KINGDOM OF CAMBODIA

Overview of the Transport Infrastructure Sector in the Kingdom of Cambodia (5th Edition)






2015

Infrastructure and Regional Integration Technical Working Group (IRITWG)

Preface

The Infrastructure and Regional Integration Technical Working Group (IRITWG) is proud to publish the 5th edition of the "Overview of the Transport Infrastructure Sector in the Kingdom of Cambodia."

The previous four editions were published in 2008, 2009, 2011 and 2012 respectively with the following purposes: (1) To share basic information and the overall picture concerning the transport infrastructure sector with related organizations, development partners and other stakeholders; (2) To provide key data for future planning in the transport infrastructure sector.

The publication of the previous editions has been appreciated by both public and private sectors as they were the only official documents that provided a comprehensive overview of the transport infrastructure sector in Cambodia.

As infrastructure development in Cambodia is rapidly progressing, the IRITWG has again taken up the task of updating the "Overview of the Transport Infrastructure Sector". Thanks to the efforts of all stakeholders, the 5th edition for 2015 is now available in hand.

In this edition, reflecting the recent trends in the sector, we have added the latest information and data in some new topics, such as Transport Policy, Expressway, Urban Transport in Phnom Penh and SEZ. In addition, we have also added the analytical data/maps of transport infrastructure and socio-economic development as the "Column" in order to help readers visually understand the importance of transport development.

We hope that this new edition will serve as a useful reference for the planning and implementation of transport infrastructure development in Cambodia, while we continue our endeavors to keep updating the information towards the next version.

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Note: The Phnom Penh Post provided the picture of "TSUBASA Bridge" on the cover page.

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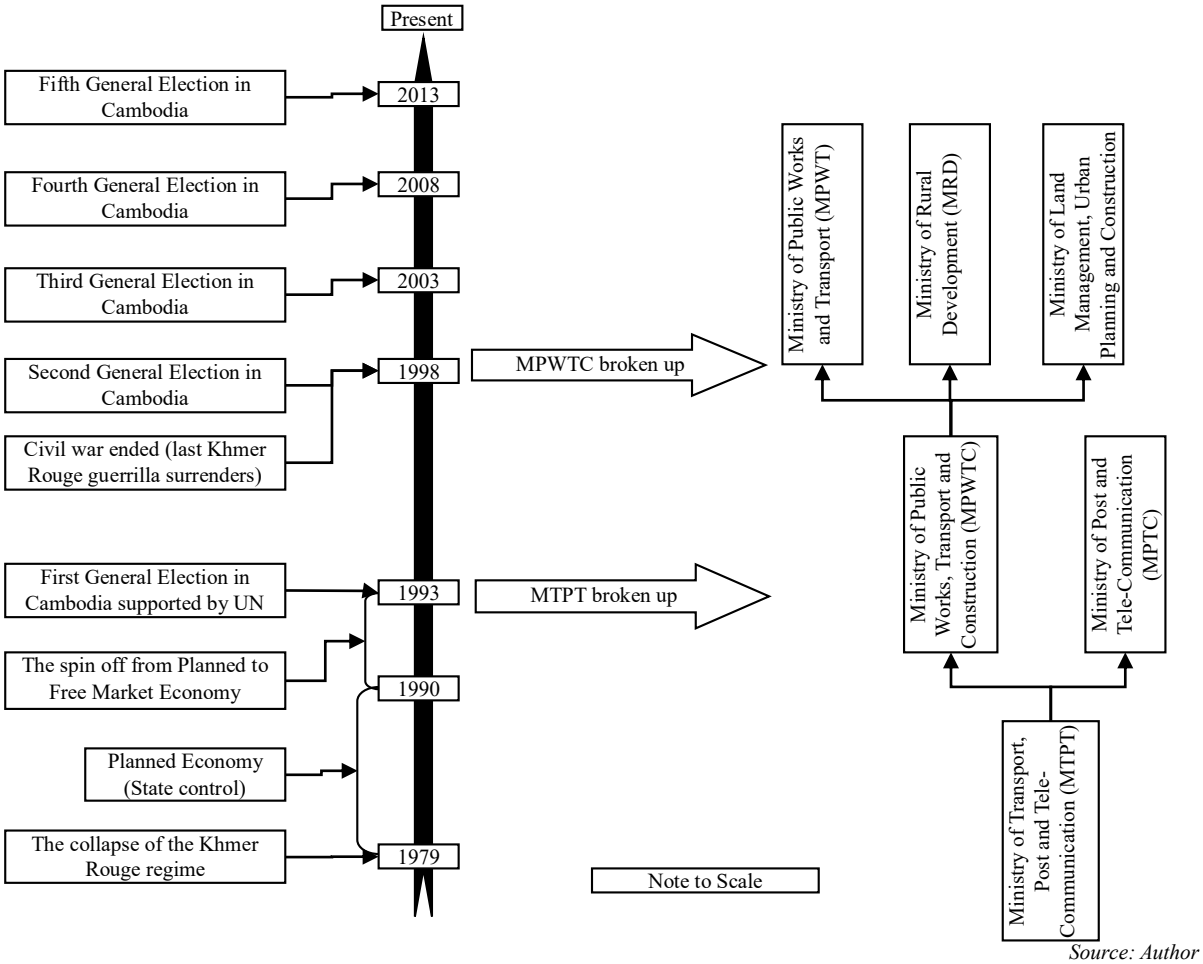
1 Transport Policy

1.1 The evolution of transport institution

During the 1980s, the state had a monopoly on all commercial transport, including goods and passenger transport. Services were run by state enterprises with some enterprises being nationalized and supervised by the Ministry of Transport, Post and Tele-Communication (MTPT) or provincial governments.



Source: Author

Figure 1-1: The evolution of MPWT

In the late 1980s and early 1990s, government policy evolved from a planned to free-market economy. Private companies dealing with transport, infrastructure construction/rehabilitation emerged, and state controlled enterprises lost out very quickly with most having since been privatized or dissolved. The change was also seen at the ministry level both during the first general election in Cambodia in 1993 and also in the second general election in 1998. With this evolution, as shown in Figure 1-1, the MTPT had been divided into four ministries:

- Ministry of Post and Tele-Communication (MPTC): in charge of postal mail and electronics communication;
- Ministry of Public Works and Transport (MPWT): in charge of
  - Public Works: Planning, construction and management of National Road, Provincial Road[1], Airport[2] and Railways[3]. With the demand to create an expressway in Cambodia, as of 2014, MPWT is in the process to create an expressway department to handle this issue.
  - Transport: All type of transport except air transport.
- Ministry of Rural Development (MRD): in charge of rural road
- Ministry of Land Management, Urban Planning and Construction.

[1] MPWT and MRD are discussing the roles and responsibilities over provincial roads. Up until now, there is no clear decision on who is in charge.

[2] Airport department in MPWT was dissolved on 29th July 2011. All airport mandates became the sole responsibility of State Secretariate of Civil Aviation (SSCA).

[3] General Department of Railways were downgraded to department of railway in sub-decree No. 163 dated 01st October 2009.

1.2 National Strategic Development Plan (NSDP: 2014 – 2018)

1.2.1 Historical background

Cambodia's warring factions signed the Paris Peace Agreement on 23rd October 1991 and a general election, sponsored by United Nation, was held in 1993. To catch up to pre-war level economy, the first 5-year strategic development plan, which was then called Socio-Economic Development Plan (SEDP-I), was outlined in 1994 and attempted to achieve the objectives of rebuilding and rehabilitating of social, economic and institutional infrastructure by 2000. The second five-year Strategic Development Plan or second Socio-Economic Development Plan (SEDP-II), was formulated in 2001 and planned to achieve poverty reduction and economic growth in 2005. The third five-year development plan was renamed to the National Strategic Development Plan (NSDP) with a mandate to complete its objective by 2010.

1.2.2 National Strategic Development Plan (NSDP: 2014-2018)

The Royal Government of Cambodia (RGC) has evolved a 'Rectangular Strategy' (RS), which has been the hallmark of development since about 2004. The NSDP 2006-2010 carried forward the agenda laid out in the first Rectangular Strategy, and the NSDP Update 2009-2013 on the RS Phase II. This NSDP 2014-2018 carries forward the agenda laid out in RS Phase III, which was unfolded in September 2013. RS provides a development framework, which will be implemented through the next five-year period with the NSDP 2014-2018 Report being organized into seven Chapters.

For ease of reading, the information presented in Chapter 3 on projections of capital investment requirements over 2014-2018 is summarized again in the following text. To achieve the overall and sectorial GDP growth targets for the period covered by the NSDP 2014-2018, total capital investment of 109,016.9 billion Riel (USD 26.8 billion) will be required. In terms of private and public sources of financing of total capital investments required: a) Private sector capital investments estimated to be 77,915.2 billion Riel (USD 19.1 billion) – accounting for 71.5 percent of total capital investments; and b) Public sector capital investments estimated to be 31,101.7 billion Riel (USD 7.6 billion) – accounting for about 28.5% of the total capital investments.

To respond to the needs of the next higher stage of development, the objective of Royal Government of the Fifth Legislature is to promote further development of all types of transport infrastructure as well as urban infrastructure, supported by a vibrant, safe and efficient logistics system aimed at contributing to the enhancement of national competitiveness and people's welfare. RGC will place priority on:

- Stepping up the construction of national, provincial and rural roads, particularly by targeting the paving of 300 to 400 Km of additional roads per year with asphalt or concrete pavement.
- Directing more attention to the repair and maintenance of the transport system, particularly roads through the strengthening of mechanisms and enhancement of road repair and maintenance system, including effective and strict enforcement of punitive measures against overloading.
- Further focusing on traffic safety through the improvement and stricter enforcement of the "Law on Land Traffic", including the strict enforcement of measures against traffic violation, strengthening vehicle safety inspection and the system for issuance of vehicle roadworthiness certificates, the mechanism for issuing driving licenses, installation of traffic signs, facilitation of traffic flow, professional ethics and competence of law enforcement officers, as well as promotion of public awareness and dissemination of information on traffic safety in accordance with the slogan: "Today, Tomorrow: No Traffic Accident!".
- Designing and implementing the Master Plan for Transport Infrastructure Development to connect all parts of the country and with the neighboring countries through developing multi-modal and cross border transport systems along with an efficient and competitive logistics system aimed at promoting investment, trade, tourism and rural development, with focus on the completion of railroad restoration and development, further development of airport and seaport infrastructure, assessment of the potential for investment in inland waterway transport as well as finding alternatives to monopolistic transport services and intensified implementation of various cross- border agreements and protocols signed by Cambodia.
- Preparing necessary policies and legal framework for the management and development of infrastructure, such as the Law on Roads and related regulations addressing road standards and quality, Law on Ports and the Law on Road Transport to facilitate the implementation of Master Plan for Transport Infrastructure Development.
- Preparing a Master Plan for Urban Infrastructure Development, in particular public transport in urban areas and connectivity of production centers on the outskirts of municipalities, main economic poles,

industrial zones and special economic zones to reduce traffic congestion, improve national economic efficiency and competitiveness, as well as enhance welfare of people and ensure environmental sustainability through consistency with the framework of land management and urban planning including National Policy on Housing, laws related to land management, urbanization and construction, National Strategy on Development of Municipal and Urban Areas, installation of solid and liquid waste management system as well as fire prevention and firefighting system.

- Further encouraging participation of the private sector in the development of transportation infrastructure by strengthening and improving the "public-private partnership" mechanism through the introduction of policy on the promotion of public- private partnership in Cambodia in order to attract and facilitate the implementation of infrastructure projects financed by the private sector.

1.2.3 The role of MPWT in NSDP

MPWT is responsible for implementing the national policy concerning the construction of all public works. Its different instruments are: (i) Developing legal and regulatory frameworks and cooperate with ministries and agencies; (ii) Constructing and maintaining roads, bridges, ports, railways and waterways; (iii) Formulating regulations for developing roads, bridges, ports, railways and waterways; (v) Participating in and coordinating laws and regulations pertaining to construction of transport infrastructure and transportation; (vi) Undertaking other construction activities assigned by RGC; (vii) Cooperating with the State Secretariat of Civil Aviation for airport construction work; and (viii) Promoting the participation of women and men. To implement the prioritized policies during the Fifth Legislature, MPWT will carry out the following activities:

- Road Sector, MPWT will:
  - Improve more 3,500 Km of road infrastructure in the next 5 years.
  - Improve 1-Digit National Roads – expand from DBST to AC pavement.
  - Widen 1-Digit NRs from 2 lanes to 4 lanes in and around major cities.
  - Increase a pavement ratio in 2-Digt National Roads from 50% to 90%.
  - Install drainage facilities in 1-Digit National Roads, for flood control.
  - Increase traffic signals in the Capital Area for smooth and safe traffic.
  - Introduce bus public transportation system in the Capital Area.
  - Install ICTV cameras in 1-Digit NRs to check the over speed and over loaded vehicles to reduce traffic accidents and improve road safety.
  - Encourage for constructing high speed roads (1st Priority is Phnom Penh to Preah Sihanouk).
- Road Transport Sector, MPWT will:
  - Continue enforcing the sub-decree on management of repair garage and processing/ assembling garage.
  - Continue enforcing the sub-decree on road transport business.
  - Continue enforcing the Prakas on the Procedure of Vehicle Registration.
  - Continue enforcing the law on road transport contracts.
  - Formulate a new draft law on road traffic.
  - Reduce the time for issuing vehicle registration, license plate, and driving license.
  - Improve the officers' capacity.
  - Modernize the vehicle registration and inspection system using IT system.
- Waterway Works
  - Continue dredging the navigation channel from Phnom Penh to Kratie.
  - Conduct water depth survey in upper-stream and lower-stream Mekong River.
  - Invite the private sector to develop river ports.
  - Complete the hydrographic survey in the Mekong up to Kampong Cham.
- Inland Waterway Transport
  - Develop river navigation channels and install navigation aids.
  - Continue formulating and enforcing related laws, rules and regulations, such as the law on inland waterway transport; sub-decree on format and procedure for issuing garage business permit; sub-decree on management of inland waterway transport; and sub-decree on location and technical specification of navigation beacon, signal, flashlight, whistle and emergency siren.
  - Continue to revise sub-decree on river navigation.
  - Continue preparing master plan on inland waterway transport and encourage private participation in shipping activities.
- Maritime Transport
  - Formulate the Cambodian Maritime Code.

- Formulate Prakas on port entry permit given to foreign vessels to call ports in Cambodia.
- Formulate sub-decree on establishing national system for response and cooperation in case of oil-spill at sea.
- Formulate sub-decree on crew book.
- Formulate certificate of competency.
- Enforce laws, provisions and rules of agreement related to maritime transport.
- Complete the electric marine chart in Preah Sihanouk Port.
- Complete the multi-purpose terminal at Preah Sihanouk Port.
- Enhance the promotion of Preah Sihanouk Port SEZ and fulfill all rents.
- Provide user-friendly services for vessels.

o Railways Sector, MPWT will:
- Provide both local and overseas training to officers at all levels under cooperation with the Technical Consultant Canarail.
- Complete rehabilitating the north line between Phnom Penh and Poipet to connect to Thailand.
- Complete the rail freight terminals at Phnom Penh and Preah Sihanouk.
- Ensure efficient railway operations under the concessions contract.
- Encourage for extending railway construction.

o Road Safety, MPWT will:
- Continue the preparation of 10 years road safety action plan.
- Prepare for the defense of national road safety policy by further urging the legal enforcement of road traffic law.
- Monitor the process of safety helmet inspection center construction.
- Continue organizing the seminar on road safety management.

o Monitoring Trucks, MPWT will:
- Design methods and strategies to crack down on non-performing activities by reforming the management system of (overloaded) truck inspection.
- Draw maps and make transport reports for sending to Trucking Companies and truck owners.

o Transport Planning, MPWT will:
- Make transport policy and planning in each transport sector.
- Make a national expressway master plan and start initiating priority projects.
- Make a national railway master plan and start initiating priority projects.
- Make a national port master plan and invite private investment in ports.
- Promote environmentally sustainable transport plan.
- Integrate all transport policy and planning as a national transport policy and planning.

o Freight Service, Multi-modal Transport, Logistics, and Shipping Services, MPWT will:
- Prepare, in collaboration with concerned ministries/agencies, a master plan on logistics supply and multi-modal transport to enable trade facilitation.
- Increase the efficiency of freight sending services, multi-modal transport, logistics, and of Kampuchea Shipping Agency & Brokers (KAMSAB).
- Support the activities of KAMSAB 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; at the same time, ensure efficiency, safety, quality, and timely delivery to destinations at reasonable costs.
- Increase freight capacity of Preah Sihanouk Port and Phnom Penh Port.

o Urban Transport, MPWT will:
- Strengthen environmentally friendly urban transportation.
- Plan public transport in major urban centers.
- Prepare a new master plan and development of infrastructure for urban transport, including a project for commuter light train to contribute to reduction of CO2 emission.
- Foster efficient, effective, and safe urban public transport infrastructure, and services managed and owned by the private sector.
- Put in place additional measures for the management of traffic, to minimize traffic congestion.
- Enforce the Traffic Law and improve road safety.

o Management of Statistical Database and Planning, MPWT will:
- Strengthen and improve planning, statistics, data management, and information dissemination in the transport sector.
- Strengthen human and institutional capacity in the transport sector.

o Development of Policy, Legal, and Regulatory Framework, MPWT will:

- Implement Road Traffic Law.
- Continue formulating laws, sub-decrees, Prakas and other legal documents related to public works and transports.

1.2.4 The Role of State Secretariat of Civil Aviation (SSCA) in NSDP

SSCA is responsible for managing and developing the Cambodia's civil aviation sector to ensure safe, secure, efficient, and cost- effective international and domestic air transportation services of international standards and maximize the sector's contribution to Cambodia's economic and social development. The SSCA will be implementing the following prioritized activities:

- Strengthen international cooperation in civil aviation sector:
  - Gradually integrate into and harmonize with ASEAN, GMS, CLMV Open Sky Policies, and other international cooperation frameworks.
  - Develop and enhance institutional capacities, particularly the management structure of the SSCA to transform the management system from a centralized one to one, which is decentralized.
- Strengthen flight security and safety:
  - Amend the Law on Civil Aviation, adopted and promulgated to meet the needs of strengthening flight security and safety, and minimize the impact of air transport services on climate change.
  - Update and formulate regulations for technical and economic norms, and for environmental sustainability, in the civil aviation sector.
  - Enhance security and safety based on the existing laws and regulations.
  - Institute official agreements on security, safety, and operational data exchanges with neighboring countries.
- Strengthen air navigation and aerodrome services:
  - Improve and modernize identified airports, including operationalizing the new system of Communication Navigation Surveillance/Air Traffic Management (CNS/ATM).
  - Promote participation of the private and public sectors in the development of airport infrastructure and aviation services, in particular, foster private investment in activities directly and indirectly related to the aviation sector.
  - Control and coordinate businesses under concessional agreements.
  - Further enhance the capacity and knowledge of female employees to improve the role and status of women in air transportation services.
  - Develop information technology, meteorological information system, statistical data system, and conduct studies and researches.

1.3 Road Law

The Road Law was adopted by the National Assembly on 3rd of April 2014, approved by the Senate on the 11th of April 2014 and promulgated by PREAH REACH KRAM NS/RKM/0514/008 dated the 4th of May 2014. The Road Law is composed of 13 Chapters and 81 articles:

- Chapter 1- General Provisions (Article 1 – 4): Describes the objective and scope of the law.
- Chapter 2 –All of these roads will be managed by 3 ministries/agencies:
  - Ministry of Public Works and Transport: in charge of Expressway, National Roads and Provincial Roads;
  - Ministry of Rural Development in charge of Rural Roads and other roads as assigned by the Royal Government; and
  - Sub-national Administration is the competent authority, whose obligation include planning, design, construction, rehabilitation and road maintenance within the capital, cities and provincial towns.
- Chapter 3 - Competent Authority for Road Management: One of the remarkable revisions in this latest road law is the division of road classification from 3 categories (National, Provincial and Rural Roads) to 6 categories (Expressways, National Roads, Provincial Roads, Rural Roads, Urban Roads and Special Roads.

The change indicates Cambodia's strong intention to build expressway and improve overall management of land infrastructure in the Kingdom.

- Chapter 4 – Road Development and Maintenance:
- Chapter 5 – Technique Entity and Road Infrastructure Technical Regulation:
- Chapter 6 – Road use:
- Chapter 7 – Protection of Road Infrastructure:

- Chapter 8 – Road Certification:
- Chapter 9 – Fund for Road Use Maintenance and Development:
- Chapter 10 – Inspection of Road Infrastructure:
- Chapter 11 – Penalties:
- Chapter 12 – Final Provisions:

1.4 Road traffic law

The Road traffic law was adopted by the National Assembly on the 5th of December 2014, approved by the Senate on the 30th of December 2014 and promulgated by PREAH REACH KRAM NS/RKAM/0115/001 date the 9th of January 2015. Road traffic law composed of 12 Chapter and 92 articles:

- Chapter 1 – General Provisions (Article 1-4): Describes the objective scope and terminology of the law;
- Chapter 2 – Traffic Sign (Article 5-6): Describes the traffic signs and priority signs;
- Chapter 3 – Drivers (Article 7 – 26): Describes the drivers driving condition, use of roads, turning left and right, and crossing and parking;
- Chapter 4 – The use of vehicle lights and horns (Article 27 – 30): Describes the use of lights and horns;
- Chapter 5 – Pedestrians and animal riders/herders (Article 31 – 33): Describes pedestrian, animal riders crossing/walking;
- Chapter 6 – Traffic Accidents (Article 34-38): Describes the competency of the traffic police, road accidents, and hit and run cases;
- Chapter 7 – Vehicle management and transportation (Article 39-58): Describes driving license issues, demerit points, vehicle inspections, over loading and fines;
- Chapter 8 – Law enforcement agency of the Road Traffic Law (Article 59): Describes the role and responsibilities of the National Road Safety Committee;
- Chapter 9 – Law enforcement personnel on Road Traffic Law (Article 60 – 70): Describes the right of detention, competency of the traffic police, small fines and right of complaint;
- Chapter 10 – The penalty (Article 71-87): Describes the crime considered for small fines, the responsibility for civil and criminal responses by drivers, and other fines;
- Chapter 11 – Inter-provisions (Article 88-90): Describes the law validity and implementation;
- Chapter 12 – Final provisions (Article 91-92): Describes the invalid of the road traffic law in 2007.

1.5 National Port Policy

To cope with the influx of investment into port development sectors as well as to comply with NSDP, the National Port Policy, with the support from JICA, was developed. This legal document was approved by Council of Minister on the 10th of May 2013. It is composed of 7 chapters:

- Chapter 1 – Introduction: Describes the background of the role of ports in NSDP (2008-2013);
- Chapter 2 – Vision: Points to the efficiency of maritime transport;
- Chapter 3 – Goals & Objectives: Describes the importance of ports that attract investors to use ports for shipment;
- Chapter 4 – Strategy:
  - Development of legal and institutional frameworks
  - Development of infrastructure
  - Human resource development
  - Research and compilation of statistic and information
  - Promotion of port development
  - International and national cooperation
- Chapter 5 – Plan and Actions:
  - Institutional arrangements
  - Establishment of legal framework
  - Modernization of ports
  - Capacity building
  - Encouragement of private participation in port development and/or operation
  - Port service charges and port tariffs on other services
  - Financial support
- Chapter 6 – Monitoring and evaluation: Describe the verifiable indicator that enable port development to be monitored and evaluated;
- Chapter 7 – Evaluation: Ports truly help develop local economies.

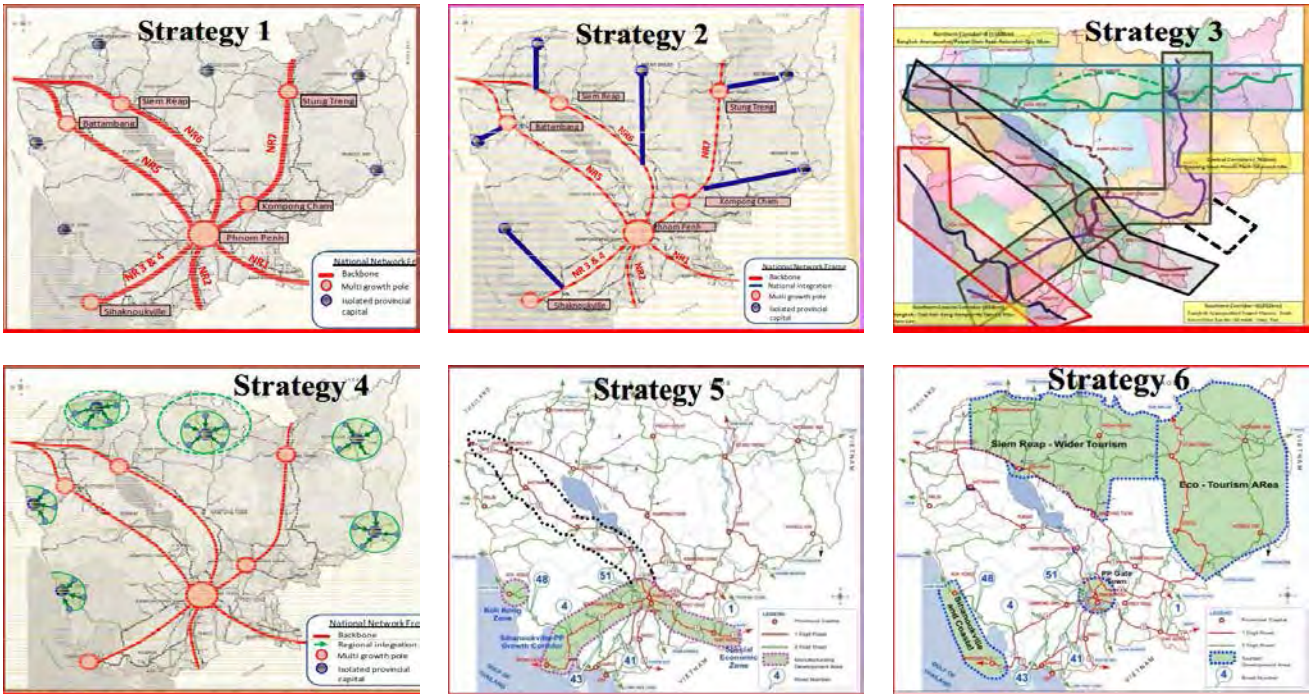
1.6 Road Development Policy and Strategy

MPWT formulated the Road Development Policy in 2004 and revised it in 2009 based on the above NSDP in cooperation with IRITWG.

The road network in Cambodia is divided into six categories: Expressway, National Road (NR), Provincial Road (PR), Rural Road (RR), Urban Road (UR) and Special Road (SR). Key artery roads such as Expressway, NR and PR will be managed by MPWT and RR will be managed by MRD, UR by city municipalities and SR will be designated by the government.

Road networks and infrastructure are defined as arteries that transform the country into an integrated economy and are critical to distributed economic growth. They play an essential role in contributing to poverty reduction, which is the government's highest target, by facilitating trade, movement of goods and services, by promoting tourism and rural development and by fostering integration of domestic markets as well as enabling integration with the region and the world. In order to achieve the above-mentioned purpose, the following six (6) strategies are set forth:

- Strategy 1: Enhancement of multi growth pole development;
- Strategy 2: National integration;
- Strategy 3: Development of international corridors for Cambodian Regional Integration;
- Strategy 4: Enhancement of rural socio-economic development, mainly agriculture development for poverty reduction;
- Strategy 5: Strengthening of economic growth corridor development;
- Strategy 6: Promotion of tourism development.



Source: MPWT

Figure 1-2: Road development strategies

2 Roads

2.1 Present State of Roads in Cambodia

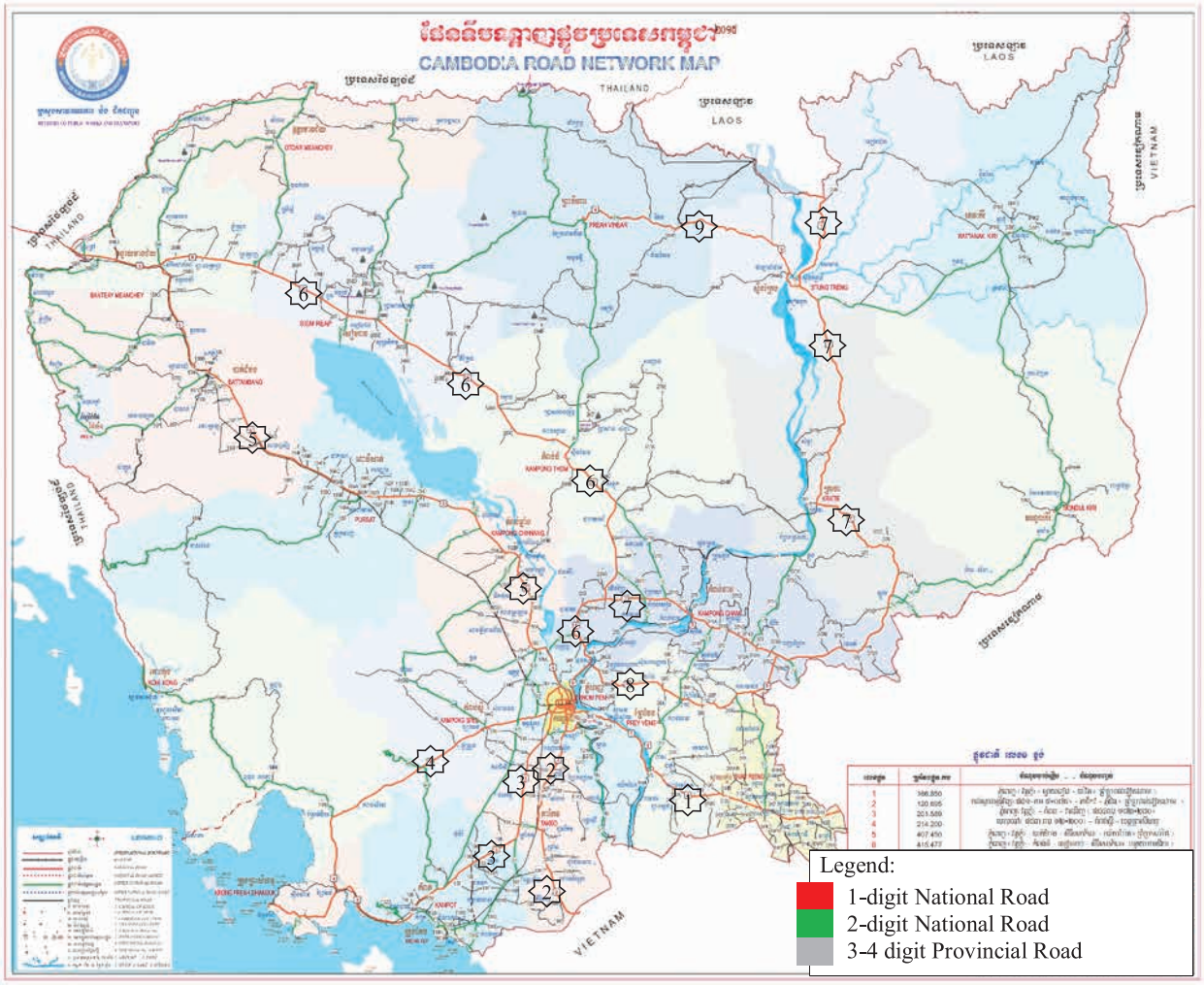
2.1.1 National and Provincial Road Network in Cambodia

The road network in Cambodia, as of September 2014, has a total network length of more than 55,000km, out of which NR (total of one and two digit roads) occupy more than 11,000km. This figure accounts for 20.10% of the total road network length. In contrast, it accounts for bridge length of 43.7% of the total bridge length.

Table 2-1: Road Network Length

Road Classification	Length (km)	Road Percentage	Number of Road Network	Number of Bridge	Bridge Percentage	Bridge Length (m)	Bridge Length Percentage	Management Authority
NR (1-digit)	2,243	4.06%	9	589	14.5%	17,643	23.1%	MPWT
NR (2-digit)	8,864	16.05%	146	698	17.2%	15,710	20.6%	MPWT
Provincial Road (3-4 digit)	4,407	7.98%	236	904	22.3%	16,309	21.4%	Under discussion
Rural Road	39,728	71.92%	13,355	1,869	46.0%	26,559	34.8%	MRD
Total length	55,242	100.00%	13,746	4,060	100.0%	76,221	100.0%	

Source: MPWT and MRD



Source: MPWT

Figure 2-1: National and Provincial Road Network in Cambodia

2.1.2 International Road Network in Cambodia

There are 3 international roads running across Cambodia. According to their width and pavement type, they are divided into 5 road classifications:

- Primary: Roads used exclusively by automobiles/AC or concrete pavement;
- Class I: Highways with 4 or more lanes/AC or concrete pavement;
- Class II: Roads with 2 or more lanes/AC or concrete pavement; and
- Class III: Narrow 2-lane roads/DBST pavement;

The Cambodia road network falls within class II, III and below class III, which is considered a low standard. To promote transport within the region (reduce time and cost), Cambodia must upgrade or build primary or Class I roads, which Cambodia is developing now.

Source: MPWT

Figure 2-2: International Road Network in South-East Asia

Table 2-2: International Roads Network in Cambodia (As of 2011)

Name of international road			Transit Cities/provinces	Length in Cambodia (km)	International Road Classification, km				
GMS roads	Asian Highway	ASEAN Highway			Primary	Class I	Class II	Class III	Below Class III
Central Sub-Corridor (R1)	AH1	AH1	Poipet-Sisophon (NR5)	47.5			47.45		
			Sisophon - Phnom Penh (NR5)	360.0				360	
			Phnom Penh - Bavet (NR1)	164.0			57	107	
			Sub-total Length (km)	571.5			104.45	467	
Inter-Corridor Link (R6)	AH11	AH11	Phnom Penh - Sihanoukville (NR4)	226.4			226.4		
			Phnom Penh - Skun (NR6)	75.0			75		
			Skun-Kampong Cham (NR7)	49.0			49		
			Kampong Cham - Trapengkreal (NR7)	411.8				411.83	
			Sub-total Length (km)	762.2			350.4	411.83	
Coastal Sub-Corridor (R1)	-	AH123	Cham Yeam - Koh Kong (NR48)	13.0			13		
			Koh Kong - Sre Ambel (NR48)	138.0				138	
			Sre Ambel - Viel Rinh (NR4)	42.0			42		
			Viel Rinh - Kampot (NR3)	36.0				36	
			Kampot - Lork (NR33)	51.8				51.8	
			Sub-total Length (km)	280.8			55	225.8	
Northern Sub-Corridor (R9)	-	-	Siem Reap - Talaborivath (NR66+NR210+NR62+NR9)	305.2				38.8	266.38
			Talaborivath - O Pongmoan (NR7)	19.0				19	
			O Pongmoan - O Yadav border (NR78)	187.7			68.2		119.5
			Sub-total Length (km)	511.9			68.2	57.8	385.9
Grand total length (km)				2,129.4			581.1	1,162.4	385.9

Source: MPWT

2.2 Major Road Improvement Projects

2.2.1 1-digit and 2-digit National Road Improvement Projects

Nearly two decades after the ending of the civil war[4], Cambodia was in the stage of infrastructure rehabilitation and development. Major support came from various foreign donors:

Table 2-3: 1-digit National Road Improvement Projects in Cambodia

Road No.	Org.	Cost (Mill.)	Length (km)	Section	Year		Fund	Pavement status
					Start	End		
1	Japan	$47.48	43.0	PK: 13+000 – Neak Loeung (1st and 2nd phase)	2006	2009	Grant	AC
	Japan	$11.17	9.0	PK: 4+000 – PK: 13+000 (3rd phase)	2010	2011	Grant	AC
	Japan	$15.00	4.0	Monivong Bridge – PK: 4+000 (4th Phase)	2014	2016	Grant	AC (Detailed Design)
	ADB	$50.00	107.0	Neak Loeung - Bavet	1999	2004	Loan	DBST
	WB	$3.00	107.0	Neak Loeung - Bavet	2009	2013	Loan	Road Maintenance (Upgrading)
2	ADB	-	63.0	Kbal Thnal - Takeo	2001		Loan	DBST
	Korea	-	63.0	Kbal Thnal - Takeo	-	-	-	-
	Korea	-	-	Takeo - Ang Tasaom (NR3)	-	-	-	DBST
	Japan	$12.45	51.7	Takeo - Phnum Den	2003	2007	Non-Project Fund	AC
3	Korea	$41.50	134.8	Phnom Penh - Kampot (phase 2)	2008	2011	Loan	DBST
	Korea	$17.05	32.79	Kampot - Trapeang Lopaou (phase 1)	2004	2007	Loan	DBST
	WB	$47.60	32.5	Trapeang Lopaou - Veal Renh	1999	2006	Loan	DBST
	ADB & AusAid	$28.50		Southern Coastal Corridor Project (NR3: Kampong Trach to Prek Chak, NR3: Kampot to Veal Renh, Cross-Border Facilities at Lork (Vietnam Border)	2011	2014	ADB=$7 AusAid=$8	DBST (upgrading & Periodic Maintenance)
4	USA	$50.50	217.0	Chaom Chao - Sihanoukville		1996		AC
	AZ		217.0	Chaom Chao - Sihanoukville	2001	2035	OT	OT (periodic maintenance)
5	Cambodia		91.0	Phnom Penh - Kampong Chhnang		2003	Treasury	DBST
	ADB	>$1	85.0	PK:6+00 - Kampong Chhnang	2010	2011	Loan	Maintenance
	ADB	$68.00	261.0	Kampong Chhnang - Sisophon	2000	2004	Loan	DBST
	China	$56.80	30.0	Phnom Penh – Prek Kdam	2013	-	Loan	AC (4 lanes) 18.89% (As of 31 May 2014)
	Japan	$88.00	81.20	Battambang – Sisophon	2013	2017	Loan	AD (Detailed Design)
5+6	ADB & OPEC	$77.50	48+102	Poi Pet - Sisophon – Siem Reap	2006	2008	Loan	AC
6	Japan	$28.00	44.0	Phnom Penh - Chealea	1993	1995	Grant	AC
	Japan		30.0	Chealea - Skun	1996	1999	Grant	AC (deteriorated condition)
	ADB		112.0	Cheung Prey -	2000	2004	Loan	DBST
	WB	$16.10	73.0	Kampong Thom - Ro Lous	1999	2006	Loan	DBST
	Japan	$12.00	15.0	Siem Reap - Bakong temple	2000	2001	Grant	AC
	ADB		100.0	Sisophon - Siem Reap	2006	2008	Loan	AC

[4] Civil war in Cambodia ended in 1998

Road No.	Org.	Cost (Mill.)	Length (km)	Section	Year		Fund	Pavement status
					Start	End		
	China	$248.8	248.525	Thnal Kaeng – Skun (4 lanes) Skun – Angkrong (2 lanes)	2013	2016	Loan	AC (24.36% as of 31 May 2014)
	China	$70.25	40.0	PK: 4+000 to Thnal Keng	2012	2015	Loan	AC (4 lanes) – 79.87% (as of 31 May 2014)
7	Japan		45.0	Skun - Kampong Cham	1996	1999	Grant	AC
	Japan	$19.00	10.2	Kampong Cham - Chub	2001	2003	Grant	AC
	ADB		205.0	Chub - Kratie	2000	2004	Loan	DBST
	China	$67.5	192.8	Kratie - Trapeang Kriel (Lao border)	2004	2007	Loan	DBST
8	China	$71.50	109.08	Prek Tameak - Anlong Chrey	2007	2012	Loan	AC
8-1	China	$14.80	5.6	Krabao - Moeun Chey	2010	2012	Loan	AC
8-2	China		18.56	Anlong Chrey - Krek	2010	2012	Loan	
9	China	$63.8	143.33	Tbaeng Meanchey – Talaborivath	2012	2016	Loan	DBST (97.52% as of 31 May 2014)
11	ADB	-	90.4		2001	2004	Loan	DBST
11	China	$63	90.4	NR1: Neak Loeung – NR7: Thnal Tortoeung	2015		Loan	AC
13	ADB	$23.39	62.4	Svay Rieng - Anlong Chrey	2014	2016	Loan	DBST
21	ADB	-	77.5		2002	2004	Loan	DBST
	VN		0.4	Chhrey Thom			Loan	Bridge (50%-50% share with RGC)
	Korea	$57.00	25.0		2010			
23	China	$33.00	53.00	Pea Reang Leu – Chombork (border)	2013	-	Loan	DBST
31	WB	$12.90	51.7		2003	2005	Loan	DBST
33	WB		39.8	Takeo - Kampong Trach - Kampot	2002	2005	Loan	
	ADB	$13.00	17.0	Kampong Trach - Lork (Vietnam border)	2007	2010	Loan	DBST
41	WB			National Road 4 - Prek Thnout River	-	-	Loan	DBST
	China	$95.28	46.25	Thal Tortoeng – Chum kiri - Kampot	2010	2013	Loan	DBST
43	China	$42	77	NR4: Treng Troyeng – NR3: Thvear Thmey	2015	-	Loan	DBST (Under negotiation)
44	China	$80.30	139.14	Chbamorn – Oral – Amleang – Udong	2012	2015	Loan	DBST (65.06% As of 31 May 2014)
48	Thai	$21.69	159.0	Koh Kong - Sre Ambel	2004	2007	Loan	DBST
51	WB	$5.80	38.9	Udong - Thnal Torteng	2003	2006	Loan	DBST
	China	$27	38.9	Udong - Thnal Torteng	204	-	Loan	AC
55	China	$140	189.70	Pursat – Thmar Da, Thai – Cambodia border	2013	-	Loan	DBST (next 5-year plan)
56	ADB + Korea	$29.90	84.0	29km from Sisophon to Samrong	2009	2015	Loan	Road improvement
57	China	$41.88	103.14	Batambang – Pailin - Thai Border	2008	2012	Loan	DBST
57B	China	$176.81	89.98	1) Tmor Kol - Bovel - Sampov Luun 2) Bovel-Samseb-Phnom Prek 3) Samseb - Kamrieng	2010	2014	Loan	DBST
58	China	$77.00	132.0	Banteaymeanchey – Banteay Meanrit – Thmar Daun - Phaong	2014	-	Loan	DBST (Under negotiation)

Road No.	Org.	Cost (Mill.)	Length (km)	Section	Year		Fund	Pavement status
					Start	End		
59	China	$72.89	140.25	NR 59 (Koun Damrey - Malay - Sampov Luun – Phnom Prek – Kamrieng - Pailin)	2010	2013	Loan	DBST
5x	Private	$5.50	13.0	National Road 5 - Thai border (through Chay investment)	2004	-	-	DBST (not yet started)
60B	China	$130	140+1.67	Kg. Thmor – Kratie + Bridge	2015	-	Loan	DBST (+ bridge cost)
61	WB		16.0	Prek Kdam - Thnal Keng (NR6)	2002	2005	Loan	Maintenance
	China	$9.76	15.63	Prek Kdam - Thnal Keng (NR6)	2010	2012	Loan	AC
62	China	$57.80	157.0	Koh Ke – Thnal Bek, Tbeng Meanchey - Preah Vihear temple	2008	2012	Loan	DBST
	China	$52.00	128.0	Kampong Thom - Tbaeng Meanchey	2009	2013	Loan	DBST
64C	China	$100	132	Tbaeng Meanchey - Talaborivat	2011	2014	Loan	DBST
66	WB	$1.40	18.5	Phnom Dek - Rovieng	2004	2006	Loan	DBST
66	WB	$3.20	18	Rovieng - River Stung Sen			Loan	DBST (not yet started)
67	Thai	$3.06	18.0	Choam Sa Ngam - Anlong Veng	2006	2007	Grant	DBST
	Thai	$32.50	131.0	Anlong Veng - Siem Reap	2007	2009	Loan	DBST
68	Thai	$35.00	113.0	O Smach - Kralanh	2007	2009	Loan	DBST
	Cambodia	$33.00	113.74+3.18	O Smach – Kralanh + Bypass Samraong town	2009	2011	Nat. Budget	DBST Re-pavement
70B	China	$90	150	Tonlebet – Srey Santhor – Prek Tameak – Lvear Em – Peam Ro	2015	-	-	DBST
	WB	$1.50	15.5	Traueng (NR7) - Kampong Thmar (NR6)	2004	2006	Loan	DBST
71C	China	$66	110	Tbong Khmum – Kroch chmar - Chamkarleu	2015	-	-	DBST (+ Kroch Chmar Bridge)
72	ADB		14.0	Memot – Tropeang Plong	2007	2009	Loan	
71 + 7 + 72	China	$112	145	Tropeang Plong – Krek – Troeung – Kg. Thmar	2015	-	-	AC
76	China	$51.90	127.0	Snoul - Sen Monorom	2008	2011	Loan	DBST
	China	$91.68	171.78	Sen Monorom – Koh Nhek – Lumphat – Taang	2012	2016	Loan	DBST (52.25% as of 31 May 2014)
78	VN	$25.00	69.56	Bang Lung - O Yadav	2007	2009	Loan	AC
	China	$73.30	121.1	O Pong Moan - Ban Lung	2009	2013	Loan	DBST
78x	Private	$6.00	36.0	Ban Lung - Bou Sra (waterfall)	2008	-	-	DBST (not yet started)
92	China	$75	137	Sam An (NR9) – Kg. Sralaor 2 – Kg. Sralaor 1 – Mom 3	2015	-	-	DBST
134B + 135	China	$24	43	Chumkiri – Chhuk – Dorng Tung – Kg. Trach	2015	-	-	DBST
181	WB	$2.00	28	Samraong - Chong Kal	2004	2006	Loan	DBST
207	WB	$1.00	1	Sautr Nikum - Beong Tonle Sap	2004	2006	Loan	DBST
210	Private	$21.50	-	Siem Reap - Koh Ke	2003	-	BOT	DBST
258D	China	$48.30	20.0	Kob (NR5, PK: 383) – O Beychoann	2011	2013	Grant	DBST
314D	ADB	$14.32	25.6	NR1 –VN border: Prey Mlu	2014	2016	Loan	DBST
378	China	$85	141	NR7: Dong Krolor – NR78: Banlung	2015	-	-	DBST

Road No.	Org.	Cost (Mill.)	Length (km)	Section	Year		Fund	Pavement status
					Start	End		
1551	China	$72	135	NR4: Smach Meanchey – NR55: Promoy	2016	-	-	DBST
1554	China	$41	70	Veal Veng (NR55) – Samlot (PR1577)	2015	-	Loan	DBST
1577	China	$25.00	55.16	Sek Sork – Samlot – Border Pass 400	2015	-	Loan	DBST
3762	China	$14.89	26.38	Sen Monorom - Dakdam	2010	2012	Loan	DBST
3787	China	$98	180	Banlung – Kantuyneak	2015	-	-	DBST

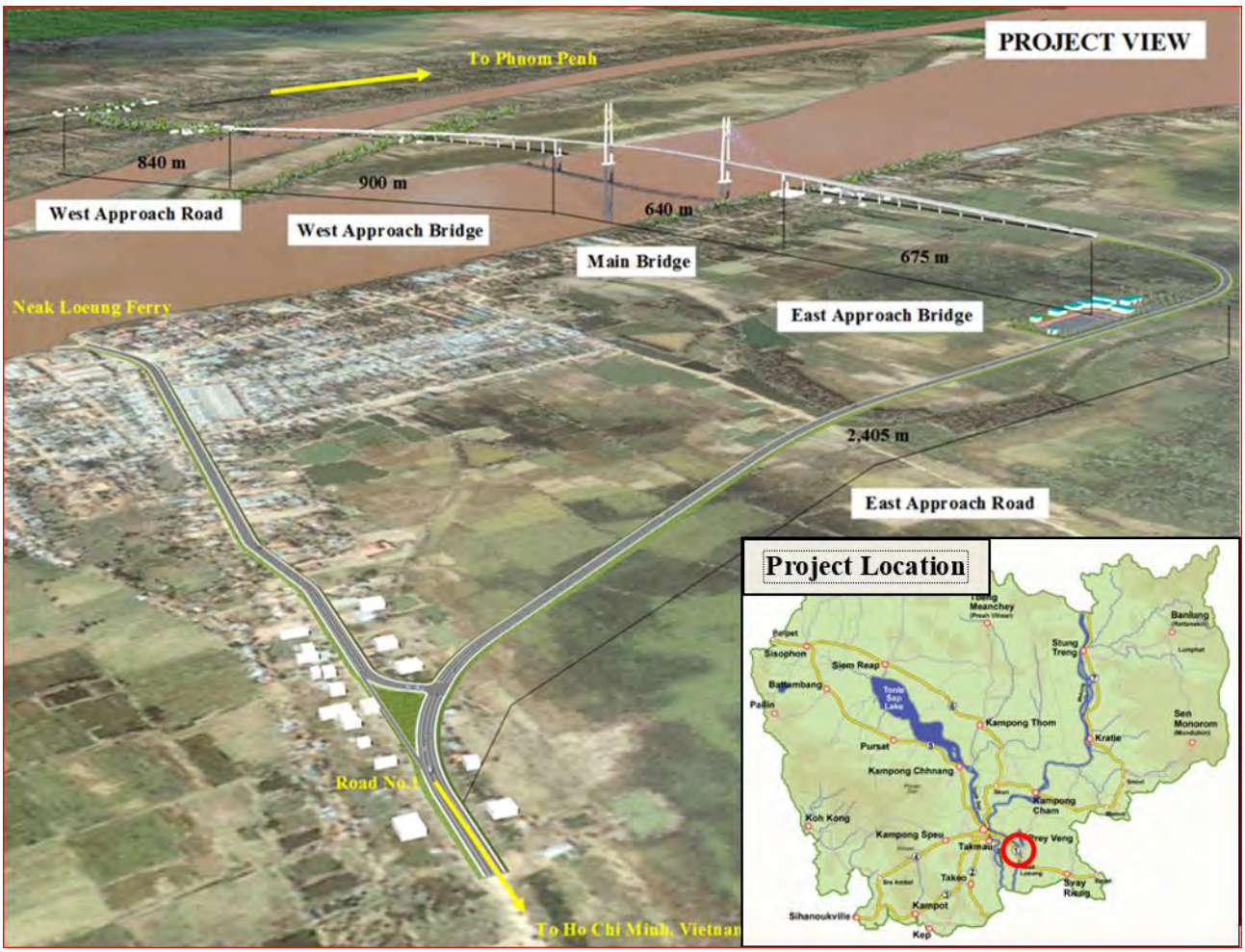
2.2.2 Key Bridge Improvement Projects

Table 2-4: Key Bridge Development in Cambodia

Name of Bridge	Type of Bridge	Donor	Cost (Mill$)	Length (km)	Location	Year		Fund	Progress status
						Start	End		
Kizuna	Concrete	Japan	$60.00	1.3	Kampong Cham, NR7	1996	2001	Grant	Completed
Chroy Changvar	Main part is metal	Japan	$27.00	-	Phnom Penh, NR6	1992	1993	Grant	Completed
Tsubasa Bridge	Cable	Japan	$85.59	2.2	Kandal, Prey Veng, NR1	2011	2015	Grant	Completed in April 2015
3 Concrete Bridges	Concrete	Japan	$7.67	-	On NR 2 and NR3	2005	2007	Grant	Completed
Concrete Bridge	Concrete	Japan	$7.00	-	On NR1 (phase 1)	2005	2006	Grant	Completed
8 Bridges	Concrete	Japan	$15.00	-	On NR11 (Prey Veng)	2012	2015	Grant	Completed
Prek Tameak	Concrete	China	$43.50	1.066	Kandal, NR8 & NR6	2007	2010	Loan	Completed
Prek Kdam	Concrete	China	$28.90	0.975	Kandal, NR5 & NR61	2007	2011	Loan	Completed
4 Bridges	Concrete	Thailand	$7.20	1.6	Along NR48	2005	2007	Grant	Completed
38 Concrete Bridges & 57 Culverts	Concrete	ADB	$10.50	0.185	Along 56-68 (Sisophon - Samraong - Kralanh)	2006	2008	Loan	Completed
New Monivong Bridge	Concrete	Cambodia	-	-	Phnom Penh	2007	2009	Nat. Budget	Completed
Kampong Bai	Concrete	Korea		0.3	Kampot, as a part of NR3	2005	2007	Loan	Completed
Se Kong	Concrete	China	$15.00	1.057	Stoeung Treng, as part of NR7	2007	2007	Loan	Completed
Koh Kong	Concrete	Private	$7.00		Koh Kong, NR48	2001		BOT	Completed
Stung Meanchey	Concrete	Private	$5.00		Phnom Penh - Chaom Chao	1999		BOT	Completed
New 2nd Chroy Changvar	Concrete	China	$30.00	0.719	Phnom Penh - NR6	2010	2013	Loan	Completed
Prek Phnov	Concrete	Private	$42.00	1.543	Phnom Penh - NR6	-	2010	BOT	Completed
Mekong River Bridge	Concrete	China	$52.72	1.731	Stung Treng (Junction NR7 & NR9)	2012	2015	Loan	Completed
Takhmao Bridge	Concrete	China	$32.89	0.855	Takhmao town	2012	2016	Loan	Completed
Chrey Thom Bridge	Concrete	Vietnam	$35.84	0.48	Vietnam Border	2014	2015	Loan ($17.8)	In progress
Koh Poh Bridge	Concrete	Private	$31	0.9	Sihanoukville – Morokot island	2009	2011	BOT (99 years)	Completed

Source: MPWT

NEAK LOEUNG OR TSUBASA BRIDGE



One of the most important routes in Cambodia and stretches from Phnom Penh to the southern part of Cambodia is the National Road No.1 (NR1). It forms part of the Asian Highway Route AH-1 and connects Ho Chi Minh City and Bangkok through Phnom Penh. NR1 was improved by the ADB (between Neak Loeung and the Vietnam border) and Japanese Grant Aid (between Neak Loeung and Phnom Penh). To accelerate the mobility of goods and passengers and generate substantial benefits to Indochina and the Greater Mekong Sub-region (GMS), the Japanese people through the Japanese government provided financial (through Grant Aid) and technical support to build the longest and largest cable-stayed bridge at Neak Loeung.

