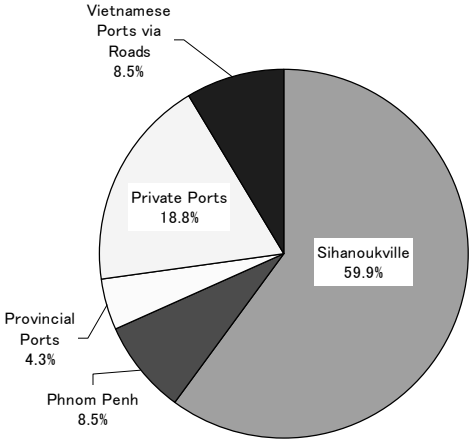
Import (excluding liquid bulk)
<Total: 2,424,000 tons>



Export
<Total: 648,000 tons>



Total of Import and Export
<Total: 3,701,000 tons>



Prepared by Project Team

Figure 2.3-12 Estimated share of each gateway port for transportation of seaborne cargoes

2.4. Present Status and Development Plans of the Road and Railway Networks

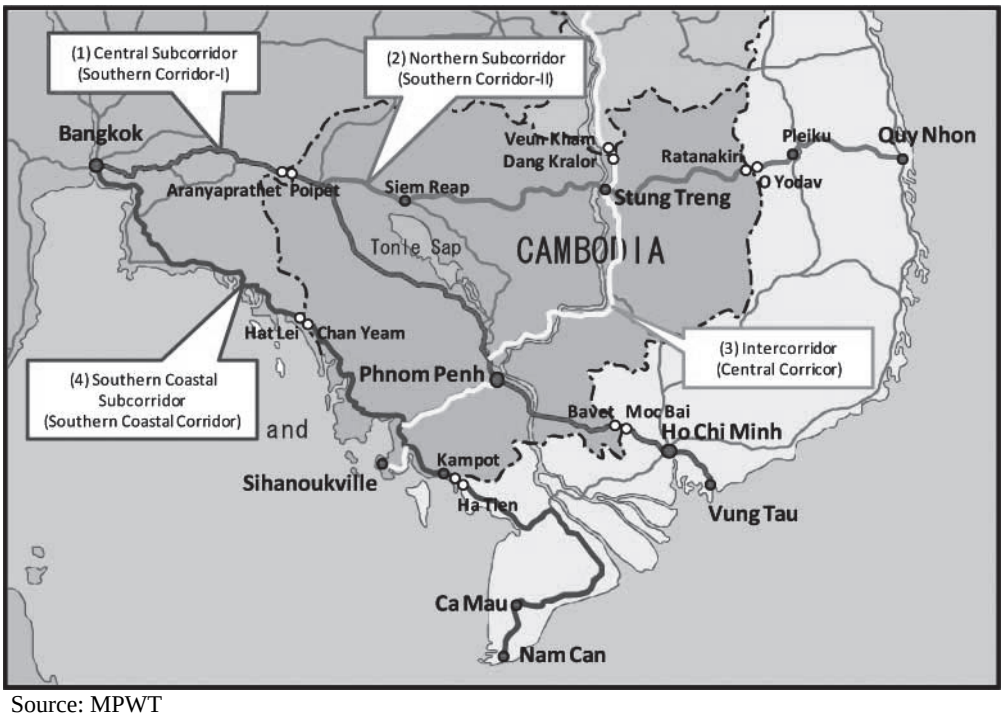
2.4.1 Existing condition of international roads in Cambodia

In the Economic Commission for Asia and the Far East (ECAFE) held in 1959, the Asian Highway Network initiative was adopted in order to improve road traffic, since it plays a contributing role for the enhancement and development of trade and tourism in Asia. In the Asian Highway Network initiative, NR 1, which is located in Cambodia, was specified a part of Asian Highway No. 1 (AH-1). AH-1 is a main international route connecting Bangkok, Phnom Penh and Ho Chi Minh. Moreover, the southern economic corridor advocated by ADB includes NR 1 in Cambodia and it was one of economic corridors that were approved in the first summit of GMS held in Phnom Penh in 2002. In Cambodia, further development of more economic corridors was planned and the four corridors shown in Table 2.4-1 have been specified.

Table 2.4-1 Specified economic corridors in Cambodia

No.	Route	Distance (km)	Route
1	Southern Corridor-I	1,032	Bangkok – Aranyaprathet/Poipet – Phnom Penh – Bavet/Moc Bai – Ho Chi Minh - Vung Tau
2	Southern Corridor-II	1,168	Bangkok - Aranyaprathet/Poipet – Siem Reap – Stung Treng - Ratanakiri/O Yadov - Pleiku - Quy Nhon
3	Central Corridor	893	Sihanoukville - Phnom Penh – Kratie - Stung Treng – Dong Kralor - Veun Kham – Pakse - Savannakhet
4	Southern Coastal Corridor	763	Bangkok – Hat Lei/Chan Yeam - Kampot - Ha Tien – Ca Mau - Nam Can

Source: MPWT



Source: MPWT

Figure 2.4-1 Location map of specified economic corridors in Cambodia

2.4.2 Road network in Cambodia

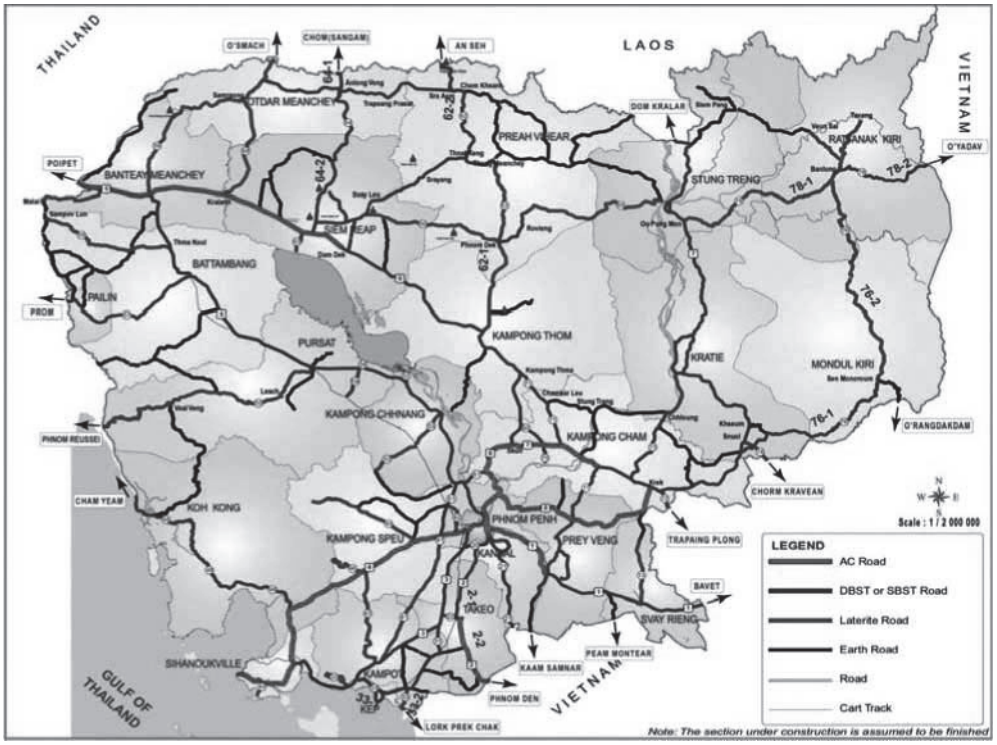
(1) Present condition of major national roads

