The Kingdom of Cambodia
Ministry of Public Works and Transport

Data Collection Survey on Logistics System Improvement in the Kingdom of Cambodia

Final Report

April 2018

Japan International Cooperation Agency

International Development Center of Japan Inc.
PADECO Co., Ltd.

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Abbreviation

Organizations

ADB	Asian Development Bank
AEC	ASEAN Economic Community
ASEAN	Association of South-East Asian Nations
CAMTA	Cambodia Trucking Association
CAMFEBA	Cambodia Federation of Employers and Business Association
CAMFFA	Cambodia Freight Forwarders Association
GDCE	General Department of Customs and Exercise
GDL	General Department of Logistics
IMC	Inter-Ministerial Committee
JBAC	Japan Business Association of Cambodia
MEF	Ministry of Economy and Finance
MOC	Ministry of Commerce
MPWT	Ministry of Public Works and Transport
NLC	National Logistics Council
NLSC	National Logistics Steering Committee
NSWSC	Cambodia National Single Window Steering Committee
PPAP	Phnom Penh Autonomous Port
PAS	Sihanoukville Autonomous Port
RGC	Royal Government of Cambodia

Logistics

AEO	Authorized Economic Operator
AFAGFIT	ASEAN Framework Agreement on Facilitation of Goods in Transit
AFAMT	ASEAN Framework Agreement on Multimodal Transport
ASW	ASEAN Single Window
ASYCUDA	Automated System for Customs Data
CBTA	Cross-Border Transport Agreement
iiCBTA	Initial Implementation of Cross-Border Transport Agreement
CCA	Common Control Area
CFS	Container Freight Station
CIQ	Custom, Immigration, Quarantine
CNSW	Cambodia National Single Window
C2C	Cash Conversion Cycle
DIFOT	Delivery In Full and On Time
DWT	Deadweight tonnage
EDI	Electronic Data Interchange
GMS	Greater Mekong Subregion

GSP	Generalized System of Preference
GDP	Gross Domestic Product
HS	Harmonized Commodity Description Cording System
ICD	Inland Container Depot
IDP	Industrial Development Policy
KPI	Key Performance Indicators
LCL	Less than Container Load
LPI	Logistics Performance Index
NH	National Highway
NSW	National Single Window
OSS	One Stop Service
OSSC	One Stop Service Center
SEA	Strategic Environmental Assessment
SEZ	Special Economic Zone
SPS	Sanitary and Phytosanitary Certificate
SSI	Single Stop Inspection
TEU	Twenty-foot Equivalent Unit
TIN	Tax Identification Number

Executive Summary

1 Economic Development and Logistics Demand

Future Socio-Economic Perspectives

Cambodia has experienced steady economic growth in the past decades. Gross domestic product (GDP) tripled over the last 10 years and GDP per capita reached USD 1,227 in 2016. At the same time, population has gradually increased, reaching about 16 million in 2016. Economic growth is projected to be between 6-7% depending on expansion of future exports and foreign direct investment. This trend is expected to continue to 2025 and beyond. By 2025, GDP is projected to increase by 88%, while population is expected to grow by 14%. Since GDP can be considered a proxy for domestic logistics demand, domestic logistics capacity needs to be doubled by 2025. In line with economic growth, incomes are expected to increase 78% in real terms by 2025 compared to 2016. The urban population in Phnom Penh will become wealthier and more likely to consume diverse, high value-added products. Accordingly, urban logistics will need to be more value added and diversified (e.g., through the use of cold chains and e-Commerce). Affordability will become less of an issue in logistics over time.

Future External Trade

Trade volumes will continue to increase along with economic growth. Cambodian firms are expected to move 4.1 times more goods in 2030 than they moved in 2016. Soft and hard logistics infrastructure will need to be able to support this substantial increase. In addition, border control will need to be more efficient to process the increased trade volumes and the increased variety of imports and exports. Cambodia needs to strengthen its competitiveness to ensure that its exports-to-GDP ratio remains at least at the current level to sustain strong economic growth over the medium and long term. It is important that Cambodia reduce logistics bottlenecks to sustain its competitiveness in the international market. Reducing logistics costs, increasing service reliability, and reducing delays will be key for Cambodia to continue its high economic growth rates over the next 15 years.

Human Capital Development

Since Cambodia's capability to participate in global value chains (GVCs) is still limited, further significant upgrades are needed for the country to join GVCs at different stages of production. Cambodia is still far from being able to participate in the production or assembly of intermediate GVC products with sophisticated technology, but it is closer to being able to participate in the production or assembly of simple GVC products. Human capital limitations in each sector are the biggest constraint for participation in GVCs. Such limitations are particularly important for Cambodia to diversify from its current concentrations toward higher value-added intermediate GVC products. Cambodia needs to upgrade its human and institutional capital. The analysis of revealed capabilities required to move into

more knowledge-intensive activities suggested that these are the biggest areas of Cambodia's capability deficit. Improving the skills of managers and workers will help with this upgrade.