The construction of this bridge was opened to general public transport/traffic (except container transport) on April 6, 2015. The bridge is named "Tsubasa". This is a Japanese word which means "Wing" in English. This name derives from the shape of the bridge (2-spans) that look like 2 yellow birds spreading their wings where they resemble Cambodia and Japan.

TECHNICAL INFORMATION

Construction Period	:	from December 2010 to March 2015 (51 Months)
Main Bridge		
Bridge Type	:	Cable-Stayed Bridge
Length	:	640 meters
Span Length	:	155m + 330m + 155m = 640 meters
Height of Pylon/ Pier	:	130 meters (from E.L.0m)
Clearance	:	37.50 meters (from H.W.L.)
Type of Foundation	:	Cast-in-Place Piles

Approach Bridge

Bridge Type	:	Composite PC Girder
Length	:	1,575 meters
Span Length	:	West : 20 @ 45 = 900 meters
		East : 15 @ 45 = 675 meters
Height of Pylon/ Pier	:	8 ~ 32 meters
Type of Foundation	:	Cast-in-Place Piles

Approach Road

No. of Lanes	:	2 Lanes
Total Length	:	3.10 kilometers
Width (per 1 lane)	:	Carriageway : 3.50 meters
		Motorbike Lane : 2.50 meters
		Shoulder : 1.0 meter
Embankment Height	:	0 ~ 10 meters
Design Speed	:	80 km/h

(Dec. 2011)

(Jun. 2013)

(Sep. 2013)

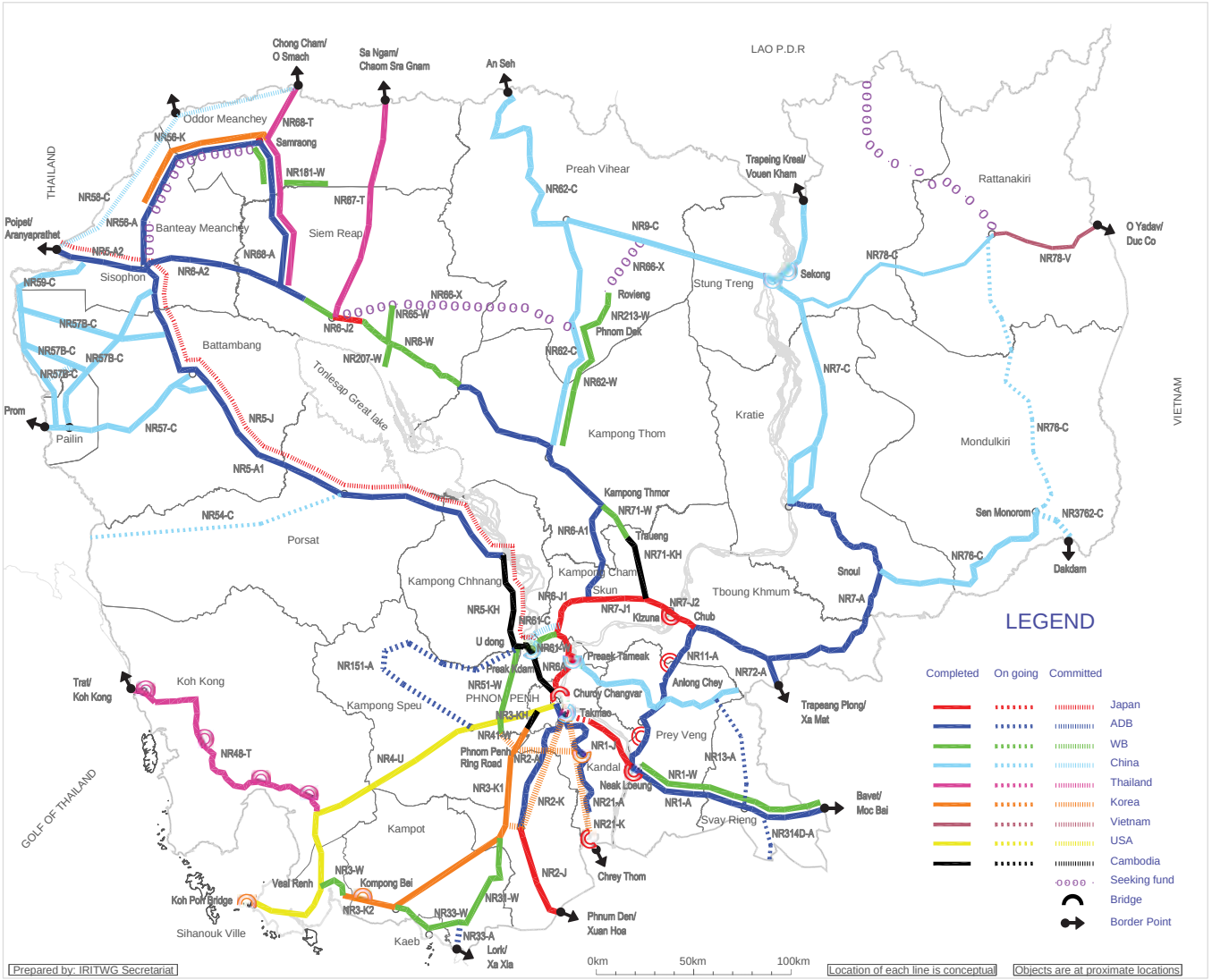
(Dec. 2013)

(May 2014)

(Jul. 2014)

(Final Segment Dec. 2014)

(Jan. 2015)



Source: MPWT

Figure 2-3: Road Network Development

2.2.3 Expressway Project

a) Overview of the Expressway

An expressway is a highway specially designed for high-speed and long-distance travel. Entrances and exits are limited to interchanges and there are no stop signals. It consists of four or more lanes with median dividers. This allows for safe and smooth movement of traffic. Drivers can rest at rest-areas with toilets and other facilities. By using expressways, travel times are greatly reduced compared to ordinary highways.

Source: JICA

Figure 2-4: Higashi-Kantō Expressway, Japan

Since it contributes to the national as well as regional economic growth, expressway is considered to be essential for modern industrial and social activities such as to: insure traffic safety, increase tourism, increase foreign investment, increase agro-industrial market expansion, increase welfare accessibility and other benefits.

b) The Grand Design and Master Plan for the Cambodia Expressway

Many Asian countries started their expressway projects in 1990s when their GDP/capita < $1,000. Neighboring countries such as Vietnam and Thailand are now paying great attention to their expressway construction, whereas Japan and Korea have began their construction 10 years before economic growth began. In short, construction of expressway network needs to be initiated well before economic growth. With this reason, as its GDP per capita reaches USD 1,000, it is time for Cambodia to start construction of an expressway network.

Source: JICA

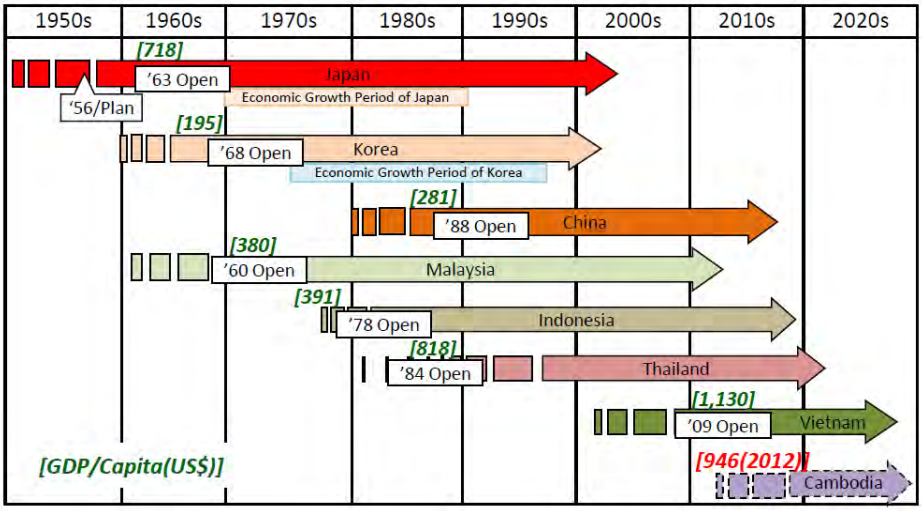


Figure *2-5: Asian Expressway Construction History*

The expressway master plan of Cambodia had been started with the technical assistance of Henan Province, China. The study came up with 2,230 kilimeters of Cambodia Expressway Network. Based on China's master plan report, Cambodia needs to develop some 2,230 kilometers of national expressway network by 2040 with the investment amount of approximately US$26 billion. But for the short-term plan, by 2020 the country needs to build about 850 kilometers in length requiring some US$9 billion. Such development not only responds to the country's rapid economic growth, but also to be ready for the ASEAN integration by 2015.

Source: MPWT

Figure 2-6: Expressway Development Plan Proposed by China

Table 2-5: Expressway Development Plan in Cambodia (by China)

No.	Route		Length, km	No. Lane	Investment Cost (Million USD)	Schedule
	From	To				
E99	PP Ring Road	-	145	8	25,500	Short Term
E1	PP Ring Road No.3	Svay Rieng	150	4		Short Term
E4	PP Ring Road No. 3	Sihanoukville	205	4		Short Term
E3	PP Ring Road No. 3	Sihanoukville	195	4		Long Term
E5	PP Ring Road No. 3	Thailand border	380	4		Short Term
						Medium Term
E6	PP Ring Road No. 3	Banteay Meanchey	390	4		Short Term
						Medium Term
E7	PP Ring Road No. 3	Kampong Cham	130	4		Medium Term
E27	Kg. Cham	Stung Treng	225	4		Long Term
E67	Siem Reap	Koh Kong	230	4		Medium Term
						Long Term
E042	Koh Kong	Sihanoukville	145	4		Medium Term
E033	Kampot	Kep	35	4		Medium Term
Total			2,230		25,500	

Source: MPWT

Note:

- Short Term: L = 850km with total cost = 9,000 Million USD
- Medium Term: L = 855km with total cost = 9,500 Million USD
- Long Term L = 525km with total cost = 7,000 Million USD
- Long Term (*) L = 1,010km with total cost = 11,000 Million USD

Under these circumstances, Japan International Cooperation Agency (JICA) implemented the "Preliminary Data Collection Survey for Expressway Development in the Kingdom of Cambodia" (herein after referred to as the "Preliminary Survey" or "P/S") from June to August 2013 to collect and compile the fundamental information/data which was used to discuss with the senior management of the Ministry of Public Works and Transport (MPWT) of the Royal Government of Cambodia (RGC) on the necessity for formulating a master plan for the national expressway network of Cambodia. The survey recommended that a national expressway network, with a total length of 2,200 km, be planned and constructed.

Source: MPWT

Figure 2-7: Expressway Development Plan Proposed by Japan

Table 2-6: Expressway Development Plan in Cambodia (by Japan)

No.	Route		Pavement Type	Length, km	Schedule
	From	To			
E1	Phnom Penh (PP) Ring Road No. 3	Bavet (Along NR1)	AC	135	Short Term
E3	PP Ring Road No. 3	Sihanoukville (Along NR4)	AC	210	Short Term
UE	PP Ring Road	-	AC	155	Medium Term
E5	PP Ring Road No. 3	Poi Pet	AC	355	Medium Term
E6	PP Ring Road No. 3	Sisophon	AC	400	Long Term
E7	PP Ring Road No. 3	Lao Border (Along NR7)	AC	335	Long Term
E9	Siem Reap	Vietnam Border (Along NR9)	AC	390	Long Term
E10	Kep	Koh Kong (Along NR33 & NR44)	AC	220	Long Term
Total				2,200	Long Term

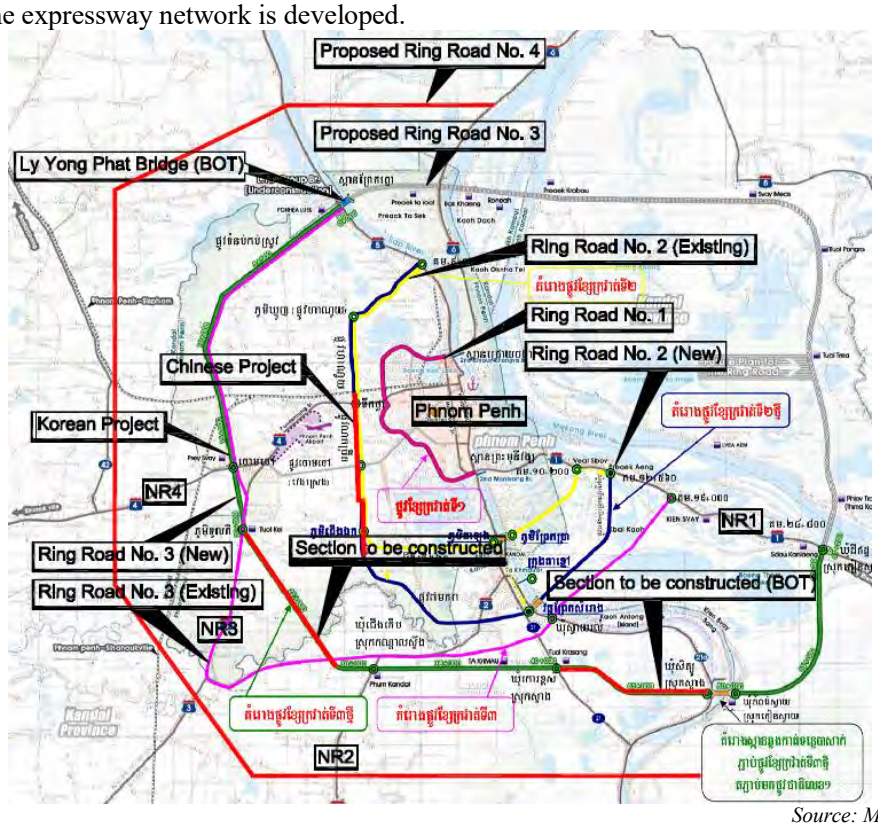
Source: MPWT

2.2.4 Infrastructure Development in Phnom Penh

a) Ring Road

There are 4 ring roads in Phnom Penh:

- **The Inner Ring Road (IRR) or Ring Road No. 1 (RR-I):**
  It runs through build up area of the capital. IRR are widened from 2 to 4 lanes in the northern half and part of the southern section. In addition, the widening of the section from Russia and Toul Kork, and the widening of Monireth to a 6-lane road within the ROW are proposed. The missing links for the section between St. 608 – St. 610 and between St. 430 and St. 261 are also proposed to be constructed.
- **The Middle Ring Road (MRR) or Ring Road No. 2 (RR-II):**
  This has been proposed by China and now the Prek Samraong Bridge has been constructed. The plan intends to construct the new road from NR1 to Chaom Chao Road via the above bridge and widen the Hanoi road and extend it to NR5. The section from NR2 to NR5 is planned to be a 4-lane concrete road, which is being constructed. The RR-II is also to be proposed to further extend to NR6 crossing the Tonle River as a 2-lane road (13.5m in width).
- **The Outer Ring Road (ORR) or Ring Road No. 3 (RR-III):**
  The Outer Ring Road (RR-III) is proposed to start from NR1 near the New Phnom Penh Port, crossing with NR2 at about 3km east of Cheng Aek Road, and be aligned toward the Northwest until NR3 at about 3km from the junction point of NR3/NR4, and connected to Kob Srov Road, then to NR5 and NR6. This ring road is the one originally proposed by Korea, but the road alignment has been modified by slightly shifting to the north at the section between NR2 and NR3 in order to avoid precious agricultural areas. The carriageway width is planned to be 22m for the section from NR21 to NR5, while the other sections are assumed to be 13.5m in width.
- **The Outer-Most Ring Road (OMR) or Ring Road No. 4 (RR-IV):**
  This is the outermost ring road aligned at about 4km to 10km outside of RR-III. It is planned to be developed from NR1 at about 4km south of New Phnom Penh Port to NR2 at around Prek Slaeng District and NR3 at around Trapeang Veaeng District, then it is aligned to northward slightlyto the eastside of NR42 in parallel and turn to eastward near the north-west city boundary and reaches NR5 and NR6 at several km outside of RR-III. Accordingly RR-VI is defined as a city boundary ring road and expected to be used as a bypass road of the urbanized area and at the same time expected as a supporting road for the development of the surrounding area. The RR-IV is proposed as an ordinary arterial road with 10.5m carriageway at the beginning, however, it will be converted to an expressway when the expressway network is developed.



Source: MPWT

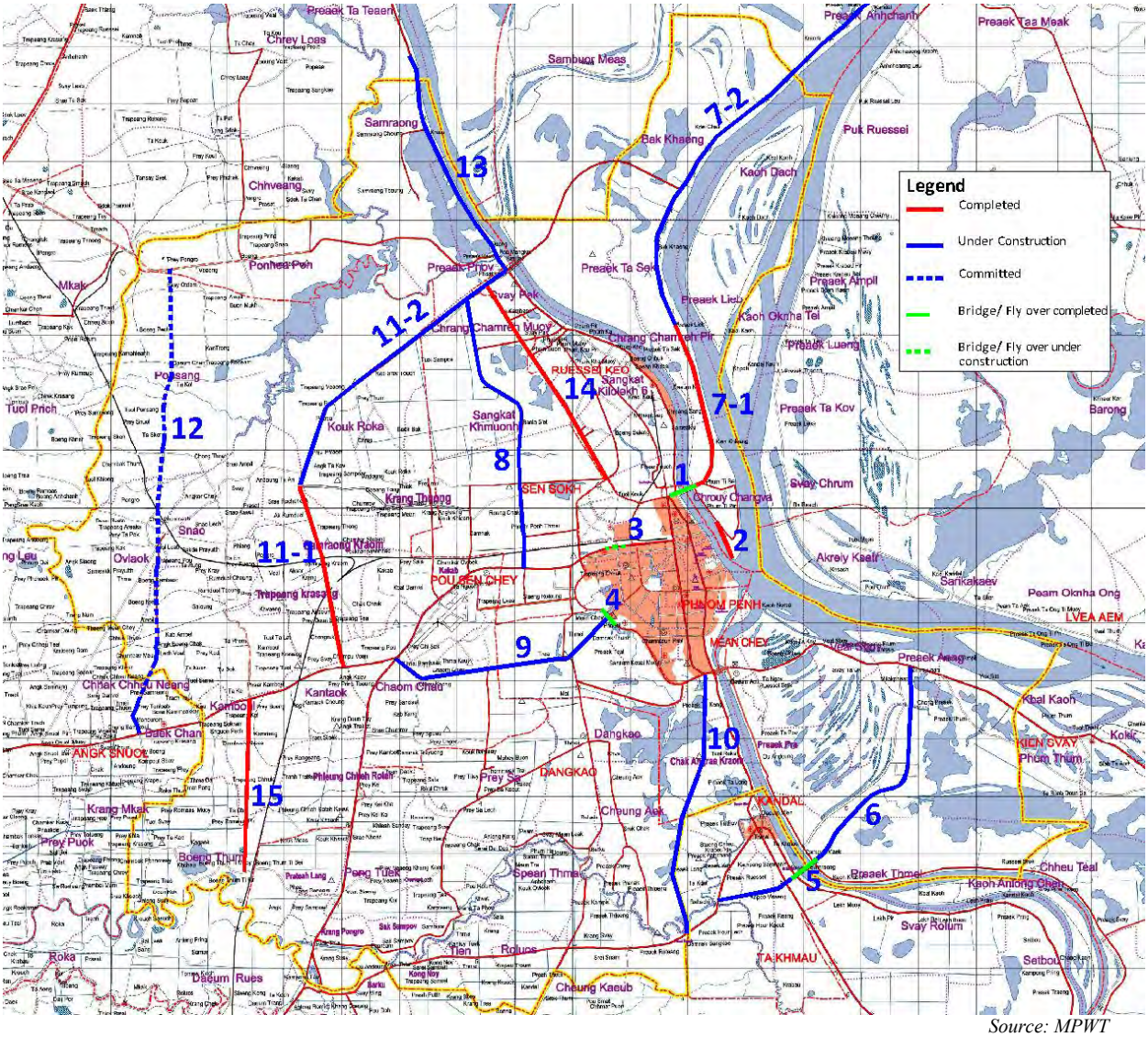
Figure 2-8: Ring Road Development in Phnom Penh

b) Road Projects under Construction or in Committed Stage

The following projects are currently under construction (as of October 2014), or committed according to the Ministry of Public Works and Transport (MPWT) and the Department of Public Works and Transport (DPWT).

Table 2-7: Project development in Phnom Penh

No.	Code	Project Name
1	1	2nd Chroy Changvar Bridge
2	2	East River Bank Road (Chroy Changvar District)
3	4	Stoeung Mean Chey Flyover
4	3	Toul Kork Flyover
5	5 & 6	Takhmao – Prek Samraong Bridge and the Connection Road to NR1
6	n/a	Middle Ring Road Project (NR1 – NR2)
7	7-1 & 7-2	NR6
8	11-1	Hanoi Road
9	9	Veng Sreng Road
10	10	Hun Sen Road
11	11-2	Outer Ring Road
12	15	Rehabilitation and Widening of NR42
13	13	NR5
14	14	Camko City Road / Grand Phnom Penh Road
15	n/a	PPSEZ Road (completed by private sector)



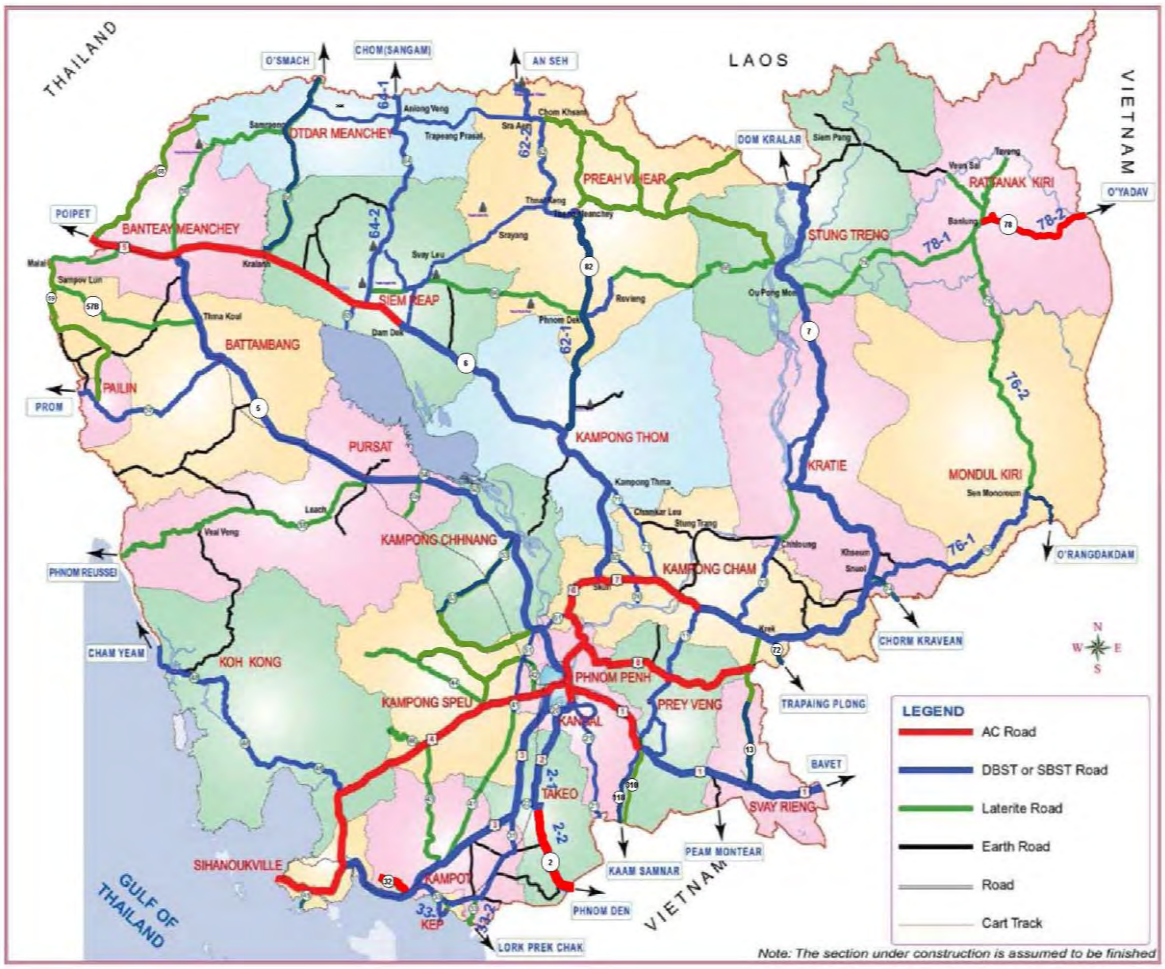
Source: MPWT

Figure 2-9: Road Development in Phnom Penh

2.3 Present State of Road Condition

2.3.1 Road Pavement Condition

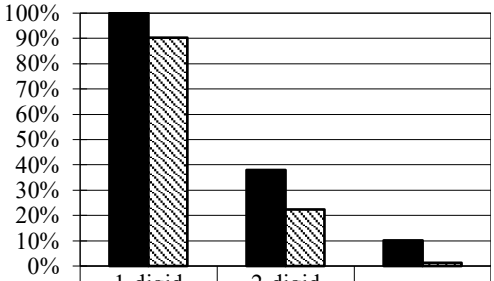
Since NRs are the main arteries to support economic development, improvement of pavement structure from DBST to AC is required for heavy transportation. Likewise for PR, with pavement ratio of 10.2%, it is very likely that PR will quickly deteriorate during the rainy season.



Source: MPWT

Figure 2-10: Pavement Status

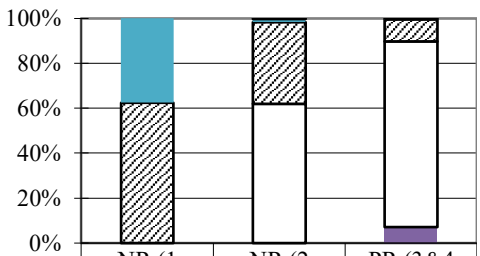
Note: The section under construction is assumed to be finished



	1-digid national road	2-digid national road	Provincial Roads
Road Pavement ratio	100.0%	38.0%	10.2%
Bridge Pavement ratio	90.3%	22.5%	1.3%

Source: MPWT & MRD

Figure 2-11: Road Pavement Ratio (as of 2014) and Ratio of Permanent Bridges (as of 2004)



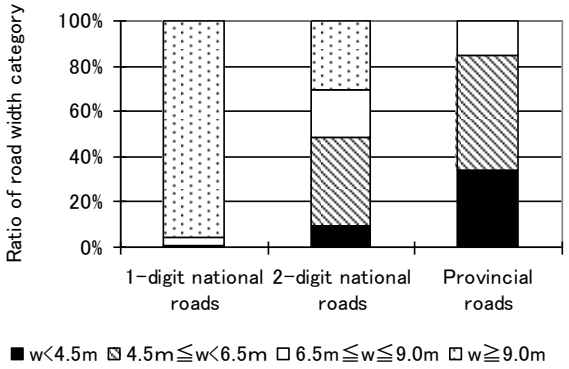
	NR (1 digit)	NR (2 digit)	PR (3&4 digit)
PCC (km)	0.00	19.70	4.05
AC (km)	842.99	125.09	22.83
DBST (km)	1,400.48	3,146.80	421.86
Laterite (km)	0.00	5,373.68	3,642.87
Earth (km)	0.00	0.00	315.63

Source: MPWT

Figure 2-12: Pavement Status by Road Classification (as of 2014)

2.3.2 Road Width

99% of 1-digit NRs have at least two lanes, while only 52% of 2-digit NRs and 15% of PR have two or more lanes. With the recent increase in traffic, demand of widening to 4 lanes, the international road and major 1-digit NRs are being considered.



Source: MPWT

Figure 2-13: Road Lengths According to Road Widths (as of 2009)

2.3.3 Road Density in Cambodia

Road density is the ratio of the total road network length of the country to 100km^2 of the country's land area. According to the *Table 2-8*, road density in Cambodia (to its land size) is less than those of its neighbor countries. This figure indicates that to improve national economy, Cambodia should develop more road networks and improve existing ones.

Table 2-8: Road Density

Description	Japan	Philippines	UK	Cambodia	Vietnam	Thailand
Road Network Density (km/km^2)	8.97 (2011)	0.67 (2009)	1.72 (2011)	0.30 (2014)	0.78 (2009)	0.38 (2009)
NR Network Density (km/km^2)	0.14 (2009)	0.10 (2009)	0.19 (2009)	0.06 (2014)	0.05 (2009)	0.11 (2009)

Source: JICA. 2009. The study on National Road Traffic Safety Master Plan in the Socialist Republic of Vietnam Until 2020. Hanoi

2.3.4 Road Maintenance

a) Road Maintenance Budget

Road maintenance in Cambodia is divided into three main categories:

- Periodic maintenance: Focus on large scale maintenance (newly built or rehabilitation), where budget exceed 200 million riel ($50,000). The budget is taken from National Budget package 61 and 21.
- Routine maintenance: Focus on small scale maintenance (repair cracks or potholes). Budget to be used in this category is varied and is taken from National Budget package 61.
- Emergency maintenance: Focus on section or portion of road/bridge where it is affected by accident/flood. The budget to be used in this category must be under 200 million Riel ($50,000)[5].

Figure 2-14 shows the recent trend in the major road maintenance budget (Routine and Emergency) increases since 2011 because of rapid deterioration of roads due to severe flooding.

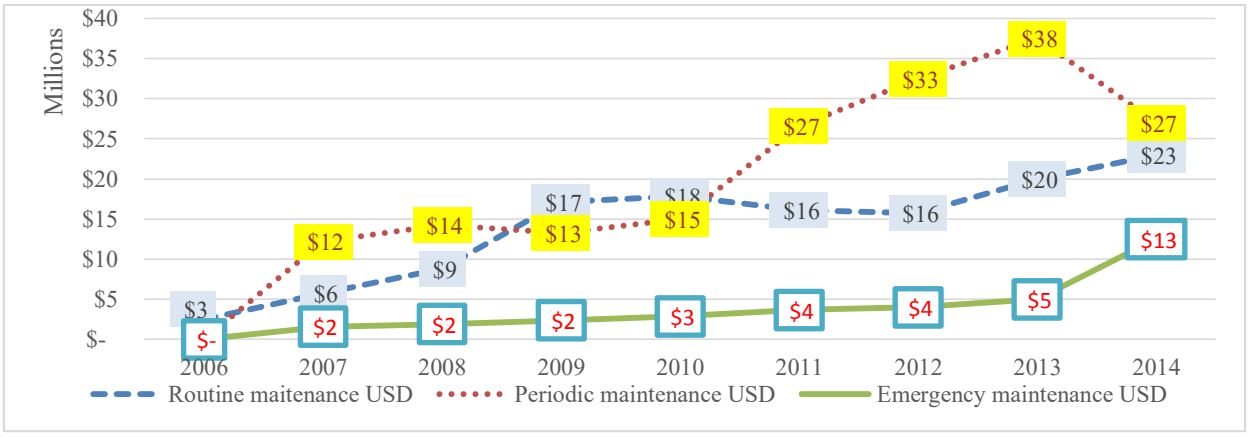


Figure 2-14: Trends of Major Road Maintenance Budget

Currently, road maintenance is implemented by the Department of Public Works and Transport (DPWT) in the provinces, and by private enterprises and construction units from police and armed force. MPWT and Ministry of Economy and Finance (MoEF) play a role in technical supervision and budget auditing of works.

[5] Exchange rate is $1=4,000 Riel

Table 2-9: Responsible body in MPWT for Road Maintenance in 2012

Department	Maintenance type	Source of Budget	Contractor background
Road Infrastructure dept.	Routine (Civilian)	National Budget	- Civilian: 29 projects - Army: 26 Projects - Police: 1 Project
	Periodic maintenance (Civilian)	National Budget, DPs	
	Emergency maintenance (Civilian)	DPs	
Research Center	Periodic maintenance (Police)	National Budget	
Sub-national Public Infrastructure & Engineering dept.	Mixed tasks (Army)	National Budget	
RAMP (Road Asset Management Project)	Routine and Periodic Maintenances (civilian)	ADB	
Heavy Equipment Dept.	Emergency (Civilian)		

Source: MPWT

b) Road Inspection: Visual inspection

Road maintenance activities in Cambodia are carried out by MPWT (NR and PR) and MRD (RR). Road maintenance is divided into three phases:

- Phase 1: Road inspection and data collection
- Phase 2: Data consolidation (use Excel to store data) and analysis
- Phase 3: Implementation

Road Infrastructure Department (RID) dispatches 4 teams per trip per month, in collaboration with DPWT, to conduct NR and PR survey by visual inspection. The survey increases to twice a month in flood period, September and October. Due to the limitation of budget, only NR with 1 and 2 digits are selected for survey and only pothole is counted. The following are formula use to evaluate condition of the road:

$$N = \frac{A + B}{Road\ Length\ (km)}$$

Where:

- A: Severe defects that are harmful to traffic and road foundation require urgent countermeasures.
- B: Defects that are harmful to traffic and road foundation but not urgent for countermeasures.

Table 2-10: Ranking indicator value

No.	N value	Ranking value
1	N = 0 – 0.2	Very Good
2	N = 0.2 – 0.4	Good
3	N = 0.4 – 0.6	Fairly Good
4	N = 0.6 – 1.15	Fair
5	N ≥ 1.15	Poor

Sample of Category A damage/defects

Figure 2-15: Loose foundation at NR21

Figure 2-16: Pot hole at NR48

Figure 2-17: Embankment erosion (dragon hole) at NR1

Sample of Category B damage/defect

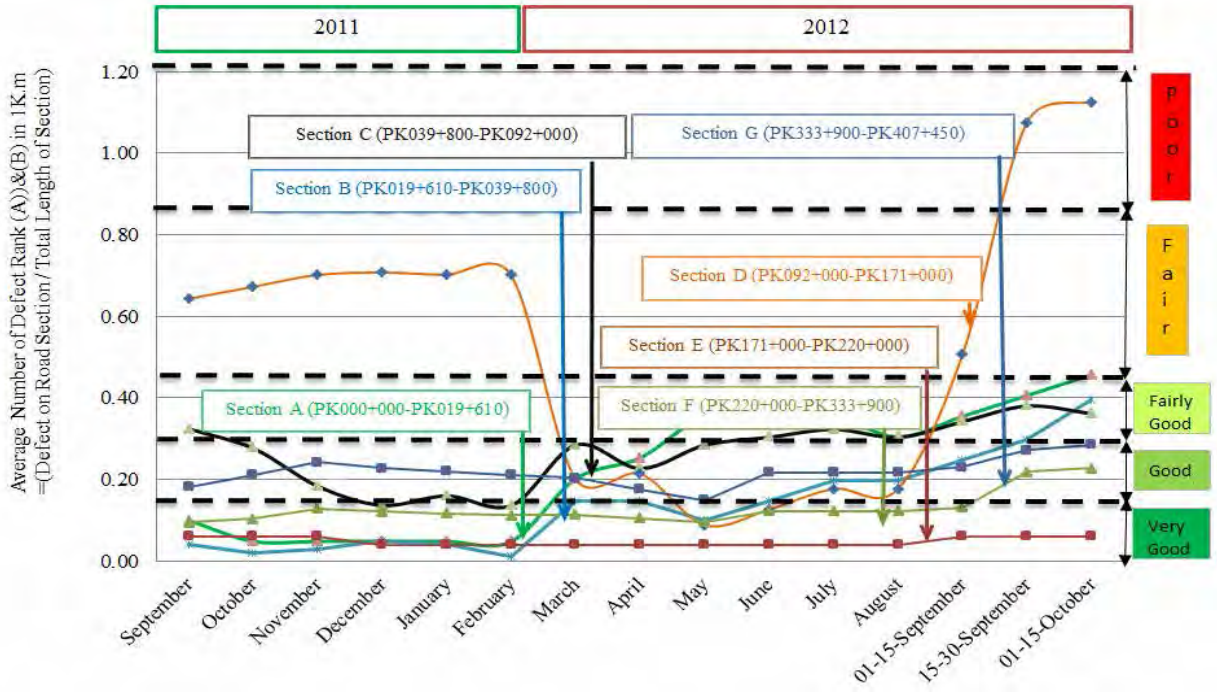
Figure 2-18: Scratch at NR48

Figure 2-19: Longitudinal cracks at NR2

Figure 2-20: Cross-section cracks at NR2

By dividing the number of defects by the total length of the section, section D (Kampong Chhnang - Pursat) in *Figure 2-21* presents the highest level of defect. Despite road maintenance in the dry season 2012, road conditions in this section worsen again in the following flood period. This is a direct consequence of its location

in a flood prone area, where water flow from high ground at mountainous area in the west to the low land area of Tonle Sap in the east.



Source: MPWT, RID

Figure 2-21: Sample of Defection Ranking at NR5

According to data obtained from field surveys, most road conditions tend to deteriorate in rainy season particularly around the flood period. This means that well-constructed roadbeds with qualified pavement and sound drainage system are indispensable to establish a water-resistance road system. This calls for:

- Upgrading the quality of pavement and road drainage systems
- Make roadbeds higher than water levels
- Utilize good material for embankments
- Provide fair slope protection for embankments

c) Road Inspection: Mechanical

MPWT has already developed a Road Management and Decision Support (RMDS) System under the Location Reference and Condition Survey (LRCS). This project was supported by Australia and executed between 2003 and 2005 to assist road maintenance planning in Cambodia. The RMDS System was developed using the desktop version of the "HIMS Asset Management System (HIMS)" software platform. The RMDS system, although developed as single system, consists of the following two sub-systems of a typical road management system:

Source: Author

Figure 2-22: Inspection in progress at NR33 (2014)

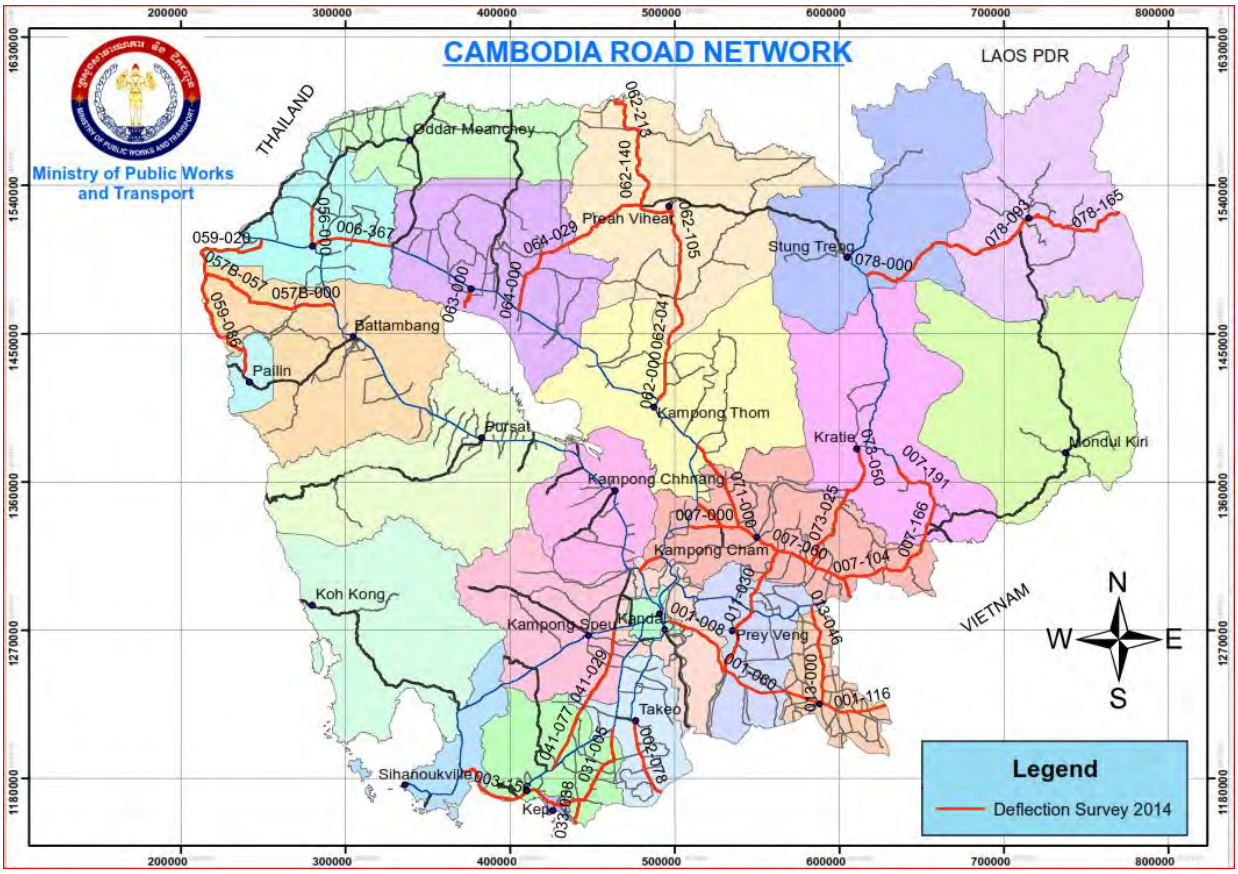
- **Periodic Maintenance System (PMS)** – includes inventory and condition attributes for national roads (one digit), other national roads (two digit roads) and provincial roads of more than 11,000 KMs. To develop the RMDS system, field data was collected based on the World Bank's Information Quality Level (IQL) -3 for sealed roads and IQL-4 for unsealed roads. The estimation of annual road maintenance funds and finalization of multi-year forward works program was included in the PMS. The RMDS uses the Bank's HDM-4 program as the analysis engine for estimating maintenance fund. It was felt that the analysis using HDM-4 is more sophisticated and requires a mix of road engineering and economic analysis knowledge. Based on the recommendations of the PRIP (Provincial and Rural Infrastructure Project) a simple but practical model was developed for periodic and rehabilitation

programs.