The rehabilitation and construction of the major national road network, which consists of single digit roads, has been almost completed. The next challenge is to ensure traffic safety and provide proper maintenance of roads over the country in accordance with the National Strategic Development

Plan (NSDP) update 2009–2013. However, the following issues were recognized in the past rehabilitated and constructed infrastructure:

- Roads and bridges deteriorated faster than the current capacity to rehabilitate, improve and maintain them.
- National roads are still damaged by traffic of overloaded vehicles.

The major national road network in Cambodia is shown in Figure 2.4-2.



Source: MPWT

Figure 2.4-2 Existing road network

The site survey was conducted to study the existing condition of the major roads that are related to the objective of the study considered above. The results of the survey and improvement plan (if any) are shown below, respectively.

1) NR 1

NR 1 is part of the Southern Corridor, which is the main logistics route of countries of the Greater Mekong Subregion (GMS). The route is expected to achieve economic development in Cambodia. The total length of NR 1 is about 162 km, which ends at a jetty where ferries are functioned to cross Mekong River. The average speed between the beginning point of NR 1 and the jetty is 46.2 km/h. However, the average speed between the jetty and the border of Vietnam (Bavet) is 74.3 km/h. The reasons why vehicles cannot move at high average speeds between NR 1's beginning point and the jetty are due to the narrow width of the road and congestion within about 4.0 km from the beginning point. The average speed of that section is 17.8 km/h. It was found out that the said 4.0 km section is a bottleneck, which prevents smooth traffic and transport.

Prepared by Project Team

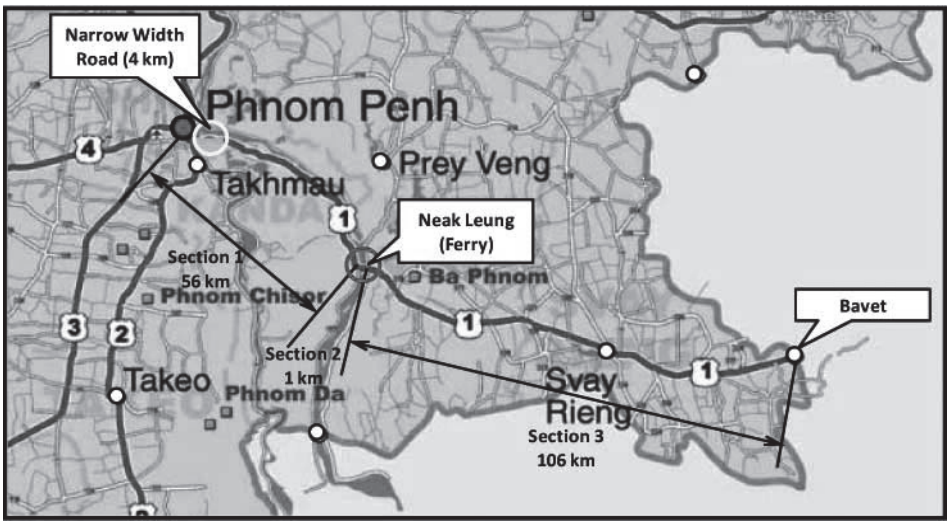
Figure 2.4-3 Narrow width section and rehabilitated section of NR

NR 1 has been rehabilitated and paved with asphalt concrete (AC) or double bituminous surface treatment (DBST), and provided a transport infrastructure which still remains in good condition. The existing condition of NR 1 is shown in Table 2.4-2.

Table 2.4-2 Existing condition of NR 1

Section	Road	Section	Number of Traffic Lanes	Distance	Time*1	Average Speed*1
				(km)	(min)	(km/h)
1	NR 1	Beginning of point of NR 1 – Jetty of Ferry	1	55.9	149	46.2
2	NR 1	Ferry (Neak Leung)	1	1.0	12	5.0
3	NR 1	Jetty of Ferry – Border of Vietnam (Bavet)	1	105.0	84	74.3
			Total	161.9	245	

*1 Time and average speed mentioned in above table is measured by a sedan car.
Source: Project Team



Prepared by Project Team

Figure 2.4-4 Location map of NR 1

For many years, there has been traffic congestion of ferries crossing Mekong River. In order to eliminate this traffic congestion, a construction plan for a bridge across the river had been studied and a groundbreaking ceremony for the construction works has been implemented in February 2011 through a Japanese grant aid. It is expected for the bridge to improve the existing traffic condition (the only way of crossing the river is through three ferries) and provide smooth and efficient traffic as part of the Southern Corridor in GMS. Traffic volume recorded at Neak Leung in 2004 was about 2,400 passenger car unit (PCU)/day on a weekday. However, it was observed that the traffic volume at Neak

Leung was about 5,000 PCU/day in 2008 at full transport capacity of the ferry. The traffic volume at Neak Leung from 2004 to 2008 is shown in Table 2.4-3.

Table 2.4-3 Traffic volume at Neak Leung

Unit: PCU

Year	Measurement Condition	Motorcycle, Motor Tricycle	Motor Trailer	Sedan, Wagon	Pick-up, Jeep, Light Truck	Short and Long Body Bus	Short and Long Body Truck	Semi and Full Trailer Truck	Total
2004	Weekday	203	11	535	402	614	552	63	2,380
	Non-weekday	220	14	534	491	558	633	50	2,500
	All Week	210	11	536	440	590	585	54	2,426
2006	Weekday	231	11	571	220	1,245	739	328	3,345
	Non-weekday	269	10	723	268	1,484	792	232	3,778
	All Week	242	10	615	234	1,311	754	300	3,466
2007	Weekday	267	15	615	434	1,336	842	599	4,108
	Non-weekday	352	17	849	453	1,803	743	608	4,825
	All Week	292	15	682	440	1,470	813	599	4,311
2008	Weekday	429	36	871	449	1,385	1,463	356	4,989
	Non-weekday	450	31	1,391	735	1,714	1,695	241	6,257
	All Week	435	34	1,019	531	1,479	1,529	323	5,350

Source: Feasibility Study of the Second Mekong River Bridge Construction Project in Cambodia

The installation of a weighbridge, which has been conducted in NR 1, was planned in order to control overloaded vehicles. In accordance with the NSDP update 2009–2013 and master plan of road network 2020 as provided by the Ministry of Public Works and Transport (MPWT), NR 1 was planned to consist four lanes.