Increased Transport Volumes

Transport volumes have increased over the last two decades and are expected to increase further in the coming years. Railway and air transport may have more potential to increase volumes than do other modes because the current insufficient infrastructure can be substantially improved. As a result, there may be more competition between various logistics services between Sihanoukville Port and Phnom Penh Port, between road transport (trucks) and railway, and among logistics service providers, all of which is expected to improve logistics services as well as reduce costs.

Diversification of Trade Commodities

The variety of trade commodities has been gradually increasing. In 2005, Cambodia traded 900 categories of trade commodities in the Harmonized Commodity Description and Coding Systems (HS) classifications, which increased to 955 categories in 2010, and 1,422 categories in 2015, i.e., a more than 50% increase in trade commodities over a 10-year period. Thus, the demand for trade commodities has become more diverse in line with increased incomes and the greater complication and sophistication of manufacturing products. Initial diversification from garments into new sectors such as electronics and bicycles is helping Cambodia to climb value chains. However, this trend can only be supported if effective policy measures are formulated and implemented to address the two main bottlenecks, high electricity and logistics costs. Moreover, labor skills will have to be developed to sustain the growth of the manufacturing sector. Looking forward, increased economic growth, urbanization, and industrialization may require and generate an even greater variety of traded commodities to/from Cambodia, which in turn will result in a requirement for a greater variety of logistics services in the future (e.g., logistics services at lower costs but with longer transport times; logistics services offering faster transport at higher costs; logistics services with more careful handling to avoid damage, but at higher cost; and logistics services with on-time and on-demand delivery).

2 Current Conditions and Key Issues in Logistics

Economic Corridors and International Gateways

Cambodia has developed road, railway, maritime, and inland waterway transport networks over time at significant cost. The major arterial road network includes the Greater Mekong Subregion (GMS) Southern Corridor, the GMS Interlink Subcorridor (including Phnom Penh-Sihanoukville), and the GMS Southern Coastal Subcorridor, and now functions well in parts and is being improved in other parts. In addition, Sihanoukville Port, Phnom Penh Port, and Phnom Penh International Airport function relatively well and expansion projects are planned as warranted by expected increases in demand.

The Cambodian railway network includes a Southern Line and Northern Line. Basic rehabilitation of the Southern Line has been completed and it is currently in operation, but it is not operating at an efficient level, e.g., due to the need for automatic signaling, electric level crossings, and additional sidings/stations. On the other hand, the Northern Line is still undergoing basic rehabilitation. The Mekong River is used for inland waterway transport between Kampong Cham and Saigon Port (Ho Chi Minh City) in Vietnam, but it is necessary to extend border working hours to provide for more efficient and more flexible operations.

Current Logistics Hubs

There are currently four major logistics hubs or aggregations in Cambodia: Sihanoukville Port, Phnom Penh Port, Bavet (on the border with Vietnam), and Poipet (on the border with Thailand). Sihanoukville Port serves 70% of total exports, followed by Phnom Penh Port (27%), and Bavet and Poipet (2.5% each). Sihanoukville Port also plays a major role in imports, accounting for 66% of the total, while Poipet and Bavet account for 13% and 11%, respectively.

There are many logistics-related facilities in these four gateways including special economic zones (SEZs), inland container depots (ICDs), and warehouses. However, there are no systematically developed logistics hubs in these areas or elsewhere.

Border Control and Management

Cambodia has various types of borders including land borders, sea borders, river borders, and international airports. Cambodia's main land border crossings – Bavet and Poipet – are congested with narrow roadways and uncoordinated clearance operations. The Automated System for Customs Data (ASYCUDA) cargo clearance system has been installed, but not all clearance processes have been computerized. For example, computerization of import and export licenses, permits, and certificates of concerned government agencies is still under development. A new computerized system similar to the Nippon Automated Cargo and Port Consolidated System (NACCS) of Japan is expected to be implemented. The General Department of Customs and Excise (GDCE) of Cambodia has implemented a Best Traders Incentive Mechanism, similar to the Authorized Economic Operators (AEO) program of the World Customs Organization (WCO), for providing trade facilitation incentives to traders. GDCE expects to implement an AEO program in the near future. The capacity of concerned government officials and private sector staff needs strengthening for operation of these initiatives.