- **Routine Maintenance System (RMS)** - This sub-system was developed under PRIP project. The objective of this sub-system was to develop and finalize the annual program for the routine maintenance.

The primary functions of the RMMS model are to:

- Import input data (PMMR program, standard activity and quantity standards, etc.);
- Extract routine maintenance sections (sections where periodic maintenance and rehabilitation is not proposed);
- Flag routine maintenance sections based on criteria;
- Identify PMMR sections;
- Determine current needs based on quantity standards;
- Forecast future SII;
- Determine annual needs;
- Assign priority index;
- Export auto program into Excel;
- Import final RMMS program after manual adjustments; and
- Provide summary reports.



Source: MPWT, RID

Figure 2-23: Road deflection survey location in 2014

2.4 Vehicle Registration and Traffic Accidents

2.4.1 Present State of Registration

The number of registered vehicle has been increasing at an average rate of about 19% each year, and has reached almost 2,500,000 in 2013. Since 2005, the number of registered motorcycles has increased drastically (about 20% each year). The number of motorcycles dominates the biggest share of registered vehicle (accounted about 84% of all registrations).

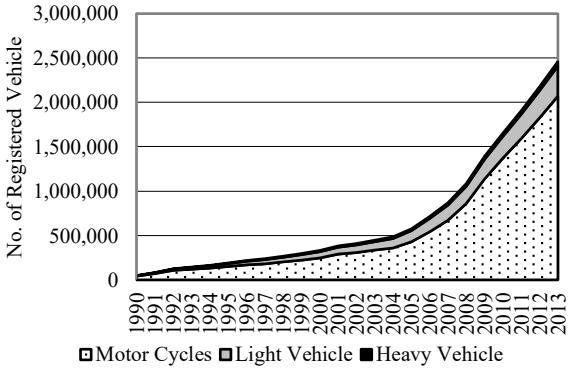
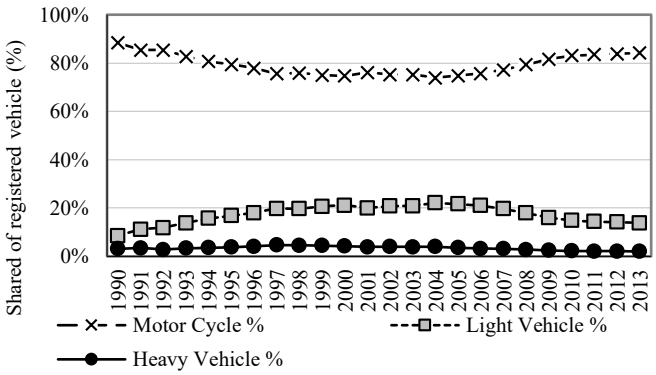


Figure 2-24: Number of Registered Automobiles (disused vehicles are included)



Source: MPWT

Figure 2-25: Shared of registered vehicle

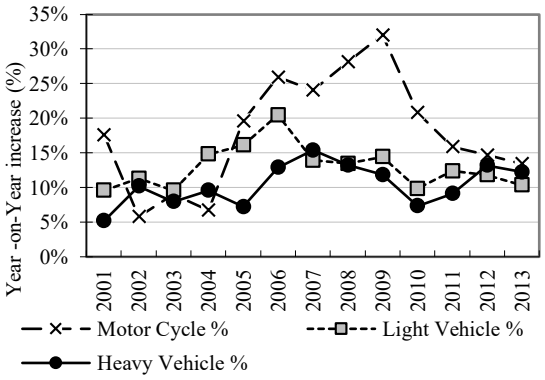
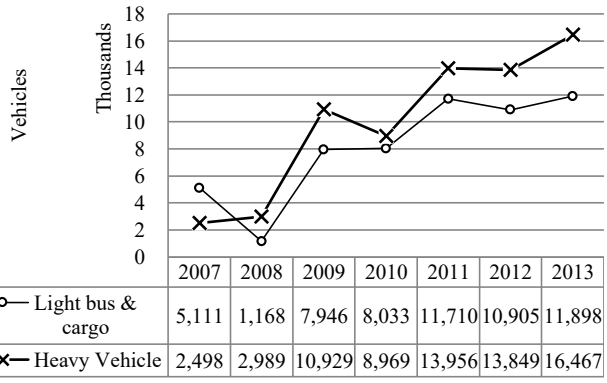


Figure 2-26: Year-on-year increase by share by mode of vehicle



	2007	2008	2009	2010	2011	2012	2013
Light bus & cargo	5,111	1,168	7,946	8,033	11,710	10,905	11,898
Heavy Vehicle	2,498	2,989	10,929	8,969	13,956	13,849	16,467

Source: MPWT

Figure 2-27: Vehicle registration by year

2.4.2 Present State of Vehicle Inspection

Vehicle inspection is conducted for Light and Heavy vehicles. For light vehicles, it include tourist cars, small passenger cars and small goods buses where as heavy vehicles include busses for passengers and trucks for goods. The number of vehicle inspections in Cambodia increase every year. A notable increase in quantity was observed in light vehicle inspection, which increased over the last 8 years by 8.4 fold (for heavy vehicle's by 2.7 fold).

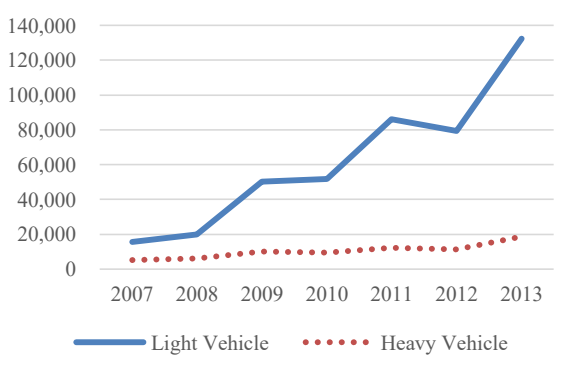
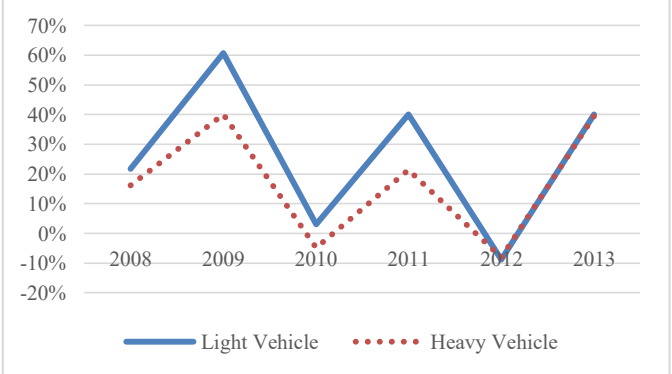


Figure 2-28: Number of Vehicles Inspected



Source: MPWT

Figure 2-29: Year-On-Year Increase in Number of Inspected Vehicle

2.4.3 Traffic Accident

a) Policy

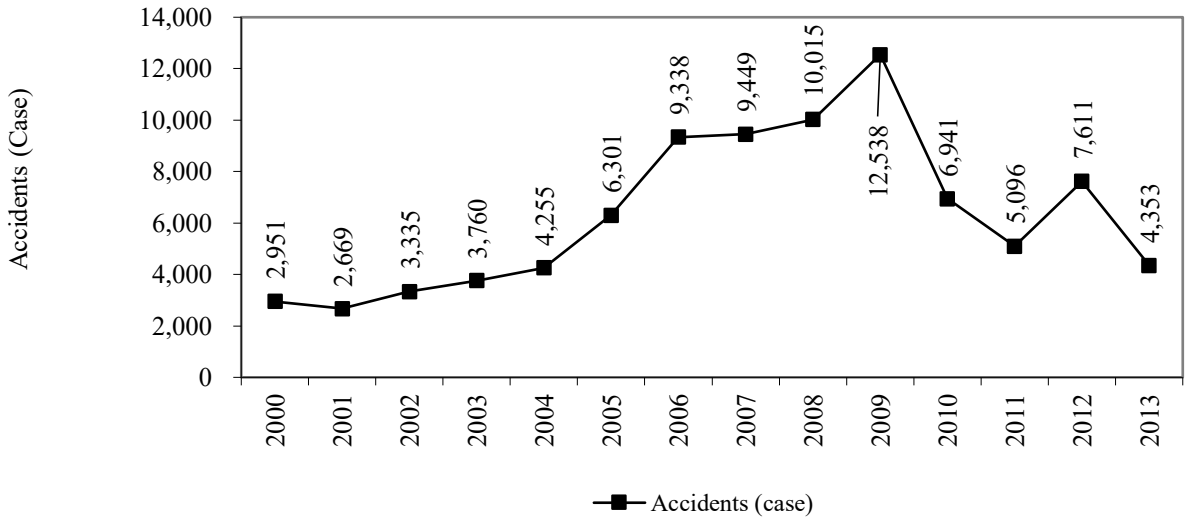
The government of Cambodia set the following policy on Traffic Accidents on the 21st of February 2014:

- Promotion of Nation-wide Road Safety: road safety activities shall be strengthened through the following measures:
  - Engineering and Technical Improvement in vehicle and road infrastructure;
  - Education Campaigns;
  - Enforcement by traffic police; and
  - Strengthening of Legislative and Institutional Framework.

- Enhancement of Road Administration:
  - Laws and regulations: The MPWT will speed up the adoption and implementation of the Law on Roads and the supporting legal and regulatory framework for efficient road management.
  - Traffic census: The MPWT will regularly carry out a nation-wide traffic census that is indispensable as basic data for road administration; such as planning. Development and management;
  - Road and traffic statistics: The MPWT will regularly elaborate statistics with data on roads and traffic in the country, as well as the data from the traffic census, and disseminate them to the public as useful information for both public and private sector.

b) Trends in Traffic Accident

According to MPWT, while the number of all type of automobiles is increasing, the number of road accidents had increased until 2009. But since 2010, the trend has been downward. As an average per day in 2012, there were 21 accidents, in which 5.4 persons were killed and 37.4 were injured.

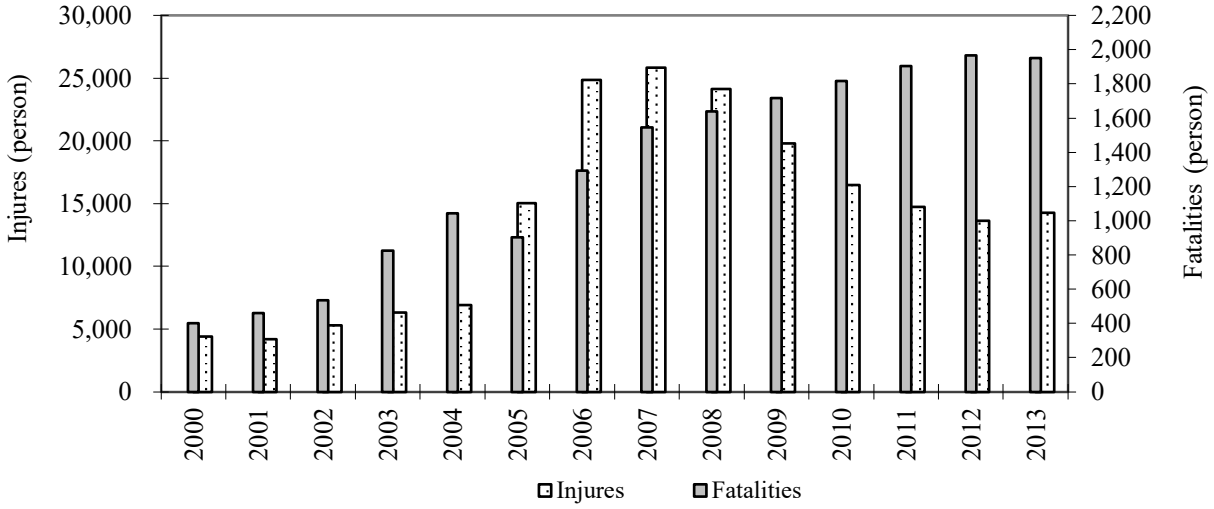


Source: Cambodia Road Traffic Accident and Victim Information System Yearly Report 2013

Figure 2-30: Trends in Traffic Accidents (Case) in Cambodia

c) Trends of Injuries and Fatalities in Cambodia

The number of fatalities has increased continuously over the last ten years but the number of injuries has decreased since 2007. This phenomenon might be a result of the increase of speed due to the quality of improvement of roads.



Source: Cambodia Road Traffic Accident and Victim Information System Yearly Report 2013

Figure 2-31: Trends in Traffic Injuries and Fatalities in Cambodia

d) Cause of Accident

Human error contributed to 95% of crashes and fatalities, the second contributor is vehicle defects (4.4%), follow by road environment (2.3%) and weather (1%).

- Over speeding (human error factor) is the leading cause of fatalities (46%) followed by drunk driving (15%).
- Among vehicle defects factor, the leading cause is break failure (1.7%) and tire blowout (1.6%).
- There are 3 major causes of road environment factors; potholes (0.5%), dust (0.5%) and slippery roads (0.4%).

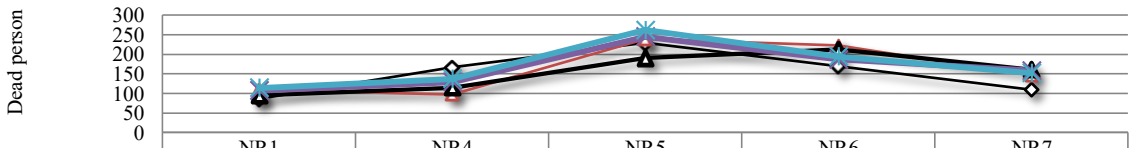
Table 2-11: Cause of Accident by Human Error

Human Error	2010	2011	2012	2013	Percentage for 2013
Over speeding	909	978	1,032	906	46.46%
Driving drunk	150	136	182	290	14.87%
Dangerous overtaking	146	141	175	222	11.38%
Not respect right of way	279	272	254	187	9.59%
Other	157	202	167	145	7.44%
N/A	103	87	102	87	4.46%
Change lane without due care	34	57	26	65	3.33%
Change direction without due care	38	32	28	48	2.46%
Total	1,816	1,905	1,966	1,950	100%

Source: MPWT

e) Traffic Accident on Asian/ASEAN Highway

The total road accident fatalities in 2012 on Asian/ASEAN highways (NR1, NR4, NR5, NR6 and NR7) increased by about 4% compared to the one in 2011. The tendency for fatal accident runs parallel with demographic distribution.



	NR1	NR4	NR5	NR6	NR7
Fatality in 2008	86	166	230	169	110
Fatality in 2009	110	97	239	222	146
Fatality in 2010	95	114	191	212	161
Fatality in 2011	107	129	245	187	158
Fatality in 2012	114	137	262	194	152

Source: Cambodia Road Traffic Accident and Victim Information System Yearly Report 2012

Figure 2-32: Fatalities on Asian Highways at 2008-2012

2.5 Urban Transport in Phnom Penh

2.5.1 Urban Transport Master Plan in Phnom Penh

The first Urban Transport Master Plan in Phnom Penh Metropolitan Area was developed in 2001 by JICA and with the target year of 2015. This plan calls for the installation of traffic lights at major road intersections across the capital. The installation, to some degree, helped alleviate the problem but it is found that traffic congestions and traffic accidents have increased because public transportation has yet to be introduced. A request was therefore made to reformulate the 2001 MP and to develop a comprehensive urban transport plan including the action plans for solving transport problems. In March 2012, JICA launched technical cooperation project "Project for Comprehensive Urban Transport Plan in Phnom Penh City (PUMP)". The following parameters are taken into account to design this master plan:

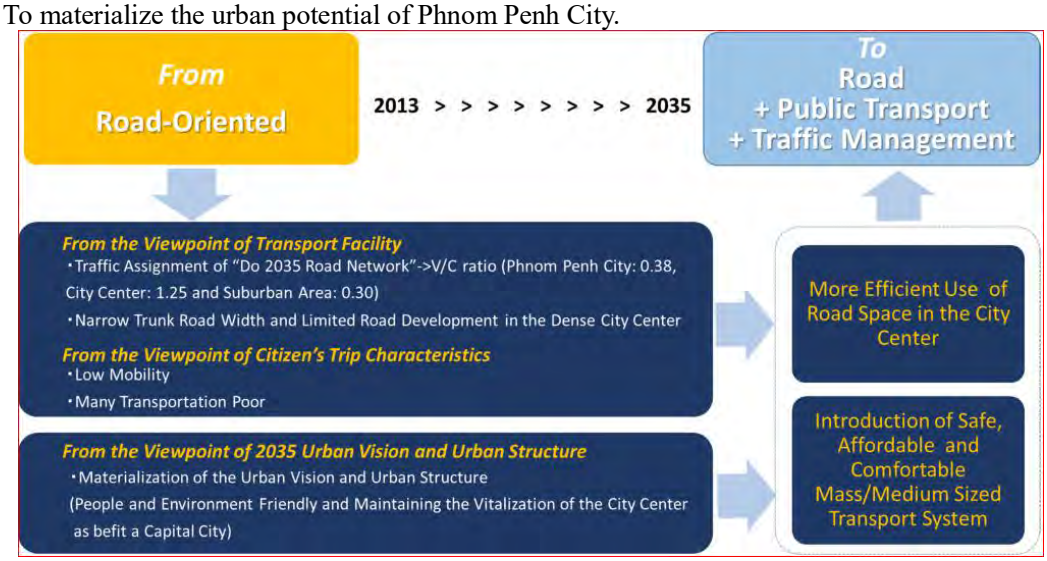
- Target year: 2035
- Projected urban population by 2035: 2.868 million
- Phnom Penh administrative size: 678 km^2
- Phnom Penh Urban area: 210km^2

2.5.2 Goal of 2035 Urban Transport Master Plan

The Goal of the Urban Transport Master Plan is to solve the current transport problems/issues and support the 2035 Urban Vision and Urban Structure, which will maintain the people-environment-friendly urban conditions and vitalize the urban activities in Phnom Penh City.

To achieve this goal, the Master Plan demonstrates two important orientations:

- To shift from a private-oriented urban transport system to a well-balanced system of public and private transport, and a combination of road, public transport and traffic management for improving the mobility of citizens; and
- To materialize the urban potential of Phnom Penh City.



Source: JICA

Figure 2-33: Change of Urban Transport System between 2013 and 2035

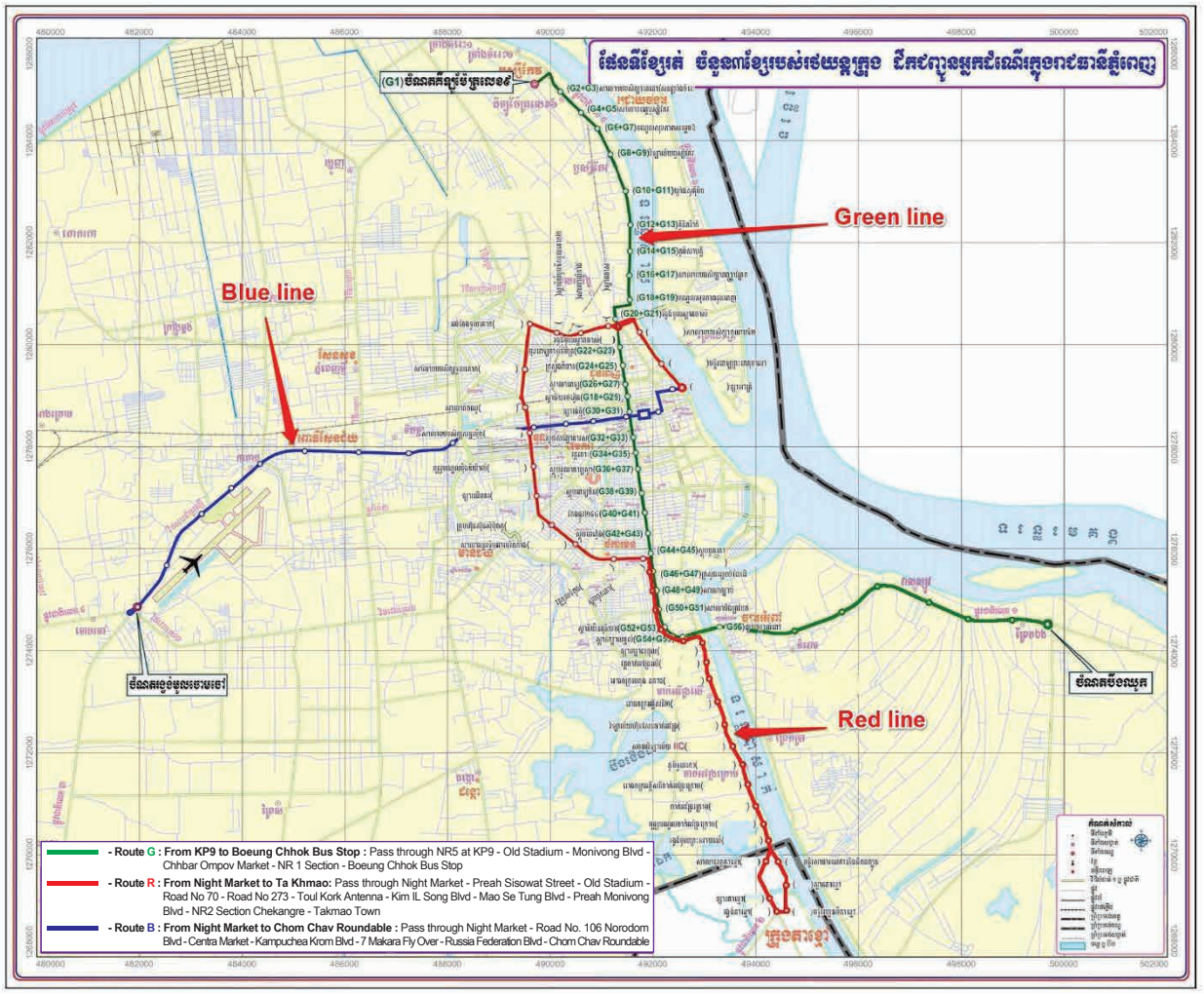
2.5.3 Current status of Public Transport in Phnom Penh

The first trial of bus service in Phnom Penh was introduced in 2001 but later was discontinued due to lack of government subsidizes and lack of public interest. The second trial of bus service was supported by JICA, launched between 5th Feb – 4th Mar 2014 with 10 buses that run every day from 5:30am to 8:30pm. This time, the bus service gained the trust of the public and it is still running today. After the trial, to continue bus service, the city hall contracted 2 Chinese-owned companies to run it but later due to technical problems, the city hall took over the bus service operation.

Source: JICA

Figure 2-34: Phnom Penh City bus

Ferry service run by private companies is a very active to link Phnom Penh (from Hun Sen park) to eastern suburb (Areykhsat district). Several wooden ferries are in operation since early in the morning until late in the evening. Currently, there are also small ferry services linking NR1 to Areykhsat district



Source: JICA

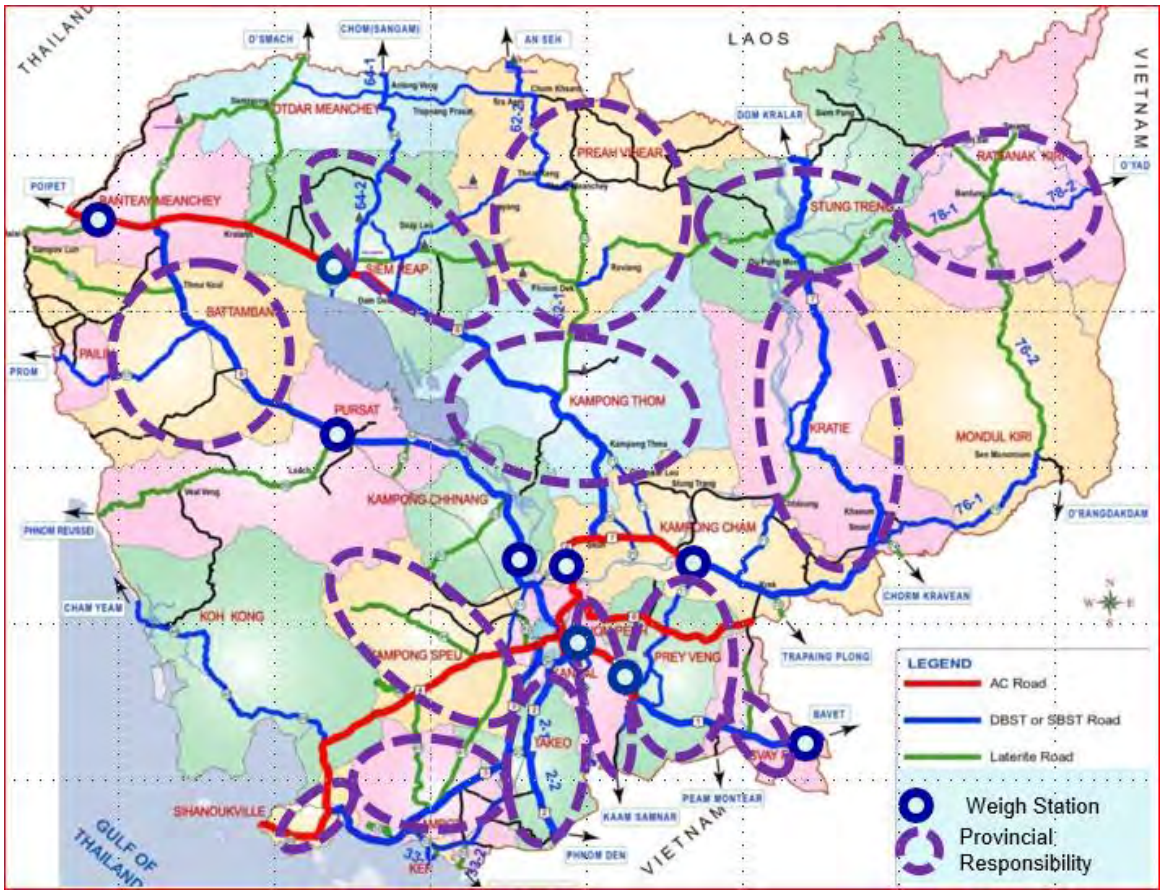
Figure 2-35: 3 bus routes map in Phnom Penh

2.6 Overload Transport

2.6.1 Administrative Regulation

Based on the Road Law and Road Traffic Law, the following contents were formulated in respective sub-decrees and Prakas:

- Grasping of over-loading situation;
- Establishment of enforcement organization;
- Establishment of central governmental organization of MPWT;
- Provision of operation costs for enforcement team;
- Law and regulation for enforcement;
- Provision of enforcement equipment; and
- Improvement of enforcement work including provision of over-loading guidelines.



Source: MPWT

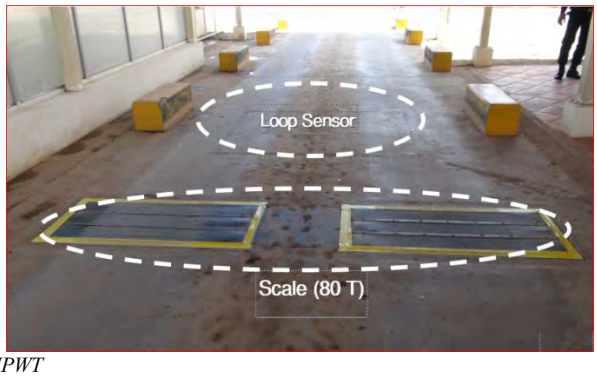
Figure 2-36: Location Maps of Weight Stations

2.6.2 Overload Committee

The overload committee, which is chaired by the Minister of MPWT, is tasked with curbing this problem. Staff working for this committee come from related ministries.

2.6.3 Weight Stations

In anticipation of overloaded transport, which is a major factor in road damage, 9 weight stations were constructed at major NRs (see *Figure* 2-36). In addition to that there are 36 portable weight scales, out of which 34 were funded by ADB, have been procured to be distributed to the following provinces: Kampong Chhnang (2), Kampong Cham (4), Battambang (2), Takeo (1), Svay Rieng (1), Kandal (2), Kampot (2), Stung Treng (1), Kratie (1) and reserves (20).



Source: MPWT

Figure 2-37: Permanent Weight Station

Figure 2-38: Weight Scale

Weight Station teams have been developed at three levels: at permanent weight station, provincial mobile teams and mixed mobile teams.

Table 2-12: Weight station team deployment in Cambodia

No.	Year	Weigh Station		Provincial Mobile Team		Mixed Mobile Team	
		Qty.	Location	Qty.	Province	Qty.	Team
1	2011	06	1-Pourk 2-Kuon Domrei 3-Lungvaek 4-Kleang Moeung 5-Thal Keng & 6-Thal Tortoeung	11	1-Kandal 2-Kampot 3-Takeo 4-Pr.Sihanouk 5-Battambang 6-Kratie 7-Siemreap 8-St.Treng 9-Pr.Veng 10-Sv.Rieng 11-Ratanak Kiri		
2	2012	09	(6)+ 1-Kg.Phnom 2-Bavet 3-Pr.Aeng	12	(11)+ 1-Kampong Thom	01	1-Mix M. Team
3	2013	09	Same As Above	14	(12)+ 1-Preah Vihear 2-Kampong Speu	02	1-Mix M. Team 1 2-Mix M. Team 2
4	2014	09	Same As Above	14	Same As Above	04	MMT 1, 2, 3 & 4

Source: MPWT

2.6.4 Overload inspection

The functions of weight stations are to check the total load and load per axle of the truck. If the overload is confirmed:

- For first time offender, training about overload and traffic will be provided;
- Warning will be given to second offender;
- Fine will be issued for repeat overload offenders.

Overload offenders are subject to the obtain overload training awareness, warning and fine. The percentage of fined trucks remains around less than 1% of the inspected truck. The majority of cases stay in a range of 5-10% of overload beyond the limit as shown below:

Table 2-13: Overload traffic penalty by year

Year	Inspected Trucks	Fined trucks	% FTs/ ITs	% of Overloaded by weight			Fine amount	
				5%-10%	10%-20%	>20%	(KHR)	(USD)
2011	125,041	903	0.72%	0.62%	0.08%	0.02%	279,758,000	70,000
2012	189,039	1,576	0.83%	0.58%	0.08%	0.18%	2,973,657,700	743,000
2013	194,693	1,616	0.83%	0.50%	0.10%	0.23%	3,677,691,400	919,000
2014 June	92,399	885	0.96%	0.60%	0.14%	0.22%	1,583,434,950	395,800

Source: MPWT

2.6.5 Operation budget for overload inspection

Overload Weight station program is supported by the government with an operation budget of slightly more than half a million USD in an average. It is slightly less than the amount generated from overload vehicle fined.

Table 2-14: Overload operation budget

No.	Noted Name	Duration (month)	Period	Budget in KHR	Approx.
1	Book[6] I	05	Jan 2012 – May 2012	1,106,612,850	$276,000
2	Book II	09	Jun 2012 – Feb 2013	1,925,000,000	$481,000
3	Book III	12	Mar 2013 – Feb 2014	2,565,855,000	$641,000
4	Book IV	12	Mar 2014 – Feb 2015 (09 WSs)	2,467,484,000	$616,000
5	Book V	12	Mar 2014 – Feb 2015 (14 MTs)	2,561,389,000	$640,000

Source: MPWT

2.6.6 Automobile Weight Rule and Size

To comply with overload control in Cambodia, the following rules must be implemented seriously:

- Maximum weight on the sustaining axle of automobile, trailers or semi-trailers is limited as fallow:
  - 6 tons for single axle with two wheels under the steering wheel.

[6] Book means stage or period

- 11 tons for twin axles with four wheels under the steering wheel
- 10 tons for single axle with four wheels
- 19 tons for twin axles with eight wheels
- 24 tons for triple axles adjacent to each other with twelve wheels.

- Maximum total weigh of automobile is defined as follows:
  - 16 tons for automobiles with twin axles where one axle is located in the front of the automobile with two wheels, and the other one located in the back with four wheels.
  - 25 tons for automobile with triple axles where one axle is located in the front of the automobile and where there are two wheels and the twin ones located in the back of the automobile have eight wheels.
  - 30 tons for automobile with four axles where twin ones are in the front of the automobile and where there are four wheels and the other two axles are in the back of the automobile with eight wheels.
- Maximum total weight of automobile with trailers shall be defined as follow:
  - 40 tons for automobile with trailers having five axles upward.
- Maximum weight of automobile with semi-trailers shall be defined as below:
  - 35 tons for automobile with semi-trailers having four axles with a single axle located in the front of automobile where there are two wheels and the other single axle in the back of the vehicle with four wheels and the twin axles of the semi-trailers with eight wheels.
  - 40 tons for automobile with semi-trailers having five axles onward. The total weighs of the automobile and the trailers or semi-trailers which is not included in points above shall request a permission letter from Ministry of Public Works and Transport.

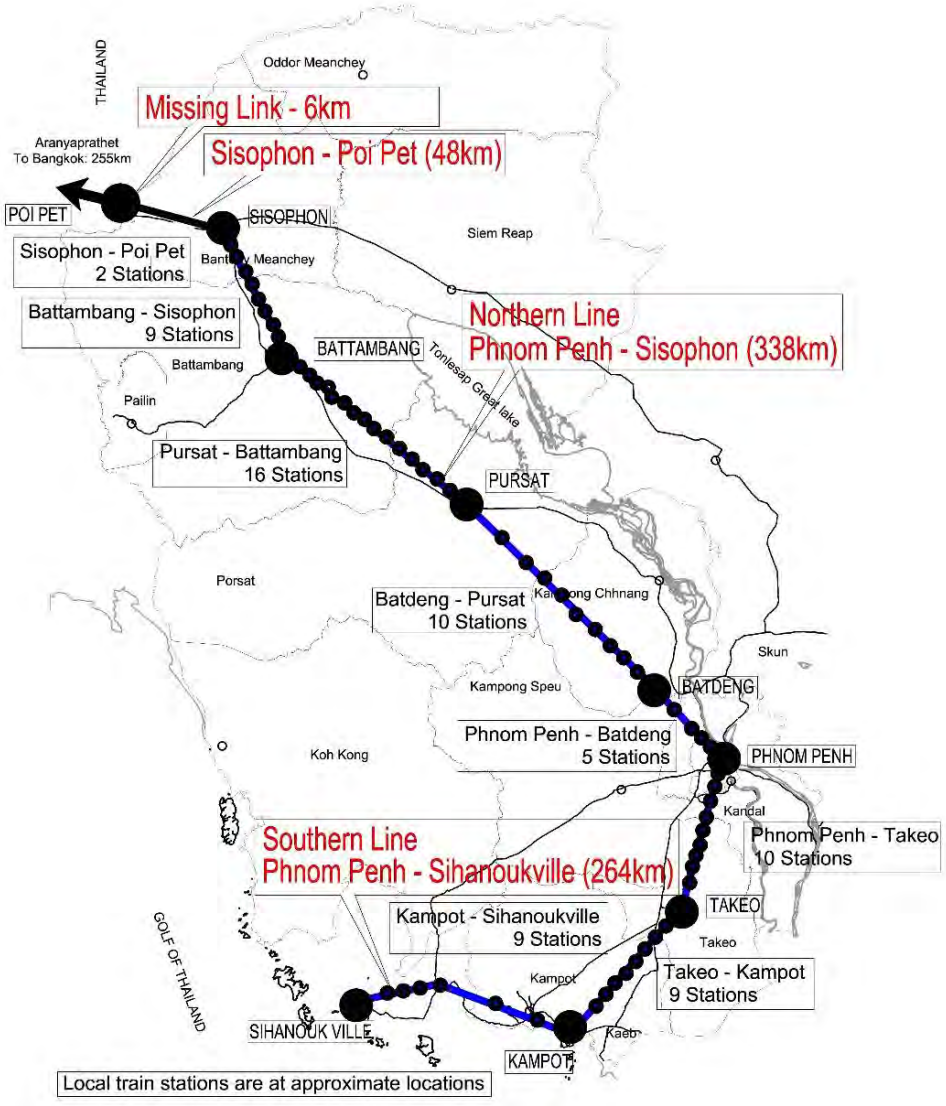
When crossing bridges, all drivers of automobiles, automobiles with trailers, or semitrailers shall obey the permitted-maximum-weight signs put in front of the bridges. The size of automobiles, automobiles with trailers or semi-trailers with no loading shall be defined as below:

- Maximum width of the vehicles shall not exceed 2.5 meters except vehicles equipped with tools should not be more than 3-meter width;
- Maximum height should be no higher than 4.2 meters;
- Maximum length of each automobile shall not exceed 12.2 meters;
- Maximum length of the automobiles towing semi-trailers shall not exceed 16 meters; and
- Maximum length of the automobiles towing trailers shall not exceed 18 meters.

3 Railways

3.1 History

The French Colonial Government in Cambodia built the first railway of 1-meter gauge linking Phnom Penh to Poi Pet (Northern Line or NL) (through Kampong Chhnang, Pursat, Battambang and Sisophon at the Thai border) 1929-1942. This line runs across Cambodia's greatest rice producing province – Battambang. The Phnom Penh Railway Station was inaugurated in 1932 whereas the connection with Thailand Railway was made in 1942, whose service later was interrupted in late 1940s due to political and security reasons. In 1960s in order to reduce the reliance on ports in then Saigon (former South Vietnam) and Thailand (Khlong Toei), Cambodia, with support by France, West Germany and People's Republic of China, began to construct second 1 meter gauge railway line linking capital Phnom Penh to Sihanoukville port, which later became known as the Southern Line (SL).



Source: MPWT

Figure 3-1: Key Railway Stations in Cambodia

Table 3-1: Situation of Railway Facilities

Item	NL	SL
From – To	Phnom Penh – Poi Pet (Thai border)	Phnom Penh – Sihanoukville
Section	Phnom Penh - Pursat - Battambang - Sisophon – Poipet	Phnom Penh - Takeo - Kampot - Sihanoukville
Length (km)	386 (including 6km missing link)	264km
Station (number)	50 (Current Operation 0)	28 (Current operation 5)
Construction Year	1929 – 1942	1960 - 1969
Track Gauge	1m	1m
Axle Load	15t	20t

3.2 Present State of Railway Project in Cambodia

The rehabilitation of railway was carried out by TSO (French Company), who sub-contracts to local contractors. Rehabilitation work was completed and taken over by the MPWT in July 2013.

Table 3-2: Budget to fund railway rehabilitation (in Million USD)

Source of Funds	Original Projects	Supplementary Financing	Total
ADB	$42.0	$42.0	$84.0
OFID	$13.0	-	$13.0
Government of Australia	-	$21.5	$21.5
Government of Malaysia	$2.8	$00.0	$2.8
Government of Cambodia	$15.2	$5.1	$20.3
Total	$73.0	$68.6	$141.6

3.2.1 Northern Line

The northern line, connecting Phnom Penh to Poipet on the border with Thailand, has a total length of 386km including a missing link of 48km. A part of the missing link of 42km had been rehabilitated and the remained 6km at Poipet from the border with Thailand awaits resettlement clearance. Most of Northern Line has been superannuated and lost and discontinued since 2008.

Source: MPWT

Figure 3-2: Northern Line

Of the Northern Line, approximately 200km (52% of the total length) and 50 stations (96% of the total stations) have been destroyed by landmines, and most of bridges are in poor shape to use. The line except the rehabilitated 48km section between Sisophon and Poipet was planned to be reconstructed by the end of 2013 with funding from ADB, but it has been delayed due to budget deficits. As of the 31st of May 2014, only 32.00% of the Northern Line had been rehabilitated. As of early 2015, the government was planning to earmark $10 million to rehabilitate NL since TSO, the contractor, abandoned the rehabilitation work in July 2012. The objective of this rehabilitation is to enable the operation of slow speed trains.

Table 3-3: Railway Stations for Northern Line

No.	Station Name	Location	Inter-station distance (km)	No.	Station Name	Location	Inter-station distance (km)
1	Phnom Penh	0+000		26	Krolaomplouk	209+600	11.909
2	Pochentong	6+723	6.723	27	Prey Svay	214+754	5.154
3	Fork	9+400	2.677	28	Maung Russey	223+104	8.35
4	Samraong	12+036	2.636	29	Koh Char	231+665	8.561
5	Trapeang Krasaing	15+200	3.164	30	Kork Trom	236+643	4.978
6	Tuol Leap	17+829	2.629	31	Phnom Thip Dei	244+240	7.597
7	Trapeang Thnaot	26+005	8.176	32	Svay Cheat	251+949	7.709
8	Bat Deng	31+443	5.438	33	Reang Kesei	256+236	4.287
9	Trach Torng	36+915	5.472	34	Sralso	262+125	5.889
10	Damnak Smach	42+563	5.648	35	O Dambang	268+158	6.033
11	Tbaeng Khpuos	47+131	4.568	36	Battambang	273+052	4.894
12	Meanork	55+665	8.534	37	Siem	279+367	6.315
13	Kraing Lovear	66+936	11.271	38	O Taky	284+536	5.169
14	Baraing	71+213	4.277	39	Chondeur Svar	298+171	13.635
15	Romeas	76+458	5.245	40	Chroy Srolao	306+222	8.051
16	Kraing Skea	93+834	17.376	41	Tuol Samraong	310+332	4.11
17	Kdol	111+147	17.313	42	Phnom Tauch	315+771	5.439
18	Bamnok	124+399	13.252	43	Chamcar Chek	321+930	6.159
19	Kamrieng	133+464	9.065	44	Mongkol Borey	330+204	8.274
20	Torteung Thngai	148+116	14.652	45	Sisophon	337+310	7.106
21	Pursat	165+467	17.351	46	Toeuk Thlar	342+420	5.11
22	Snam Preah	173+157	7.69	47	Sala Samraong	350+400	7.98
23	Trapeang Chorng	179+729	6.572	48	Sophy	356+800	6.4
24	Beng Khnar	187+541	7.812	49	Kaub	370+110	13.31
25	Svay Daunkeo	197+691	10.15	50	Poipet	384+300	14.19

Source: MPWT

3.2.2 Southern Line

The southern line connects Phnom Penh with Cambodia's international seaport in Sihanoukville. 110km (41.5% of the total length, 264km) of the southern line was destroyed by civil war, land mines and floods, and 16 bridges (17.02%) as well as drainage were damaged by floods and seawater. Most of signal and communication systems were destroyed like the northern line. With the compounded problems of war damage, neglect and underfunding, the southern line discontinued operation from the end of 2010. As of 31 May 2014, sections from Phnom Penh (9+400) to Sihanoukville had been rehabilitated by French-based firm TSO[7] but train operation could not achieve maximum average speed of 50km/h as specified in the rehabilitation specification. Some of the structures (Bridge, Box Culvert and Pipe Culvert) have been repaired but remain far from condition that would allow trains to operate at as-specified speed. Rehabilitation of the container and rail terminal at Sihanouk Ville have been completed by Sinohydro Company (Chinese Company) as of the end of 2014. At present Sinohydro is rehabilitating the bulk siding inside the Sihanoukville port, which is scheduled to be completed by the end of February 2015. On the other hand, the container train service restarted in 2014 between TOLL Royal Railway (TRR) Phnom Penh and Sihanoukville Port. This is operated three times per week and total volume of container transported by train was 17,836TEU in 2014.

Source: Author

Figure 3-3: Kampong Saom train station

Figure 3-4: Southern Line

Table 3-4: Railway Stations for Southern Line

From PK	To PK	Length	Speed limit, km/h	Remark
9+500	9+700	200m	15	Junction turnout – poor top & line + loose spikes
16+000	17+000	1000m	15	Track – cripple rails + top, line and twists
23+500	29+000	5500m	15	Bridge – defective structure + poor top & line
34+200	36+500	2300m	15	Track – defects: cripple rails + poor top & line
64+000	68+500	4500m	15	Bridge: PK: 66.5 + cripple rails along track
86+000	94+000	8000m	15	Track – cripple rails + top, line and twists
93+000	94+000	1000m	20	Track – cripple rails + top, line and twists
97+100	100+100	3000m	20	Track – cripple rails + top, line and twists
110+000	113+000	3000m	15	Track – cripple rails + top, line and twists
117+500	119+000	1500m	15	Track – cripple rails + top, line and twists
150+900	150+950	50m	25	Bridge 29 e-clips missing. Tied 1 in 2
162+000	162+500	500m	15	Steel bridge: Poor joints and bolts
168+300	168+700	400m	15	Steel Bridge: Track defective
188+400	189+000	600m	20	Track – Poor Top & Line, cripple rails
196+000	196+400	400m	20	Track – Poor Top & Line, cripple rails
168+900	169+100	200m	10	Defective level crossings
180+000	175+650	200m	10	Defective level crossings
180+000	189+000	1000m	10	Track – Susside
188+400	189+000	600m	20	Track – Poor Top & Line, cripple rails
196+000	200+400	4400m	20	Track – Poor Top & Line, cripple rails
203+000	204+500	1500m	20	Track – Poor Top & Line, cripple rails

[7] TSO won contract to rehabilitate both SL and NL but the project took longer and over budget. Mainly SL has been rehabilitated far exceed the original bidding cost. It withdraw from Cambodia and currently is bringing Cambodian government to foreign court over this rehabilitation project. Settlement has not been reached yet as of end of 2014. Chinese firm Synohydro was chosen to replace TSO.