2) NR 3

The section of NR 3 between Phnom Penh and Kampot was rehabilitated by means of a Korean grant aid in 2010 and it is expected as the main route to connect Phnom Penh with Sihanoukville. However, the rehabilitated section will be deteriorated easily by the overloaded vehicles and rain due to pavement with DBST. It was found that the section of NR 3 between Kampot and Trapang Ropaou which was rehabilitated through a Korean grant aid in 2008 has deteriorated as shown in Figure 2.4-5.

Deteriorated Road Surface (1)

Deteriorated Road Surface (2)

Prepared by Project Team

Figure 2.4-5 Deteriorated road surface of NR

As compared with AC, DBST has low water interception and cannot be kept in good condition for a long time in rainy areas. It is easily deteriorated due to heavyweight vehicles. A comparison between DBST and AC is shown in Table 2.4-4.

Table 2.4-4 Comparison of features between AC and DBST

Comparison Item	AC Pavement	DBST Pavement
Durability	・AC has high durability and can remain in good condition for a long time as compared to DBST.	・DBST has low water interception, therefore it cannot remain in good condition in rainy areas. ・It is easily damaged due to overloaded vehicles.
Cost	・The unit price of AC is higher than DBST. (US$27/m^2)	・The unit price of DBST is lower than AC. (US$20/m^2)
Others	・It is needed to establish an AC plant during pavement works.	・It is not needed to establish any plant for pavement works. More workers are required when dealing with DBST pavement, thus the creation of job opportunities is expected.

Prepared by Project Team

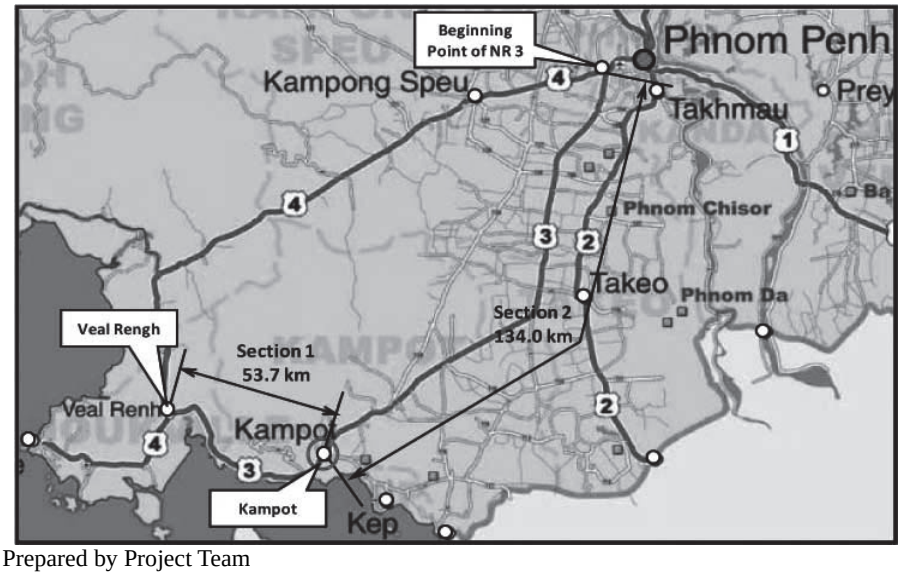
The vehicles normally slow down in areas where the pavement is damaged. If these areas spread, it could lead to increased transporting lead times. According to the interviewed forwarders, there are no reports of damaged pavement affecting their business lead time.

The total length of NR 3 between Phnom Penh and Veal Rengh is 188 km, and the average speed on sections 1 and 2 of NR 3 are about 68 km/h and 61 km/h, respectively. The existing condition of NR 3 as found in the site survey is shown in Table 2.4-5.

Table 2.4-5 Existing condition of NR 3

Section	Road	Section	Number of Traffic Lanes	Distance	Time*1	Average Speed*1
				(km)	(min)	(km/h)
1	NR 3	Kampot – Connection point with NR 4 (Veal Rengh)	1	53.7	53.0	61.0
2	NR 3	Beginning of NR 3 – Kampot	1	134.0	110.0	67.7
			Total	187.7	163	

*1 Time and average speed mentioned in above table is measured by a sedan car.
Prepared by Project Team



Prepared by Project Team

Figure 2.4-6 Location map of NR 3

Although it was observed that there was no apparent factor obstructing traffic, the road is prone to traffic accidents because it has to pass in front of the market in Kampot City. The existing condition of the road in Kampot City is shown in Figure 2.4-7.

Traffic Condition of Kampot Bridge

Traffic Condition near Market

Prepared by Project Team

Figure 2.4-7 Traffic condition in Kampot City

3) NR 4

NR 4 is the main route connecting Phnom Penh and Sihanoukville. Many factories, logistics companies, as well as the Phnom Penh Special Economic Zone (SEZ) are located along NR 4. Also, it is expected as an economic corridor towards the development of Cambodia. NR 4 has a total length of 213 km, and is paved with AC. The operations and maintenance (O&M) of NR 4 is conducted by AZ Investment Co., Ltd., which is a private company. The toll fee, which is collected at the toll gates located at three points, is devoted to the O&M of NR 4. NR 4 is adequately maintained in general, although there are some defects. The toll fee is decided in accordance with the vehicle types shown in Table 2.4-6.

Table 2.4-6 Toll fee in NR 4 according to vehicle type

No.	Vehicle Type	Toll Fee (US$)
1	Heavy Vehicle (40FT)	18.82
2	Heavy Vehicle (20FT)	14.42
3	Agricultural Product Truck	12.54
4	Tanker Truck	12.54
5	Dump Truck	7.86
6	Bus	5.50
7	Light Truck (3T–6T)	5.50
8	Light Truck (2T–3T)	4.40
9	Light Truck (1T–2T)	3.30
10	Mini Bus	2.98
11	Family Car	1.38