From PK	To PK	Length	Speed limit, km/h	Remark
207+900	208+100	200m	10	Defective Level Crossing
209+500	211+500	2000m	20	Track – Poor Top & Line, cripple rails
212+100	212+300	200m	15	Steel Bridge: defective track, missing bolts
213+800	216+600	2800m	20	Marine Clay – Poor formation & track top & line
217+600	217+750	150m	10	Veal Rinh – South turnout damage (until repairs complete)
218+700	219+250	550m	20	Encroachment – squatters near track
234+400	234+700	300m	20	Track – Poor Top & Line, cripple rails
251+800	252+800	1000m	20	Track & bridges – Poor Top & Line, cripple rails
255+600	256+100	500m	20	Track & bridges – Poor Top & Line, cripple rails
258+000	258+300	300m	20	Encroachment – squatters near track
259+000	261+000	2000m	20	Encroachment – squatters near track
262+000	262+600	600m	20	Encroachment – squatters near track
263+400	266+000	1000m	5	Inside Port: Bulk track – Temporary layout on old timber sleepers

Source: MPWT

3.2.3 The reform of railway sector within MPWT

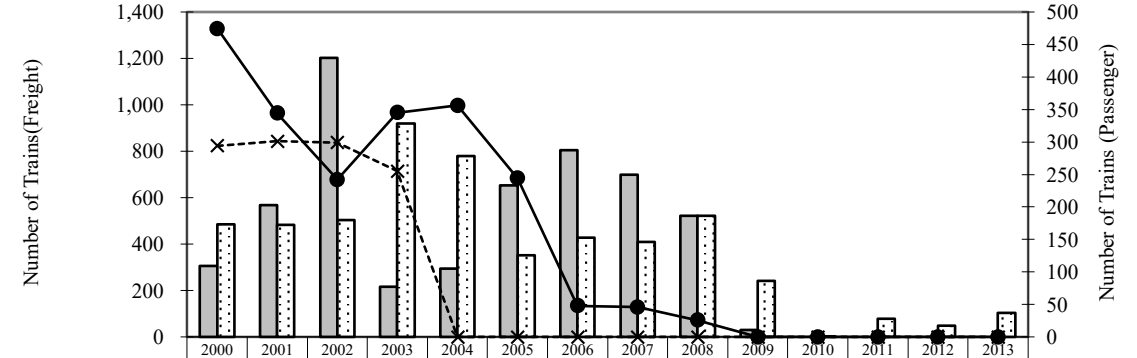
Railway in Cambodia was managed by MPWT autonomous railway general department. With limited funds and support, railway services ran into difficulties. Train operation became infrequent and later ceased to operate in 2010. To improve this sector, the government took the following actions:

- Dissolved general railway department and created a railway department instead (issued sub-decree No. 163 dated 1st October 2009 to establish Railway Department). This department is under the supervision and management of MPWT. Currently this department is employing a total of 287 officials: 1 director, 5 deputy directors, 16 chief officers and 265 officers with 16 line offices.
- Rehabilitation of the railway infrastructure was done through financial support by ADB (Loan No. CAM-2288 [SF]) and AusAid. The implementation was carried out by TSO-A.S-NWR JV (later Thai company withdrew and TSO carried out the rehabilitation works with another named SPCC) supervised by Nippon Koei-JARTS.
- The Privatization of Railway: The 30-year concession to manage and upgrade Royal Cambodian Railways (RCR) have been provided to the joint venture Toll Holdings, Australia (55 percent share) and the Royal Group (45 percent share). Revenues will be shared between the government and Toll when the railway becomes profitable. Toll was responsible for operation and maintenance of the railway. But, recently TOLL withdrew from the operation and maintenance of the railway.

3.3 Present State of Railway Utilization

3.3.1 Number of Train Service

Passenger train service ceased to operate at SL since 2004 and it also ceased to operate at NL since mid-2008. Freight Service remains functional at SL but it has ceased to operate at NL since 2009.



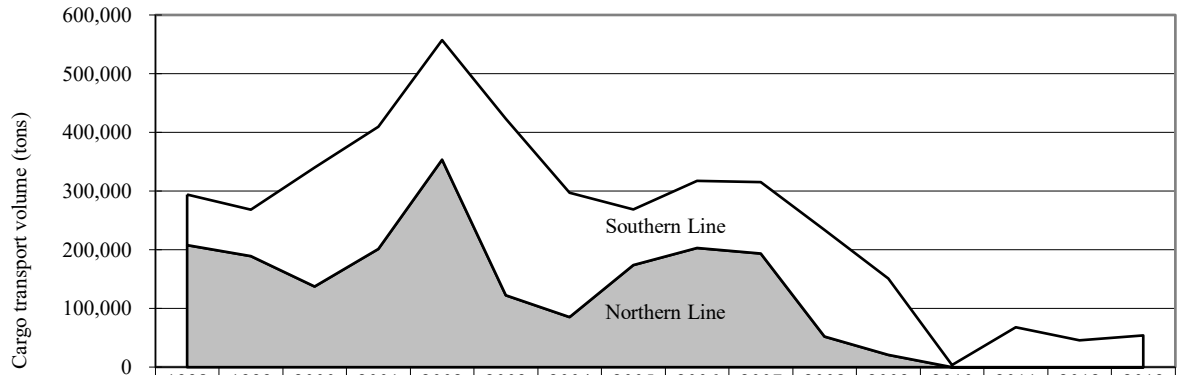
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
NL-Freight	306	567	1,202	216	294	654	804	699	521	30	0	0	0	0
SL-Freight	485	482	504	919	779	351	428	409	522	243	4	78	48	104
NL-Passenger	474	344	242	345	356	244	48	46	26	0	0	0	0	0
SL-Passenger	294	301	299	255	0	0	0	0	0	0	0	0	0	0

Source: RRC

Figure 3-5: Number of Trains Operated in a Year (Jan.- Dec.)

3.3.2 Freight Train Service by Volume and Product

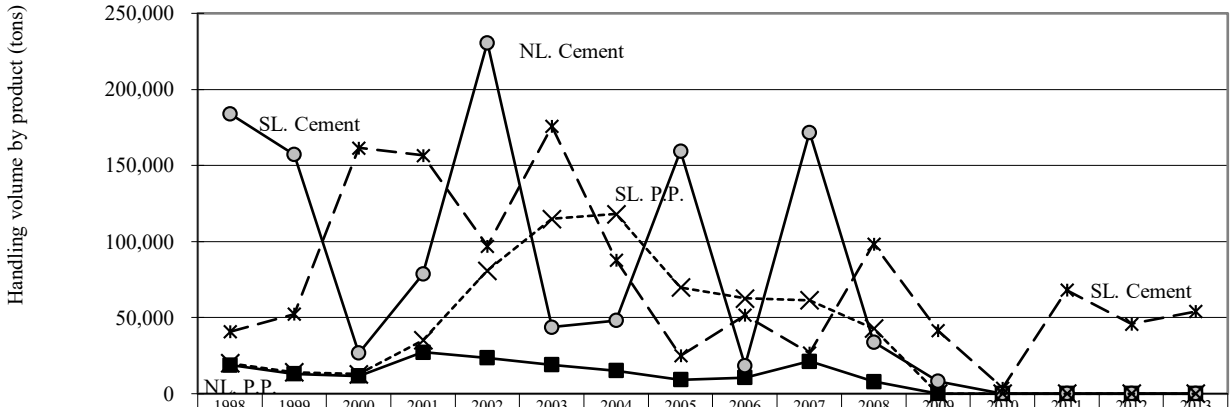
The volume of rail cargo transport began to decrease after reaching 557,000 tons in 2002. Currently only SL remains in service and it carries mainly cement to Phnom Penh.



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Southern Line	86,151	79,122	202,67	208,25	203,65	300,69	211,86	94,795	114,34	121,70	181,66	130,12	3,680	68,069	45,804	54,127
Northern Line	208,01	189,26	137,48	201,45	353,65	122,50	85,352	174,00	203,13	193,66	52,187	21,024	0	0	0	0

Source: RRC

Figure 3-6: Trends in Rail Cargo Transport Volume (ton)



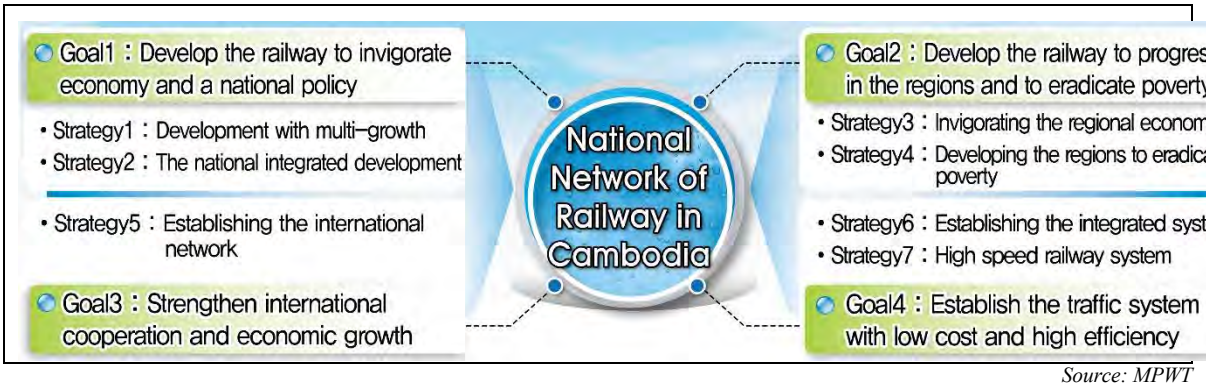
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
NL. P.P.	18,785	12,950	11,593	27,227	23,475	18,945	15,160	9,240	10,600	21,192	7,952	0	0	0	0	0
NL. Cement	184,065	157,080	26,625	78,525	230,566	43,674	48,140	159,430	18,405	171,630	33,875	8,120	0	0	0	0
SL. P.P.	20,080	14,000	12,874	35,095	80,815	114,894	117,971	69,880	62,640	61,400	42,872	0	0	0	0	0
SL. Cement	40,746	52,360	161,490	156,553	96,975	175,662	87,836	24,915	51,550	26,665	98,395	41,440	3,680	68,069	45,804	54,127

Source: RRC

Figure 3-7: Trends in Transport Volume by Product

3.4 Railway Master Plan (MP)

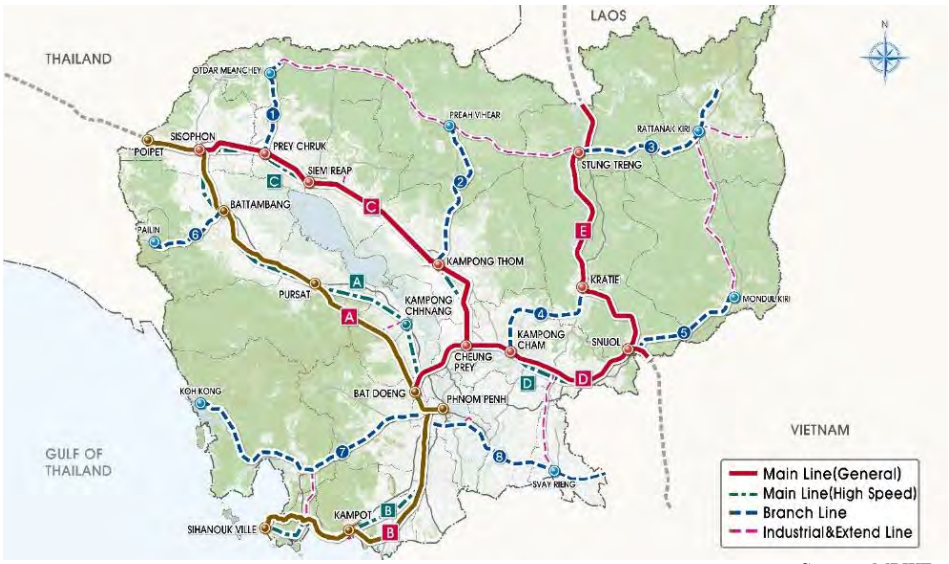
The railway MP project was funded by Korea International Cooperation Agency (KOICA). To design it, 4 development goals which further divided into 7 strategies, were considered. Their interaction could be illustrated as follows:



Source: MPWT

Figure 3-8: Master Plan Goals and strategies

The MP is to encourage integrated national development, economic growth and balanced development between regions within the Kingdom of Cambodia. It consists 5 main lines, 8 branch lines, high-speed lines, industrial railways and port & airport railways was developed.



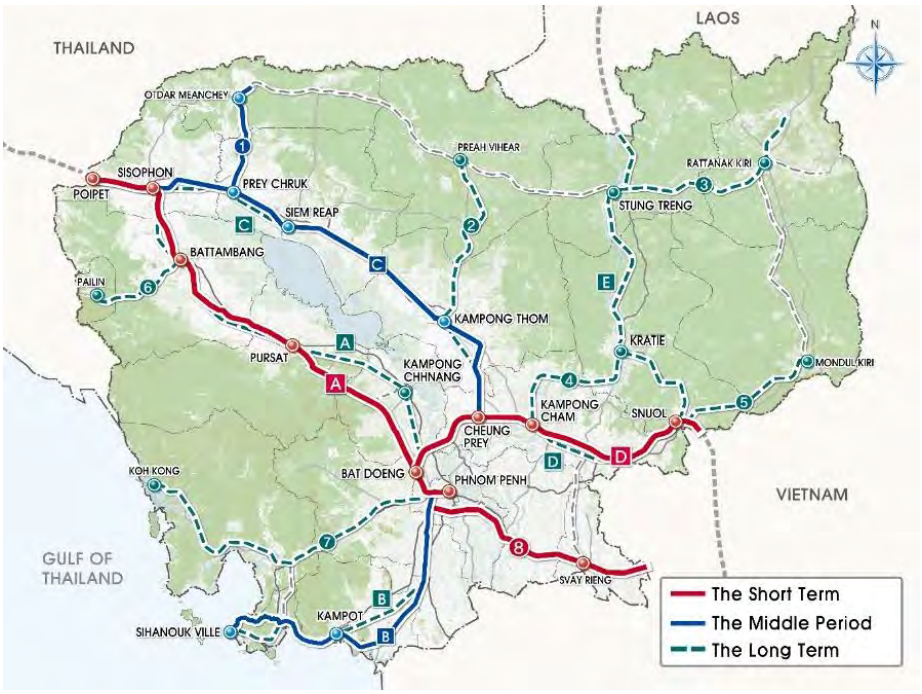
Source: MPWT

Figure 3-9: Railway Master Plan Network

	Section	L(km)		Section	L(km)
Main Line	A PHNOM PENH ~ SISOPHON ~POIPET ~ THAILAND	384	High Speed Line	A PHNOM PENH ~ SISOPHON ~POIPET ~ THAILAND	400
	B PHNOM PENH ~ SIHANOUK VILLE	260		B PHNOM PENH ~ SIHANOUK VILLE	243
	C SISOPHON ~ SIEM REAP ~CHEUNG PREY	326		C SISOPHON ~ SIEM REAP ~CHEUNG PREY	314
	D BAT DOENG ~ KAMPONG CHAM ~ SNUOL ~ VIETNAM	249		D BAT DOENG ~ KAMPONG CHAM ~ SNUOL ~ VIETNAM	236
	E SNUOL ~ KRATIE ~ STUNG TRENG ~ LAOS	249	Industrial Line	1 OTDAR MEANCHEY ~ PREAH VIHEAR	181
Branch Line	1 PREY CHRUK ~ OTDAR MEANCHEY	74		2 PREAH VIHEAR ~ STUNG TRENG	113
	2 KAMPONG THOM ~ PREAH VIHEAR	139		3 MONDUL KIRI ~ RATANAK KIRI	151
	3 STUNG TRENG ~ RATANAK KIRI	158		4 KAMPONG SEILA ~ VEAL RING	48
	4 KAMPONG CHAM ~ KRATIE	115		5 SVAY RIENG ~ SUONG	90
	5 SNUOL ~ MONDUL KIRI	101	Airport & Port Line	1 PHNOM PENH NEW PORT LINE	42
	6 BATTAMBANG ~ PAILIN	75		2 KAMPONG CHHNANG AIRPORT LINE	21
	7 PHNOM PENH ~ KOH KONG	248		3 KAMPOT PORT LINE	4
	8 PROTEAS LANG ~ SVAY RIENG	170		4 SIEM REAP NEW AIRPORT LINE	3

3.4.1 Project Execution Plan

The Project execution plan in consideration of project priorities and B/C results proposed in the Master Plan is as follows:



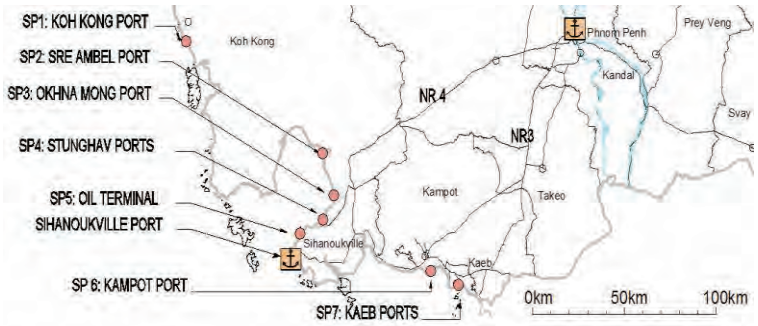
Short-Term Plan (2014-2020)	Mid-Term Plan (2021-2030)	Long-Term Plan (since 2031)
• Main Line D: Build an international network and develop east areas • Main Line A: Activate the existing northern lines	• Main Line B: Link with Sihanouk Ville and develop southern areas • Main Line C: Develop central and eastern areas, and develop tourism	• High Speed Rail: High speed services • Main Line E: Link with Laos and develop eastern areas • Branch Line: Develop potential areas • Double track

Source: MPWT

Figure 3-10: Railway Master Plan Network

4 Maritime and Seaports

4.1 Present State of Seaports



Source: MPWT

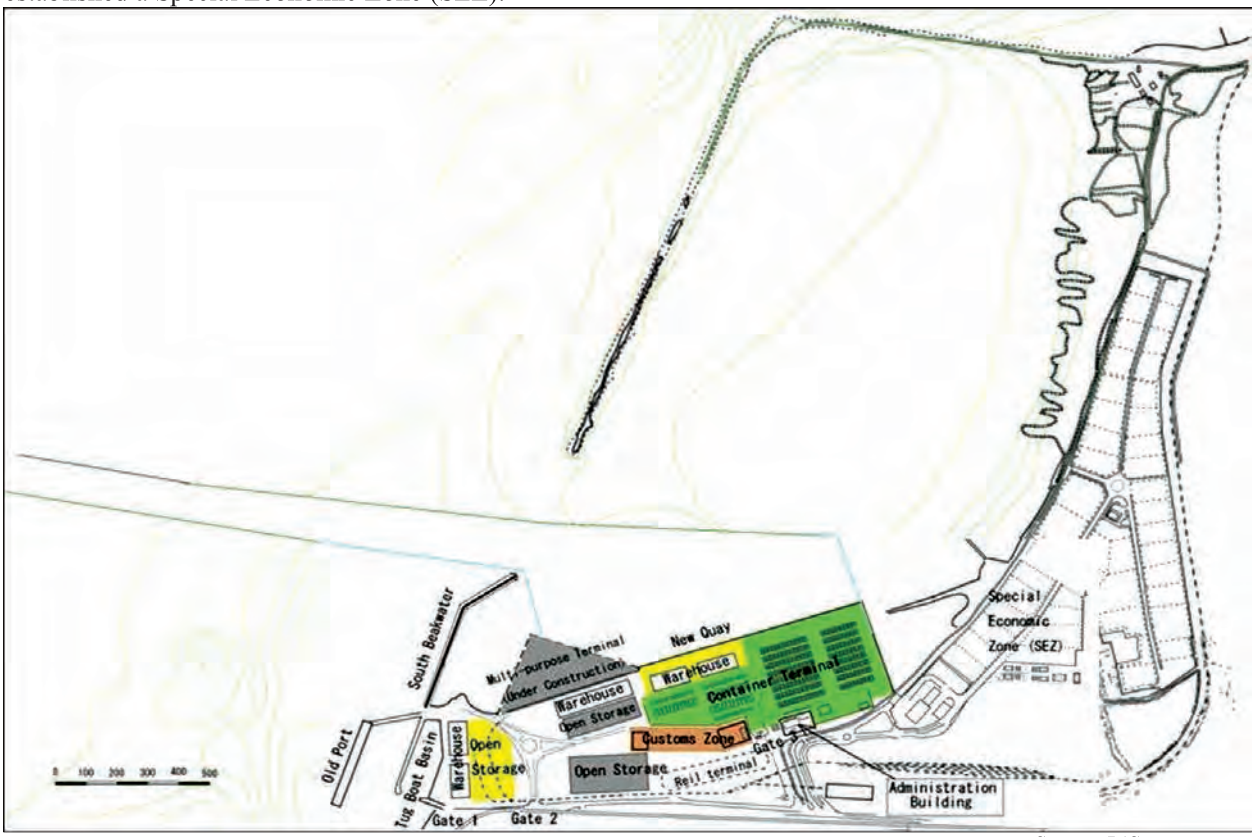
Figure 4-1: Seaports in Cambodia

Among the seaports in Cambodia, Sihanoukville Port is the major port that handles international containers. It is under the MPWT and MEF, but is an autonomously-managed port, which is officially called Port Autonomous of Sihanoukville (PAS). The port construction was completed in 1960 with French assistance. Besides Sihanoukville Port located in newly established Sihanoukville province, Cambodia other seaports locate mainly in Koh Kong and Kampot provinces.

4.2 Sihanoukville Port

4.2.1 Present State of Sihanoukville Port

The Port of Sihanoukville, situated in the mouth of the Bay of Kampong Saom – Sihanoukville province, is the principal and only deep seaport of the Kingdom of Cambodia. Sihanoukville's natural advantages include a deep inshore and a degree of natural protection from storms. The present traffic of Sihanoukville Port, in its present condition, is estimated at about three (3) million tons per year, including Petrol-Oil-Lubricant (POL), which has separate facilities. The port can accommodate 10,000 DWT cargo ships and 20,000 DWT class container ships. To enhance the economic development, PAS, with financial support by Japan, has established a Special Economic Zone (SEZ).

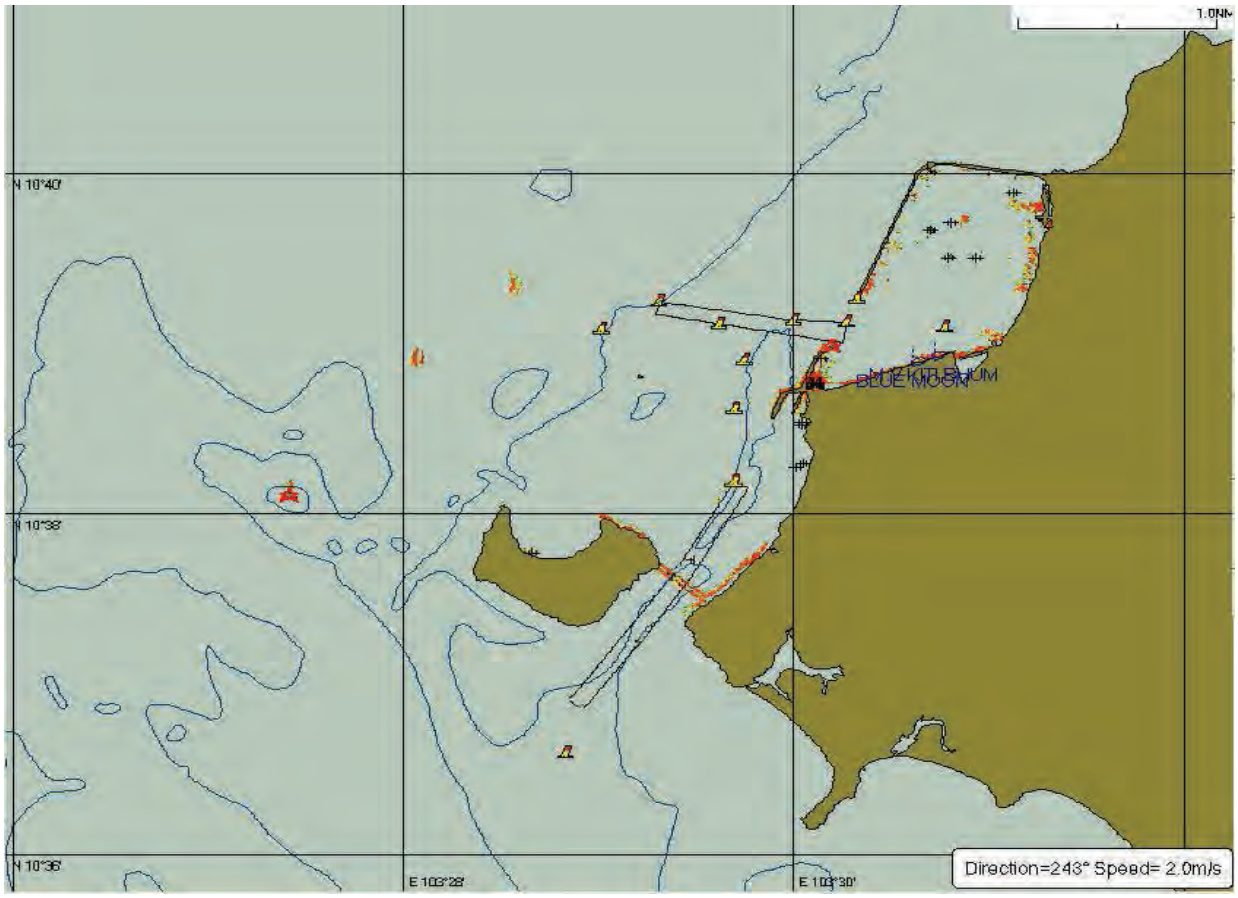


Source: PAS

Figure 4-2: Port Layout

4.2.2 Access Channel to Sihanoukville Port

The Sihanoukville Port is located 540 nautical miles (1,000 km) from Singapore. The access channel to the port is 5.5km by the Northern Channel, but it is limited with a maximum 32m height of the over-fly bridge to Koh Poh Island. In addition, the entrance to the port is allowed to vessels with a draft of less than -9.2m at the Southern Channel.



Source: PAS

Figure 4-3: Marine Chart

4.2.3 Sihanoukville Port's Major Infrastructure

a) Sihanoukville Port's Wharf

Sihanoukville Port has one jetty and two wharfs:

- The Old Jetty, completed in 1960, has two berths for 10,000 DWT and 7,000 DWT vessels at a time. The jetty has a total length of 580m (290m x 2) with a reported depth alongside of -9.0m (outside) and -8.0m (inside) drafts. This jetty was rehabilitated under the ADB's Special Rehabilitation Assistance Project (SRAP) in 1996 and its outer berth is also used for general cargo ships and passenger ships.
- The "New wharf" (locally known as "New Quay"), which is located in the northeast section, completed in 1970 with 350m long by -8.5m draft and can accommodate three vessels for offloading and loading cargo. However, the pavement of the apron is worn out and damaged. The "new wharf" area is sheltered by two breakwaters. The northern one was never completed. With the result that the entrance is some 200m wider than that planned. This may be aggravating some problems with waves in the port.
- The second wharf is a Container Terminal completed in 2007 with a berth's length 400m and berth depth -10.0m draft. The capacity of the Container throughput is 700,000 TEUs per year (for 04 QG Cranes) and the capacity of the container storage is 114,000 TEUs.
- In addition to the above facilities, Sihanoukville Oil Terminal for the Petroleum-Oil-Lubricant (POL) traffic is some 10km north of the main port. This was originally an oil refinery, opened in 1969 and destroyed a year later at the outset of civil war. Now Sokimex and Tela use those facilities for the importation of POL.

Table 4-1: Infrastructure at Sihanoukville Port

Channel	Berth						Other Facilities & Remarks
	Name		Structure	Length	Depth	Year	
[South Channel] Length 5.5km Depth: -8.5m Width: 80-100m [North Channel] Length 1km Depth:-10m Width: 150-200m	Old Jetty	Outer	Jetty	290m	-9.0m	1960	Warehouses: 5; 36,000m^2, (84,000T) [Container yard] 3 yards, 174,000m^2
		Inner	Jetty	290m	-8.0m	1960	
	New wharfs		Concrete Block	350m	-8.5m	1970	
	Container Berth		Concrete Block	400m	-10.0m	2007	
	Oil Pier Stone Wharf 53m -4.2m		Jetty	53m	-4.2m	1963	PAS Oil Terminal
	(Private Facilities)						
	Sokimex		Jetty	200m	-10.5m	2001	Oil Terminal
	Tela		Jetty	180m	-7.5m	2003	Oil Terminal
	LHR		Jetty	150m	-6.0m	2009	Oil Terminal
	CEL		Jetty	120m	-6.0m	2013	Coal Terminal (power plant)
	CIIDG		Jetty	200m	-7.0m	2014	Coal Terminal (Power Plant)
	PTT		Jetty	120m	-6.0m	1996	Oil Terminal

Source: Prepared based on the Study on the Master Plan for Maritime and Port Sectors in Cambodia, March 2007 JICA (Updated by PAS)

b) Sihanoukville Port's Anchorage

Basically, working hour is from 7:00 to 17:30 (24 hours for container cargo ships) or by one hour before ship arrival using VHF channel Nº 16 (156.80MHZ). There are three anchorage areas:

- Northern Anchorage 10 º 39'5N, 103 º 29'0E
- Southern Anchorage 10 º 36'0'N, 103 º28'5E
- Tanker Anchorage 10 º 39.5'N, 103 º 25.7'E
- Coal Terminal Anchorage 10 º 40.83'N, 103 º 25.73'E(For only vessels call to coal terminal)

c) Sihanoukville Port's Service Equipment

In order to timely service the market-economic situation and adhere to safety performance in providing service to customers, PAS has prepared its operating facilities as follow:

- Navigation Equipment
  - Tug boat: 5 (1800HP: 1, 1600HP: 2, 800HP: 2)
  - Pilot boat: 1
  - Mooring boat: 1
  - Patrol boat: 1

- Vessel Traffic Management System (VTMS)
  - Working Time (24hrs/7days/week)
  - AIS
  - Camera System
  - Radar
  - Anemometer
  - VHF(16)
  - Contact address: Terak Vithei Samdech Akka Moha Sena Padie Techo HUN SEN, SangkatNº3, Sihanoukville, Preah Sihanouk Province, Cambodia.
    - Cell Phone :(855)10 933 931
    - Phone :(855) 34 933 931
    - Fax : (855)34 933 931
    - E-mail : harbor@pas.gov.kh
  - Call Sign: SHV Port Control

- Port Security Equipment
  - CCTV CAMERA : 40 Units
  - Radiation Portal Monitor (RPM) : 6 Units
  - X-ray : 02 units (one is fixed, another is mobile)
  - Gamma Ray : 01 unit
  - Fire Trucks : 02 units
  - Ambulance : 01 units

- Cargo Handling Facilities
  - Quay Gantry Cranes (QGC) 30.5T: 2 Units

- Mobile Harbor Cranes 64T: 02 Units
- Rubber Tyred Gantry Cranes (RTG) 40.6T: 2 Units
- Rubber Tyred Gantry Cranes (RTG) 35.5T: 5 Units
- Super Stackers 45T: 6 Units
- Empty Stacker 7.5T: 2 Units
- Chassis/Trailers 20'-40': 17 Units
- Shore Cranes 10-50T: 8 Units
- Forklifts 5-25T: 10 Units
- Trucks 10-20T: 10 Units.

- **Container Storage Facilities**

Terminal	**Size(m^2)**	**Capacity**	**Quantity**
New Terminal	103,000	8,400 TEUs	01
Empty Container yard	46,000	3,000 TEUs	01
Reefer Container		54 boxes	9 sockets
Container Freight Station	6,000	12,000t	01(Warehouse Nº4)

- **General Cargo Storage Facilities**

Terminal	Size(m2)	Capacity	Quantity
Warehouse	30,000	60,000 Tons	04 units
Yard	45,000	90,000 Tons	

- **Railway Cargo Storage Facilities**

Terminal	**Size**	**Capacity**	**Quantity**
Rail lane	500 m		02
Rail Container Terminal	35,000m^2	232 TEUs/1slot	01unit

4.2.4 Shipping Schedule at Sihanoukville Port

PAS has contracted with six (07) shipping lines , namely RCL, MEARSK, SITC, EML, APL and NAM YUEN YONG with regular calling schedules and maritime transport routes as below-mentioned:

Table 4-2: Ship Call at Sihanoukville Port (as of June 2014)

Lines	Calling Schedules	Frequency	Rotation Ports
RCL (4calls/week) RCL3/COSCO	1. Wed. 8 :00 –Thu. 23 :00 2. Wed. 8 :00 – Thu. 16:00 3. Thu. 14 :00 – Fri. 22:00 4. Fri. 20:00 – Sun. 23:59	1 call/week 1 call/week 1 call/week 1 call/week	1. NBO-SHV-BKK-LZP-MAT-SGH-NBO 2. SIN-SHV-SGZ-SIN 3. HKG-SHV-SGZ-HKG-(HPH-TXG-KEL) 4. KUN-SHV-SGZ-SIN-KUN
MAERSK LINE (2 calls/week)	1. Tue. 15 :00 – We. 07 :00 2. Fri. 22 :00 – Sun 00 :01	1 call/week 1 call/week	1- SGN-SHV-LZP-TPP-SIN-BTG-MNL-KAO-YAT-HKG- HCM 2. SIN-SHV-TPP-SIN
SITC(BEN LINE) (2 calls/week)	1. Sun 09 :00 – Sun 23 :00 2. Tue. 16 :00 –Wed. 00:01	1 call/week 1 call/week	1.HCM-SHV-BKK-LZP-HCM-NSA-NBO-SGH-OSA-KOB-BUS-SGH-HKG-HCM 2. HCM-SHV-BKK-LZP-HPH-FCH-SHK-XMN-INC-TAO-SGH-HKG-SHK-HCM
EML(ACL) (1 call/week)	Sat. 06:00 – Sun. 08 :00	1 call/week	SGZ-SHV-SIN-SGZ
APL) (1 call/week)	Fri. 08:00 – Sun. 06 :00	1 call/week	SHV-SIN-SHV
NAM YUEN YONG (1 call/week)	Mon. 08 :00 – 13 :00	1 call/2week (3call/month)	BKK-SHV-BKK- (LZP)

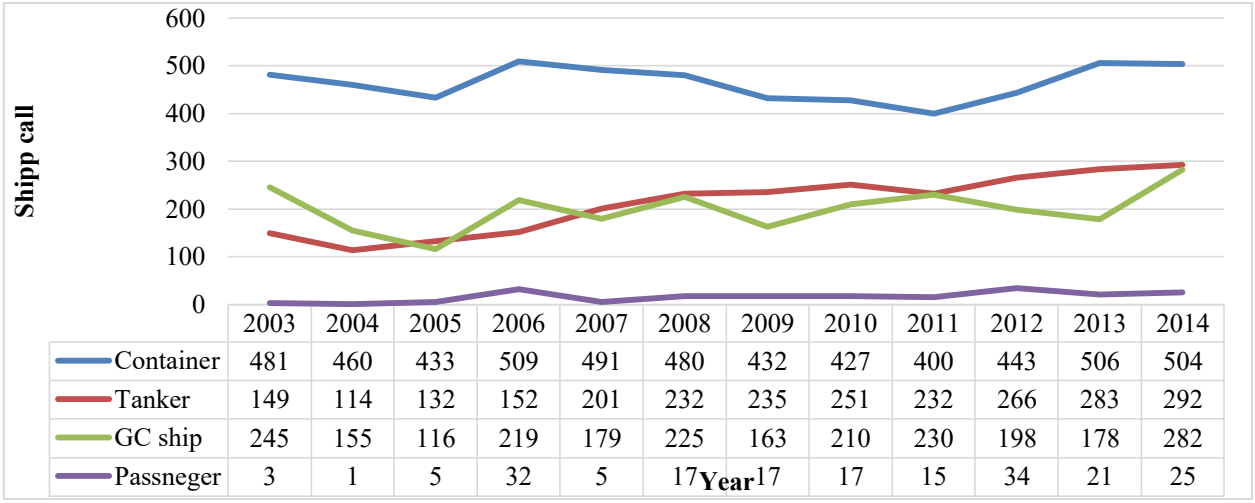
Source: PAS

Remark:

BKK	:	Bangkok, Thailand	KEL	:	Keelung, Taiwan	SIN	:	Singapore
BUS	:	Busan, South Korea	LZP	:	LaemChabang, Thailand	SGH	:	Shanghai, China
BTG	:	Bantagas, Philippine	MNL	:	Manila, Philippine	SGZ	:	Songkhla,Thailand
HKG	:	HongKong	NSA	:	Nansha, China	TXG	:	Taichung,Taiwan
HPH	:	Hai Phong, Vietnam	NBO	:	Ningbo, China	TPP	:	Tanjung Pelepas, Malaysia
HCM	:	Ho Chi Minh, Vietnam	OSA	:	Osaka, Japan	YAT	:	Yantian,China
KOB	:	Kobe, Japan	SHV	:	Sihanoukville Port, Cambodia			
KUN	:	Kuantan, Malaysia	SGN	:	Saigon, Vietnam			

4.2.5 Ship Call at Sihanoukville Port

General Cargo (**GC**) ship, Coal Vessels, Oil tanker (Tanker) and Container Cargo (**CC**) ship account more than 98% ship call at Sihanoukville Port. Passenger ship account less than 2% of total ship call.



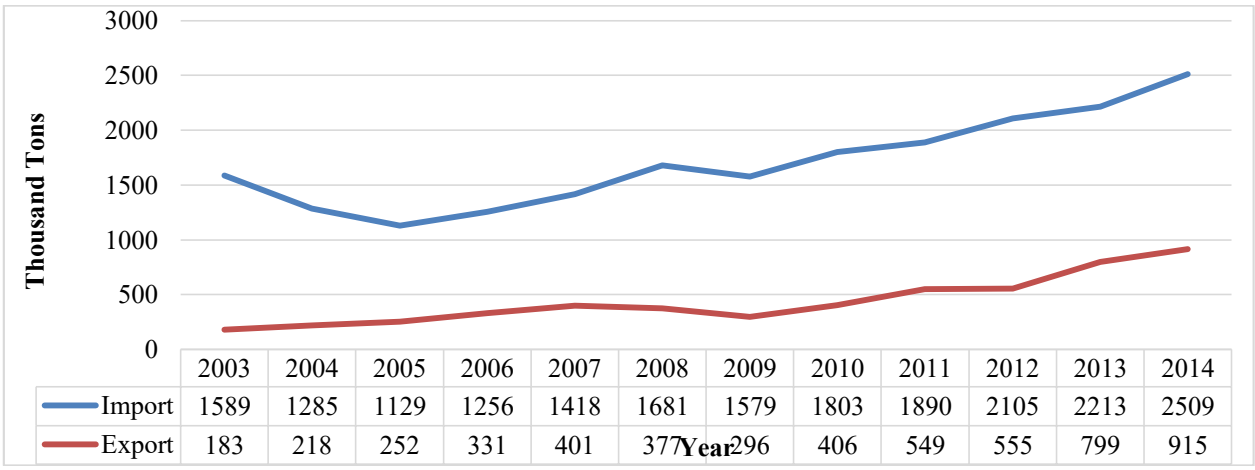
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Container	481	460	433	509	491	480	432	427	400	443	506	504
Tanker	149	114	132	152	201	232	235	251	232	266	283	292
GC ship	245	155	116	219	179	225	163	210	230	198	178	282
Passneger	3	1	5	32	5	17	17	17	15	34	21	25

Source: PAS

Figure 4-4: Number of Ship Call at Sihanoukville Port

4.2.6 Cargo Throughput at Sihanoukville Port

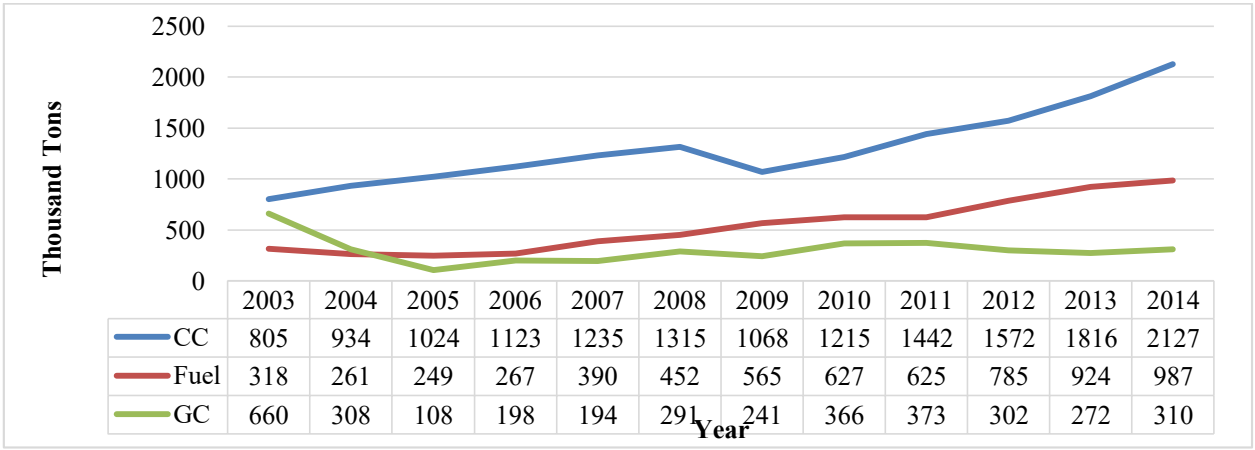
Export increases more than 3.5 folds over the last 11 years and within the same period of time. Import increases more than 1 fold. However, import volume always remains higher compare to export volume.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Import	1589	1285	1129	1256	1418	1681	1579	1803	1890	2105	2213	2509
Export	183	218	252	331	401	377	296	406	549	555	799	915

Source: PAS

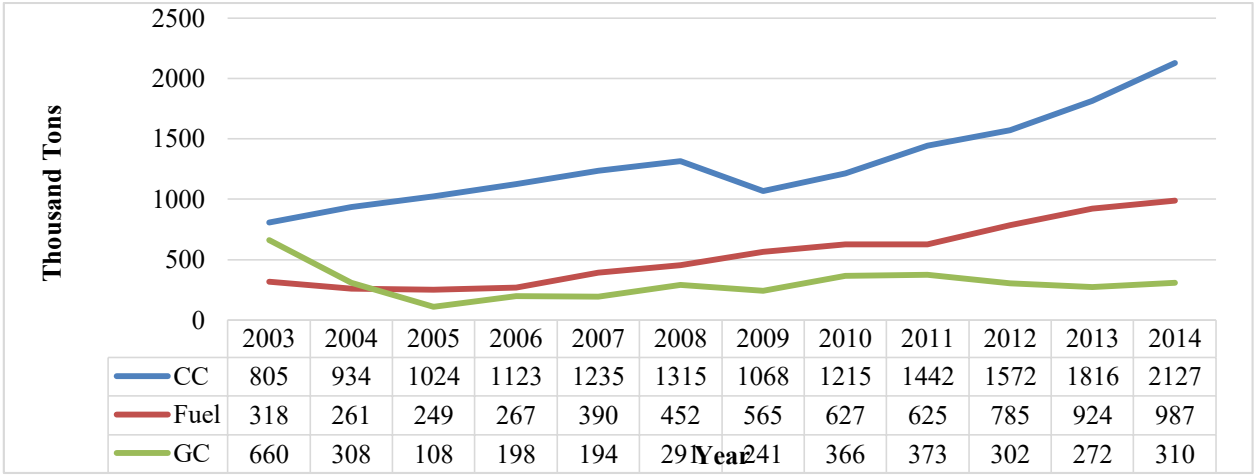
Figure 4-5: Import & Export Trends of all Cargos at Sihanoukville Port



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CC	805	934	1024	1123	1235	1315	1068	1215	1442	1572	1816	2127
Fuel	318	261	249	267	390	452	565	627	625	785	924	987
GC	660	308	108	198	194	291	241	366	373	302	272	310

Source: PAS

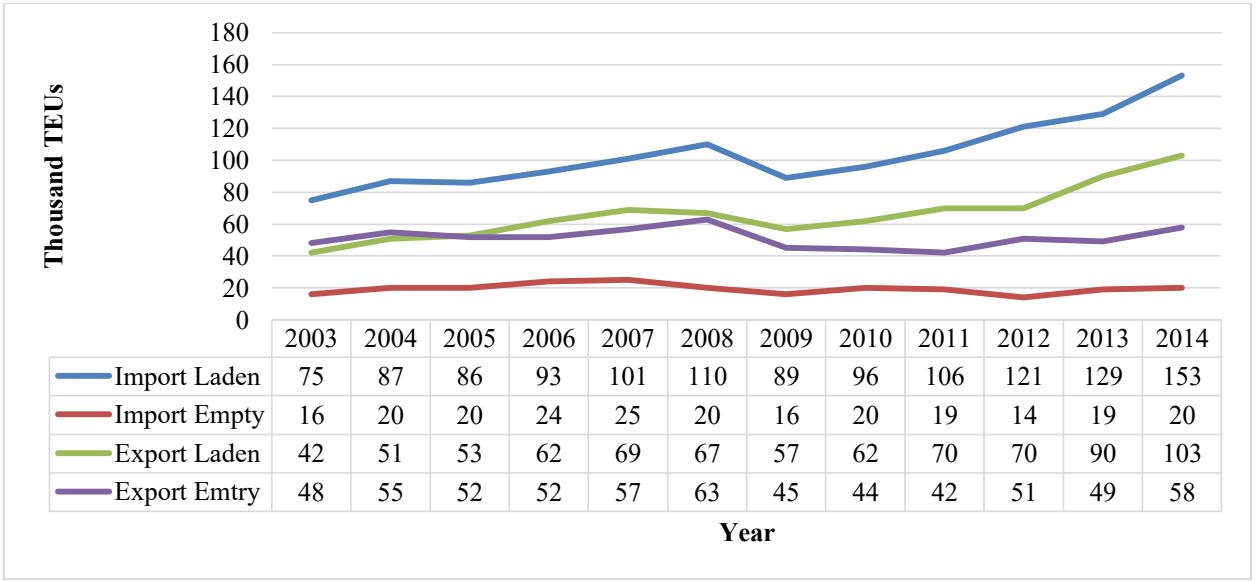
Figure 4-6: Trends of all Cargos at Sihanoukville Port



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CC	805	934	1024	1123	1235	1315	1068	1215	1442	1572	1816	2127
Fuel	318	261	249	267	390	452	565	627	625	785	924	987
GC	660	308	108	198	194	291	241	366	373	302	272	310

Source: PAS

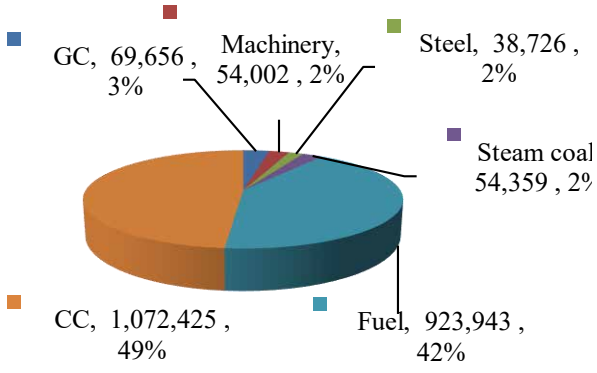
Figure 4-7: Import & Export Trends of Containerized Cargo at Sihanoukville Port



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Import Laden	75	87	86	93	101	110	89	96	106	121	129	153
Import Empty	16	20	20	24	25	20	16	20	19	14	19	20
Export Laden	42	51	53	62	69	67	57	62	70	70	90	103
Export Emtry	48	55	52	52	57	63	45	44	42	51	49	58

Source: PAS

Figure 4-8: Trends of Ratio of Empty and Laden Containers at Sihanoukville Port



Source: PAS

Figure 4-9: Composition of Imported Items at Sihanoukville Port in 2013 (tons)

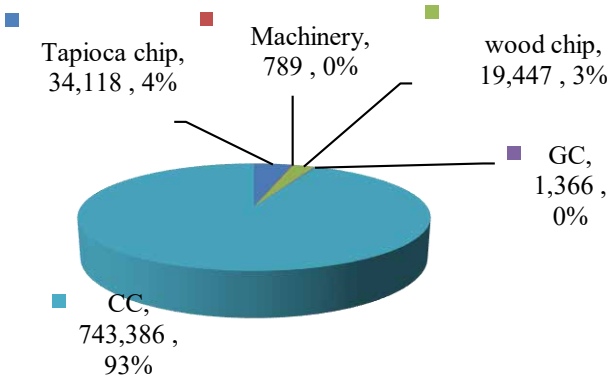
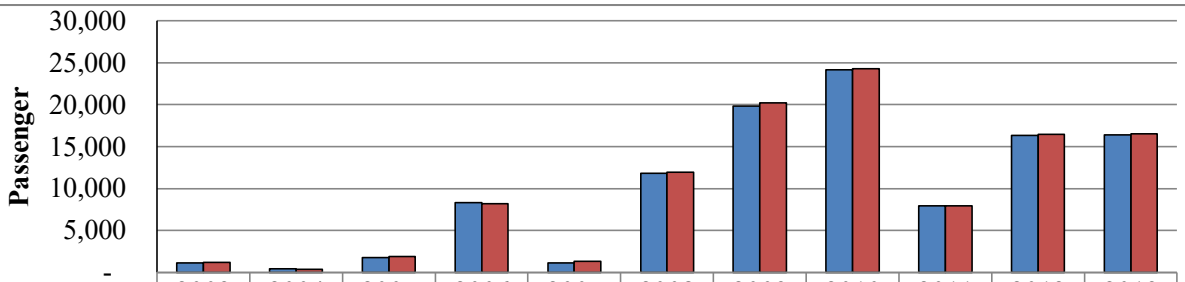


Figure 4-10: Composition of Exported Items at Sihanoukville Port in 2013 (tons)



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
- Pas Arri	1,113	447	1,797	8,303	1,141	11,78	19,85	24,14	7,964	16,32	16,40
- Pas Dept	1,169	354	1,909	8,162	1,318	11,92	20,21	24,26	7,958	16,44	16,52

Source: PAS

Figure 4-11: Number of Passenger at Sihanoukville Port

4.2.7 Future Development Plan

In order to facilitate and stimulate the export of Cambodian agricultural products such as acacia woodchip and dry tapioca chip, especially in response to the market expansion strategy for milled rice export of the Royal Government, and logistic service for the offshore oil exploration in the territory of Cambodian sea as well as for the economic growth in Cambodian, PAS has planned for the development of the Multipurpose Terminal Development Project, which is the first deep sea port of Cambodia to accommodate larger vessels with loading capacity from 30,000 to 40,000 DWT in order to meet the requirements from all social circles as well as the global marketplaces. This Multipurpose Terminal is divided into two main terminals:

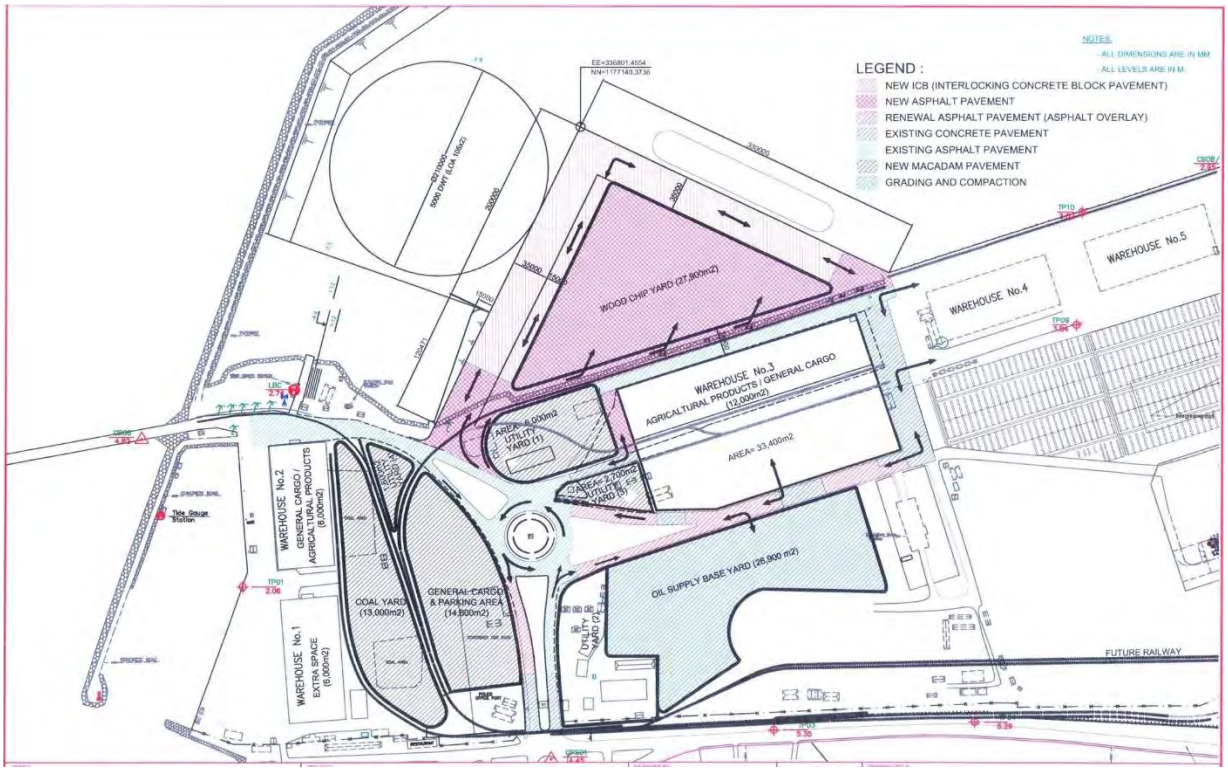
1-Dry Bulk Cargo Terminal

- Length: 330 m
- Alongside depth: -13.50m
- Designed to accommodate vessel with 40,000 DWT.
- Dry bulk cargo storage yard: 27,900 m^2

2 -Terminal for Oil Exploration Logistic Base

- Length: 200m
- Alongside depth: -7.50m
- Logistic base yard: 26,900m^2

This project is approximately 71.7 Mill US Dollar (7,167 Mill. JP Yen) and the construction is estimated to commence in September 2014 and completed in May 2017.