Prepared by Project Team

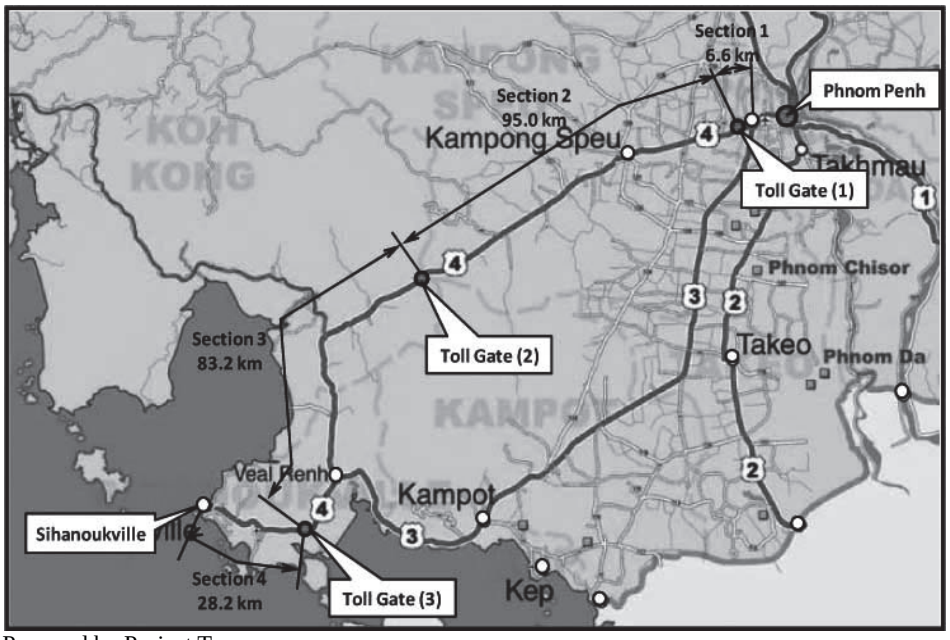
The existing condition of NR 4 as observed in the site survey is shown in Table 2.4-7.

Table 2.4-7 Existing condition of NR 4

Section	Road	Section	Number of Traffic Lanes	Distance	Time*1	Average Speed*1
				(km)	(min)	(km/h)
1	NR 4	Beginning point of NR 4 – Toll Gate (1)	1	6.6	9.1	43.6
2	NR 4	Toll Gate (1) – Toll Gate (2)	1	95.0	95.4	59.7
3	NR 4	Toll Gate (2) – Toll Gate (3)	1	83.2	70.8	70.5
4	NR 4	Toll Gate (3) – Sihanoukville	1	28.2	29.1	58.1
			Total	213	204.4	

*1 Time and average speed mentioned in above table is measured by a sedan car.
Prepared by Project Team

On NR4, the heavy vehicle tracking survey was conducted between Sihanoukville Port and Phnom Penh, for the purpose of measuring the actual travelling speed of heavy vehicles. The survey result suggested that heavy vehicles travel along at approximately 35 to 45 km/h. Also, it was observed that there were no fees collected other than at the toll booth.



Prepared by Project Team

Figure 2.4-8 Location map of NR 4

Most vehicles pass through NR 4 when going to Sihanoukville. Although it is said that traffic data is recorded at the three toll gates (operated by the private company), such data have not been received. If it becomes available, a comparison analysis is considered to be conducted between the recorded data and the forecasted one that was studied in the Study on the Road Network Development (2006). The data on the traffic demand forecast is shown in Table 2.4-8.

Table 2.4-8 Traffic demand forecast in terms of PCU base in 2010, 2015 and 2020

Unit: PCU/day

National Road	Location	Daily Traffic Volume (2010)				Daily Traffic Volume (2015)				Daily Traffic Volume (2020)			
		MC	LV	HV	Total	MC	LV	HV	Total	MC	LV	HV	Total
NR 4	Phnom Penh – Kaaong	701	3,078	3,555	7,334	1,672	5,655	5,292	12,619	1,890	8,543	6,741	17,174
	Kaaong – Veal Rengh	581	2,950	2,982	6,513	1,298	4,478	4,470	10,246	1,402	5,891	5,511	12,804
	Veal Rengh – Sihanoukville	1,304	3,776	2,910	7,990	2,067	5,845	4,359	12,271	3,212	8,728	6,435	18,375

Source: The Study on the Road Network Development (2006)

In accordance with the NSDP update 2009–2013, NR 4 will be improved to four lanes. The MPWT has proposed the road network master plan for 2020 in which construction for improvement will be implemented between Sihanoukville and the connection point with NR 48. From these projects, the current situation where the travelling speed is restricted by the other vehicles travelling on road such as motorcycles, small vehicles, and tractors, is expected to improve in the future.

On the other hand, the weight limit of most bridges on NR4 is shown to be 25 ton. Currently the engineering information of these bridges are not fully recorded on the country's infrastructure asset database, hence this figure cannot be confirmed. However, the load limited bridges can obstruct the transportation of sea containers. This is because the sea container's allowable maximum weight is

above these bridges' load limit. In the case of sea container loaded up to the maximum weight and the weight of the vehicle is included, the bridge's reliability and integrity would come under question. There is a possibility of restricting the weight of sea containers being transported because of the reduced road bridge's structural integrity due to the increased number of heavy vehicles loaded with sea containers travelling between Sihanoukville Port and Phnom Penh. A table of typical sea container's allowable weight is provided below.

Table 2.4-9 Specifications of marine containers prescribed in ISO

Container	Size (H×W×L)	Gross Capacity (m2)	Maximum Capacity (kg)	Payload (kg)
20ft	2.591mm×2.438mm×6.058mm	33.1	24,000	22,210
40ft	2.591mm×2.438mm×12.192mm	67.3	30,480	27,610
40ft (high cube container)	2.896mm×2.438mm×12.192mm	76.0	30,480	27,480
45ft	2.896mm×2.438mm×13.716mm	85.6	30,480	26,530

Currently, a toll fee is paid based on the gross vehicle weight including the load measured at the weighting station next to the toll booths.

4) NR 5

NR 5, which constitutes a part of the southern economic corridor similar to NR 1 in Cambodia, is expected as an important logistics route between GMS countries to contribute to the economic development of Cambodia. NR 5 is paved with DBST and the existing condition is generally good. However, it was observed that there are deteriorated portions between Kampong Chhunang and Purusat, and rehabilitation works are being conducted. DBST, which is vulnerable to overloaded vehicles and rain, is applied as the pavement in Cambodia since such can be rehabilitated easily. In addition, rehabilitation works contribute to the creation of job opportunities. The deteriorated road surface and rehabilitated section is shown in Figure 2.4-9.

Deteriorated Road Surface

Rehabilitating Section

Prepared by Project Team

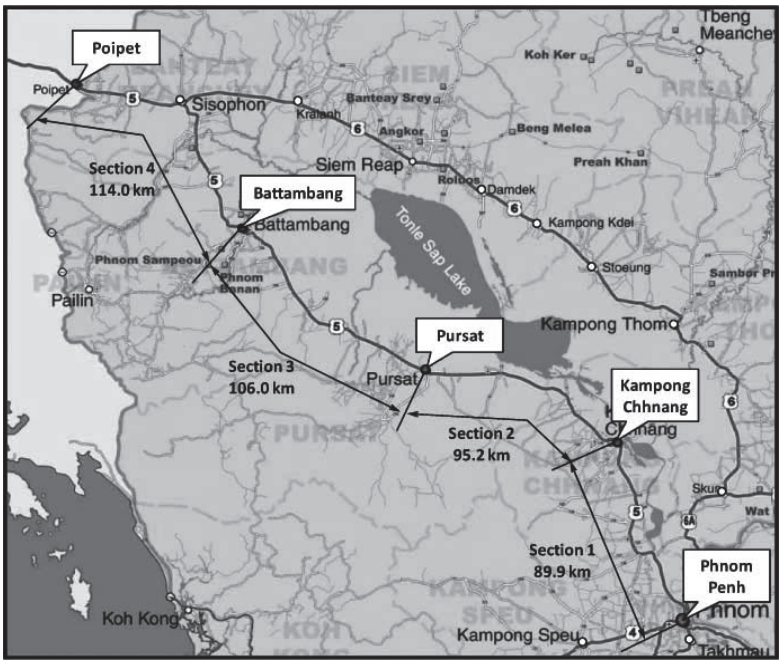
Figure 2.4-9 Deteriorated road surface and rehabilitation of NR 5

Every year, a part of NR 5 is submerged in floodwater due to the rise of water level in Tonle Sap Lake. It was considered an issue that NR 5 paved with DBST, which has low water interception, will be easily damaged by flood. The existing condition of NR 5 as observed in the site survey is shown in Table 2.4-10.

Table 2.4-10 Existing condition of NR 5

Section	Road	Section	Number of Traffic Lanes	Distance	Time*1	Average Speed*1
				(km)	(min)	(km/h)
1	NR 5	Beginning of point of NR 5 - Kampong Chhunang	1	6.6	108.7	49.5
2	NR 5	Kampong chhunang - Pursat	1	95.2	74.5	76.7
3	NR 5	Pursat - Battambang	1	106.0	74.0	86.0
4	NR 5	Battambang - Poipet	1	114.0	109.4	62.5
			Total	321.8	366.6	

*1 Time and average speed mentioned in above table is measured by a sedan car.
Prepared by Project Team



Prepared by Project Team

Figure 2.4-10 Location map of NR 5

In order to control the overloaded vehicles, a weighbridge has been installed in NR 5. In accordance with the NSDP update 2009–2013, NR 5 is planned to have four lanes similar to the future improvement plan of NR 1.

5) NR 48

NR 48 was rehabilitated and paved with DBST in 2007 and four bridges along NR 48 were newly constructed in 2008 through aid from the Kingdom of Thailand. The traffic condition of NR 48, in which there was no option to cross four rivers but by small ferries, has improved since the completion of the rehabilitation and construction. The completion of NR 48's improvement is expected to contribute towards the economic development of Cambodia as well as interaction between GMS countries as a part of the Southern Coastal Corridor. NR 48 is located in Koh Kong, an area in Cambodia which experiences lots of rainfall. Since NR 48 is paved with DBST which has low water interception, it has to endure the weather conditions of Koh Kong. It was found out that there are many deteriorated and rehabilitated sections as observed in the site survey of NR 48 as shown in Figure 2.4-11.

Deteriorated Road Surface

Marked Deficits for Rehabilitation

Prepared by Project Team

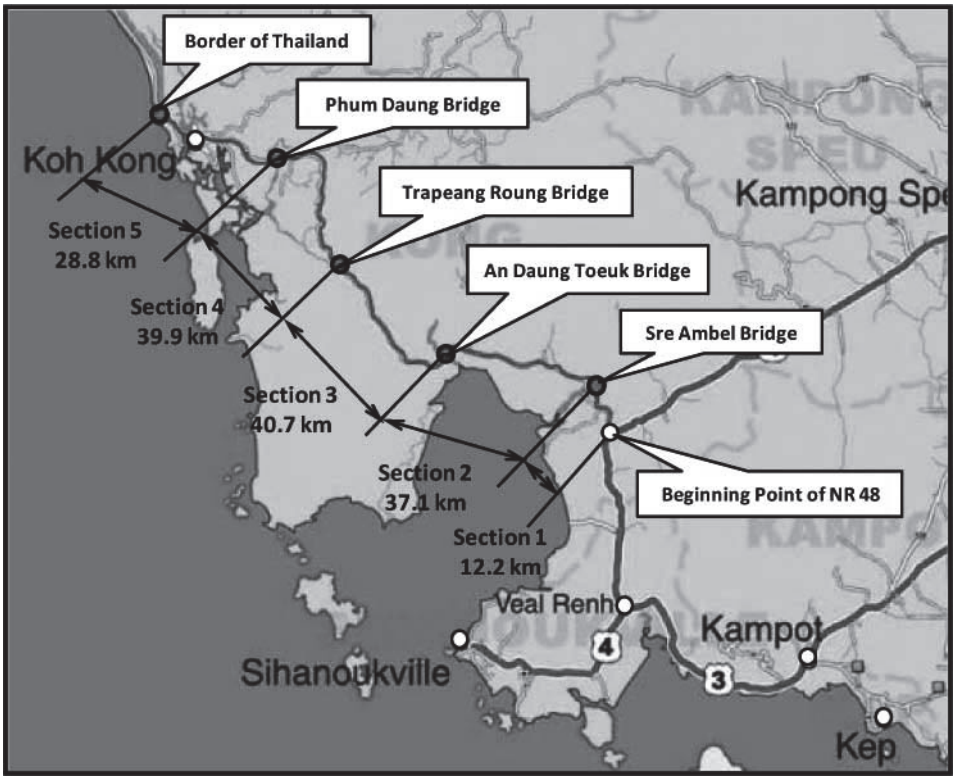
Figure 2.4-11 Deteriorated road surface and rehabilitated section of NR 48

The existing condition of NR 48 as observed in the site survey is shown in Table 2.4-11.

Table 2.4-11 Existing condition of NR 48

Section	Road	Section	Number of Traffic Lanes	Distance	Time*1	Average Speed*1
				(km)	(min)	(km/h)
1	NR 48	Beginning of point of NR 48 - Sre Ambel Bridge	1	12.2	13.1	49.5
2	NR 48	Sre Ambel Bridge-An Daung Toeuk Bridge	1	37.1	38.8	76.7
3	NR 48	An Daung Toeuk Bridge-Trapeang Roung Bridge	1	40.7	38.1	86.0
4	NR 48	Trapeang Roung Bridge-Phum Daung Bridge	1	39.9	33.0	62.5
5	NR 48	Phum Daung Bridge-Border of Thailand	1	28.8	33.7	62.5
			Total	158.7	156.7	

*1 Time and average speed mentioned in above table is measured by a sedan car.
Source: Project Team