Source: PAS

Figure 4-12: Future Development Plan of Sihanoukville Port Special Economic Zone (SPSEZ)

To minimize transport cost, Japanese-funded SEZ of 70ha was established next to the port terminal.

- -Construction started: Oct. 2009
- -Completion: 31st Mar. 2012
- -Factory area: 45ha
- -Commercial and Multi-purpose area: 6ha
- Inter-Modal logistic area: 4.4ha
- -Green area: 5.2ha
- -Admin., maintenance office and parking: 0.9ha
- -Utilities and roads: 8.5ha

Source: PAS

Figure 4-13: Long Term Development Plan

4.3 Other Seaports

4.3.1 Koh Kong Port (SP1)

SP1 was managed by provincial Department of Public Works and Transport (DPWT). It was built in 1992, at Lat: 11d32'859"N / Long: 102d56'426"E; size: 30m x 10m. Accessibility to this port can be made by dusty dirt road. Water levels at low and high tide are between 3m and 5m. These water levels could support up to 300-tonne vessels. Goods brought to this port are mostly cement and construction materials, which are estimated around 4,000 -7,000 tons per month. There are between 2-3 ship calls per month at SP1.

4.3.2 Sre Ambel Port (SP2)

Sre Ambel Port is located at Lat: 11d 06'921"N / Long: 103d 43'607"E in Rondaochhor Village, Sre Ambel District, Koh Kong Province and is 100km from Sihanoukville City and 140km from Phnom Penh. Accessibility to this port could be made by laterite road. Recently the name of the port has been changed to Sre Ambel New Port. Construction of the port started in 2003 and port operation launched on 1st July 2003. It has a total land area of 12 ha (600m x 200m with potential increased to 400ha). Total concrete berth length is 500 m with a width of 30 m and a water depth of 4m. There is a plan to secure a depth of 6m through dredging. SP2 was established by MDH Trading Company. Most imported goods are food and construction materials from Thailand though some originate in Singapore. Cargo throughput is estimated around 10,000 -12,000 tons per month. There are between 3-4 ship calls per month at SP2.

4.3.3 Oknha Mong Port (SP3)

The Oknha Mong Port is located in Keo Phos Village, Chroy Svay Commune, Sre Ambel District, Koh Kong Province and is 76 km from Sihanoukville. Port construction started on January 01, 2003 and operations commenced on August 01, 2004. The port has a land area of 64 ha while the total terminal area is about 26 ha. Total berth length is 1,111m with a width of 200 m and a water depth of 4.5m at low tide and 5.5m at high tide. The port is 100% privately owned. Most of the transport is carried out by the wooden boats that carry cargo from Thailand with a capacity of 300 tons. About 35 to 50 ships call at this port. Most vessels are small sized and carry fruits from Thailand (Klong Srun Port). Cement is carried by convoys consisting of 1 tugboat and 4 barges (each with about 1,000 ton capacity). Each month an average of 16 to 20 barges carry cement from Thailand directly from Bangkok.

4.3.4 Stunghav Port and Oil Terminal (SP4 and SP5)

Stunghav Port is officially known as Stunghav International Port & SEZ. This port is established by Attwood Investment Group Co., Ltd. It is located about 30 km from the main NR4 leading to Sihanoukville city. Port development plan has a maximum water depth of 12m. The land area for port and industries will consist of about 520 ha obtained by reclamation while the basin will be 400 ha, protected by breakwaters of more than 7.6km in length. The volume of materials dredged for the basin and approach channel (in case that the dimension of the channel is 3.7 km in length and 300m in width) is estimated at about 21million m3. The Stung Hav dry cargo terminal is only 50m long with permissible ship draft of only 3.5m to 4.5m in the maximum. Vessels from SP2 mostly carry construction material (350 tons/ship x 7-10 ships/month). Vessels from Thailand, mostly carry general cargo (300 tons/ship x 3 ships/month). All shipments are carried by barge.

4.3.5 Kampot Port (SP6)

Kampot Port or Kampong Bay Port is a wooden port situated in the town on a river bank 4 km from the sea. It is managed jointly by DPWT and Veng Hour Co., Ltd. SP6 is able to take vessels of up to 150 tonnes or more. It could be accessible by two main approaches from the sea, one of which has fairway depths of 10m to within 11km of the port. The other southern channel could accommodate vessels of less than 4.6m draft. A wooden jetty can be used by 30-40 tonnes ship. There is another DPWT-managed port, which currently is unused. It is located at Prek Chark, bordering Kaeb and Kampot provinces, close to the Vietnam border. Its facilities included:

- Berthing point: 10d28'250"N/104d24'000"E , Draft: 4.00m
- Entrance channel: 10d27'000"N/104d25'000"E, Draft : 3.50 m
- Anchorage position: 10d25'000"N / 104d22'000"E , Draft: 6.00 m

4.3.6 Kaeb Port (SP7)

This port is used for passenger to make trips between Kaeb town and the islands. Its draft at berth is 2.5m, therefore it is suitable only for small local passenger boats. This port is managed by DPWT of Kaeb. This port could be accessible by good roads.

Table 4-3: Cambodia's other Seaports

No.	Port	Company	Investment scheme	Cost in Million	Agency	Project Start
SP1	Koh Kong	-	-	-	DPWT	1992
SP2	Sre Ambel New Port	MDH trading company	-	-	Private	2003
SP3	OKNHA MONG	OKNHA MONG PORT Co ,LTD	BOO		Private	2004
SP4	Port for Petroleum at Stunghav	SOKIMEX			PAS	2001
SP4	Port for Petroleum at Stunghav	TELA PETROLEUM GROUP INVESTMENT CO.,LTD	BOO	$14.50	PAS	2004
SP4	Port for Petroleum at Stunghav	LHR			PAS	2009
SP4	Port for Coal Terminal at Stunghav	CEL (Cambodia Energy Limited) Power Plant Company			PAS	2013
SP4	Port for Coal Terminal at Stunghav	CIIDG (Cambodia International Investment Group) Erdos Hongjun Electric Power Co., Ltd			PAS	2014
SP4	Int. Port at Stunghav	ATTWOOD IMPORT EXPORT Co.,LTD	-	$30	Private	
SP5	Port for Petroleum at REAM BASE	PPT			PAS	1996
SP6	Int. Port at Kampot	Veng Hour Co., Ltd.	-	$9	DPWT	
SP7	Int. Tourist Port at Kaeb	Aussic-Cam Group Investment and Development Co., Ltd (Local)	BOT		DPWT	
SP7	Int. Tourist Port at Kaeb	Rotong Development Co., Ltd	BOT		DPWT	
SP7	Commercial Port at Kaeb	KAEB POWER SUPPLY CO.,LTD	BOT	$41	DPWT	

Source: MPWT

4.3.7 Maritime Activities at Other Seaports

Among the local seaports, Koh Kong port which is located near the Thai border, receives the most ship calls (34%) and 72% Gross Registered Tonnage (GRT).

Table 4-4: Shipping Activities at other Small Seaports (as of 2011)

No.	Port	GC ship	GRT	GC ship %	GRT %
SP1	Koh Kong	213	1,196,371.96	34%	72%
SP2	Sre Ambel	194	98,721.54	31%	6%
SP3	Oknha Mong	206	202,335.51	33%	12%
SP6	Kampot	1	5,264.00	0%	0%
SP4, 5, 7	Others	11	167,867.00	2%	10%
Total		625	1,670,560.01		

Source: MPWT

4.4 Dry Ports (DP)

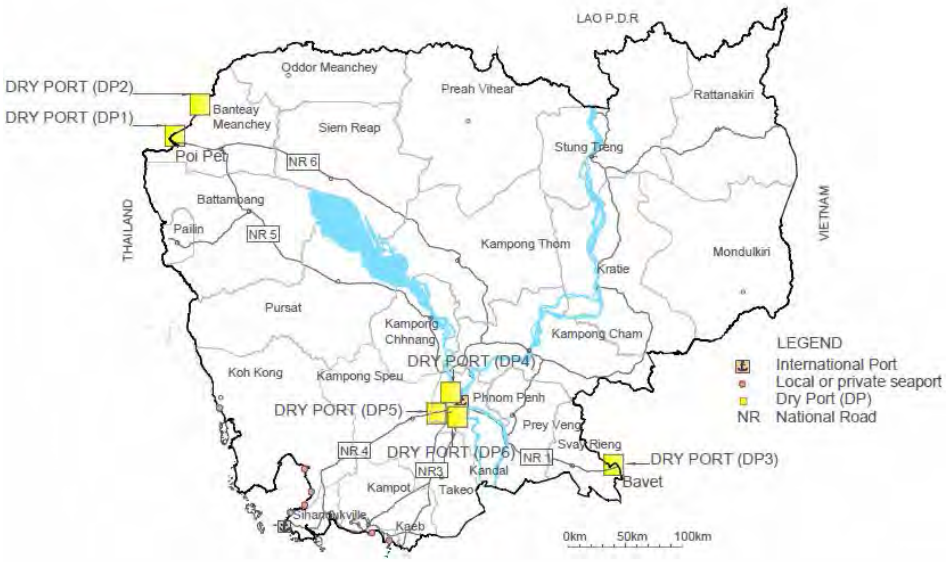
4.4.1 Administrative Regulation

The international agreement on Dry Ports was adopted on the 1st of May 2013 by resolution during the sixty-ninth session of the United Nations Economic and Social Commission for Asia and the Pacific. In this agreement, the dry ports listed in table below should be brought into conformity with the guiding principles for the development and operation of dry ports in Cambodia. The dry ports of International importance are as follows:

Table 4-5: List of international importance dry ports

No.	Name of dry port	Nearest town	Remark
1	CWT Dry Port	Phnom Penh	Capital
2	Phnom Penh International Port	Phnom Penh	Capital
3	Phnom Penh Special Economic Zone	Phnom Penh	Capital
4	So Nguon Dry Port	Bavet	Border town with Vietnam
5	Teng Lay Dry Port	Phnom Penh	Capital
6	Olair World Dry Port	Phnom Penh	Capital
7	Tech Srun Dry Port	Phnom Penh	Capital

4.4.2 Present status of Dry Ports investment in Cambodia



Source: MPWT

Figure 4-14: Dry Ports in Cambodia

Dry ports in Cambodia are located at 3 main locations: Bavet (Cambodia-Vietnam border), Poi Pet (Cambodia-Thai border) and around Phnom Penh. The main purposes of these dry ports are to process goods from the point of entrance. In this case, containers arriving at Sihanoukville Port could be taken by road to the dry ports near Phnom Penh for customs clearance, saving time and reducing inconvenience for customers based in Phnom Penh.

Table 4-6: Dry Port Development

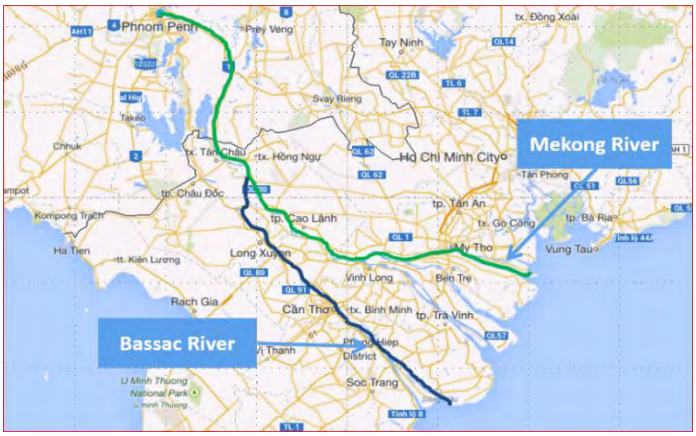
No.	Location	Developed by	Invest. scheme	Cost Million	Partner	Status
DP1	Poi Pet	LY SAYKHENG Co.,LTD.	BOO		MEF	2002
DP2	Poi Pet (O neang)	CHHAY INVESTMENT Co., LTD.	BOO		MEF	-
DP3	Bavet, NR1	HAN SENG LAND and PROPERTY Co.,LTD.	BOO		MEF	2002
DP4	NR5 (6km)	GREEN TRADE COMPANY	-	-	MEF	Completed
DP5	Chaomchav, NR4	OLAIR WORLDWIDE LOGISTIC CO., LTD.	BOO	$2,5	MEF	Licensed: July 2007
DP 6	Chaomchav, NR4	TENG LAY IMPORT EXPORT AND TRANSPORT CO., LTD.	BOO	$6.2	MEF	Licensed: July 2007

Source: MPWT

5 Inland Waterway and River Ports

5.1 Background

Phnom Penh Port is under the management of state enterprise supervised by MPWT and Ministry of Economy and Finance (MEF). This autonomous enterprise was established by Sub-Decree No. 51, dated the 17th of July 1998. The Phnom Penh port is the country's traditional river port, accessible by vessels from the South China Sea through Vietnam. The first Phnom Penh Port is located in the city, along the Tonle Sap, some 3-4 km from its junction with the Mekong. The second Phnom Penh Port is located 25km downstream built with financial support from China.



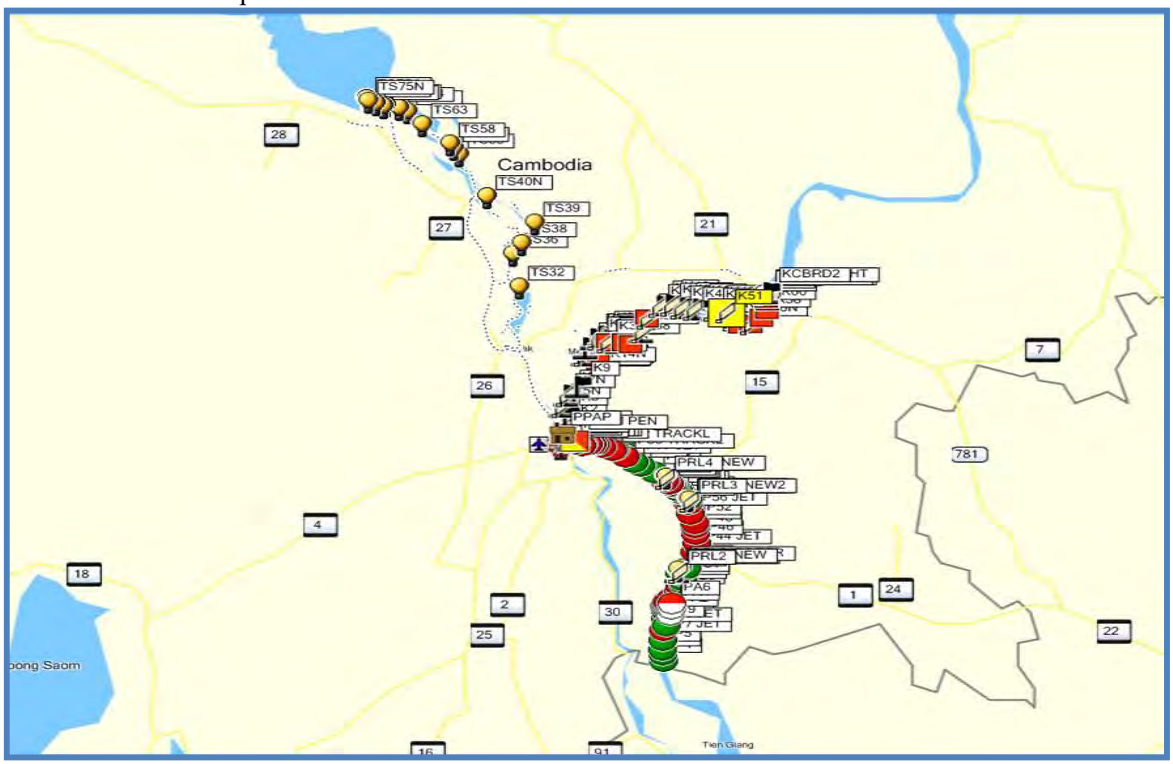
Source: MPWT

Figure 5-1: Phnom Penh Port accessibility

5.2 Navigation Channel

To have access to PPAP, all vessels must go through Viet Nam's waterway. Under the Inland Waterway Agreement between Cambodia and Viet Nam. The Regulated Waterways on the Tonle Sap, Mekong, Bassac, Vam Nao Rivers, and selected canals can be used by both Cambodian and Vietnamese vessels. The Transit Routes are destined for maritime traffic and can be used by all sea-going vessels under foreign flags.

The distance between PPPA to the closest hub port in Viet Nam is 330 KM via Mekong River. Current draft restrictions are at the sea entrance, which currently allows between 4.5 Meters during dry season and 5.5 Meters during the raining season or a maximum capacity of 2,500 Tons or 125 TEUs. The agreement still needs to be fully implemented, but has already shown effectiveness in easing the navigation of ship crossing the border between Cambodia-Viet Nam (ships only need to anchor at a mutual point, not on each side of the border). Additional aids to navigation have been installed and maintained, providing more reliable and efficient waterway transportation. Additional buoys and landmarks has been added from Phnom Penh to Kampong Cham and Phnom Penh to Tonle Sap.



Source: MPWT

Figure 5-2: Buoys and landmark locations

5.3 Present State of River Navigation

The Master Plan on Waterborne Transport in the Mekong River System in Cambodia, was developed in 2006 by the Belgians. The Master Plan set out 60 action plans for the development of inland waterway transport in Cambodia. Some of the action plans are now under implementation.

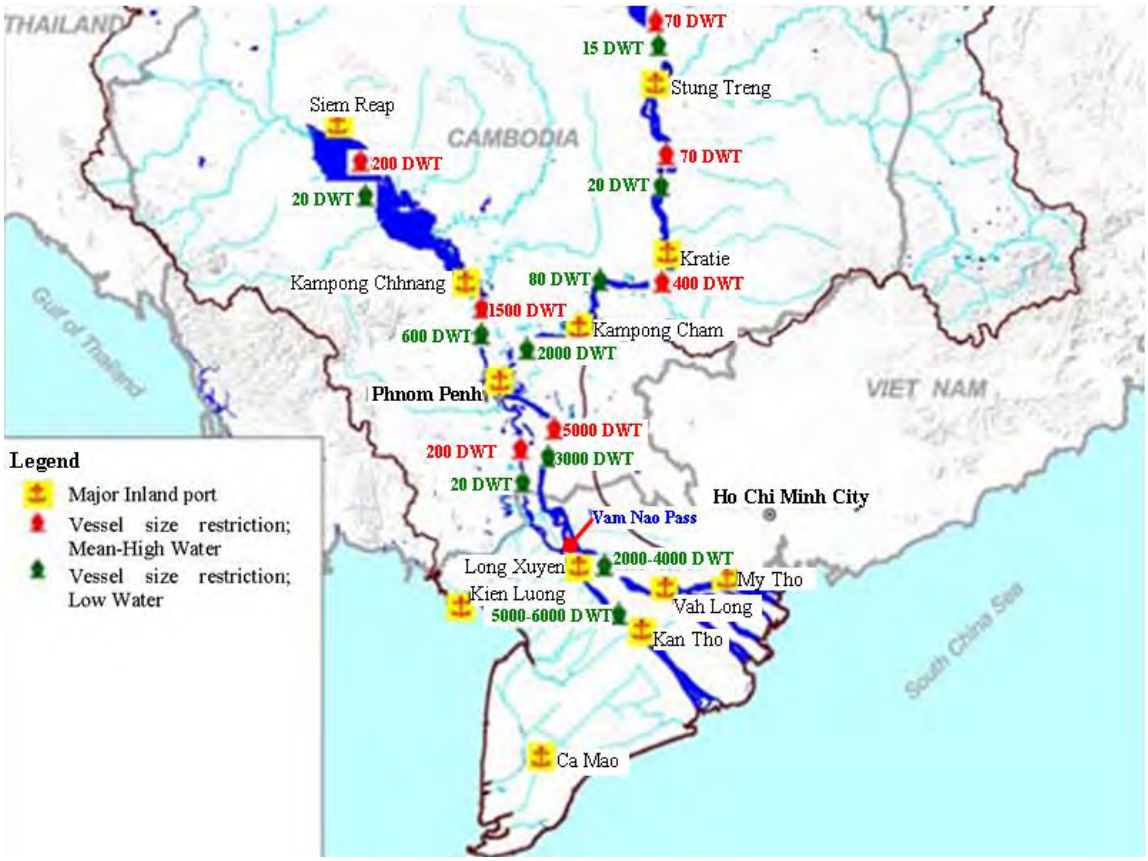
Cambodia's navigable inland waterways measure a total length of 1,750km. Most of the major river ports are located along these major rivers. The Mekong mainstream accounts for 30% of the total, the Tonle Sap River 15%, the Bassac River 5%, and other tributaries 50%. Year-round navigation is possible through 580km long and one third km width of the river.

Source: MPWT

Figure 5-3: Major Rivers And Domestic River Ports

5.4 Navigable Vessel Size in Mekong River Channel

For the 102 km stretch between Phnom Penh and Cambodian-Vietnam border, the bends of the river prevent the passage of vessels more than 110m long. To travel from Phnom Penh to South China Sea, currently vessel must take the Mekong route in Cambodia and also Mekong route in Vietnam. It has to wait for high tide to pass the most difficult path, which is located at the mouth of the Mekong River. Its water level supports only up to 4,000DWT in high tide and 3,000DWT in low tide.

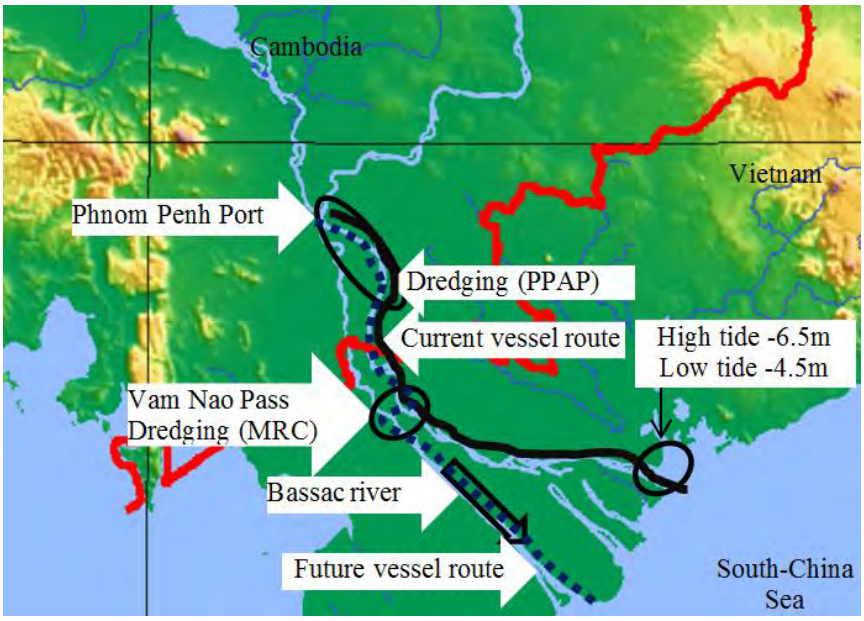


Source: Master Plan for Waterborne Transport on the Mekong River System in Cambodia, Final report (Volume 1 Main Report, Draft), September 2006, Belgian Technical Cooperation

Figure 5-4: Maximum Navigable Vessel Size in the Mekong River Basin

To further increase cross-border as well as regional and international trade by waterway and to promote the development of the port of Phnom Penh, Cambodia and Viet Nam in 2009 have signed an Agreement on

Waterway Transportation. It allows maritime vessels arriving from third countries to use either the Mekong/Tien River access route via the Cua Tieu or the Bassac/Hau River route via the Cua Dinh An and the Vam Nao River. In addition, the Agreement provides for unhampered use of a large number of regulated waterways by vessels engaged in cross-border transportation between Cambodia and Vietnam.



Source: http://upload.wikimedia.org/wikipedia/commons/7/75/Vietnam_Topography.png

Figure 5-5: Dredging Locations and Vessels Movement Direction

Table 5-1: Maximum Navigable Vessel Size in the Mekong River Basin by Section

River	River Section	Length (km)	Year-round navigation possible?	Vessel Size Restriction (DWT)	
				Low Water	Mean-high water
Mekong Mainstream	Golden Triangle - Luang Prabang	362	Yes - but is limited by rocky passages and strong currents		60
	Luang Prabang - Vientiane	425	Yes - but requires small boats and skilled pilots during dry season	15	60
	Vientiane - Savannakhet	459	Yes	200	500
	Savannakhet - Pakse	261	No "high water" only navigation possible	Less than 10	50
	Pakse - Khinak	151	Yes	50	
	Khinak - Veune Kham	14	No - navigation not possible at any time due Khone Falls		
	Veune Kham - Stung Treng	30	Yes - with size limitations at low water	15	50
	Stung Treng - Kratie	128	Yes - with size limitations at low water	20	50
	Kratie - Kampong Cham	121	Yes	80	400
	Kampong Cham - Phnom Penh	100	Yes - navigable by sea-going ships	2,000	
	Phnom Penh - Junction of Vam Nao Pass	154	Yes - navigable by sea-going ships	3,000-4,000	5,000
	Vam Nao pass - South China Sea	194	Yes - navigable by sea-going ships	3,000-4,000	3,000- 4,000
Bassac River	Phnom Penh - Junction of Vam Nao Pass		Yes - but not possible by sea-going ships	20	50
	Vam Nao Pass - South China Sea	188	Yes - navigable sea-going ships	5,000	5,000- 6,000
Tonle Sap (Cambodia)	Phnom Penh - 5km South of Kampong Chhnang	94	Yes - navigable by sea-going ships	1,000	2,000
	Kampong Chhnang - Chhnoc Trou	46	Yes - with size limitations at low water	20	150
	Chhnoc Trou - Chong Kneas109	109	Yes - with size limitations at low water	20	150
Mekong Delta Waterways	Dense network of man-made canals, natural creeks and Mekong tributaries, with a total navigable length of 4,785 km	4,785	Yes - Vessel size restrictions within this network vary from 10-300DWT		
	Sekong - Mekong tributary (Lao PDR and Cambodia)		Yes - this waterway is navigable between the Lao PDR and Cambodia, providing an alternative international transit corridor to the Mekong, which is non-navigable through the Khone Falls		

Source: Master Plan for Waterborne Transport on the Mekong River System in Cambodia, Final report (Volume 1 Main Report, Draft), September 2006, Belgian Technical Cooperation

5.5 Present State of Phnom Penh Port

Phnom Penh Port is under the management of a state enterprise supervised by MPWT and Ministry of Economy and Finance (MEF). This autonomous enterprise was established by Sub-Decree No. 51, dated the 17th of July 1998. The Phnom Penh port is the country's traditional river port, accessible by vessels from the South China Sea through Vietnam. Phnom Penh Port is located in the city, along the Tonle Sap, some 3-4 km from its junction with the Mekong.

Source: Google map

Figure 5-6: Phnom Penh Port's Key Infrastructures

5.5.1 Phnom Penh Port's Major Infrastructure

Phnom Penh Port is located at 3 areas: a) Port No. 1 or the main port located along the Tonle Sap about 4km North of Mekong junction; b) Port No. 2 located at about 1km south of Port No. 1; and c) Port No. 3 located 25km south of Phnom Penh along the Mekong river. Port No.3 was constructed and the operation started in January 2013.

Table 5-2: Major Infrastructure at Phnom Penh Port

Description	Specification	Remark
Container and General Cargo Terminal	Quay: 20m x 300m	Water depth is -5.0m
	Berthing Capacity: 3 vessels at one time	
Passenger Terminal	2 Pontoons of 15m x 45m each	Water depth is -3.5m
Warehouse	70m x 50m = 3,500m^2	
	50m x 30m = 1,500m^2	
ICD	Area: 92,000m^2	

Source: PPAP

Table 5-3: Status of Equipment at Phnom Penh Port

Handling Equipment	Specification and quantity
Truck	10 units
Trailer	6 units (40" and 45")
Forklift	11 (4t to 25t)
Bulldozer	1
Excavator	1
Roller	1
Dredgers	2
Empty Stacker	3
Container Stacker	5
Cranes	5 (3 Crawlers, 2 Floating)
Speed Boat	2
Tug Boat	5
Ferry	2

Source: PPAP

5.5.2 Shipping Companies

Several shipping companies made called at Phnom Penh Port:

Table 5-4: Shipping Companies and Shipping Lines

		SOVEREIGN BASE Logistics Company	Gemadept Company	New Port Cypress Company
Feeder Shipping Line	Vessels	3 vessels (80-126 TEUs)	13 vessels (75-120 TEUs)	6 vessels (75-128 TEUs)
	Call per week	2-3 calls	5-7 calls	2-3 calls
	Other	2 floating cranes and some trucks		
Shipping Line		Maersk Line, MOL, Wan Hai, CMA, OOCL, K-Line, NYK, China Shipping, Star Shipping, HAN JIN, APL, Evergreen, POS Shipping, ZIM, Hyundai, Sun Shipping, RCL, NPC, Strait International, Inchape Shipping, Vina Line, Multinational Shipping, MSC and others…		

Source: PPAP

5.5.3 New Phnom Penh Port and SEZ Plan

Because of several restrictions on running No.1 and N.2 ports such as low water level, traffic congestion as well as their capacities becoming full, a New Phnom Penh Port or the No.3 port was constructed 25km downstream from the No.2 ports (between NR1 and Mekong river). This is a 28 mill. USD project funded by China.

- Contractor: Shanghai Construction (Group) General Company
- Construction Period: 30 months (Construction of infrastructure)
- Request further budget to finance superstructure
- Initial capacity: 120,000 TEUs/Year
- Total Capacity = 300,000 TEUs/year (including future plan)
- Berth = 22m x 300m, Port Area = 12 ha
- SEZ plan: To support New Container Terminal (NCT), PPAP is planning to develop SEZ. This project is under preparatory survey by JICA.
  - ✧ Infrastructure : Bonded Warehouse, Agricultural Processing Zone and Industrial zone
  - ✧ Location : NR1, PK : 30, opposite side of current New Container Terminal
  - ✧ Size : Approximately 200ha

Source: PPAP

Figure 5-7: New Phnom Penh Port

5.5.4 Km 6 Port and Railway Connection

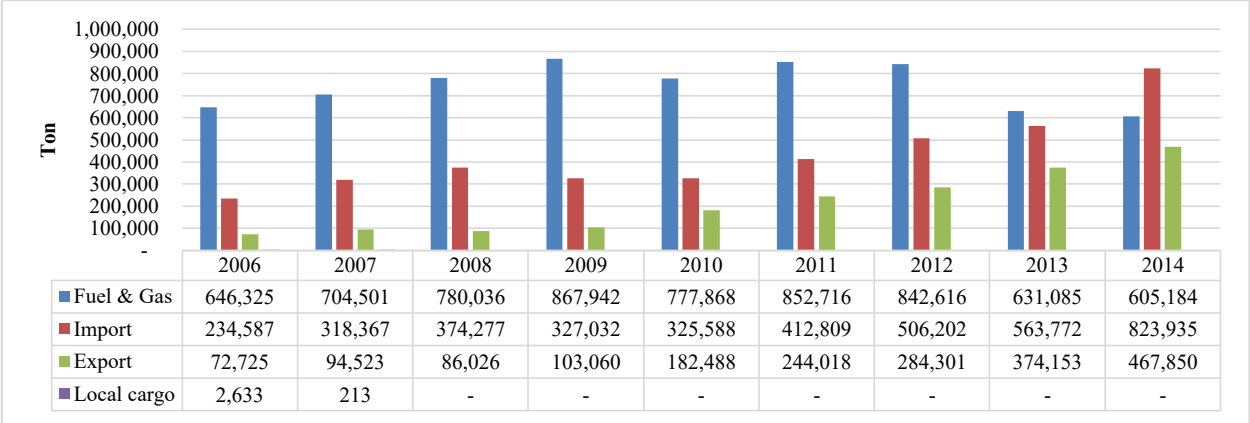
There is a port located at Km 6, north of Phnom Penh, between NR5 and Tonle Sap. It was intended for river-rail transshipment but this function has ceased. There is a warehouse complex (called Green Trade Warehouse) having 15 sheds with a total capacity of 70,000 tonnes and 8 sheds of nearly 4,000 tonnes. There is a plan to renew this port to connect to Sihanoukville Port by railway.

Source: PPAP

Figure 5-8: Green Trade Warehouse (GTW)

5.5.5 Phnom Penh Cargo Throughput

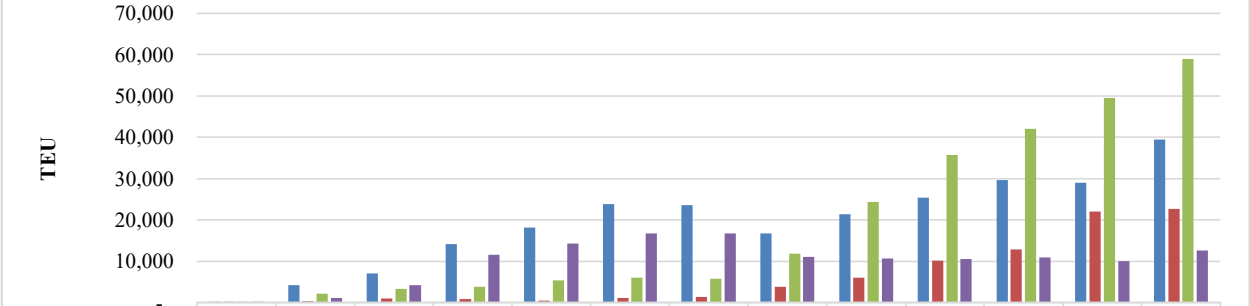
There is only data on Phnom Penh Port usage available. Most of Phnom Penh Port service is used for maritime trade services (import and export). Local cargo has ceased to operate since 2008.



	2006	2007	2008	2009	2010	2011	2012	2013	2014
Fuel & Gas	646,325	704,501	780,036	867,942	777,868	852,716	842,616	631,085	605,184
Import	234,587	318,367	374,277	327,032	325,588	412,809	506,202	563,772	823,935
Export	72,725	94,523	86,026	103,060	182,488	244,018	284,301	374,153	467,850
Local cargo	2,633	213	-	-	-	-	-	-	-

Source: PPAP

Figure 5-9: Import & Export Trends at Phnom Penh Port

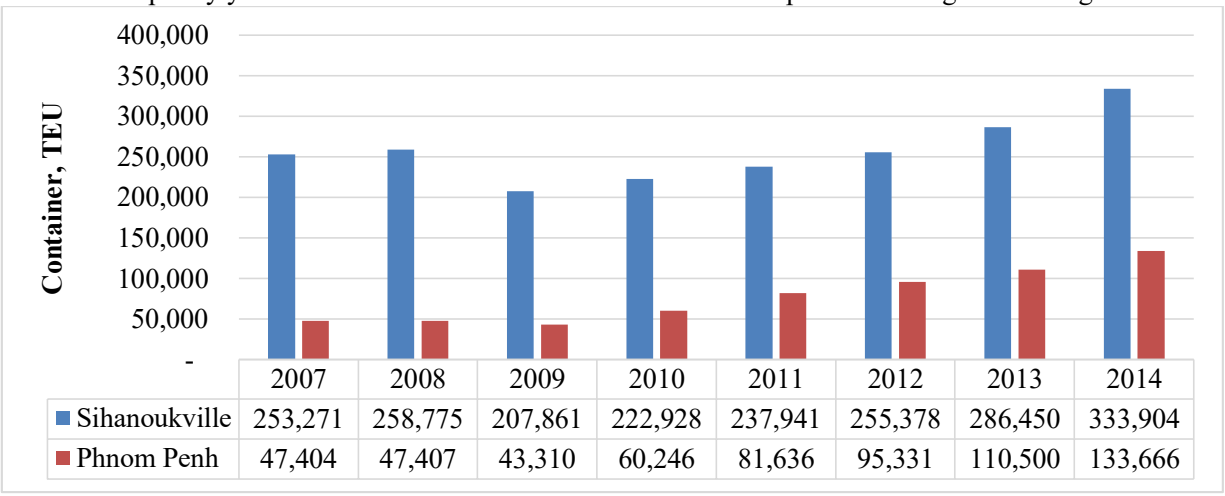


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Import Laden	242	4,134	7,054	14,077	18,099	23,783	23,623	16,735	21,369	25,344	29,627	28,924	39,412
Import Empty	100	306	985	867	477	1,126	1,387	3,769	5,940	10,124	12,877	22,068	22,693
Export Laden	237	2,072	3,237	3,767	5,341	5,942	5,743	11,775	24,276	35,696	41,961	49,501	59,003
Export Empty	167	1,118	4,250	11,570	14,316	16,653	16,754	11,033	10,671	10,467	10,868	10,007	12,558

Source: PPAP

Figure 5-10: Trends of Ration of Empty and Laden Containers at Phnom Penh Port

Phnom Penh and Sihanoukville Port are the two major ports in Cambodia. Both of them were hit hard by the world economic recession in 2008-2009, but Phnom Penh Port's business health bounced back. By the end of 2009, it had caught up with its pre-recession level and continues to grow annually at almost double the pre-recession output by year 2011. This indicates that Phnom Penh Port presents strong economic growth.



	2007	2008	2009	2010	2011	2012	2013	2014
Sihanoukville	253,271	258,775	207,861	222,928	237,941	255,378	286,450	333,904
Phnom Penh	47,404	47,407	43,310	60,246	81,636	95,331	110,500	133,666

Sources: PAS & PPAP

Figure 5-11: Trends of Container (TEUs) at Phnom Penh and Sihanoukville Ports

5.6 Other River Port

Excluding Phnom Penh, 5 major river ports are located along the major rivers: Tonle Sap (2) and Mekong (3):

- Stung Treng Port: Stung Treng port, located in Stung Treng Province, is an important regional center, located where the Sekong joins the Mekong and also with road access both to Laos (Road 7) and Vietnam (Road 78). A ferry brings the traffic along Road 7 across the Sekong, but is not much used in the present security situation. The Sekong and its tributaries Sesan and Srepork provide the only means of access to most parts of the Stung Treng and Ratanakiri provinces. Some 130 boats are registered in Stung Treng including about 50 in the range 10-35 tonnes. There is no dedicated port facilities however. The river banks have to be used or during the low water season a temporary jetty be provided for a ferry.

- Kratie Port: As Road 7 is very poor and indirect, most of the current traffic between Phnom Penh and Kratie is carried by river. Kratie is a provincial capital and another important center for the rubber trade. The port has a 35m long pontoon, used only in the rainy season, and a 1,000m^2 warehouse said to have a capacity up to 5,000 tonnes.

- Kampong Cham Port (or Tonle Bet Port, 106km): Tonle Bet port is located in Kampong Cham province, one of the most important provinces in Cambodia. It is situated on a cross-road of two main trading routes: north-south along the Mekong from Laos to the sea, and east- west between Thailand and Vietnam along the historic route via Siem Reap. It is growing quickly and is an important center for the rubber plantations. Much of the transport to and from Phnom Penh is by river. There is a passenger landing and a 10m long pontoon for barges up to about 400 tonnes capacity. During the dry season the pontoon is grounded and the river bank is used. There is also a warehouse with a covered area of 550 m^2, said to have a capacity of about 600 tonnes. Across the river from the town, on the left bank, there is some 5,700 m2 of open storage area.

- Kampong Chhnang Port (or Phsar Kraom Port or Chhnok Trou Port): Kampong Chhnang port is located on the Tonle Sap River between Phnom Penh and the Great Lake. It has a fishing port at Chhnok Trou and is also a market town for a rather large area on both sides of the Tonle Sap and Great Lake. Much of the boat traffic transships between road and river for journeys to/from Phnom Penh. The port facilities are congested with a large adjacent market area, and the entire area needs improvement and paving. At present, however, the function of the port is more of a provincial one than a national one as larger vessels cannot enter the lake in the low water season.

- Pursat Port: With a fishing port at Krakor, this is an important site at the south-east corner of the Tonle Sap Lake. It is important for fishing but also as transshipment point between boats and road transport for journeys between Siem Reap and Phnom Penh. Unlike the Tonle Sap, the lake is navigable the whole year and is used both for passenger and goods traffic. Most of this traffic uses Road 5 to and from Phnom Penh.

- Siem Reap Port (or Chong Khneas Port): The port for Siem Reap is located 5 km from the city and can only be used during high water. During the dry season the water level may be as much as 10 m lower and up to 11 km from the port. An access road (which is totally inundated during high water) connects the town to the lake. A temporary wooden port is constructed at the beginning of each dry season but is destroyed together with any improvements to the access road as the water rises. There are also various mooring points along the access road for intermediate water levels. The port is mainly used for goods traffic to/from Phnom Penh either directly via the Tonle Sap River or with transshipment in Krakor or in Chhnok Trou in the southern end of the lake. Some 12 passenger boats also ply the route and there are some new express services for tourists to Angkor Wat.