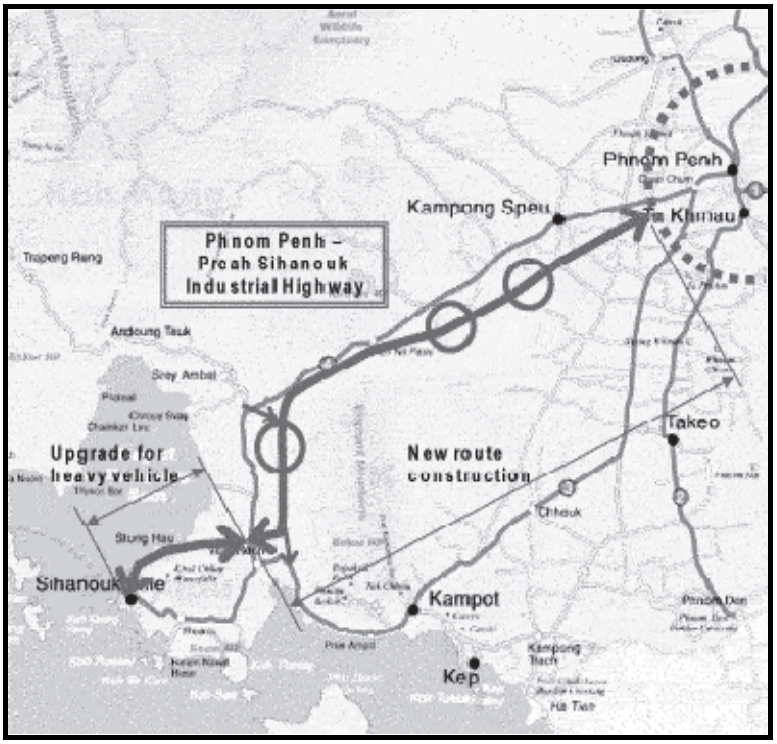


Prepared by Project Team

Figure 2.4-12 Location map of NR 48

(2) Logistics trunk route in Preah Sihanouk

Under the "Master Plan on Integrated Strategy of Coastal Area for Cambodia's Continual Development and Feasibility Study on Sihanoukville Development Master Plan (2010)", the regional industrial and logistical corridor between Phnom Penh to Veal Rengh is currently being proposed. Under this proposal, the corridor extends from Phnom Penh to Veal Rengh on NR 4, and Veal Rengh to Sihanoukville via Stung Hav. This corridor is shown below.

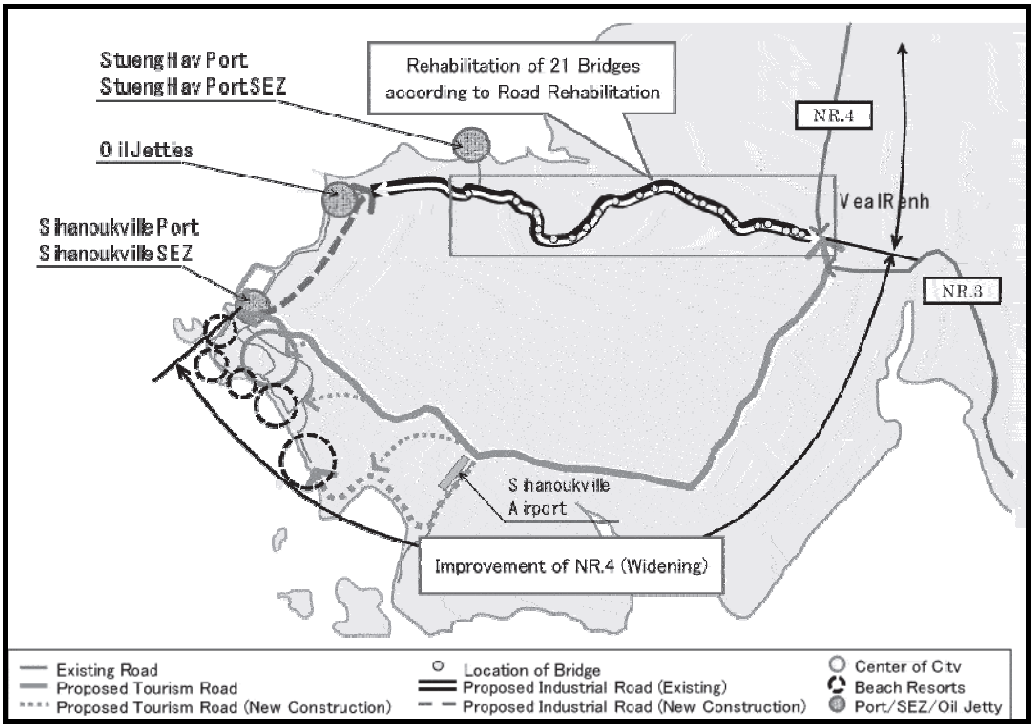


Source: The Study on National Integrated Strategy of Coastal Area and Master Plan of Sihanouk-ville for Sustainable Development (2010)

Figure 2.4-13 Industrial/Logistics Corridor between the Sihanoukville port and Phnom Penh

The section between Veal Rengh and Sihanoukville Port via Stung Hav is paved with damage-prone DBST pavement, and hence the road surface of this section is continuously deteriorating in many areas. Also, there are 21 existing bridges along this section, and the most are not wide enough for heavy vehicles, hence all contra-flowing vehicles must slow down to pass over the bridges.

Due to the low heavy vehicle traffic volume to this day, there are no reported issues in relation to the transportation on national roads which is mostly paved with DBST. However, with the expected increase in logistical volume in the future, it is believed that the travel time will be affected if the pavement and bridges remain unchanged. The route from Veal Rengh to Sihanoukville Port is as per below.



Source: The Study on National Integrated Strategy of Coastal Area and Master Plan of Sihanouk-ville for Sustainable Development (2010)

Figure 2.4-14 Proposed Industrial/Logistics Corridor in Preah Sihanouk

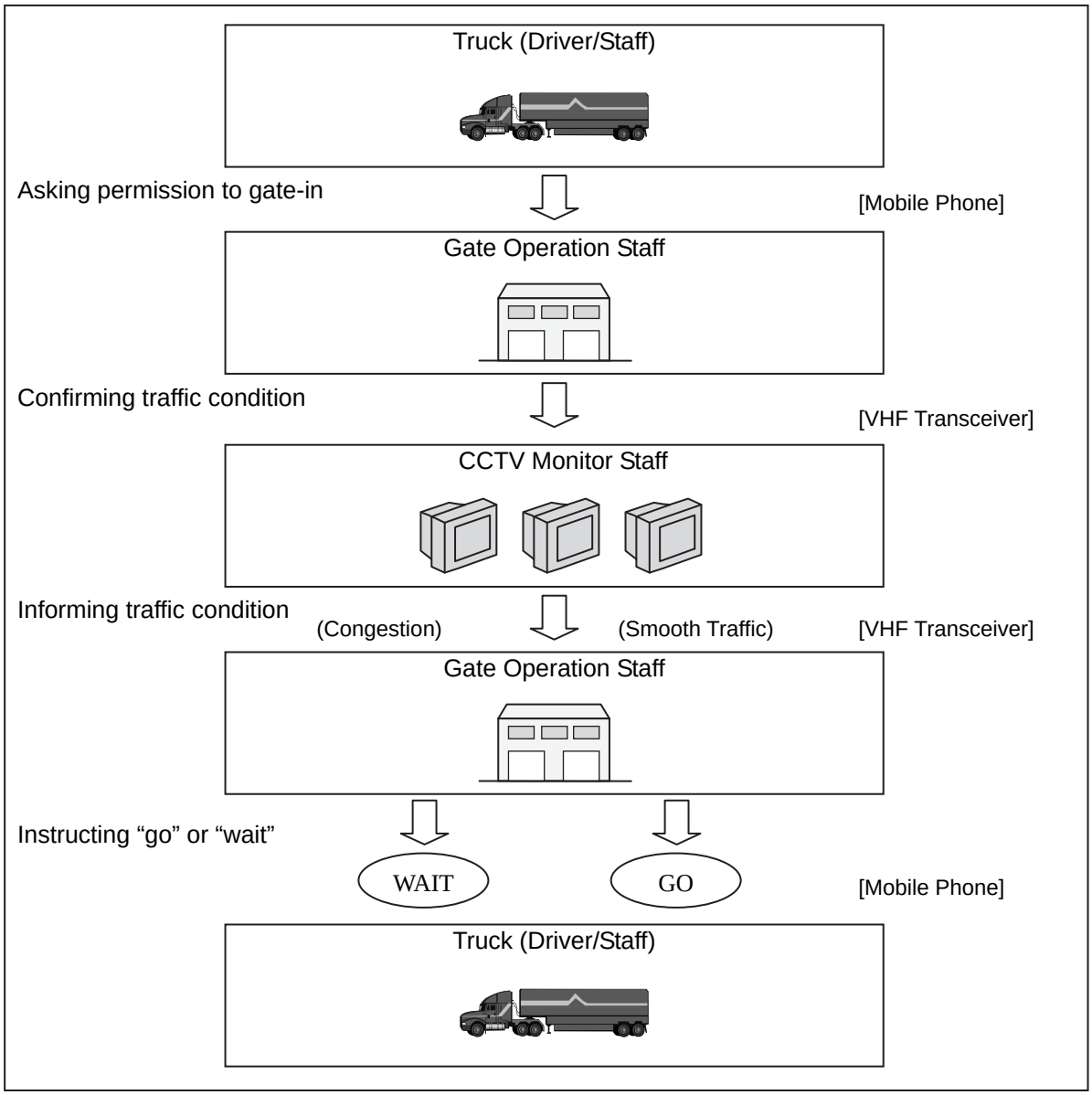
(3) Alleviation of traffic congestion around Phnom Penh Port

Phnom Penh Port is the second main port of Cambodia. It is located at the right side of the Tonle Sap River. Because Phnom Penh Port is located at the downtown of Phnom Penh City, the traffic volume of common vehicles and motorbikes are considerably heavy, and the access road to its gate along the river plays an important role of supporting civil life. Phnom Penh Port should therefore strictly control the transport of container trucks to/from the port due to the said circumstances.

A closed-circuit television (CCTV) system has been introduced to the port area in 2008. As shown in Figure 2.4-15, PPAP has executed traffic control of container trucks in/out its gates using the CCTV system. Container cargoes have been concentrated in the port especially on Fridays and Saturdays. In such situation, the gate operator sometimes orders the truck driver to "wait" based on the traffic condition. However, this rarely happens on a weekday. Port authority has requested police to assist in traffic control once every one or two months. Port authority staff have directed trucks to smoothly enter and exit the gate.

The project team surveyed the present conditions of traffic in front of the port's gate on 8 October 2011, which was said to be congested on a weekend (Saturday). The traffic volume of common vehicles and motorbikes was significantly heavy at daytime, however traffic congestion was not observed. The number of gate-in/out trucks per hour was 24 at the most, and trucks never stood in queue at the port's gate.

The existing traffic control system seems to be effective and efficient in consideration of several traffic factors affecting common vehicle. Most of the trucks start from factories or inland container depots (ICDs) at or around Phnom Penh City. Accordingly, gate operators can control the schedule of trucks considering their exact travel time. Since the distance between Sihanoukville Port and the factories or ICDs is approximately 200 km, it is impossible to determine the exact travel time of trucks. Thus, this traffic control system seems to be unsuitable for Sihanoukville Port. However, since there are adequate parking spaces and facility for trucks near Sihanoukville Port along NR 4, these will enable the execution of a control system such as that of Phnom Penh Port.



Prepared by Project Team

Figure 2.4-15 Traffic control system flow of Phnom Penh Port

(4) Penalty of overloaded vehicle in Cambodia

In Cambodia, based on the Law on Land Traffic Article 84 “Load limit on maximum loading”, the penalty for truck loading over the limit is classified into 4 categories of weight over the vehicle load limit and shown as below. For example, in the case of the maximum allowable weight (truck weight and load weight) being 40 tons, if a truck weighed 46 tons, it would be 6 tons (15%) over, and subject to a fine of 200,000 Riels for every ton over the limit or in this case 1,200,000 Riel (US$303).

Table 2.4-12 Article 84, Law on Land Traffic in Cambodia

Overloading the limited maximum weight on the axle of the vehicles and overloading the limited maximum weight of the vehicles shall be punished as the following:

1. Less than 5% shall have a written warning without the fine.

2. More than 5 to 10%, the driver shall:
   a) Be fined 100,000 Riels per ton,
   b) Unload the goods and detain the vehicle for ten days,
   c) Take way the driving license and suspend for ten days.

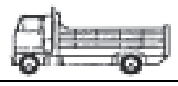
3. More than 10 to 20%, the driver shall:
   a) Be fined 200,000 Riels per ton,
   b) Unload the goods and detain the vehicle for one month,
   c) Take way the driving license and suspend for one month.

4. More than 20%, the driver shall:
   a) Be fined 300,000 Riels per ton,
   b) Unload the goods and detain the vehicle for one year,
   c) Take way the driving license and suspend for one year.

Source: Law on Land Traffic (MPWT)

In November 2009, MPWT has issued a declaration to prevent overloading vehicles, against the PAS, PPAP, private ports and dry ports in cooperation with trucking companies, and in this, the gross vehicle weight is restricted as shown in the next table.

Table 2.4-13 Gross vehicle weight limit by type

Vehicle type	Description	Max Allowable Gross Vehicle Weight (Ton)
	Axle: 2 Tires: 2(F), 4(R)	16
	Axle: 3 Tires: 2(F), 4+4(R)	25
	Axle: 4 Tires: 2+2(F), 4+4(R)	30
	Axle: 4 Tires: 2+4(F), 4+4(R)	35
	Axle: 4 Tires: 2+4(F), 4+4(R)	35
	Axle: 5	40
	Axle: More than 5	40

Source: MPWT Declaration

One of the major reasons that trucks collide and overturn is reduced vehicle control due to overloading. Overloaded vehicles also consume more fuel, put stress on the engine and suspensions, shorten service life, wear tires and brake pads, and require costly maintenance.