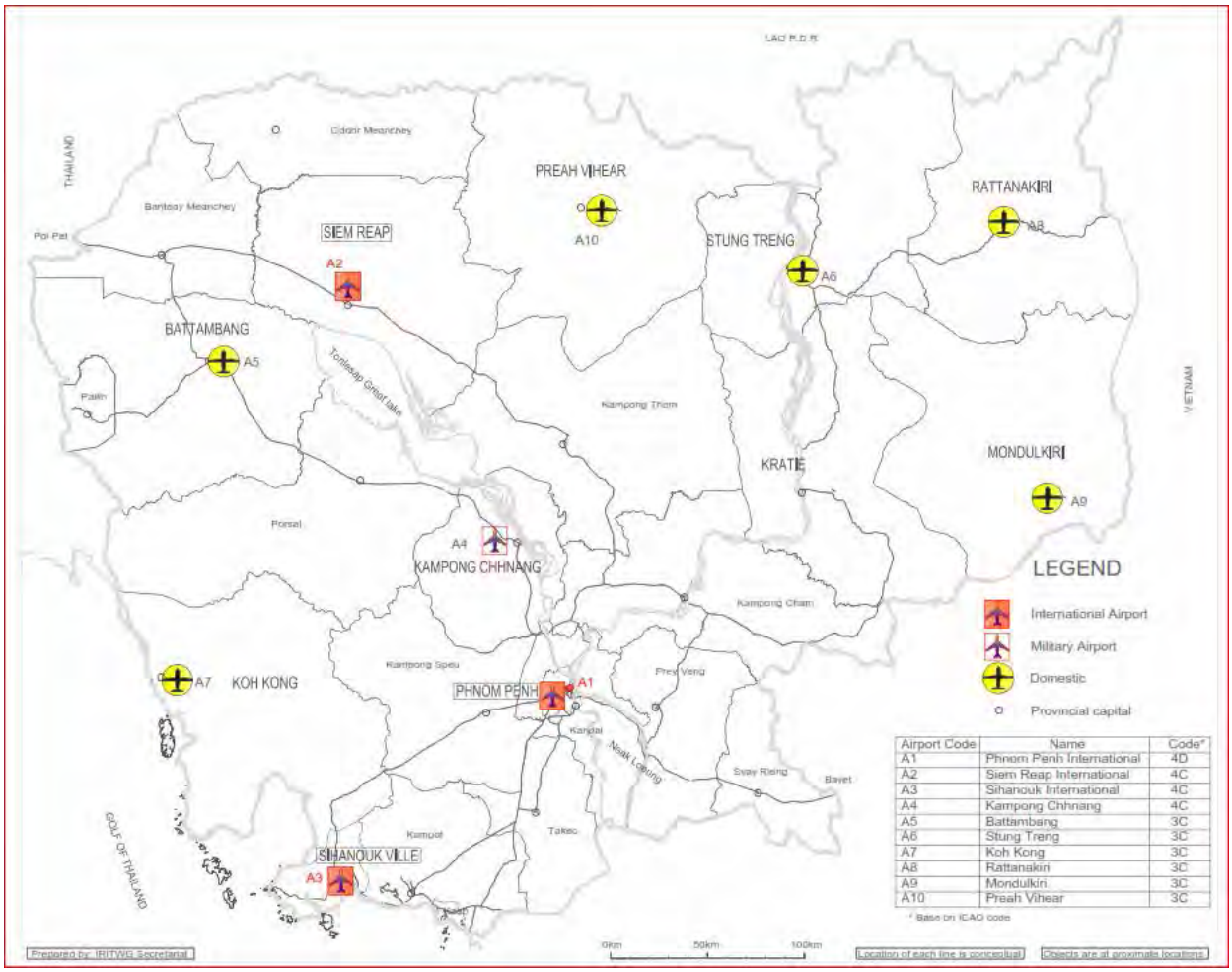
6 Airports

6.1 Airports in Cambodia

Source: SSCA

Figure 6-1: International Air Transport route map

According to State Secretariat of Civil Aviation of Cambodia (SSCA), there are 10 airports in Cambodia divided into 4 categories: International (3), military (1), domestic (6) and airfields. The Société Concessionaire de 1'Aéroport (SCA) has been undertaking operational management of Phnom Penh International Airport since 1995, Siem Reap International Airport since 2000, and Sihanouk International Airport since 2006. These are under BOT Agreements between the Royal Government of Cambodia and SCA. All other airports are managed by the State Secretariat of Civil Aviation (SSCA), under the Council of Minister, except for Kampong Chhnang Airport. This airport was built by the Khmer Rouge under Chinese support for Cambodia's air force. Later it was intended for this airport to be used as cargo hub but the BOT-scheme was postponed in 2005. Today this airport is managed by the Ministry of Defense.



Source: SSCA

Figure 6-2: Location of Airports in Cambodia

Table 6-1: Airports in Cambodia

Airports	Runway/Surface/ Reference Code	Operation status		Aerodrome Condition				Remarks
		Yes	No	Excl.	Good	Not Bad	Poor	
International Airport								
Phnom Penh (A1)	3000x45/ Asphalt/ 4D	✓			✓			BOT (1995-2040)
Siem Reap (A2)	2550x45/ Asphalt/ 4C	✓			✓			BOT (2000-2040)
Sihanouk (A3)	2500x45/ Asphalt/ 4C	✓			✓			BOT (2006-2040)
Military Airport								
Kampong Chhnang (A4)	2400x45/ Concrete/ 4C		✓			✓		BOT from 1996 (Postponed in 2005)
Domestic Airport								
Battambang (A5)	1600x34/ Bitumen/ 3C	✓				✓		
Stung Treng (A6)	1300x20/ Bitumen/ 3C	✓					✓	
Koh Kong (A7)	1300x30/ Laterite/ 3C	✓				✓		
Ratanak Kiri (A8)	1300x30/ Laterite/ 3C	✓				✓		Will be relocated
Mondul Kiri (A9)	1000x23/ Laterite/ 2B		✓				✓	Will be relocated
Preah Vihear (A10)	1400x30/ Laterite/ 3C		✓				✓	
Airfield								
Kratie	1180x30/ Laterite/ 2B		✓				✓	Withdrew 2012

Source: SSCA

6.2 Airport Development Plan

According to Cambodia's Tourism Development Strategic plan 2012-2020, Cambodia anticipates attracting seven million foreign tourists annually by 2020. To facilitate travel, four airports will be constructed:

- One new international airport will be built in Siem Reap. It is capable of receiving 10 million passengers a year. The expansion of the current airport is hindered by limited land/air space (the current international airport could accommodate 4 aircraft at a time with airspace, and over Angkor Wat is off limits for all flights). The new Phnom Penh International Airport is under a long term plan, and the location to build has not been released by the Government of Cambodia as of yet.
- The improvements of local airports are under discussions at Ratanakkiri, Mondulkiri, Stung Treng, Preah Vihear and Koh Kong to support the eco-tourism industry.

6.3 Open Sky Policy

Given the importance of trade in ASEAN, member countries have recognized that transport is an important area for cooperation as it can contribute toward the reduction of trade transaction costs for member countries and the region as a whole. Open sky in ASEAN is reviewed at three levels:

- (i) ASEAN-wide initiatives: The ASEAN open sky agreement took effect in December 2008, and is slated for completion by 2015. The agreement allows regional air carriers to take unlimited flights to all 10 ASEAN member countries.
- (ii) Sub-regional initiatives within ASEAN:
  - For Cambodia, a limited open sky agreement, which is a sub-regional air transport cooperation agreement aimed at achieving air transport liberalization, was concluded on 15th January 1998 between Cambodia, Lao, Vietnam and Myanmar (commonly called the CLMV Agreement). CLMV provides for unlimited capacity and unlimited traffic rights, including 5th freedom rights across member countries.
  - Cambodia, together with Brunei, Singapore and Thailand, concluded a Multilateral Agreement on the Full Liberalization of All Cargo Air Services in 2003 that allows carriers from the four countries to operate unlimited all-cargo services between and via each of the countries that is party to the agreement.
- (iii) Unilateral initiatives:
  - Cambodia has concluded 12 Air Service Agreements, 7 of which are with ASEAN countries.
  - Cambodia has granted 5th freedom rights to Vietnamese carriers for a HCM City/Phnom Penh/Vientiane service.

Reference: Right of the freedoms of the air applies to commercial aviation that is carrying paying passengers, transporting cargo or mail. In total there are 9 rights of freedom.

Table 6-2: Right of the Freedom of the Air

Freedom	Description	Example
1st	The right to fly over a foreign country, without landing there	Toronto - Mexico City, as a Canadian company, overflying the United States.
2nd	The right to refuel or carry out maintenance in a foreign country on the way to another country	Toronto - Mexico City, as a Canadian company, but stopping for fuel in the United States.
3rd	The right to fly from one's own country to another	Toronto - Chicago, as a Canadian company
4th	The right to fly from another country to one's own	Toronto - Chicago, as an American company
5th	The right to fly between two foreign countries during flights while the flight originates or ends in one's own country	Bangkok - Kuala Lumpur - Doha, as a Qatari company
6th	The right to fly from a foreign country to another one while stopping in one's own country for non-technical reasons	Dubai - Cairo - Paris, as an Egyptian company
7th	The right to fly between two foreign countries while not offering flights to one's own country	Kuala Lumpur - Jakarta, as an Italian company
8th	The right to fly between two or more airports in a foreign country while continuing service to one's own country	Chicago - New York - Toronto, as a Canadian company
9th	The right to fly inside a foreign country without continuing service to one's own country	Beijing - Shanghai, as an Italian company

6.4 Phnom Penh International Airport (Former Pochentong Int. Airport)

Phnom Penh International Airport or A1 is located on Russian Federation Boulevard about 8km on the west side of Phnom Penh capital. It sits on the junction of NR3 and NR4. During off-peak hour it takes about 20min drive from Phnom Penh center.

Source: Google maps

Figure 6-3: Satellite View of Phnom Penh Int. Airport

Table 6-3: Phnom Penh Int. Airport Data

Commencement of Services	1956	Checked in January 2015
Airport Name Code	ICAO code: VDPP	IATA code: PNH
Location, ARP	11^0 32' 48"N, 104^0 50' 39"E	UTM: E 4-83-004, N 12-76-415
Runway Bearing / Number	046^0-226^0	05/23
Airport Reference Code	4D	Precision RWY 23
Aerodrome City	Phnom Penh	Municipality of Cambodia
Distance from City / PNH	10m	From PNH: PNH is reference point
Airport Land / Elevation	387 ha	Altitude Elevation: 12m (40ft)

Source: SSCA

Table 6-4: Phnom Penh Int. Airport Service and Management

Design Capacity		Operation Services
Annual Passenger: 2.5 M Pax/y		Aircraft Type: B767, B757, B737, A300, A321, A320, ATR72, …, charter B747
Annual Cargo: 30 000 tones/y		
Peak Hour	Int'l: 750 Pax/PH	
Passenger	Dom: 300 Pax/PH	Hour of Operation: 23:00 UTC-19:00 UTC (6:00-02:00 LT)
Peak Hour Aircraft Movement: 10 fl/PH		
Airport Management, Maintenance and Development: SCA/CAMS		
Air Traffic Services, Maintenance and Development: CATS		
Airport ownership and Control: RGC/SSCA		

Source: SSCA

Table 6-5: Phnom Penh Int. Airport Equipment and Utilities

Facility	Facility
EDC Substation: 3 substations (No140, No142, No 527).	Baggage Conveyer System: 4 units for Int'l Passenger Terminal, Flight Information System.
Generating Power Station: 75kVA-500kVA, 6 units.	
Water Supply System: Phnom Penh Water Supply Networking	Ground Service Equipment (Ground handling): Available all of kinds for Passenger, Cargo and Aircraft from ATR72 up to B747 types.
Rescue and Fire Fighting: Category 8, (5 fire engines, 1 ambulance).	
Disabled Aircraft Removal Equipment: On request	
Security Equipment: X-ray Baggage Screening 5 units for VIP, Int'l, Dom, Cargo. Metal Detected Gate 4 units for VIP, Int'l, Dom. CCTV in Int'l Passenger Terminal, and Terminal Area.	Airside Maintenance Equipment: Mowers, Tractors
	Refueling System: By truck transport from two Airport Fuel Stations

Source: SSCA

Table 6-6: Phnom Penh Int. Airport Aerodrome Facilities

Facilities		Dimension, m		Surface	Strength
Runway		3000×45 (widening in 2004)		Asphalt	PCN 80/F/B/X/U
RWY shoulder		7.5m each side		Asphalt	N/A
RWY strips		3120×300		Grass	N/A
RWY End Safety Area	05	200×90		Asphalt	N/A
	23	200×90		Asphalt	N/A
Taxiway	A	1170×23 (Parallel)		Asphalt	>PCN 80/F/B/X/U
	C	156×30 (West)		Asphalt	>PCN 80/F/B/X/U
	E	210×30 (Middle)		Concrete	>PCN 80/F/B/X/U
	H	210×30 (East)		Concrete	>PCN 80/F/B/X/U
TWY shoulder	A & C	10.5m each side		Asphalt	N/A
	E & H	5m each side		Asphalt	N/A
Apron	Main	820×130	12 stands	Concrete	>PCN 80/F/B/X/U
	East	270×103	6 stands	Asphalt	PCN 10/F/A/X/T

Source: SSCA

Table 6-7: Phnom Penh Int. Airport Building and Landside Facilities

Facility		Area, m2	Floor, level	Structure	Remarks
Passenger Terminal	Int'l	17300	2	RC/Steel frame	4 aerobridges, in 2003
	Dom. Arr.	1560	1	RC/Steel frame	Built in 2004
VIP Terminal	New	1400	1	RC	Built in 2002
Operation building		950	5	RC	SSCA/CATS
Control tower		25	25m height	RC/Steel frame	CATS
Cargo Terminal		5400	1	RC/Steel frame	SCA/CAMS
Firefighting station		1220	1	RC/Steel frame	SCA/CAMS
Maintenance workshop		600	1	Steel frame	SCA/CAMS
Administration building		1728	1	Steel frame	SCA/CAMS
Power & Generating building		290+260	1	RC/RC Steel frame	SCA/CAMS
Car park	Public	1300		Asphalt	350 lots
	VIP	6000		Asphalt	170 lots
Airport fence		9550 + 2480m		RC Brick/Steel net	Boundary/Airside
Fence of terminal area		440m		Steel Bar/Steel net	Airside/Landside

Source: SSCA

6.5 Siem Reap International Airport

Siem Reap International Airport or A2 is located about 1km north of NR6 or about 4km on the west side of Siem Reap town. It is Cambodia's main tourist attraction town. During off-peak hours it takes about 5min drive from Siem Reap town center.

Source: Google maps

Figure 6-4: Satellite View of Siem Reap Int. Airport

Table 6-8: Siem Reap Int. Airport Data

Commencement of Services	22 June 1968	Checked in January 2015
Airport Name Code	ICAO code: VDSR	IATA code: REP
Location, ARP in WGS 84	13^0 24'39"N, 103^0 48' 44"E	UTM: E 3-71-415, N 14-82-886
Runway Bearing / Number	048^0-228^0	05/23
Airport Reference Code	4C	Precision RWY 05
Aerodrome City	Siem Reap	Siem Reap province
Distance from City / PNH	From City: 8km	From PNH: 237km
Airport Land / Elevation	197 ha	Altitude Elevation: 18m (59ft)

Source: SSCA

Table 6-9: Siem Reap Int. Airport Service and Management

Design Capacity		Operation Services
Annual Passenger: 2.5 M Pax/y		Aircraft Type: B737, B717, A321, A320, ATR72, ..., charter B767, B757, A340
Annual Cargo: 3 000 tones/y		
Peak Hour	Int'l: 600 Pax/PH	
Passenger	Dom: 150 Pax/PH	Hour of Operation: 23:00 UTC-19:00 UTC (6:00-02:00 LT)
Peak Hour Aircraft Movement: 10 fl/PH		
Airport Management, Maintenance and Development: SSCA/CAMS		
Air Traffic Services, Maintenance and Development: CATS		
Airport ownership and Control: RGC/SSCA		

Source: SSCA

Table 6-10: Siem Reap Int. Airport Equipment and Utilities

Facility	Facility
EDC Substation: 1 substation with 2x630kVA	Baggage Conveyer System: one unit for Int'l
Generating Power Station: 2x875kVA	Passenger Terminal, Flight Information System
Water Supply System: Purification System from the Well	Ground Service Equipment (Ground handling): Available all of kinds for Passenger, Cargo and Aircraft from ATR72 up to B 767 types.
Rescue and Fire Fighting: Category 8 (4 fire engines, 1 ambulance)	Airside Maintenance Equipment: Mowers, Grip Tester, Sweeper, Liner marker, Mobile workshop.
Disabled Aircraft Removal Equipment: On request	
Security Equipment: X-ray Baggage Screening 2 units for Int'l, Dom. Metal Detected Gate 2 units for Int'l & Dom. CCTV	Refueling system: By truck transport from two Airport fuel stations

Source: SSCA

Table 6-11: Siem Reap Int. Airport Aerodrome Facilities

Facility		Dimension, m		Surface	Strength
Runway		2550 x 45		Asphalt	PCN 73/F/B/X/U
RWY shoulder		2.5m each side		Asphalt	N/A
RWY strips		2670 x 300		Grass	N/A
RWY End Safety Area	05	200 x 65		Concrete	N/A
	23	140 x 90		Grass	N/A
Taxiway	A	220 x 23		Asphalt	>PCN 73/F/B/X/U
	B	600 x 23		Asphalt	>PCN 50/F/BX/T
	B1	60 x 18		Asphalt	>PCN 50/F/BX/T
TWY shoulder	A	7.5m	each side	Concrete	N/A
	B	7.5m	each side	Asphalt	N/A
	B1	3.5m	each side	Asphalt	N/A
Apron	Main	625 x 121.5	14 stands	Concrete	PCN 70-116/R/A/W/T
	East	230 x 55	4 stands	Asphalt	>50 tones

Source: SSCA

Table 6-12: Siem Reap Int. Airport Building and Landside Facilities

Facility		Area, m2	Floor, Level	Structure	Remarks
Passenger Terminal	Int'l	12930	1	RC/Steel frame	2014
	Dom	3270	1+2	RC/Steel frame	
VIP Terminal		1250	1	RC	
Operation & Administration Building		1440	2	RC	SSCA/CATS/CAMS
Control Tower		20	19.5m height	RC/Steel frame	CATS
Cargo Terminal		650	1	Steel frame	SCA/CAMS
Fire Fighting Station		580	1	RC/Steel frame	SCA/CAMS
Maintenance Workshop		700	1	RC/Steel frame	SCA/CAMS
Power & Generating Building		400	1	RC/Steel frame	SCA/CAMS
Staff Accommodation		3290	2	RC/Steel frame	SSCA/CATS/CAMS
Terminal Area, Car park	Public	8235	.	Concrete	235 lots
	VIP	600	.	Concrete	15 lots
Airport Fence		8000m	.	RCP/Barbed Steel net	Boundary/Airside
Fence of Terminal Area		230m	.	RC/Steel bar	Airside/Landside

6.6 Sihanouk International Airport

Sihanouk International Airport or A3 is located on NR4, about 23km east of Sihanoukville town, which is Cambodia's main seaport town. It sits on the junction of NR4 to Sihanoukville town and NR45 to military port at REAM. During off-peak hour it takes about 20min drive from Sihanoukville town center.

Source: Google maps

Figure 6-5: Satellite View of Sihanouk Int. Airport

Table 6-13: Sihanouk Int. Airport Data

Commencement of Services	12 April 1967	Checked in January 2015
Airport Name Code	ICAO code: VDSV	IATA code: KOS
Location, ARP	10^0 34' 29"N, 103^0 38' 03"E	UTM: E3-50-564, N11-69-277
Runway Bearing / Number	028^0 -208^0	03-21
Airport Reference Code	4C	Precision RWY21
Aerodrome City	(Sihanoukville/ Kampong Saom)	Sihanouk province
Distance from City / PNH	From City: 23m	From PNH: 170km
Airport Land / Elevation	682 ha (In development plan)	Altitude Elevation: 3m (10ft)

Source: SSCA

Table 6-14: Sihanouk Int. Airport Service and Management

Design Capacity		Operation Services
Annual Passenger: 0.7 M Pax/y		Aircraft Type: B737, A321, A320, ATR72 …
Annual Cargo: N/A		
Peak Hour	Int'l: 150 Pax/PH	
Passenger	Dom: 150 Pax/PH	Hour of Operation: 23:00 UTC-11:00 UTC (6:00-18:00 LT)
Airport Management, Maintenance and Development: SCA/CAMS		
Air Traffic Services, Maintenance and Development: CATS		
Airport ownership and Control: RGC/SSCA		

Source: SSCA

Table 6-15: Sihanouk Int. Airport Equipment and Utilities

Facility	Facility
EDC Substation: N/A	Baggage Flow System: 2 Unit
Power Supply System: 2 Generators 350kVA + 350 kVA	Ground Service Equipment (Ground Handling): Available for all of Aircraft 3C and 4C types
Water Supply System: Tank 200 m^2, Transport by trucks	
Rescue and Fire Fighting : Category 7, 2 trucks	
Disable Aircraft Removal Equipment: On request	Airside Maintenance Equipment: Yes
Security System: X-Ray Baggage screening, Metal Detected Gate, CCTV	Refueling System: On request (2 mobile tanks)

Source: SSCA

Table 6-16: Sihanouk Int. Airport Aerodrome Facilities

Facility		Dimension, m		Surface	Strength
Runway		2500 x 45		Asphalt	PCN 58/F/C/X/T
RWY shoulder		7.5m	each side	Asphalt	N/A
RWY strips		2620 x 300		Grass	N/A
RWY End Safety Area	03	150 x 60		Asphalt	N/A
	21	240 x 40		Asphalt	N/A
Taxiway		156 x 19		Asphalt	PCN 58/F/C/X/T
TWY shoulder		3m	each sides	Asphalt	N/A
Apron		167 x 96	4 stands	Asphalt	PCN 58/F/C/X/T
		108 x 96	2 stands	Concrete	PCN 72/R/B/W/T

Source: SSCA

Table 6-17: Sihanouk Int. Airport Building and Landside Facilities

Facility	Area, m^2	Floor, level	Structure	Remarks
Passenger Terminal	1600	1	RC/Steel frame	Ext in 2006, Dom/Intl.
Operation and Office Bd.	1395	Upper floor	RC/Steel frame	In Passenger terminal
Control Tower	40	16m height	RC/Steel frame	
Firefighting station	840	1	Steel frame shad	
Maintenance workshop	150	1	Steel frame shad	
Staff Accommodation				In Planning
Car park (Terminal Area)	2986		Asphalt	94 lots+8 bus lots
Airport fence	5233m		RC Brick/Barbed wire	
Terminal fence	280m		Steel	

Source: SSCA

Source: Google map

Figure 6-6: Strategic Location of Sihanouk Int. Airport

6.7 Kampong Chhnang Airport

Kampong Chhnang airport is located in Roleapha-ear district, Kampong Chhnang province. It is surrounded by 3 communes; Pongror, Banteaypreal and Krang Leav commune. It requires travel North (from Phnom Penh) along the National Road Number 5, past Kampong Chhnang town about 5km and then left along the only reinforced concrete road.

Source: Google maps

Figure 6-7: Satellite View of Kampong Chhnang Airport

Table 6-18: Kampong Chhnang Airport Data

Commencement of Service	Built in 1977 (Military Design)	Checked in September 2012
Airport name code	ICAO code: VDKH	IATA code: KZC
Location, ARP	12^0 15' 16"N, 104^0 33' 53"E	UTM: E4-52-647, N13-54-736
Runway Bearing / Number	002°-182°	36/18
Airport Reference Code	4C	Non-Instrument
Aerodrome City	Kampong Chhnang	Kampong Chhnang Province
Distance from City / PNH	From City: 14 km	From PNH: 85 km
Airport Land/ Elevation	2011ha (current may be 1350 ha)	Altitude Elevation : 17m (56ft)

Source: SSCA

Table 6-19: Kampong Chhnang Airport Service and Management

Design Capacity	Operation Services
Annual Passenger: N/A	Aircraft Type: AN24, C130 … Military used only
Peak Hour Passenger: N/A	Hour of Operation: No
Peak Hour Aircraft Movement: N/A	
Airport Management, Maintenance and Development: N/A	
Air Traffic Services, Maintenance and Development: N/A	
Airport ownership and Control: RGC/Air force	

Source: SSCA

Table 6-20: Kampong Chhnang Airport Equipment and Utilities

Facility	Facility
EDC Substation:	Security System:
Power Supply System: Generators:	Baggage Flow System:
Water Supply System:	Ground Service Equipment (Ground handling):
Rescue and Fire Fighting:	Airside Maintenance Equipment:
Disabled Aircraft Removal Equipment:	Refueling System:

Source: SSCA

Table 6-21: Kampong Chhnang Airport Aerodrome Facilities

Facility		Dimension, m		Surface	Strength
Runway		2400×45		Concrete	PCN 20-22/R/C/X/T
RWY shoulder		2.5m each side		Concrete	N/A
RWY strips		2520×150		Grass	N/A
RWY end safety Area	36	200×90		Grass	N/A
	18	200×90		Grass	N/A
Taxiway	Parallel	2400×20		Concrete	PCN 20-22/R/C/X/T
	Intersection	2 TWY×117.5×20		Concrete	PCN 20-22/R/C/X/T
TWY shoulder	Parallel			Grass	N/A
	Intersection			Grass	N/A
Apron	Main	106×90	2 stands of 4C	Concrete	PCN 20-22/R/C/X/T
	3 areas	1098×35	18 stands. of 3C	Concrete	PCN 20-22/R/C/X/T

Source: SSCA

Table 6-22: Kampong Chhnang Airport Building and Landside Facilities

Facility	Area, m²	Floor	Structure	Remarks
Passenger Terminal				
Operation Building	75 per floor	4	RC	
Control Tower				
Fire Fighting Station				
Maintenance Workshop				1 Temporary Hangar
Administration Building	50	1	RC/Wooden frame	Temporary
Staff Accommodation				
Terminal Area, Car park				
Airport Fence				
Terminal Fence				

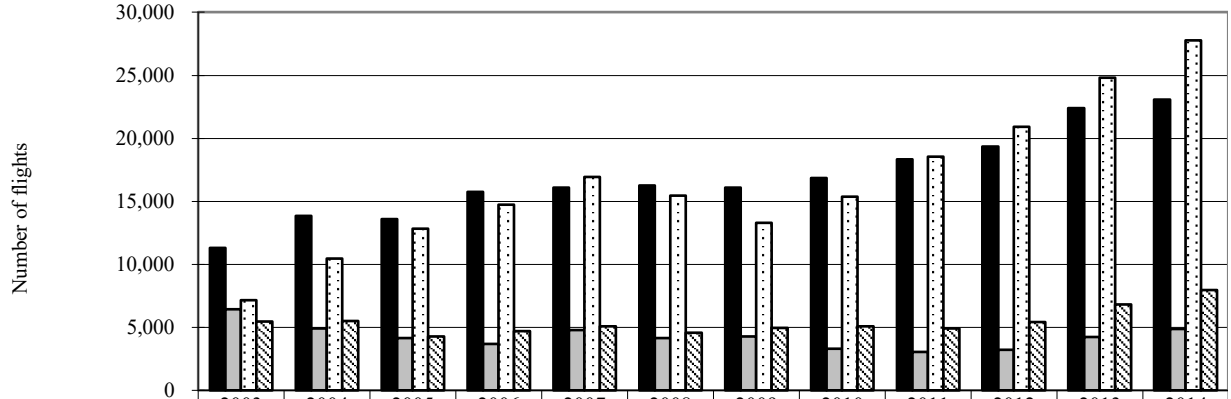
Source: SSCA

Source: Google map

Figure 6-8: Strategic Location of Kampong Chhnang Airport

6.8 Airport Utilization

The utilization of international airports has been increasing yearly owing to an increase in tourism demand. The number of international flights per year varies from year to year, and during the 11 years between 2003 and 2014 it decreased approximately 104% at Phnom Penh International Airport and increased approximately 288% at Siem Reap International Airport. The number of domestic flights at Phnom Penh International airport decreased 24% and increased 46% at Siem Reap International airport.

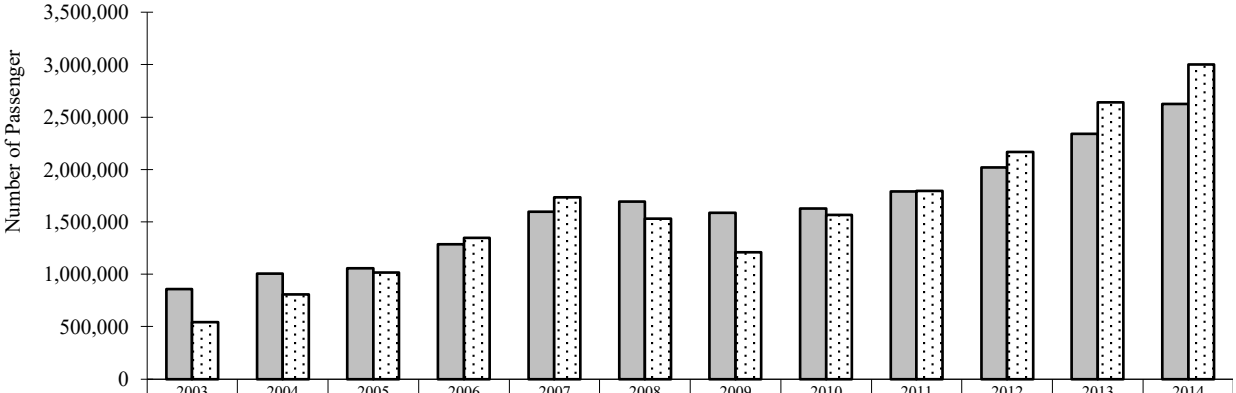


	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Int. Flight PP	11,292	13,832	13,574	15,766	16,092	16,253	16,096	16,855	18,338	19,339	22,375	23,061
Dom. Flight PP	6,438	4,887	4,158	3,658	4,789	4,130	4,256	3,301	3,027	3,195	4,208	4,875
Int. Flight SRP	7,154	10,432	12,832	14,724	16,924	15,431	13,287	15,354	18,523	20,897	24,795	27,754
Dom. Flight SRP	5,439	5,515	4,285	4,693	5,088	4,551	4,960	5,093	4,892	5,422	6,795	7,942

Source: SSCA

Figure 6-9: Number of Flight

The number of international flight passengers has been increasing yearly (except from 2008-2011) at both international airports (Phnom Penh and Siem Reap International airports), and has exceeded 2 million since 2012. When combined with the number of domestic flight passengers, each airport is used by a total of some 2.6 to 3.0 million passengers a year for Phnom Penh and Siem Reap International Airports.



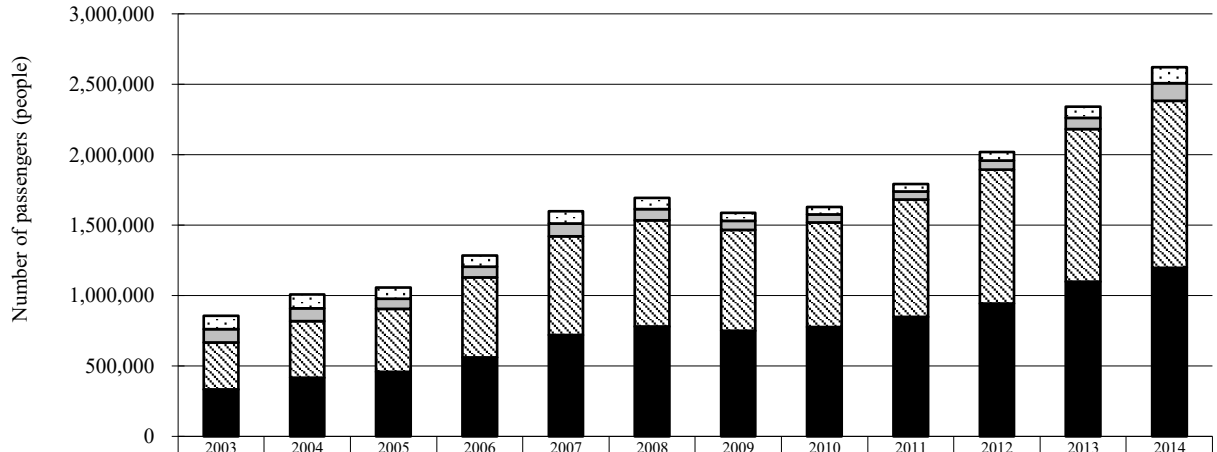
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
No. Pass.: PP	857,336	1,006,045	1,057,031	1,284,579	1,598,424	1,691,870	1,587,986	1,627,766	1,792,550	2,020,586	2,340,415	2,623,141
No. Pass.: SRP	544,452	807,020	1,014,132	1,348,954	1,732,428	1,531,820	1,207,928	1,564,299	1,795,032	2,168,470	2,640,728	3,002,352

Source: SSCA

Figure 6-10: Number of Passenger

At Phnom Penh International Airport, compared to international travelers the domestic passenger share dropped from 22.29% in 2003 to just 9.12% in 2014. If compared to the number of domestic passenger from 2003 to 2014, the figure shows continuous dropped over the last 10 years except in 2014 where the figure shows a 125% increase, which indicates a switch in modes of transport. This switch might be a combination of the following factors: a) economic growth; b) affordability; c) comfort of land transport is hindered due to the rehabilitation of NR5 and NR6 (linking Phnom Penh to Siem Reap province).

In general, over the last 11 years (2003-2014), except during the Asian economic crisis in 2009, Phnom Penh International Airport enjoyed average steady flow of passenger at an annual increase of 18.72%. More than 90% of passenger are from international flights.



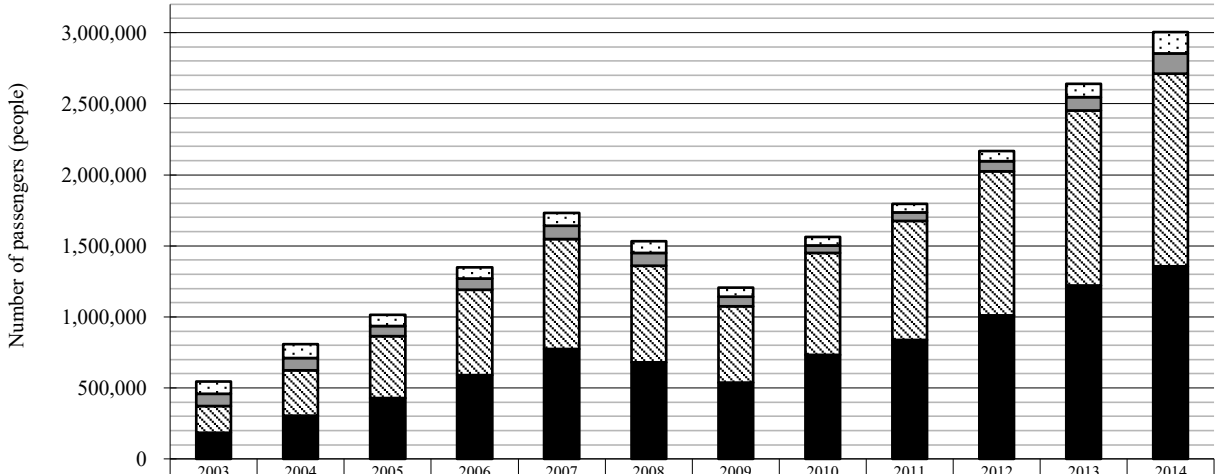
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Dom. Arr. PP	95,620	97,413	80,796	78,973	88,314	76,609	58,517	52,286	54,351	60,636	76,266	114,398
Dom. Dept. PP	95,443	90,283	72,786	75,271	90,632	80,052	63,529	57,375	57,062	64,416	82,873	124,703
Int. Arr. PP	332,854	401,647	445,979	569,606	701,898	754,060	718,148	743,416	833,550	951,312	1,081,508	1,188,766
Int. Dept. PP	333,419	416,702	457,470	560,729	717,580	781,149	747,792	774,689	847,587	944,222	1,099,768	1,195,274

Source: SSCA

Figure 6-11: Number of Passenger (Phnom Penh Int. Airport)

The majority of passengers using Siem Reap International airport is foreign tourist who come to visit Cambodia temple heritage at Siem Reap province (the most famous one being Angkor Wat temple). The Asian economic crisis in 2009, significantly affected Cambodia in the form of a major dropped in foreign visitors. After the crisis, Siem Reap Internal airport became busy again with an average year-on-year passenger rate increase of 7% over the last 6 years.

In general, over the last 11 years (2003-2014), except Asian economic crisis in 2009, Phnom Penh International Airport enjoyed a steady flow of passenger at an average increase of 24.76% per year. More than 90% of passenger are from international flights.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Dom. Arr SRP	85,852	95,023	77,215	80,817	90,677	83,347	65,811	60,191	60,699	72,922	94,707	146,584
Dom. Dept. SRP	85,864	88,158	71,039	77,101	93,983	86,929	68,855	55,128	58,123	71,492	92,038	143,730
Int. Arr. SRP	188,651	320,174	438,193	599,007	774,338	681,209	533,932	716,012	838,339	1,012,358	1,231,812	1,355,223
Int. Dept. SRP	184,085	303,665	427,685	592,029	773,430	680,335	539,330	732,968	837,871	1,011,698	1,222,171	1,356,815

Source: SSCA

Figure 6-12: Number of Passenger (Siem Reap Int. Airport)

7 Special Economic Zone (SEZ)

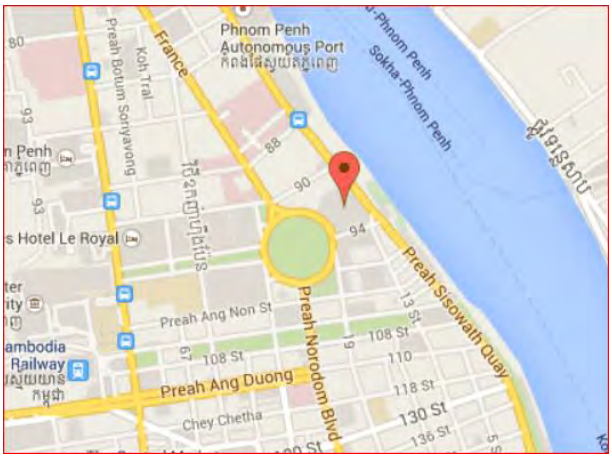
7.1 Council for the Development of Cambodia (CDC)

CDC is a one-stop-service government agency that provides permission for all kinds of investment, particularly granting operational licenses for Special Economic Zones (SEZ) within the Kingdom of Cambodia. One of the best conditions to attract foreign investor is the law that permits Investors to setup 100% foreign-owned investment projects and employ skilled workers from overseas, where these workers cannot be found in the domestic labor force. The following is the CDC address:

Address: Government Palace, Sisowath Quay, Wat Phnom, Phnom Penh, Cambodia
Cambodia Investment Board (CIB)
Website: www.cambodiainvestment.gov.kh
Phone: 855-023-981-154
Email: cdc.cib@online.com.kh

Source: CDC

Figure 7-1: CDC building



Source: Google map

Figure 7-2: Location map of CDC

7.2 SEZ legal framework

The introduction of the concept of economically promoted zones/areas in Cambodia was originally started back in 1960's, and the SEZ scheme was finally introduced to Cambodia for the first time in December 2005. "Sub-Decree No.147 on the Organization and Functioning of the CDC" was issued on the 29th of December 2005 to restructure the organization of the CDC and a new wing of the CDC called the "Cambodian Special Economic Zone Board (CSEZB)" was established to manage the SEZ scheme. To govern the SEZ scheme, "Sub-Decree No. 148 on the Establishment and Management of the Special Economic Zones" (the SEZ Sub-Decree) was issued on the 29th of December 2005. In addition, the "Law on the Special Economic Zones" has been drafted by the CDC in 2008 and is now under examination by the RGC. According to Article 2 and 3.1.3 of SEZ Sub-Decree, SEZ in Cambodia is defined as follows:

- SEZ refers to the special area for the development of the economic sectors which brings together all industrial and other related activities and may include General Industrial Zones and/or Export Processing Zones. Each Special Economic Zone shall have a Production Area which may have a Free Trade Area, Service Area, Residential Area and Tourist Area.
- It must have a land of more than 50 hectares with precise location and geographic boundaries.
- It must have a surrounding fence (for Export Processing Zone, Free Trade Area and the premise of each investor in each zone).
- It must have management office building and Zone Administration offices and all necessary infrastructures must be provided.
- It must have water sewage network, waste water treatment network, location for storage and management of solid wastes, environment-protection measures and other related infrastructures as deemed necessary.

7.3 Application Process for the Establishment of SEZ

The SEZ may be established by the State, private enterprises or joint ventures between State and private enterprises (Article3.1.2, SEZ Sub-Decree). Zone developers have to have the following ability and duties (Article 4.4, SEZ Sub-Decree).

- Have sufficient capital and means to develop the infrastructures in the zone, including the human

resources to manage the activities of the zone
- Have the legal rights to possess the land for establishing the SEZ
- Construct the infrastructures in the zone
- Lease the land and provide services to the Zone Investors
- Arrange security personnel and ensure good public order in the zone at all the time, etc.

The application process for the development of the SEZ is summarized in the following table (Article 3.2, SEZ Sub-Decree):

Table 7-1: Application Process for the SEZ Development

Item	Description
1. Application for the development of the SEZ	Zone Developer submits a request for approval for the development of a Special Economic Zone to the CSEZ and applies for the QIP (Application fee: 7 million Riel).
2. Examination of an application	The CSEZB shall notify whether to approve or reject the request to the Zone Developer within 28 working days. When it is approved, a CRC shall be issued.
3. Feasibility study	The Zone Developer conducts the detailed economic feasibility study, infrastructure master plan and other certified documents as stipulated in the CRC within 180 working days.
4. A Final Registration Certificate (FRC)	Within 100 working days after it receives the above project materials, the CSEZ obtains all necessary approvals and authorization from the government and issues the FRC.
5. Declaration of the establishment of the SEZ	Upon issuance of the FRC by the CSEZB, the Sub-Decree is issued to define the establishment of the SEZ and its boundaries.
6. Withdrawal of the approval	The CSEZB has the right to withdraw the approval on the establishment of the zone and incentives which were granted through the FRC on the basis that the Zone Developer has not implemented at least 30% of the total investment capital of the project within 365 working days after receiving the FRC.

7.4 Management Structure of SEZ

The CSEZB under the CDC is the "One-Stop Service" organization in charge of the development, management and supervision of operations of the SEZ and the SEZ Administration is the State administration management unit which is the "One-Stop Service" mechanism at the site of the SEZ and set up by the CSEZB in order to be permanently stationed in each SEZ (Article 2, Article 4.2 and 4.3, The SEZ Sub-Decree).

The "Special Economic Zones Trouble Shooting Committee (SEZ TSC)", which is located at the CDC, has a duty to promptly settle all issues occurring in the SEZ, whether pertaining to technical or legal aspects, or issues under the joint jurisdiction of ministries or institutions and beyond the competence of the SEZ Administration or the CSEZB. It has the further duty to be a mechanism to receive any complaint, and find solutions to such complaints filed by Zone Developers as well as by Zone Investors. The composition of the SEZ TSC is as follows (Article 4.1, The SEZ Sub-Decree):

Table 7-2: SEZ TSC membership

No.	Gov. Position	Position in SEZ TSC		No.	Gov. Position	Position in SEZ TSC
1	Chairmen of the CDC	Chairmen		7	Minister of Industry, Mines and Energy	Member
2	Minister of the Council of Ministers	Member		8	Minister of Public Works and Transportation	Member
3	Minister of Economy and Finance	Member		9	Minister of Labor and Vocational Training	Member
4	Minister of Commerce	Member		10	Secretary General of the CDC	Member
5	Minister of Land Management, Urbanism and Construction	Member		11	Secretary General of the CSEZB	Secretary
6	Minister of Environment	Member				

7.4.1 Other Regulations

The following are Rules for the Export Processing Zone (EPZ). In the EPZ, these special rules are applied as follows (Chapter 5, SEZ Sub-Decree):

- The EPZ has specific entrances/exits, which are determined by the CSEZ.
- Nobody can stay after working hours except for permanent guards and persons authorized by the SEZ Administration.
- Scheduled time for entry and exit from the EPZ for the authorized persons, including the import-export of goods, shall be determined by the internal rules of the SEZ Administration according to the agreement between the Zone Developer and the SEZ Administration.
- Import/Export of goods to/from the EPZ shall be considered as Import/Export of goods to/from Cambodia, which requires the owner of the goods to fulfill the formalities of import-export with the competent authority in the EPZ prior to its import-export.
- The aforementioned competent agent shall prepare all forms which should be simplified, transparent and do not cause any difficulty for the control of those goods.
- The goods shall be properly sealed by the customs officers before Import/Export.
- No retail business can locate in the EPZ, even though it is conducted for serving the public or social interests.
- The Zone Investor, although being the owner, shall not use Output Materials of Production produced in the EPZ without permission of the Administration of the SEZ.

7.4.2 Workforce

Foreign managers, technicians or experts may be employed, provided that the number of foreign staff does not exceed 10% of the total number of its personnel (Article 11, SEZ Sub-Decree).

7.4.3 Vocational Training

A Zone Developer has a duty to cooperate with the Ministry of Labor and Vocational Training (MLVT) to facilitate the training of Cambodian workers and employees, and to promote new knowledge and skills for them with specific and effective programs (Article 12, SEZ Sub-Decree).

7.5 Present State of Special Economic Zone

Up to the present date, 32 SEZ licenses have been granted by CDC out of which 7 SEZ have Zone Administration (indicated with *).

Table 7-3: List of SEZ zones

Name of SEZ	SEZ properties	Description
1. Neang Kok Koh Kong SEZ*	1) Company Name	Koh Kong SEZ Co., Ltd.
	2) Location	Neang Kok Village, Pakkhlong Commune, Mondul Seyma District, Koh Kong Province
	3) Land area	335.43 Ha
	4) Capital	N.A
	5) Zone Developer	Okhna Ly Yong Phat
	6) License from CDC	No.3399 dated 26 November 2002
	7) Sub-Decree	No.159 dated 26 October 2007
	8) Project Implementation	Infrastructure Development: Fencing
	9) Zone Investor	
2. Suoy Chheng SEZ	1) Company Name	Suoy Chheng Investment Co., Ltd.
	2) Location	Neang Kok Village, Pakkhlong Commune, Mondul Seyma District, Koh Kong Province
	3) Land Area	100Ha
	4) Capital	14 Million USD
	5) Zone Developer	Mrs. Kao Suoy Chheng
	6) License from CDC	No. 3391 dated 26 November 2002
	7) Sub-decree	Not yet
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
3. S.N.C SEZ	1) Company Name	SNC Lavalin (Cambodia) Holding Limited
	2) Location	Sangkat Bet Trang, Khan Prey Nob , Sihanoukville
	3) Land area	150 Ha
	4) Capital	14 Million USD
	5) Zone Developer	Oknha Kong Triv
	6) License from CDC	No. 3388 November 26, 2002
	7) Sub-Decree	Not yet
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
4. Stung Hav SEZ	1) Company Name	Attwood Investment Group Co., Ltd
	2) Location	Sangkat O Tres, Stung Hav District, Sihanoukville

Name of SEZ	SEZ properties	Description
	3) Land area	196 Ha.
	4) Capital	14 Million USD
	5) Zone Developer	Ms. Lim Chhiv Ho
	6) License from CDC	No. 1114 dated 28-May-2010
	7) Sub-Decree	No. 50 dated March 25, 2005
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
5. N.L.C SEZ	1) Company Name	N.L.C. Import Export Co., Ltd.
	2) Location	Phum Prey Phdao bad Phum Thlok, Khum Chrok Mtes, Srok Svay Teab, Svay Rieng Province
	3) Land area	105 Ha.
	4) Capital	13 Million USD
	5) Zone Developer	Ms. Leang Vouch Chheng
	6) License from CDC	No. 2403 dated 15 July 2005
	7) Sub-Decree	Not yet
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
6. Manhattan (Svay Rieng) SEZ*	1) Company Name	Manhattan International Co., Ltd.
	2) Location	Bavet Commune, Chantrea District, Svay Rieng Province
	3) Land area	157 Ha.
	4) Capital	15 Million USD
	5) Zone Developer	Mr. Clement Yang (Taiwan)
	6) License from CDC	No. 2942 dated 28 August 2005
	7) Sub-Decree	No.135 dated 29 November 2006
	8) Project Implementation	The company already built infrastructure, connecting power grid from Viet Nam and Fencing of the first phase of 70 Ha.
	9) Zone Investor	
7. Poi Pet O'Neang SEZ*	1) Company Name	Chhay Chhay Investment Ltd
	2) Location	Poipet Commune and Nimit Commune, O' Chhrov District, Banteay Meanchey Province
	3) Land area	467Ha.
	4) Capital	15 Million USD
	5) Zone Developer	Mrs. Van Ny
	6) License from CDC	No. 3412 dated 07 October 2005
	7) Sub-Decree	No. 57 dated 01 June 2006
	8) Project Implementation	Infrastructure Development: Fencing, Entrance gate, Electric pole
	9) Zone Investor	
8. Doung Chhiv Phnom Den SEZ	1) Company Name	Doung Chhiv Special Economic Zone Ltd.
	2) Location	Kiri Vong District, Takeo Province
	3) Land area	79 Ha.
	4) Capital	28 Million USD
	5) Zone Developer	Oknha Doung Chhiv
	6) License from CDC	No.268 dated 20 February 2006
	7) Sub-Decree	No.140 dated 08 December 2006
	8) Project Implementation	Infrastructure Development: Landfill and fencing.
	9) Zone Investor	None
9. Phnom Penh SEZ*	1) Company Name	Phnom Penh SEZ Co., Ltd.
	2) Location	Khan Dangkao, Phnom Penh and Ang Snuol District, Kandal Province
	3) Land area	350 Ha.
	4) Capital	68 Million USD
	5) Zone Developer	Ms. Lim Chhiv Ho
	6) License from CDC	No.268 dated 20 February 2006
	7) Sub-Decree	No. 33 dated 19 April 2006
	8) Project Implementation	Infrastructure Development: building fence, roads, the administrative building, entrance, electricity, water, and telecommunication system.
	9) Zone Investor	
10- Kampot SEZ	1) Company Name	Kampot SEZ Co., Ltd.
	2) Location	Koh Toch commune, Kampot district, Kampot Province
	3) Land area	145 Ha.
	4) Capital	15 Million USD
	5) Zone Developer	Oknha Vinh Huor
	6) License from CDC	No. 1947 dated 23 May 2006
	7) Sub-Decree	No. 03 dated 09 January 2007
	8) Project Implementation	Infrastructure Development: Landfill and building Kampot seaport.
	9) Zone Investor	None
11- Sihanoukville SEZ 1	1) Company Name	Cambodia International Investment Development Group Co., Ltd.
	2) Location	Stung Hav District, Sihanoukville Province
	3) Land area	178 Ha
	4) Capital	100 Million USD
	5) Zone Developer	Oknha Lav Meng Khin

Name of SEZ	SEZ properties	Description
	6) License from CDC	No. 1966 dated 04 September1998
	7) Sub-Decree	No. 113 dated 25 October 2006
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	
12- Tai Seng Bavet SEZ*	1) Company Name	Tai Seng Bavet SEZ Co., Ltd
	2) Location	Bavet District, Svay Rieng Province
	3) Land area	99 Ha
	4) Capital	37 Million USD
	5) Zone Developer	Mr. Ly Hong Shin
	6) License from CDC	No.024 dated 04 January 2007
	7) Sub-Decree	No.29 dated 04 April 2007
	8) Project Implementation	Infrastructure Development: Fencing, landfill, connecting electricity into the zone.
	9) Zone Investor	None
13- Oknha Mong SEZ	1) Company Name	Oknha Mong Port Co., Ltd
	2) Location	Srae Ambel District, Koh Kong Province
	3) Land area	100 Ha
	4) Capital	40,107,080 USD
	5) Zone Developer	Oknha Mong Rithy
	6) License from CDC	No.026 dated 04 January 2007
	7) Sub-Decree	Not yet
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
14-Goldfame Pak Shun SEZ	1) Company Name	Goldfame Pak Shun SEZ Co., Ltd
	2) Location	Sa Ang District, Kandal Province
	3) Land area	80 Ha
	4) Capital	34,462,510 USD
	5) Zone Developer	Mr. Chan Ji Kvong
	6) License from CDC	No.025 dated 04 January 2007
	7) Sub-Decree	No. 30 Dated 04 April 2007
	8) Project Implementation	Infrastructure Development: Fencing
	9) Zone Investor	Three
15-Thary Kampong Cham SEZ	1) Company Name	Thary Investment Co., Ltd
	2) Location	Da commune, Memot District, Kampong Cham Province
	3) Land area	142.14 Ha
	4) Capital	69 Million USD
	5) Zone Developer	Mr. Chhorn Thary
	6) License from CDC	No. 1931 Dated 11 June 2007
	7) Sub-Decree	No. 74 Dated 16 July 2007
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
16- Sihanoukville SEZ 2*	1) Company Name	Sihanoukville Special Economy Zone Co., Ltd.
	2) Location	Pou Thoung Village, Betrang Commune and Smach daeng Village, Ream Commune, Prey Nop District, Sihanoukville Province
	3) Land area	1,688 Ha
	4) Capital	USD
	5) Zone Developer	Oknha Lav Meng Khin
	6) License from CDC	No. 3479 Dated 05-Sep-2007
	7) Sub-Decree	No.24 Dated 17 March 2008
	8) Project Implementation	Infrastructure Development: building fence, roads, the administrative building, entrance, electricity, water, and telecommunication system.
	9) Zone Investor	
17- D&M Bavet SEZ	1) Company Name	D&M Bavet SEZ Co., Ltd
	2) Location	Bavet commune, Chantrea District, Svay Rieng Province
	3) Land area	117.95Ha
	4) Capital	52,266,830 USD
	5) Zone Developer	- Ms. Men Pheakdey - Ms. Chhay Noy - Miss. Dy Chendavy
	6) License from CDC	No. 4134 Dated 01 November 2007
	7) Sub-Decree	Not Yet
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
18- Kiri Sakor Koh Kong SEZ	1) Company Name	Koh Kong SEZ Co., Ltd
	2) Location	Khum Prek Kasach, Srock Kirisakor, Koh Kong
	3) Land area	1,750 Ha
	4) Capital	110,818,860 USD
	5) Zone Developer	Oknha Ly Yong Phat
	6) License from CDC	No.4762 Dated 25-December-2008
	7) Sub-Decree	No. 125 Dated 05-Sep-2008
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None

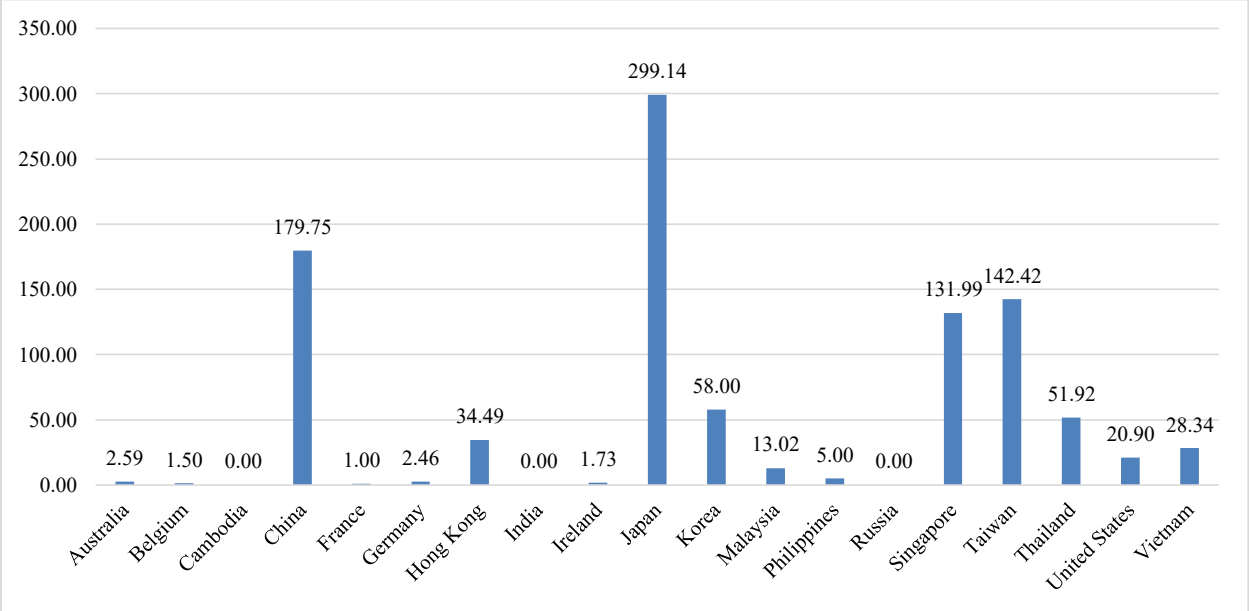
Name of SEZ	SEZ properties	Description
19- Sihanoukville Port SEZ*	1) Company Name	Sihanoukville Port SEZ
	2) Location	Tomnop Rolok Area, Sangkat Lek1 and Lek3, Sihanoukville City, Sihanoukville Province
	3) Land area	70 Ha
	4) Capital	34 Million USD
	5) Zone Developer	H.E. Mr. Lu Kim Chhun
	6) License from CDC	No. 502 Date 08-Feb-2008
	7) Sub-Decree	No. 147 Date 02/09/2009
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	One
20- Kampong Saom SEZ	1) Company Name	CAMBODIA CATERING AND SUPPLY Co., Ltd.
	2) Location	Village 4, Ortres Commune, Stung Hav District, Sihanoukville Province.
	3) Land area	255 Ha
	4) Capital	190 Million USD
	5) Zone Developer	Neak Oknha KITH MENG
	6) License from CDC	No. 21/09 Date 06-January-2009
	7) Sub-Decree	Not Yet
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
21- P (SEZ) I C	1) Company Name	PACIFIC (SEZ) INVESTMENT Co., Ltd.
	2) Location	Salatean and Preytob Villages, Chhrokmates Commune, Svayteab District, Svay Rieng Province.
	3) Land area	107.55 Ha
	4) Capital	70 Million USD
	5) Zone Developer	- Mr. CHEA EAVMENG - Mr. GAU HIECKHUOR - Mrs. YIN PHANNY - Mrs. SIM MONIROTH - Mr. LY VIREAK
	6) License from CDC	No. 19/09 Date 06-January-2009
	7) Sub-Decree	Not Yet
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
22- M D S THMORDA SEZ	1) Company Name	M D S THMORDA S E Z Co., Ltd.
	2) Location	Khum Thmorda, Srock Veal Veng, Pursat Province.
	3) Land area	2,265 Ha
	4) Capital	30,392,000 USD
	5) Zone Developer	Mr. TRY PHEAP
	6) License from CDC	No. 2030/10 Date 30-September-2010
	7) Sub-Decree	Not Yet
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
23- KANDAL S.E.Z	1) Company Name	KANDAL S.E.Z Co., Ltd.
	2) Location	Khum Puk Ressy, Khum Prek Om Pel, Srock Ksach Kandal, Kandal Province.
	3) Land area	105 Ha
	4) Capital	84,739,160 USD
	5) Zone Developer	Mr. Lim Chong Soo
	6) License from CDC	No. 1143/12 Date 04-June-2012
	7) Sub-Decree	Not Yet
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
24- H.K.T S.E.Z	1) Company Name	H.K.T Special Economic Zone Co., Ltd.
	2) Location	Phum Prek Torl, Khum Tek Thla, Sruk Prey Nub, Sihanoukville Province.
	3) Land area	345.20 Ha
	4) Capital	48,358,802 USD
	5) Zone Developer	1- Neak Oknha SY KONG TRIV 2- Oknha HANN KHIENG 3- Oknha VINH HUOR 4- Mrs. FENG YING 5- Mr. SHEN JIAN PING 6- Mr. LIU BIN 7- Mr. LI CHENG CHUN RICHARD
	6) License from CDC	No. 1862/12 Date 15-Aug-2012
	7) Sub-Decree	No. 189 Date 25/10/2012
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
25- Dragon King S.E.Z	1) Company Name	Dragon King Special Economic Zone Co., Ltd.
	2) Location	Road No.1, Ang Sala Village, Sangkat Prey Ankunh, Bavet City, Svay Rieng Province.
	3) Land area	106.50 Ha
	4) Capital	40,488,000 USD
	5) Zone Developer	Mrs. Ngov Mok

Name of SEZ	SEZ properties	Description
	6) License from CDC	No. 1875/12 Date 16-Aug-2012
	7) Sub-Decree	No. 190 Date 25/10/2012
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	NISSEY (CAMBODIA) CO., LTD.
26- Zhong Jian Jin Bian Jing Ji Te Qu S.E.Z	1) Company Name	Zhong Jian Jin Bian Jing Ji Te Qu td.
	2) Location	Road Phum So Vong, Phum Boeung Kok, and Phum Lor Peang, Khum Ta Ches, Sruk Kampong Trolach, Kampong Chhnang Province.
	3) Land area	470.28 Ha
	4) Capital	90,706,000 USD
	5) Zone Developer	Mr. Chan An Drew
	6) License from CDC	No. 767/13 Date 19-Apr-2013
	7) Sub-Decree	No. 466 Date 22/07/2013
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
27- TRY PHEAP OYADAV S.E.Z	1) Company Name	TRY PHEAP OYADAV S.E.Z Co., Ltd.
	2) Location	Phum Bork Gnai, Khum Bork Gnai, Srock Oyadav, Ratana Kiri Province.
	3) Land area	136 Ha
	4) Capital	44,994,360 USD
	5) Zone Developer	Mr. TRY PHEAP
	6) License from CDC	No. 765/13 Date 19-Apr-2013
	7) Sub-Decree	No. 219 Date 07/05/2013
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
28- SHANDONG SUNSHELL SVAY RIENG SEZ	1) Company Name	SHANDONG SUNSHELL INTERNATIONAL (CAMBODIA) Co., td.
	2) Location	Sangkat Prey Orngkunh, Bavet City, Svay Rieng Province
	3) Land area	96.14 Ha
	4) Capital	36,709,800 USD
	5) Zone Developer	Mrs. ZHOU YONG
	6) License from CDC	No. 607/13 Date 27-03-2013
	7) Sub-Decree	No. 462 Date 01/07/2013
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
29- Sanco Cambo SEZ	1) Company Name	Sanco Cambo Investment Group Co., Ltd.
	2) Location	Phsar Kandal Village, Sangkat Phsar Kandal, Poipet City, Banteay Meanchey Province.
	3) Land area	66.50 Ha
	4) Capital	38,613,485 USD
	5) Zone Developer	Mr. CHHOUR VICHET Mr. TAKAHIRO YAMAMOTO
	6) License from CDC	No. 911/13 Date: 03/05/13
	7) Sub-Decree	
	8) Project Implementation	
	9) Zone Investor	None
30- HI-PARK SEZ	1) Company Name	HI-PARK SEZ DEVELOPMENT Co., Ltd.
	2) Location	Phum Thnol Chheat, Sangkat Chhrok Mtes, Bavet City, Svay Rieng Province.
	3) Land area	263.13 Ha
	4) Capital	62,784,780 USD
	5) Zone Developer	VERY WELL HONG KONG LIMITED. Representative: Mr. LIN MAO-FONG
	6) License from CDC	No. 131/13 Date: 16/01/13
	7) Sub-Decree	No. 285 Date 30/05/2013
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None
31- Suvanaphum Investment Co., Ltd. SEZ	1) Company Name	SEZ
	2) Location	
	3) Land area	200 Ha
	4) Capital	55,792,000 USD
	5) Zone Developer	
	6) License from CDC	
	7) Sub-Decree	
	8) Project Implementation	
	9) Zone Investor	None
32- RATANA SEZ	1) Company Name	RATANA RESOURCE INVESTMENT (CAMBODIA) CORPORATION.
	2) Location	Chhroy Svay Commune, Srea Orm Bel District, Koh Kong Province
	3) Land area	615.62 Ha
	4) Capital	172,866,660 USD
	5) Zone Developer	Mrs. Heng Sok Meng

Name of SEZ	SEZ properties	Description
	6) License from CDC	No. 131/13 Date: 16/01/13
	7) Sub-Decree	
	8) Project Implementation	Infrastructure Developing
	9) Zone Investor	None

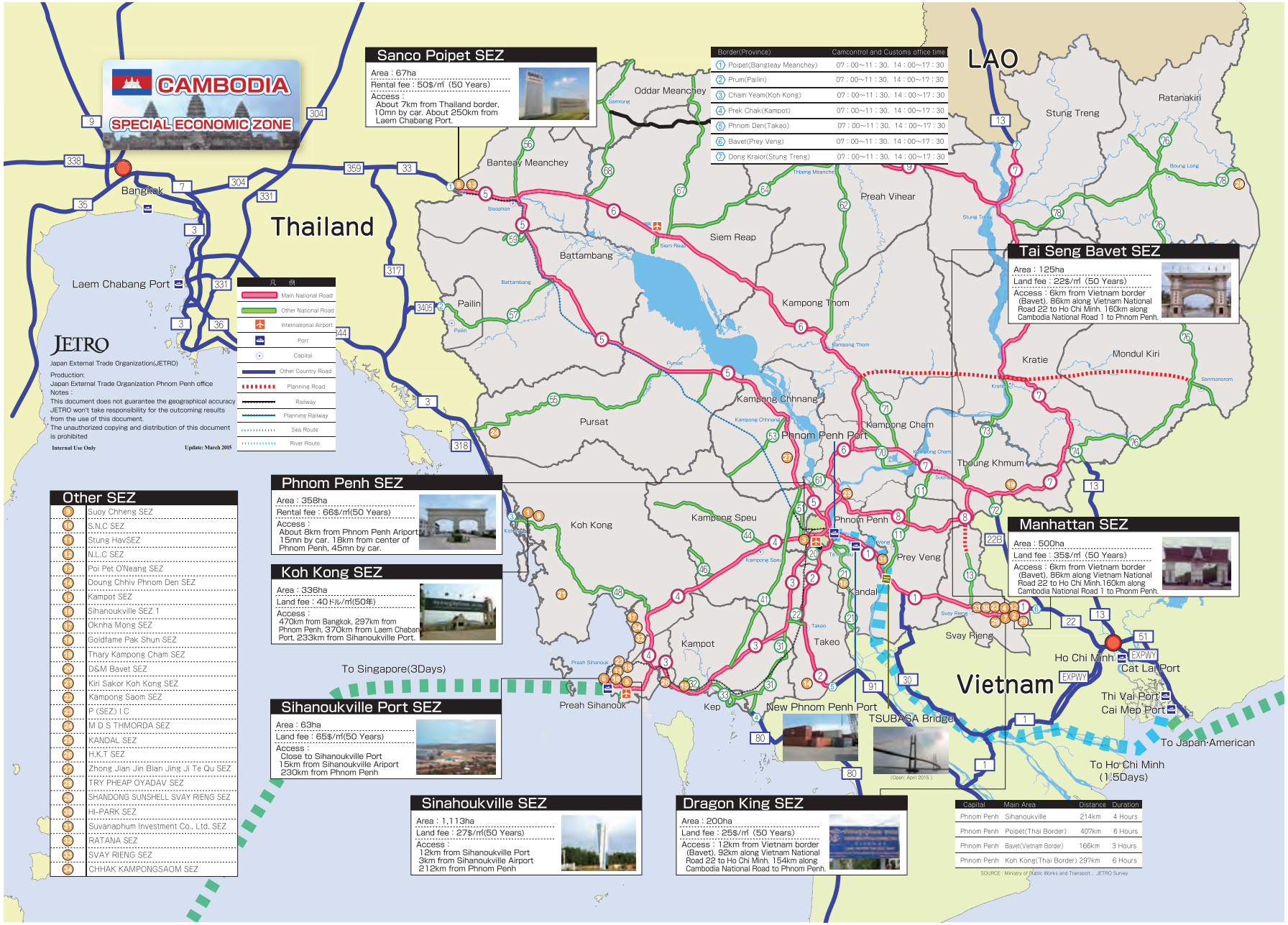
7.6 Capital investment by countries in Cambodia SEZ

Asian countries hold the majority of investment in Cambodia SEZ. Japan is the largest investor ($299.14 million) followed by China ($179.75 million), Taiwan ($142.42 million), Singapore ($131.99 million) and Thailand ($51.92 million).



Source: JICA

Figure 7-3: Foreign investment by countries in Cambodia SEZ



Source: JETRO

Figure 7-4: Cambodia Special Economic Zone (SEZ)

8 Cross Border Transport

8.1 Present State of the Cross Border Transport Agreement (CBTA)

There are 17 annexes[8] and 3 protocols[9] signed, ratified and deposited[10].

Table 8-1: CBTA Status

Item	Description/Title	Countries						
		Cam	PRC	Lao	Mya	Thai	VN	
Annex 1	Carriage of Dangerous Goods	R	R	R	S	S	R	TQ
Annex 2	Registration of Vehicles in International Goods	R	R	R	S	R	R	TI
Annex 3	Carriage of Perishable Goods	R	R	R	S	R	R	TQ
Annex 4	Facilitation of Frontier-Crossing Formalities	R	R	R	S	S	R	C
Annex 5	Cross-Border Movement of People	R	R	R	S	R*	R	I
Annex 6	Transit and Inland Clearance Customs Regime	R	R	R	S	S	S	C
Annex 7	Road Traffic Regulation and Signage	R	R	R	S	S	R	T
Annex 8	Temporary Importation of Motor Vehicles	R	R	R	S	S	S	C
Annex 9	Criteria for Licensing of Transport Operator for Cross-Border	R	R	R	S	S	R	T
Annex 10	Conditions of Transport	R	R	R	S	S	R	T
Annex 11	Road and Bridge Design and Construction Standards & Specifications	R	R	R	S	R	R	T
Annex 12	Border Crossing and Transit Facilities and Services	R	R	R	S	R	R	T
Annex 13a	Multimodal Carrier Liability Regime	R	R	R	S	R	R	T
Annex 13b	Criteria for Licensing of Multimodal Transport Operators for Cross-Border Transport Operations	R	R	R	S	R	R	T
Annex 14	Container Customs Regime	R	R	R	S	S	S	C
Annex 15	Commodity Classifications Systems	R	R	R	S	R	R	C
Annex 16	Criteria for Driving Licenses	R	R	R	S	R	R	TI
Protocol 1	Designation of Corridors, Routes and Points of Entry & Exit Border Crossing	R	R	R	S	R	R	TI
Protocol 2	Charges Concerning Transit Traffic	R	R	R	S	R	R	T
Protocol 3	Frequency and Capacity of Services and Issuance of Quotas and Permits	R	R	R	S	S	R	TI

Note: * - Ratified part 1-4

Legend:

R = Ratification has completed and finished

S = Signed but Ratification still pending

T=Transport C=Customs I=Immigration Q=Quarantine

Source: ADB website

8.2 Cambodia's Implementation of CBTA

As of January 2009, Cambodia has signed (by the Royal Government of Cambodia) and ratified (by the Parliament, Senate and Royal Palace) all the protocols and annexes (20), but Cambodia was able to deposit (by Ministry of Foreign Affairs) only 12 out of the ratified 20 protocols/annexes.

8.2.1 Air Transport

Cambodia adopted an "Open sky policy" that allows direct flights from abroad to land/depart from 2 international airports: Phnom Penh (capital) and Siem Reap (the main tourism province).

8.2.2 Land Transport

Memorandum of understanding on land transport between three countries was signed on the 17th of January 2013 in Pak Se town, Champasak province, Lao PDR. The memorandum would allow 150 commercial vehicles of each party to travel into these three countries to transport goods and/or passenger. The memorandum came into force on April 2013. In 2013, the implementation was not carried out.

Bilateral agreement with neighboring countries: Cambodia has CBTA bilateral agreement with 3 countries namely: Vietnam, Lao P.D.R and Thailand. Each country executed different conditions, which are shown as follows:

8 Annex is a technical specification or Standard document designed to be used by all member countries. It is not easy to modify.

9 Protocol is a document mostly made by two countries which describes quantity or locations. This document is much easier to modify.

10 Deposit is an act of announcement made by the Ministry of Foreign Affairs to inform member countries about its protocols or annexes which had been ratified and was ready to be implemented.

Table 8-2: Bilateral Agreement Status

Bilateral agreement	Cambodia	Counterpart countries	Remark
With Lao	- Quotas allow 40 trucks(now 40 vehicles) - Registered 17 buses (Implemented only 2 buses from PP to Parkse)	- Quotas allow 40 vehicles - Registered 16 vehicles (2 buses, 14 trucks)	- Started from 9 April 2009 through Trapaing Kreal international border. - Passenger only. Goods transport to be implemented later.
With Vietnam	- Quotas allow 500 vehicles - Registered 460 (360 buses, 100 trucks)	- Quotas allow 500 vehicles - Registered 500 (Breakdown is unknown)	- Started since 30 September 2006 - 44 companies in Cambodia (13 passenger transport companies)
With Thailand	- Quotas allow 40 vehicles(Non schedule) - Registered 40 vehicles (36 buses, 10 tracks)	- Quotas allow 40 vehicles - Registered 40 vehicles(10 buses, 30 tracks)	- Started from 14 June 2012. - Not under the agreement, but by the partner contract, 4 buses (schedule) of each country are operated. (PHN-BKK,SRB-BKK) - In the future, it will be implemented under the framework of agreement as had been implemented with Vietnam and Lao.

Source: MPWT

The agreement of ASEAN land transport (discussed since 2001) or the agreement of greater Mekong sub-region transport 9 discussed since 2004, have not been completed as of yet. The content of the agreements were drafted and translated.

8.2.3 Structure and building

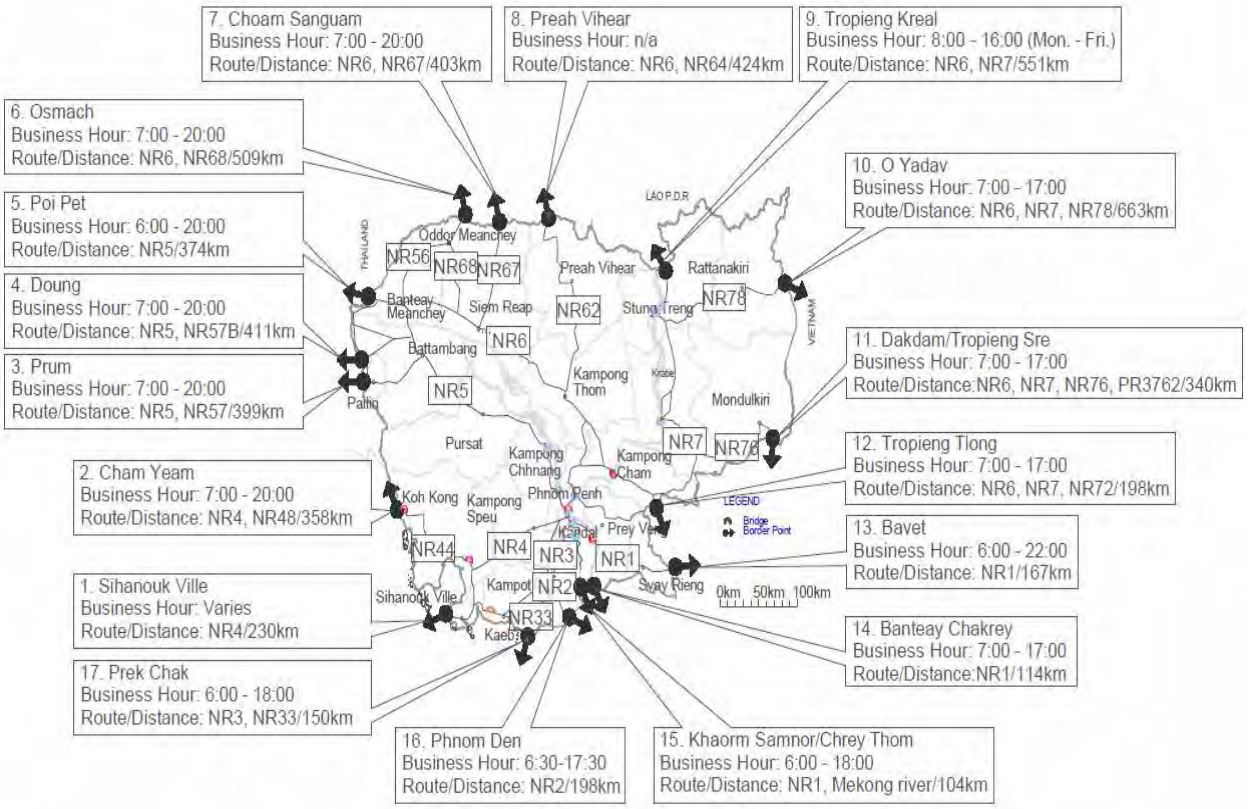
Among six member countries, Cambodia is the furthest behind in establishing the structure on the ground to facilitate cross border transportation:

Table 8-3: Structure, Facilities and Inspection Area Status

Khmer Border	Structure	Facilities	Inspection Area	Remark
with Lao	No	No	No	1 transit point.
With Vietnam	Yes	No	No	1 transit point used for GMS CBTA, GMS IICBTA[11], BRTA[12]. There are no transit operation activities except import and export activities.
With Thailand	No	No	No	2 transit points. There are no transit operation activities except import and export activities.

Source: MPWT

11 Initiative Implementation Cross Border Transport Agreement
12 Bilateral Road Transport Agreement



Source: MPWT

Figure 8-1: Cross Border Points

8.2.4 Inland Waterway Transport

To have access to the sea, Cambodia has to negotiate with the Vietnamese. The negotiation on regulated waterways and transit routes started in late 90's and it was on the 17th of December 2009 that the Agreement was signed in Phnom Penh. Transit routes between Vietnam and Cambodia could be made through the following routes:

- The Mekong/Tien River route via the Cua Tieu up to Phnom Penh Port following regulated waterways No. 1a, 1b, 1c, 1d, and 1e in Vietnam and No. 1c and 1b in Cambodia and vice versa.
- The Bassac/Hau River route via the Cua Dinh An and further via the Vam Nao Pass and the Mekong/Tien River up to Phnom Penh Port following regulated waterways No. 2a.3, 2a.2, 2a.1, 1c, 1b and 1a in Vietnam and No. 1c and 1b in Cambodia and vice versa.

Table 8-4: Regulated Waterway in Cambodia

Section	Name of Waterway	Starting Point – End Point	Length (km)
1a	Tonle Sap Lake	From Chong Kneas to Kampong Chhnang	152 km
1b	Tonle Sap	From Kampong Chhnang to Phnom Penh	100 km
1c	Mekong River	From Phnom Penh to the Kaom Samnor/Vinh Xuong border gate	102 km
2	Mekong River	From Kampong Cham to Phnom Penh	106 km

Source: MPWT

8.2.5 Condition of Cross Border Transport

The Single Window initiative aims to interconnect each country's customs checkpoints and automatically share cargo-related data and information, including declarations and certificates of origin, in an effort to speed up cross-border trade. The Cambodian National Assembly approved a draft law aimed at simplifying and modernizing customs procedures in line with those of neighboring nations in May 2014 a year ahead of its AEC 2015 deadline. On September 9, the Ministry of Commerce announced that it would implement a simplified, automated Certificate of Origin service by March 2015.

The single window initiative would help benefit Cambodia's exports, improve its business climate and trade particularly within ASEAN, which currently stands at less than the trade with outside the block. It also encourages direct investment mainly from China, which might enable Cambodia to achieve the development goal of increasing foreign investment to 25% of GDP.

Source: http://www.pashnit.com/forum/showthread.php?t=17686

Figure 8-2: GMS Corridors

COLUMN

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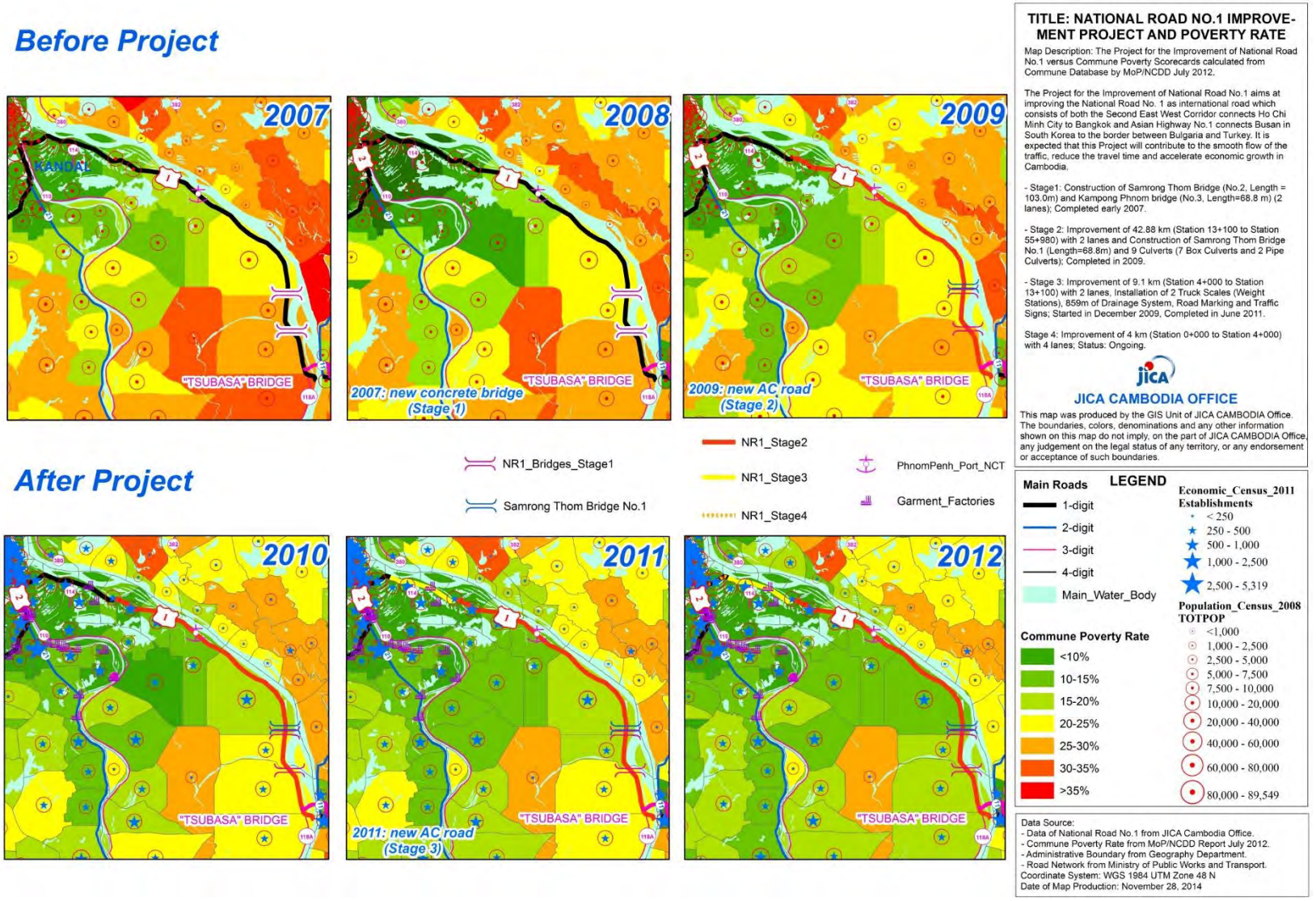
COLUMN 1: LIKELY IMPACT OF NATIONAL ROAD IMPROVEMENT PROJECT ON POVERTY REDUCTION



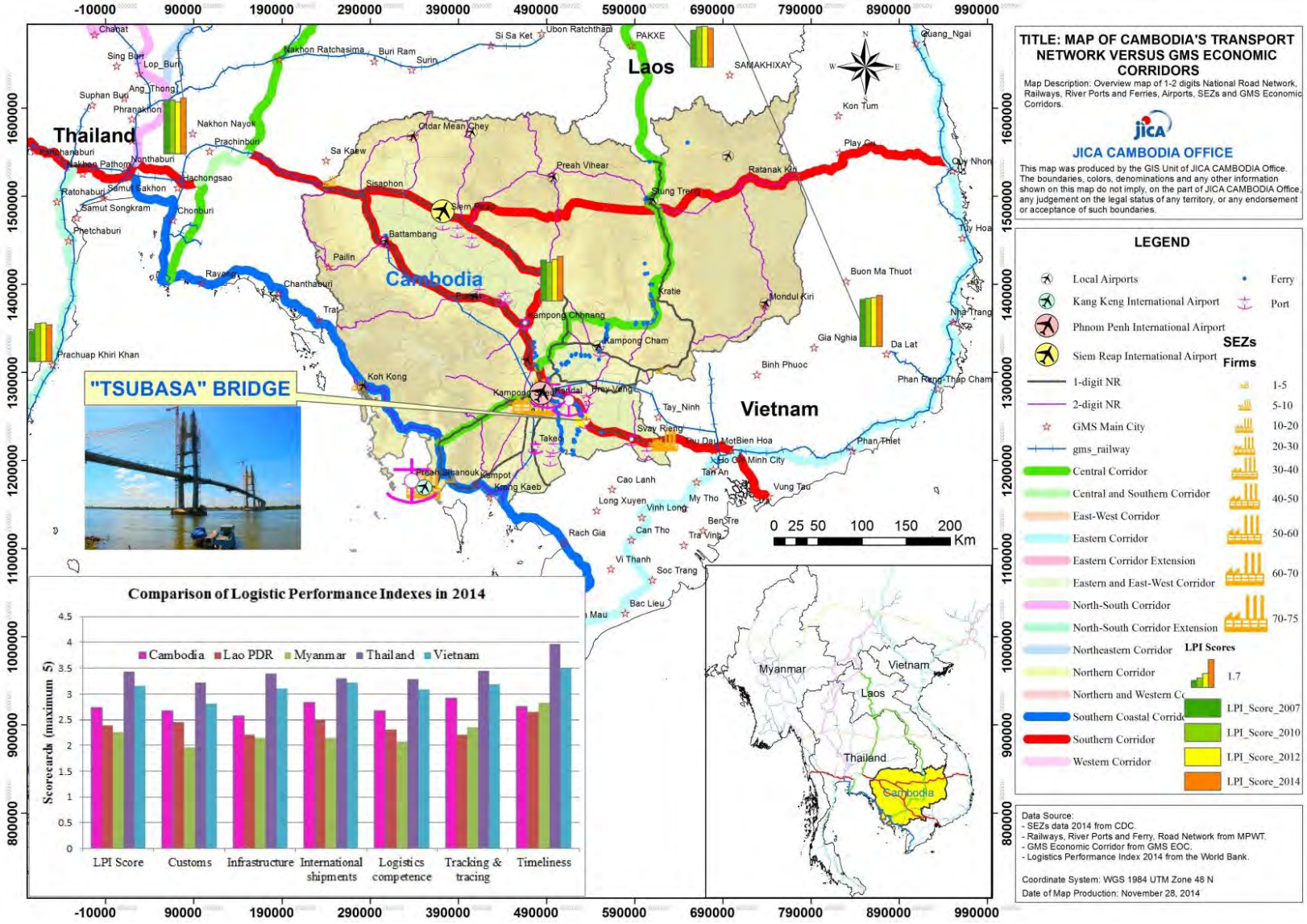
The significant fall in the poverty rate of communes located along the National Road No.1 from 2007 to 2012 has taken place during the improvement of the Road.

Such a positive poverty impact reflects, over a period of time, the likely impact of Japan's Official Development Assistance through funded projects in the transport sector: the Rehabilitation of National Road No 1 from Phnom Penh to Neak Loeung and the construction of 3 main bridges along this road section on local people's livelihoods and local communities' social development.

The higher positive impacts of the National Road No.1 on further economic development in the country are expected after the completion of "TSUBASA" Bridge (Neak Loeung Bridge). National Road No.1 is part of the ASIAN and ASEAN Highway No.1 and GMS Southern Economic Corridor.

It is also observed that most of the communes located close or crossed by the National Roads have high numbers of population and economic establishments. The opportunity for better access to markets for the people living close to improved National Highway has improved their quality of life. They have easier access to better education and healthcare services, as well as reaching other social services, and more job opportunities in Phnom Penh capital city.

COLUMN 2: IMPROVEMENT OF TRANSPORT CONNECTIVITY AND INTERNATIONAL COMPETITIVENESS



Further development of the transport infrastructure in Cambodia is urgently needed to ensure basic connectivity, and access to regional and global market gateways.

For instance, the improvement of the main national highways such as National Road No.1 and National Road No.5 should be highly prioritized and implemented as the "TSUBASA" bridge (Neak Loeung Bridge) is to be opened to the public in April 2015.

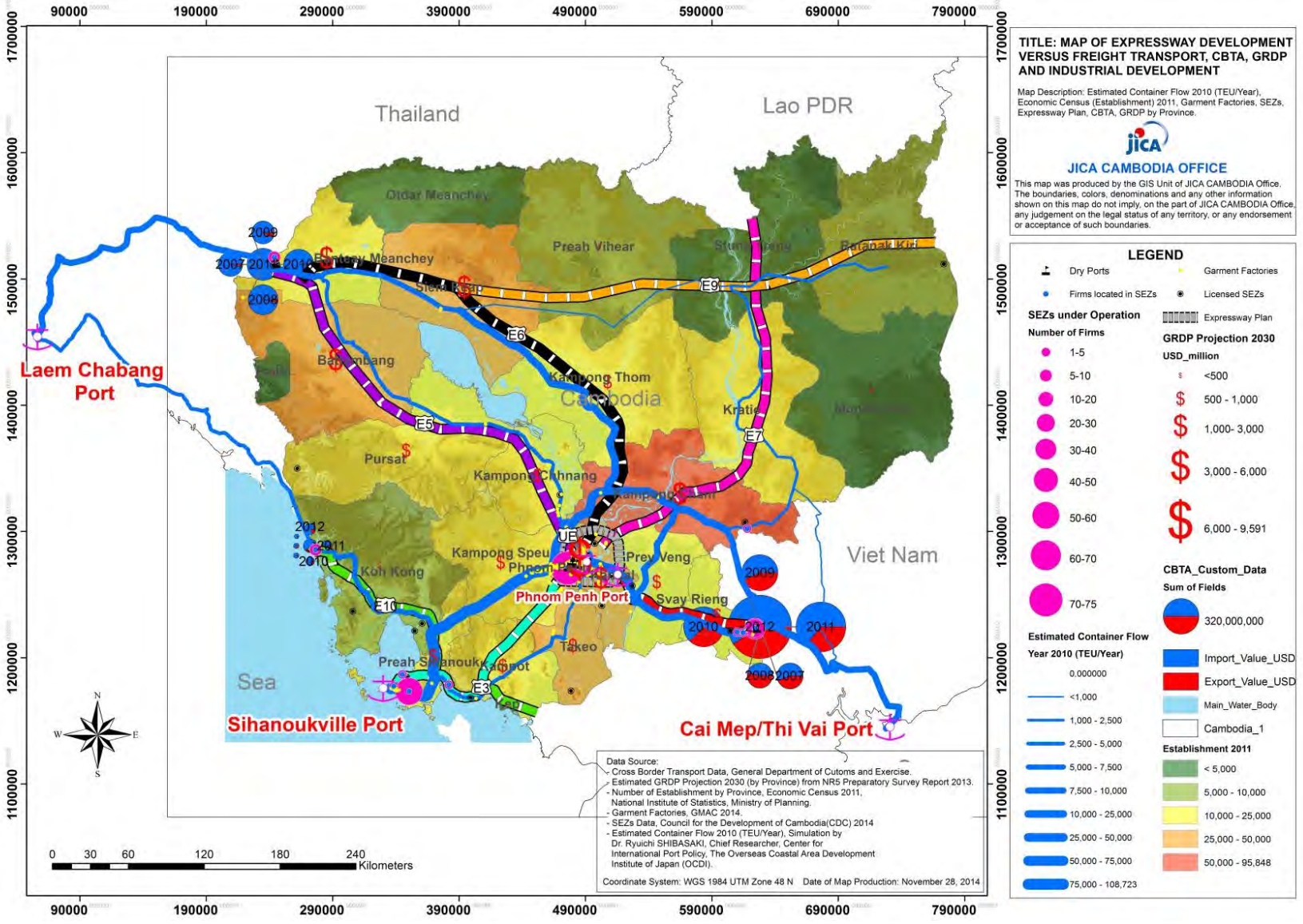
These highways are part of the GMS Southern Economic Corridor (SEC) connecting Bangkok-Phnom Penh-Hochiminh.

Along this corridor there are several Special Economic Zones being invested by many foreign firms, which are expected to bring much employment, increased income and poverty reduction for Cambodians along the corridor.

If service delivery is poor, good physical connectivity is not enough. Logistical performance enhancement is vital for economic growth and competitiveness.

The World Bank report, "Connecting to Compete 2014: Trade Logistics in the Global Economy", illustrates Cambodia's improvement in ranking under the Logistic Performance Index (LPI) since 2007. Reforming and modernizing of import, export and transit operations in the country, including by streamlining and harmonizing customs procedures, have been improved recently. These reforms have so far contributed to improvements in Cambodia's LPI ranking from 129th in 2010 to 101st in 2012 and to 83rd in 2014. Among the five lower Mekong countries, Cambodia ranks third for its LPI score after Thailand and Vietnam. However, improving border management is required for better cross-border trade facilitation.