Moreover, because running when overloaded at lower gear and higher engine rpm than normal condition, it creates above normal NOx which is the cause of photochemical smog and acid rain, leading to increased environmental impacts. And because of loading above the design traffic loads on roads and bridges, this increases the maintenance cost and reduces its design life.

Overloading leads to accidents, increases environmental impacts, running costs and infrastructure maintenance costs etc., and thus all nations have introduced penalties regarding this issue.

The aim of the penalty is to ensure that trucking companies and drivers ensure that their trucks are not overloaded. According to the major forwarder operating in Sihanoukville Port, due to the relatively high fines compared to the commodity price, the trucks are weighed before departure, hence cases of overloading have dropped. However several instances of overloading are discovered annually. From this, it can be said that the penalty for overloading is working effectively in Cambodia.

In Japan, similar penalties are applied to trucking companies and drivers for overloading (see Table 2.4-14). Fines depend on the amount of excess weight. In extreme case, licenses are suspended.

Table 2.4-14 Current situation on overloading vehicle penalty in Japan

In the case of first offenses, the operator is penalized as follows; 1) suspended vehicle of 10 days times the number of infringing vehicles when the loaded mass is less than 50%, 2) suspended vehicle of 20 days time the number of infringing vehicles when the loaded mass is less than 100%, 3) suspended vehicle of 30 days times the number of infringing vehicles when the loaded mass is more than 100%. On the other hand, the driver is penalized for, 1) US$386 in fine and 2 demerit points, when the loaded mass is less than 50%, 2) US$514 in fine and 3 demerit points, when the loaded mass is less than 100%, 3) 6 demerit points (suspended driver's license sentence) and, sentencing to less than 6 months in prison or less than US$1,285 in fine, when the loaded mass is more than 100%.

Source: Metropolitan Police Department Website

In Japan, the fine proceeds are once handed over to the state through the banking sectors, subsidized to the prefectural and municipal governments as the special road safety subsidy, and used on the maintenance of road safety facilities such as traffic lights, road signs, and pedestrian overpass. The penalty increases proportionally to the level of overloading and speeding as well, however, the calculation basis for determining the overloading penalty fines does not exist specifically. The penalty, in principle, is determined by people's ability to pay. In Japan, the harshest penalty applies to the drink driving.

2.4.3 Road access to Cambodian borders from ports in neighboring countries

A site survey was conducted in order to study the existing road conditions of the following: (1) Cai Mep–Thi Vai Port and the border of Cambodia (Moc Bai), and (2) Laem Chabang Port and the border of Cambodia (Aranyaprathet/Hat Lek).

(1) Cai Mep–Thi Vai International Port

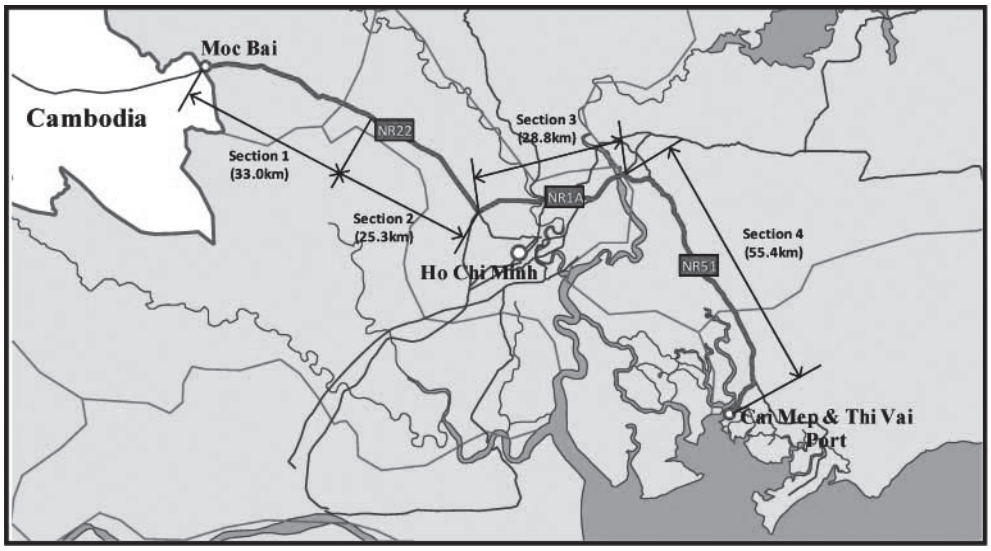
The site survey was implemented in order to study the existing condition of roads between Cai Mep –Thi Vai Port and the border of Cambodia (Moc Bai), since these roads have been identified as important transport routes to promote commerce between Cambodia and Vietnam. The transport route consists of three national roads, namely, NR 22, NR 1A and NR 51. The said roads have a similar structure to that of a road where the driving lane of motorcycles is separate from the car lane. Such roads were paved with asphalt concrete (AC) and most of the pavements have not deteriorated. Although the average speed is about 40 km/h along the routes, the speed of vehicles is reduced to about 30 km/h around Ho Chi Minh City due to traffic congestion. Widening of NR 51 has been implemented wherein double lanes and one motorcycle lane will be provided. The existing condition and location of the roads are shown in Table 2.4-15 and Figure 2.4-16, respectively.

Table 2.4-15 Existing condition of roads between Cai Mep–Thi Vai Port and the border of Cambodia (Moc Bai)

Section	Road	Section	Number of Traffic Lane	Number of Motorcycle Lane	Distance	Time*1	Average Speed*1
					(km)	(min)	(km/h)
1	NR 22	Border of Cambodia (Moc Bai) – End point of one lane on NR 22	1	1	33.0	47	44.0
2	NR 22	Beginning point of double lanes on NR 22 – Connection point with NR 1A	2	1	25.3	45	32.4
3	NR 1A	Connection point with NR 22 – Connection point with NR 51	2	1	28.8	54	32.0
4	NR 51	Connection point with NR1A – Cai Mep–Thi Vai Port	1*	1	55.4	83	40.1
			Total		142.5	229	

*Double lanes include part of NR 51 that are under construction of widening.
*1 Time and average speed mentioned in above table is measured by a sedan car.
Prepared by Project Team

At the current stage, there is no dedicated motorway for only four-wheel vehicle in the Ho Chi Minh City, so all kinds of vehicles travel as a whole. Consequently, the traffic congestion in the city is severe, and especially during the morning and afternoon peak hours, the city may halt completely due to the congestion. To ease the city's congestion, some heavy vehicles are not permitted to enter the city during the day. The restriction applies during the hours between 6 am to 9 pm for the vehicles over 2.5 tons, and 6 to 8 am and 4 to 7 pm for the vehicles under 2.5 tons. As the result, it becomes a challenge to operate smooth freight transportation in the city.



Prepared by Project Team

Figure 2.4-16 Location map of existing road between Cai Mep–Thi Vai Port and border of Cambodia (Moc Bai)

The existing road between Cai Mep–Thi Vai Port and the border of Cambodia (Moc Bai) is shown below.