COLUMN 3: ROLE OF TRANSPORT INFRASTRUCTURE ON CROSS-BORDER FREIGHT TRANSPORT



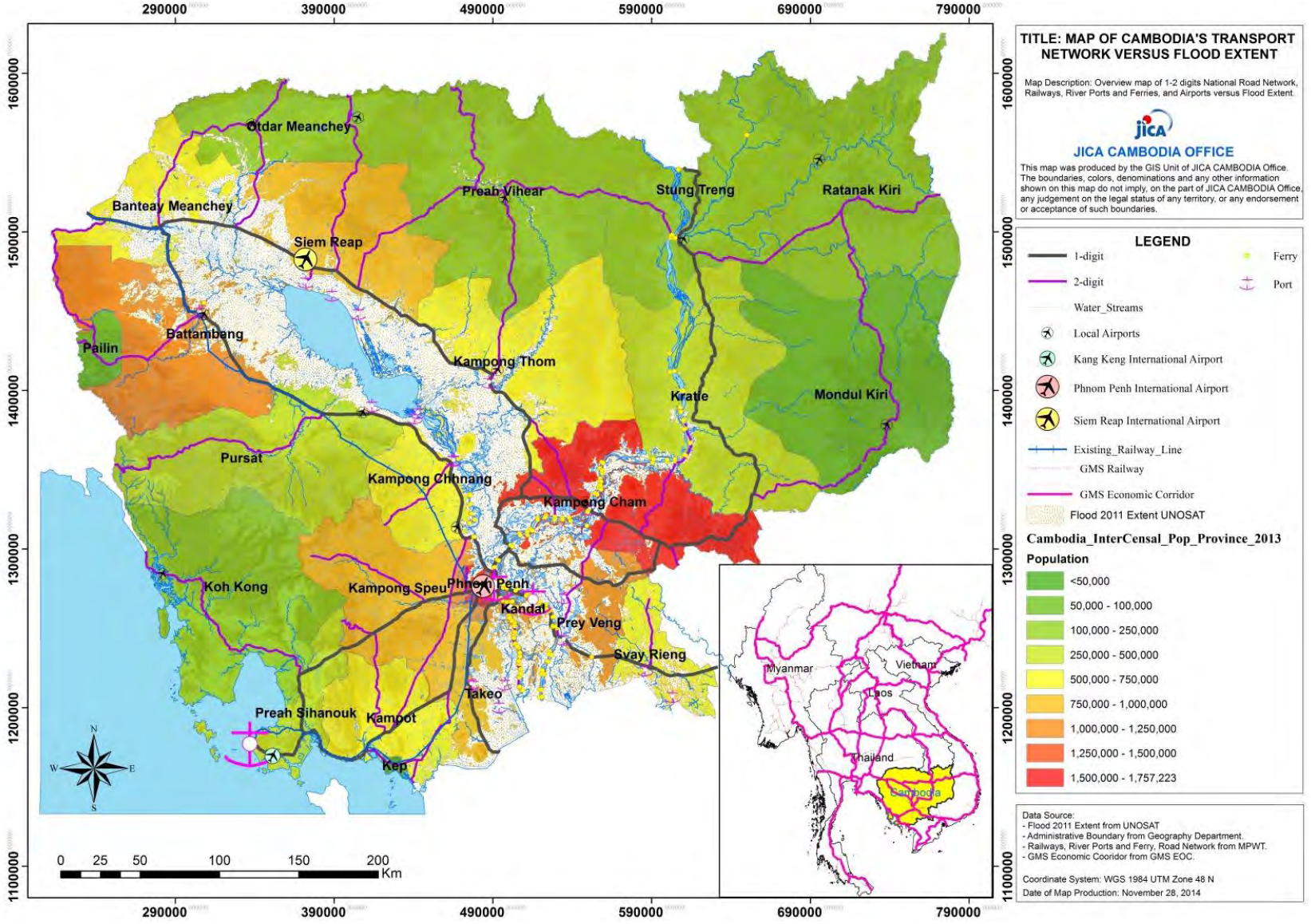
Located in the ASEAN and Mekong Region, Cambodia is presently seeing not only economic growth but also increased investment in transport infrastructure such as seaports, river ports, and roads.

There are four major routes for international container shipping between Cambodia (mainly her capital city, Phnom Penh) and partner countries such as Japan, China, USA and Europe, mainly: i) utilizing a barge on the Mekong River through Phnom Penh Port (and transshipped at Vietnamese ports including Cai Mep/Thi Vai and Ho Chi Minh); ii) land transport to the Vietnamese ports across the national border by truck; iii) via Sihanoukville Port (and transshipped at hub ports such as Singapore); and iv) via Laem Chabang Port in Thailand by land transport across the national border.

The total amount of Cambodian container cargo is expected to steadily increase due to the increases in the local economy, FDI, and cross-border trade, all of which will require higher transportation investment in highways, expressways and transit needs.

Based on the estimated truck flow of Cambodian international laden containers in 2010 by Dr. Shibasaki of OCDI using a route choice model of Cambodian international container cargo on the intermodal network including maritime, river shipping and land shipping; the highest freight traffic volume is estimated on National Road No.4 connecting Phnom Penh Capital city to Sihanoukville Port followed by National Road No.1, which has the second largest number of container cargo. This shows the high necessity of expressway development between Phnom Penh and Hochiminh as well as from Phnom Penh to the Sihanoukville port while FDI in the SEZs and Garment Industry (mainly located along these routes), and the bilateral trade between Cambodia and Vietnam have been significantly increasing over recent years.

COLUMN 4: NECESSITY OF CLIMATE ADAPTION AND MITIGATION IN THE TRANSPORT SYSTEM



Climate change is real and happening in the Greater Mekong Sub-Region (GMS), and its impacts are unavoidable. Currently, GMS countries seek economic development and foster the construction of roads, bridges, hydroelectric stations, industrial complexes, urban development and natural resource exploration throughout their country.

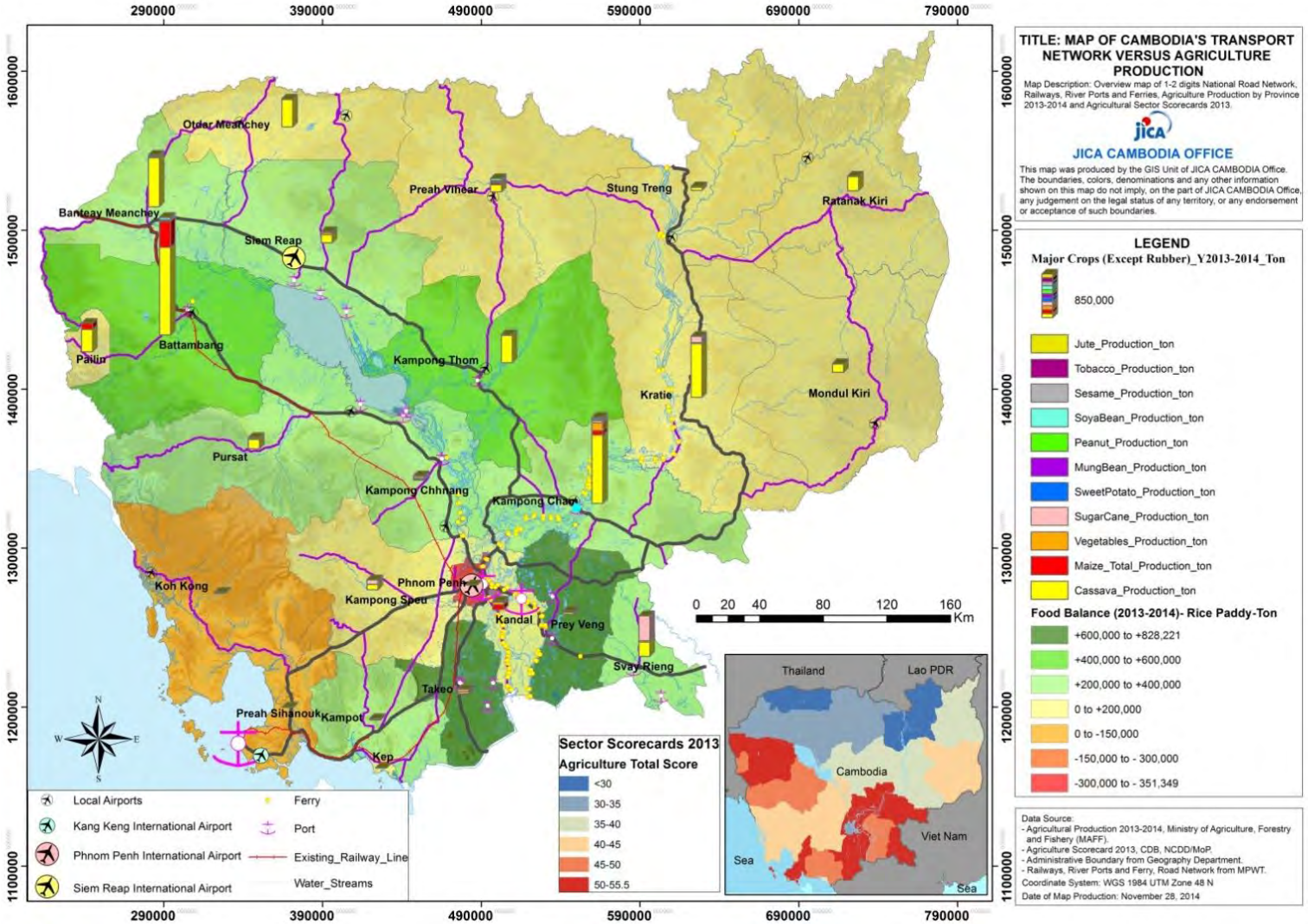
The depth and diversity of the physical infrastructure influences not only the pattern of growth, but also lack of it prevents access to health and education, trade liberalization, and particularly regional integration and connectivity.

Road infrastructure also plays an important role for securing safety of the residents as well as the transportation of the emergency goods to the affected people. Extra widening and parking spaces on roads are often utilized as evacuation zones for human and livestock in emergency cases.

However, sustainable infrastructure development, one of the most important development policy issues for the Green Mekong, is now being challenged with the effects of climate change. Disasters that result from and/or can be made worse by climate change can undermine decades of growth through a single catastrophic event. Facing such serious threats of natural disasters, both adaptation and mitigation measures are required for the growth prospect of the region.

Serious disasters such as flood in 2011 in some GMS countries have caused a very serious impact to its economic growth. Essential road transport infrastructure, which is one of the factors that makes an important contribution to the socio-economic development of Cambodia, have been severely damaged. The flooding has brought freight along the main economic corridor such as main national highways to a halt. It is important now to explore how to ensure a climate-resilient transport system in the country through the adoption of appropriate actions. The adaptation approach is recognized as an urgent and important complement to climate mitigation. Adjusting to address ongoing and future climate change will help to reduce the severity of climate change impacts as well as to strengthen resilience and maintain business continuity in the country. There is a high necessity to assess the vulnerability of the transport system to climate variations and to provide guidance on how adaptation issues can be considered in the transportation investment decision – making for achieving a sustainable transport system in the country as well as the region.

COLUMN 5: NECESSITY OF INTEGRATED TRANSPORT SYSTEM TO SUPPORT THE AGRICULTURE INDUSTRY



Note: Agriculture sector scorecards refers to the performance of the sector in each province estimated from Commune Database (0 is low performance and 100 is high performance).

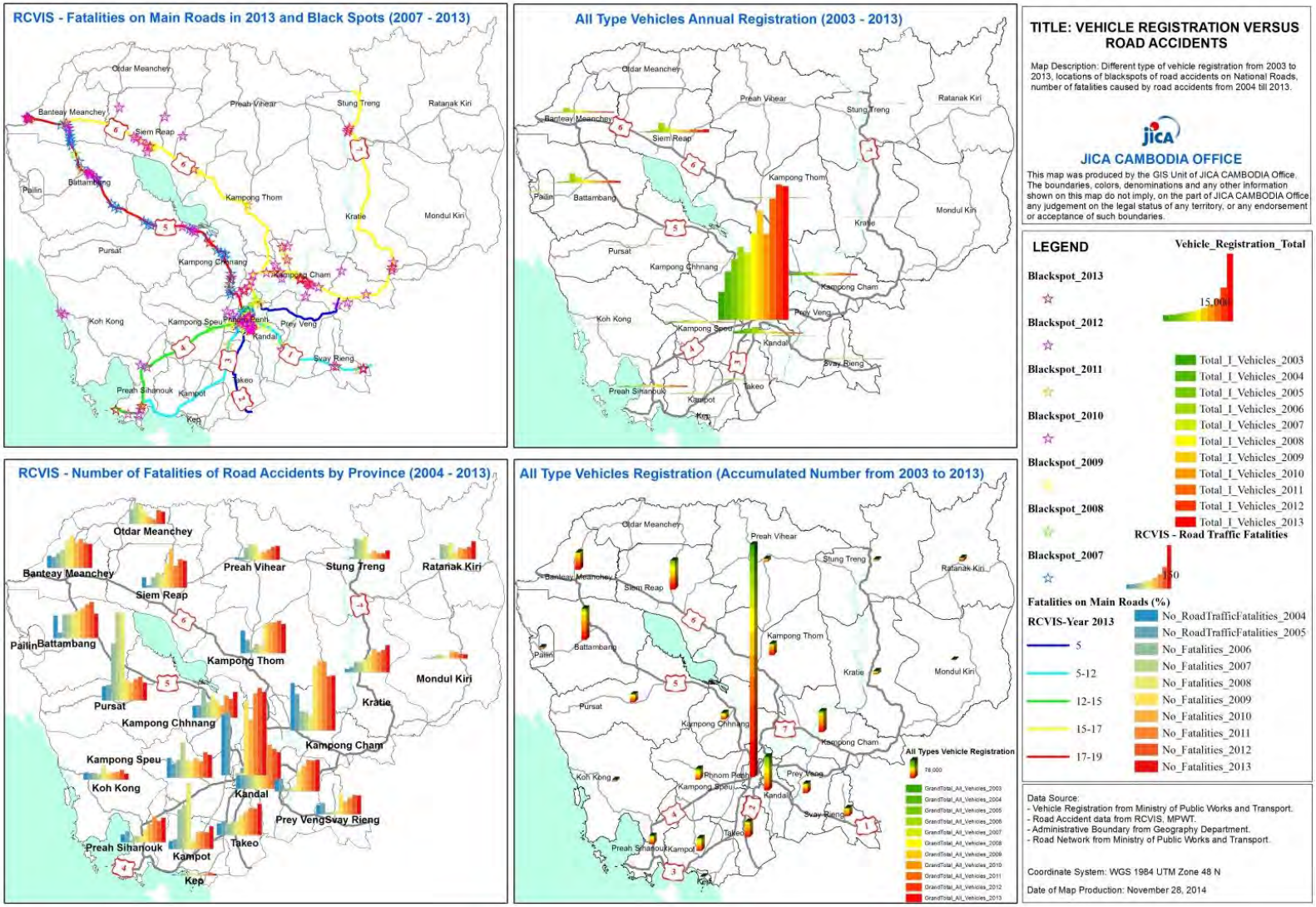
Not only production, but also the marketing and trading of agricultural products are major activities in the Cambodian economy. Despite the government's recent efforts in development of this sector, including new policies such as the one-million-ton rice export policy, the market for agricultural products experiences a high degree of fragmentation and inefficiency.

The costs associated with problems and constraints add to consumer costs, reduce farmer prices, and decrease incentives for trade resulting in low competitiveness compared with other countries in the region. Among these challenges, a poor and inefficiently integrated transportation system still adds to high transaction costs and not effectively support the transfer of agricultural goods from producers to consumers, saying in other words from farms to local and regional markets.

Therefore, the integration of multimodal logistics system such as the integration of land transports (roads and railways) with vessels, both maritime and inland waterways, is vital to the improvement of the commercialization of rice and other major crops in Cambodia.

It should be noted that both Vietnam and Thailand rely significantly on inland water transport for transporting their rice and major crops at low cost. Therefore, in addition to the improvement of national highways, local roads, railways, and international maritime ports Cambodia should not overlook the potential of waterways. Enhancing river freight transport in year round navigable waterways with a considerable barging capacity will help to lower the transportation cost of agricultural commodities in the country. However, the road transport network still plays a crucial role and needs to be upgraded where waterways and rail transport are not available. In Cambodia, farmers traditionally choose local mills and markets to directly sell their products if it is easy for them to access. However, if there are no rice mills nearby, or if the access roads are in poor condition, which induce high transport costs, the farmers sell their products to brokers even at low farm gate prices. In the surplus producing provinces bordering Thailand or Vietnam such as Battambang, Banteay Meanchey, Prey Veng and Takeo, paddy collectors and traders sometimes buy paddy from rice millers and sell it directly to foreign market (foreign traders) using mainly national roads.

COLUMN 6: NECESSITY OF IMPROVEMENT OF ROAD AND VEHICLE SAFETY FOR HEALTHY ROAD TRANSPORT IN CAMBODIA



Road safety is one of the priorities for Cambodia's Transport Policy. Road accidents involving heavy goods vehicles are damaging the image and public acceptance of road haulage. The number of traffic accidents has been increased steadily due to: (1) an increasing number of road vehicles; (2) fast urbanization; (3) poor transport infrastructure; and (4) lack of awareness by road users.

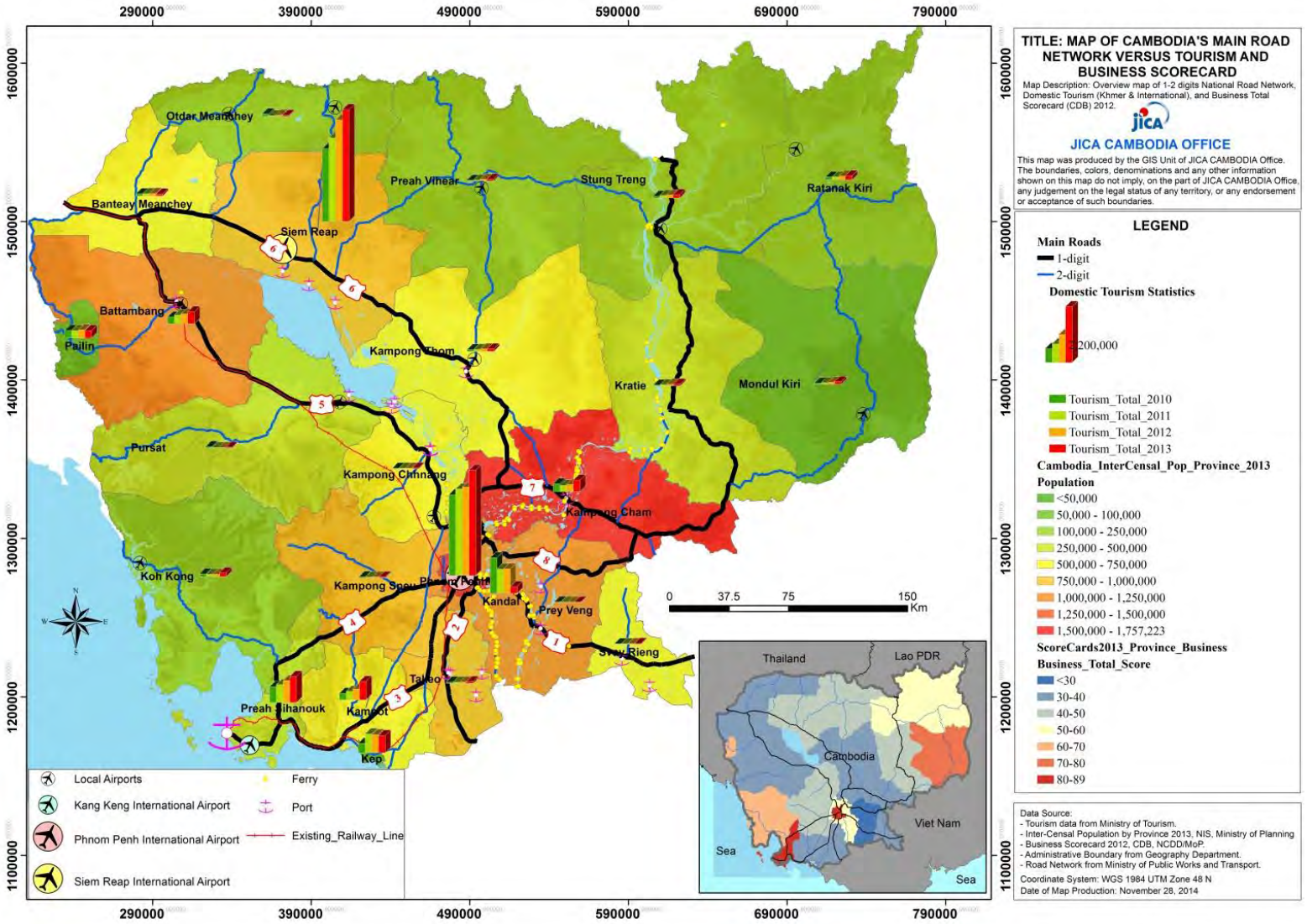
There has been rise in traffic fatalities and injuries with pictures about road accidents being shown on the front pages of the local newspapers almost every day. Traffic accidents are one of the leading causes of death in Cambodia, estimated to cost the country annually over three hundred million US Dollars. Traffic fatalities have doubled in Cambodia over the last five years, so road safety is an issue that needs to be addressed urgently.

There are many factors worsening this upward trend in traffic fatalities. Besides the physical improvement of road infrastructure, including installation of road safety devices, better education of road users to improve their driving behavior, as well as strict traffic law enforcement; better vehicle inspection is also one of the keys to reducing the number of accidents.

Vehicles which are not roadworthy can be a potential hazard to road users. Regular inspections help to minimize vehicular breakdown and road accidents. Thus, a better vehicle inspection regime is needed to ensure that vehicle owners bring their vehicles, particularly freight vehicles, for regular checks to maintain the basic level of their vehicle condition.

In 2013, according to the report by the Road Crash and Victim Information System (RCVIS) (2013), the annual economic cost of road crashes in Cambodia was equal to $337 million US Dollar (equal to 2.1% of GDP), an increase of 2% compared to the cost in 2012. In contrast, it was estimated that the country invested only around $2.50 million US Dollars for road safety interventions during the same year. 4,353 crashes and 16,227 casualties were reported in 2013. Among them, 1,950 were fatalities and 5,671 were serious injuries (on average, more than 5 people died and almost 16 were injured every day). Even though the number of fatalities decreased by 1% but serious injuries increased by 6% compared to 2012. In Cambodia, there were 7.9 fatalities per 10,000 registered vehicles; a number higher than in Lao PDR (6.9) and Vietnam (2.4). The fatality rate per 100,000 inhabitants in Cambodia was 13.0, which was higher than in Vietnam (10.2), but similar to Lao PDR (13.4). Over the last 9 years (2005-2013), the number of fatalities has doubled. At the same time, the population has increased by 13% and the number of registered motorized vehicles has risen by 328% (about 80% of all registered vehicles were motorbikes).

COLUMN 7: ROLE OF TRANSPORT SYSTEM FOR TOURISM DEVELOPMENT



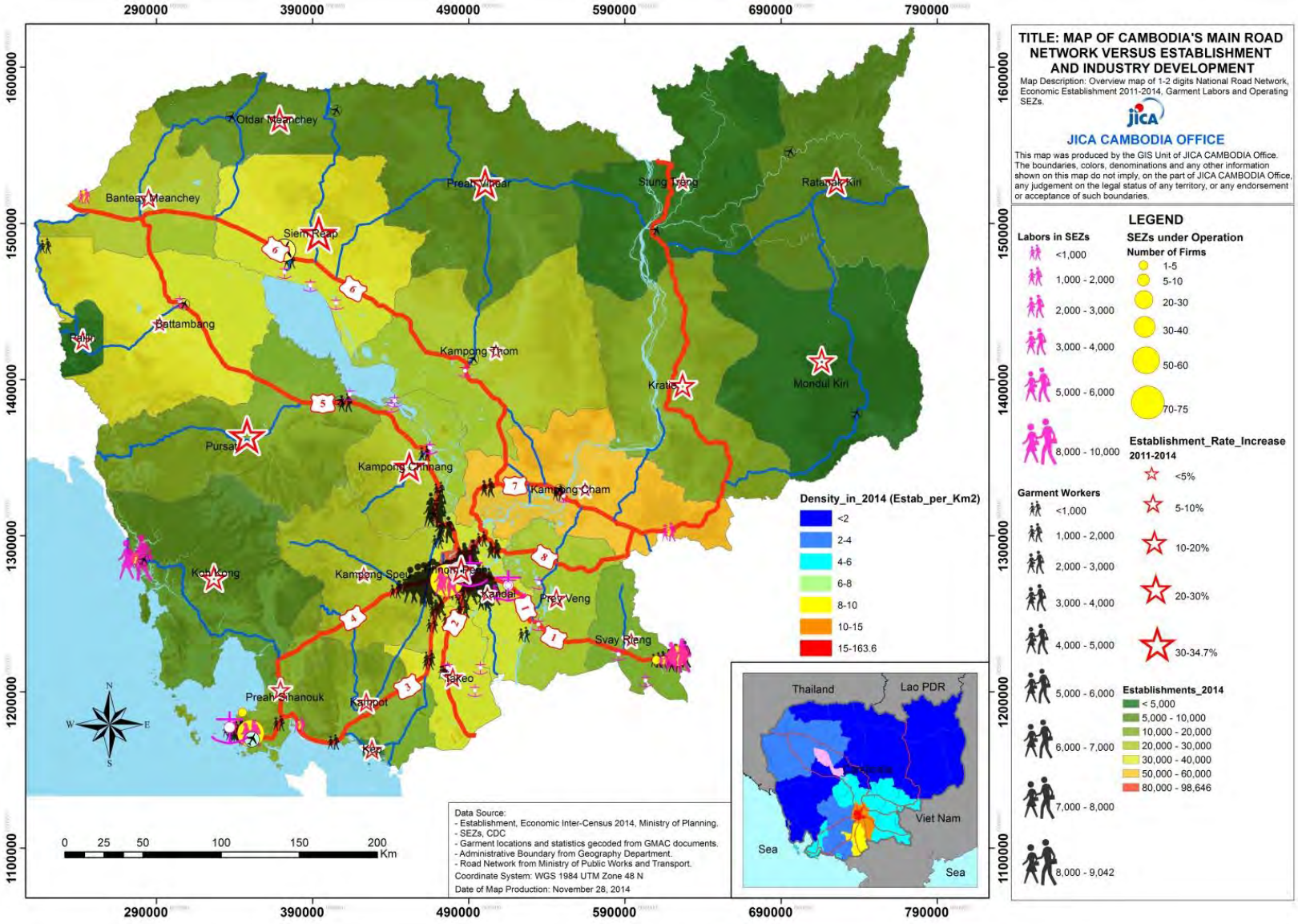
Not only supporting the development of industry sectors, transport also provides great opportunities for tourism growth. Transport activities are essential for tourism as they provide the link between generating and destination regions, and the ability for tourists to move around the latter. Travel and tourism involves the movement of people from their place of residence to a tourist location. Since tourists consider both cost and time, the availability of adequate transport facilities, safe, convenient, fast and cheap is a prerequisite for the healthy growth of tourism. Selecting the type of access to tourism destinations and providing transport for such are two factors affecting the system.

It is therefore important to improve appropriate physical transport infrastructure as well as transport services in response to the basic needs for tourism growth. Following the fast-growth in air transport, road transport also plays a key role in the country. To meet the future demand of tourism transport, the numbers of tourists' vehicles including both city and inter-city transport would be increased parallel with tourist inflows.

With the enhancing of the tourism industry in the country, the growth of tourism has inspired transport. The growth and improvement of tourism transport, including sustainable public urban transport systems, is necessary for the economic benefit of tourism to the local people. However, the main concern across urban and inter-urban road networks is the long-term increasing demand for travel (driven by income and population growth), which with largely fixed capacity is steadily increasing congestion and air pollution.

Cambodia has made efforts in improving basic infrastructure, such as highways, roads, port and international airports; and such infrastructure development does give priority to supporting the tourism industry. A more comprehensive road network has opened up and linked Cambodia's economic and tourism opportunities. Transportation infrastructure is the foundation for tourism and trade facilitation between provinces in the country and crossing borders to other neighboring countries. The "Open Sky" policy, which is the key innovation to enable the rapid growth of the tourist industry in Cambodia, was introduced to open the international airports at Siem Reap and Sihanoukville. Many roads have been constructed to connect the main tourist spots throughout the country. There are many travel companies transporting tourists by bus and car along the national highways. There are also some waterway transport companies that transport tourists between Phnom Penh and Siem Reap with some tour boats taking guests to visit Tonle Sap Lake and other islands near Sihanoukville.

COLUMN 8: ROLE OF TRANSPORT SYSTEM FOR INDUSTRIAL DEVELOPMENT



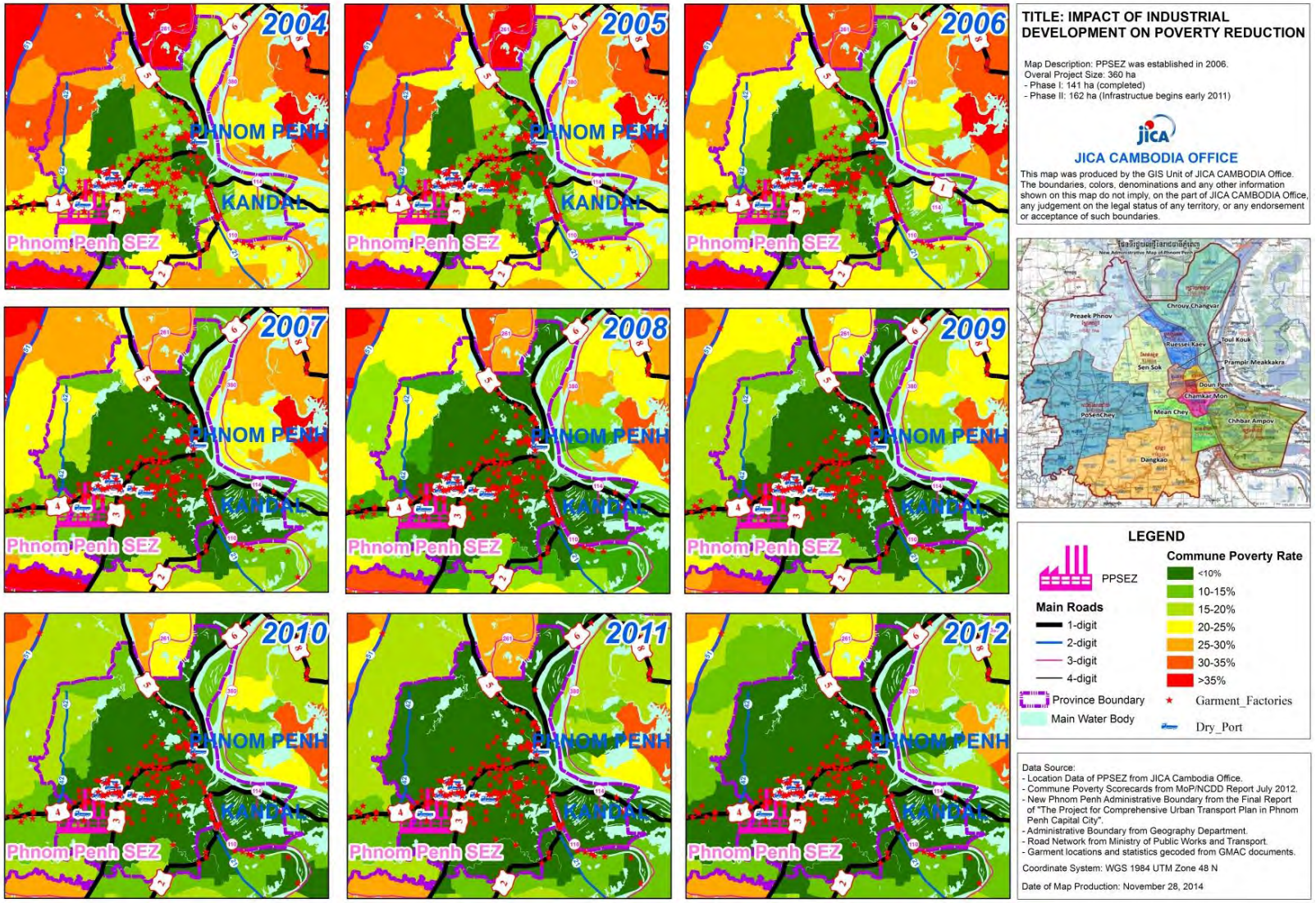
According to the draft Industrial development policy (2014-2024), the industrial sector is now becoming a priority focus for the new growth strategy for Cambodia to realize its Vision 2030 in reaching a middle-income country status. The sector has so far played a significant role in economy growth and in job creation.

The country's transport infrastructure is still not yet adequate to respond to the needs of the currently increasing number of foreign direct investments in several Special Economic Zones (SEZs) in addition to the existing investors in the garment industry. Investments in SEZs or export promotion zones are important investments, which have several advantages, not only by providing employment for people outside urban areas but also by stimulating the local economy through the participation of poor people in petty trade or business.

In order to enhance the overall investment climate for the sector, it is necessary to further improve and maintain the physical transport infrastructure, including road links and access to strategic industrial areas. Upgrading the key national highways such as National Road 1, 4, 5 and 6 along the Southern Economic Corridors, for example by widening them into four-lane roads, will better connect SEZs and industrial parks/zones in Cambodia with other two big industrial centers in Bangkok and Ho Chi Minh.

In the long-term plan, it is necessary to seriously consider building expressways aimed at strengthening transport and logistics capacity to handle the increasing needs of transport linking with neighboring countries in the Mekong regions. Rehabilitation of existing railways, connecting the missing links with Thailand, and studying and building a railway link connected with Vietnam are also an alternative and cheaper means of transportation. Moreover, the inland water transport along the river should be not overlooked, which has the potential to reduce logistic cost through building small ports that enable the ships to load and transfer goods along Mekong river in parallel with expanding the new port in Phnom Penh and Sihanoukville. Not only road access, but also essential transport services linked to SEZs and other industrial zones should be promoted. It is also urgent to solve traffic congestion issues in the suburbs of Phnom Penh that regularly increase logistics costs through the constructing of ring roads and feeder roads to ensure smooth traffic movement along the southern economic corridor. It is now important to establish a coordinating mechanism to comprehensively plan and develop a multimodal transportation and logistics system (road, railway, air and maritime transport and facilities) that will seamlessly link targeted, local industrial hubs and the region.

COLUMN 9: IMPACT OF INDUSTRIAL DEVELOPMENT ON POVERTY REDUCTION AND ROLE OF ROAD NETWORK

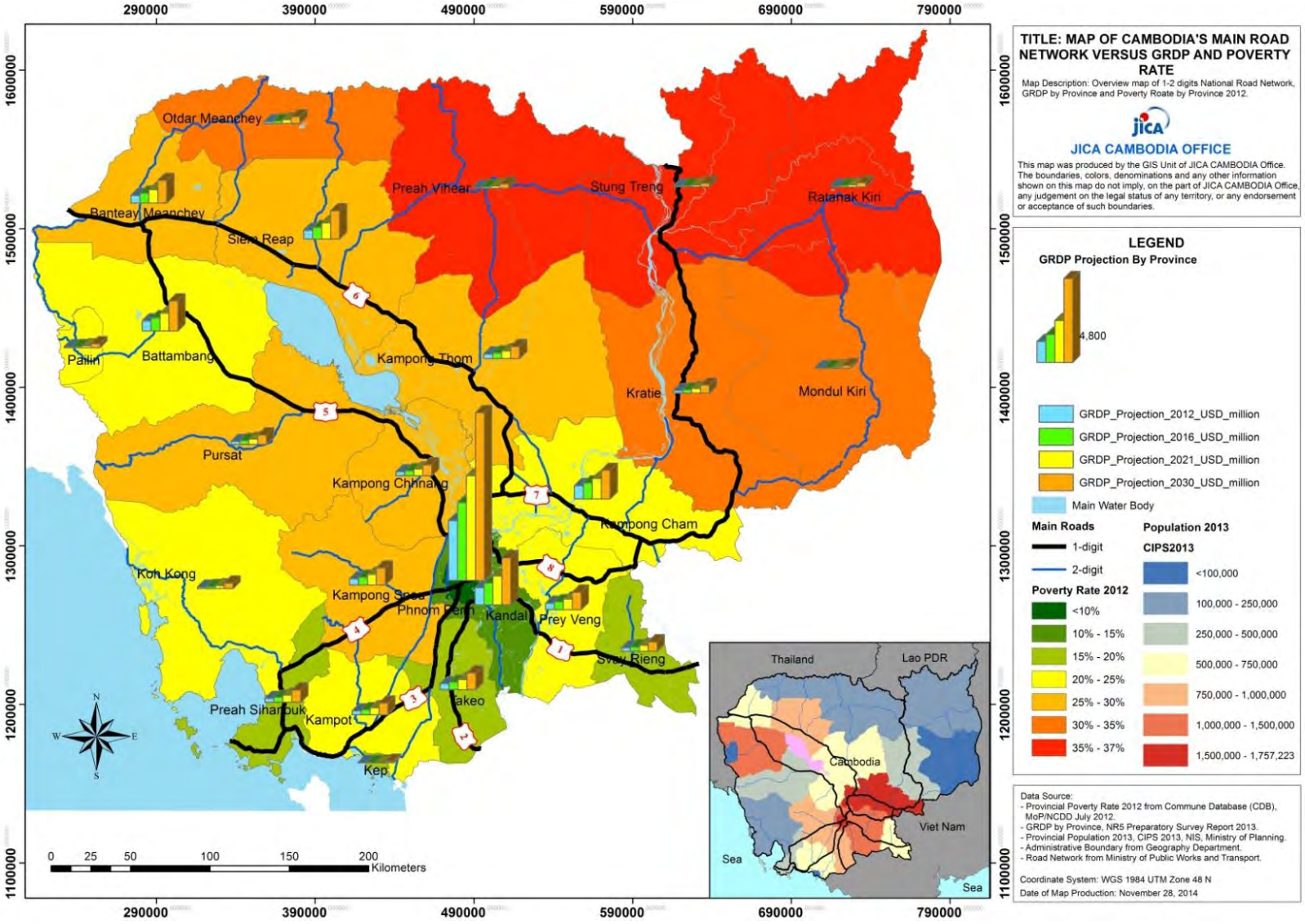


Industrialization is often essential for economic growth, and for long-run poverty reduction. Cambodia's export-oriented garment industry has contributed greatly to poverty reduction in the country through the employment of the poor. The textile and apparel industries have led industrialization at the early stages of development in the country. Garments are one of the Cambodia's economic pillars besides tourism, construction and rice sector.

The rapid expansion of the Cambodian garment industry can be seen in the increasing number of factories and the growth in employment by the sector. The development of Cambodia's export-oriented garment industry as a labor-intensive industry has been likely contributing to poverty reduction over the years. Not only the generation of export earnings to the country's economy, the industry has also brought large numbers of poorly educated workers (mostly rural women) into the labor market as migrants, whose employment and remittances to their home areas have worked to reduce poverty.

In addition to employment opportunity, the industry has also stimulated the local economy through the increase petty trade and business in the areas. The multiplier effect of industry growth has also increased number of local economic establishment in the areas. For instance, the map above shows the rapid and remarkable change in poverty rate of communes where garment factories are located, particularly on the outskirt of Phnom Penha and along National Road 4.

COLUMN 10: CORRELATION BETWEEN ROAD NETWORK AND GRDP & POPULATION



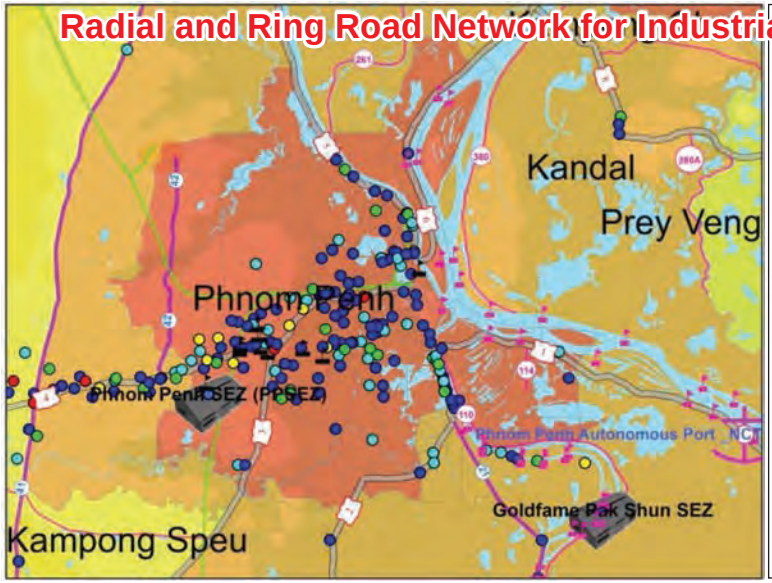
Demand for road travel is driven by several main factors including population, demography, economic growth, cost of driving, as well as time costs and personal circumstances and preferences. These drivers of demand are constrained by road network capacities and performance limitations, which put people and businesses off transport they would otherwise have used.

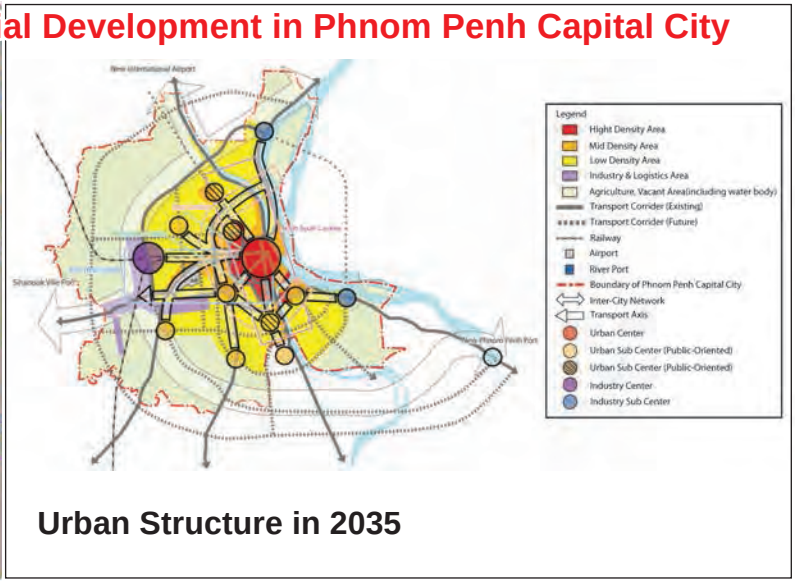
If the population increases, then there will be more people choosing to travel for economic and personal needs, and more production of goods which will also need to be transported. This will increase car ownership and total trips. Also it is fairly accepted that freight transport, measured in ton-km, is closely related to the level of economic activity of a region.

Increases in GDP per capita mean individuals will have more disposable income, increasing general demand for goods and services. As people become better off, they may also spend a share of their increased income on road transport through the purchasing and use of a car. Moreover, as economic activities increase due to higher consumption levels, road transport demand is also likely to increase in order to allow for additional production and distribution of goods and services through commercial freight vehicles.

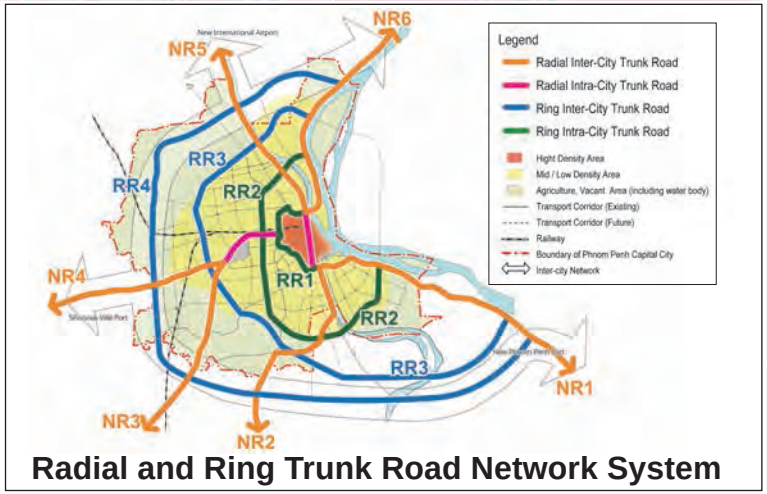
A rise in income also increases people's 'value of time' – the opportunity cost of travel becomes higher – the individual could be earning more money or enjoying more leisure time. In the Final Report of the "Preparatory Survey for National Road No.5 Improvement Project (2014)", updated population and Gross Regional Domestic Product (GRDP) were used to estimate the future trip generation and attraction as well as the travel time cost in the study areas as the traffic demand is governed by socio-economic factors, including industries and commerce. The GRDP was estimated based on GDP, GDP share by industry, population and employed population. The remarkable increase of projected GRDP in the provinces located along the Southern Economic Corridor highlights the importance and necessity of road development along this key corridor.

COLUMN 11: NECESSITY OF RING ROAD DEVELOPMENT FOR INDUSTRIAL DEVELOPMENT IN PHNOM PENH CAPITAL CITY

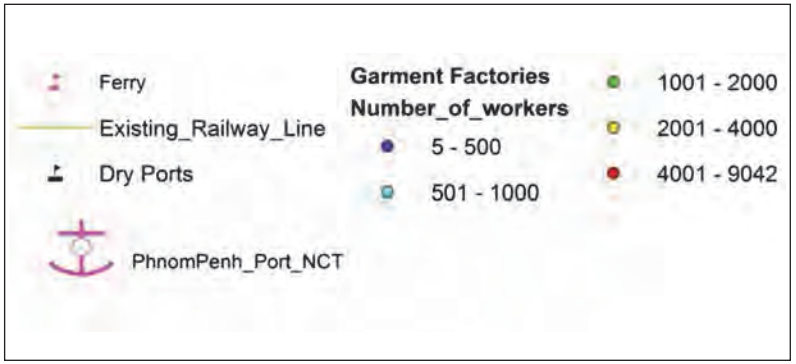




Urban Structure in 2035



Radial and Ring Trunk Road Network System



Data Source:
- Final Report "The Project for Comprehensive Urban Transport Plan in Phnom Penh Capital City" 2014
- Garment locations and statistics gecoded from GMAC documents.

Date of Map Production: November 28, 2014

Despite much effort putting in building infrastructure over the past two decades, it is still not sufficient to meet the new demands of development. The current rapid growth of both garment factories and other industry investment in and outside Special Economic Zones (SEZs) such as Phnom Penh SEZ located within the Phnom Penh Metropolitan areas clearly indicates the high need for additional infrastructure to ensure an efficient and timely shipment.

Key export routes connecting the industrial zones in Phnom Penh Capital City (PPCC) to main road transport corridors and/or to sea and river ports, are now suffering from congestion that may lead to delays in transportation and put more pressure on the existing capacity of road networks. PPCC's basic road network pattern is a radial-ring pattern. Challenged with rapid expansion of urbanization to northern and western suburban areas, the development of outer ring roads is urgently needed to lower the logistics costs and shorten the travel time with smooth traffic flow from the industrial agglomeration in PPCC to sea ports or river ports as well as to other industrial centers in neighboring countries via main economic corridors (i.e. highways or expressways).

According to the final report of the "Project for Comprehensive Urban Transport Plan in Phnom Penh Capital City" (2014), the existing cargo facilities such as dry ports and industrial parks along Chaom Chav Road are involved in urban sprawl. In general, industrial areas including cargo facilities should be separate from urbanized area such as residential / commercial areas in order to avoid mix traffic of truck and daily traffic. There is no appropriate alternative route in parallel with Chaom Chau Road to connect between NR4 and NR1 across the Bassac River. This road is one of the largest heavy truck traffic sections in the study area. An alternative road connecting NR4 and NR1 is therefore necessary. This inter-regional freight transport route comprising Ring Road 2, Chaom Chau Road, NR2 and NR3 are basically 2-lane roads which are not appropriate to accommodate the high volume of heavy trucks. Ring Road 3 (RR3) is seen to play an important role in connecting the PPSEZ and other city's industrial parks with the New Container Terminal of Phnom Penh Port as well as to smooth the traffic flow along the main economic corridors (NR1, NR2, NR3, NR4, NR5, NR6 and NR22).

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