Logistics Service Providers

Logistics service providers generally consist of the trucking, forwarding, and warehousing service sectors. Certain of these providers have formed the Cambodia Trucking Association (CAMTA) and the Cambodia Freight Forwarders Association (CAMFFA), which are members of the Cambodian Chamber of Commerce. However, there are many small and medium enterprises (SMEs) including family businesses among the logistics service providers, most of which are not members of CAMTA or CAMFFA, and this has limited initiatives of the associations in terms of information sharing and self-regulation.

The level of human resources largely depends on the size of the company. Large companies have internal staff training systems, while the SMEs / family businesses tend to have no training system or an insufficient one, which results in lower-quality logistics services. GDCE provides annual training, and CAMFFA regularly provides vocational training, but there are no systematic training courses for trucking company staff.

Depending upon the globalization of a country's economy as well as its adoption of information and communications (ICT) technology, new technologies and business models may be applied in the logistics services sector. Specifically, logistics services in Cambodia will require new businesses and technologies to respond to increasingly diversified and sophisticated logistics demands. In this regard, less than container load (LCL), cold chain, e-commerce, the delivery of small parcels, tracking and

tracing, and vendor-managed inventory (VMI) are among the approaches that should be considered for adoption in Cambodia.

Legal and Institutional Framework

Cambodia's regulatory regime for logistics services needs to be modernized and gaps in laws and regulations need to be addressed by adopting international good practices and standards. Currently, there are limited primary laws to govern the transport and logistics service sector.

While general road transport issues are regulated in the existing road and land traffic laws, access to the road transport market and access to the profession of road transport operator and truck or bus driver is hardly regulated. Railway transport operates with a regulatory regime including some secondary legal instruments (i.e., regulations) but important legal provisions are still missing due to the lack of a proper primary legal framework. Draft laws have been developed in the fields of ports, maritime transport, and inland water transport, but they have not yet been enacted.

Cambodia is lagging behind its regional peers such as Vietnam, Thailand, and Malaysia in negotiating and signing bilateral free trade agreements. It is essential for the Royal Government of Cambodia (RGC) to be proactive in promoting market access through higher quality bilateral and regional trade agreements that will mitigate the erosion of trade preferences. Furthermore, implementation of agreements such as the GMS Cross-Border Transport Agreement, the Association of Southeast Nations (ASEAN) Framework Agreement on Facilitation of Goods in Transit, and the ASEAN Framework Agreement on Multimodal Transport has been slow – accelerated implementation of these agreements is necessary to enhance regional connectivity.

3 Trade Competitiveness

Trade Performance

The trade performance of Cambodia, as measured by the trade/GDP ratio, is generally favorable compared to that of other ASEAN countries. However, there are some systematic issues affecting the country's trade competitiveness. Cambodia is able to sustain its trade performance by enhancing its intensive margins – for example, garment exports have been considerable, but keeping costs low has become important to keep this sector competitive over the short- and medium terms. For Cambodia to maintain its trade competitiveness, improvements in labor productivity through upgrading skilled labor is essential. Such improvements will have both short-term and long-term impacts on the country's capability to participate in GVCs and diversify toward higher value added and more sophisticated products. In addition to improving infrastructure quality and connectivity networks, trade costs can be reduced by harmonizing trade and transport agreements with regional frameworks and incorporating them into Cambodia's domestic legal framework, and by removing unnecessary regulations on licensing, permits, inspections, and certifications that present technical and administrative barriers both in terms of the time and costs for international trade and the movement of goods.

Infrastructure Performance

The national road network is significantly developed and extends about 55,500 km, although this length is shorter than that of neighboring Thailand and Vietnam. The quality of roads (e.g., surface condition), especially secondary roads, remains poor with many still unpaved. The railway network is

still operated at a low level and consists of only two lines. On the other hand, ports and airports are relatively well developed and offer good connectivity to global markets.

Logistics Performance Indicators

Cambodia has made good progress with logistics improvements, but its logistics performance is still below average, according to international logistics performance reports and/or indicators such as the Global Competitiveness Report of the World Economic Forum (WEF), the World Competitiveness Index of the International Institute for Management (IMD), and the Logistics Performance Index (LPI) of the World Bank.

From an infrastructure perspective, Cambodia's average score is slightly less than the mean of each scale, which means that its infrastructure is considered to be slightly below par and requires further improvements to meet current and future demand. From an institutional and policy perspective, Cambodia is assessed as performing relatively poorly regarding governance and transparency. Even after the introduction of electronic procedures, traders and service providers still have complaints about documentation requirements and the inspection of imports and exports. The perfomance of logistics services providers and industry traders such as shippers and consignees has improved according to the LPI, but more improvements are required to realize a trade and logistics environment on the level of that of Thailand or Vietnam.

Cambodia suffers from high logistics costs over sales (i.e., as a proportion of total costs) compared to Thailand and Vietnam. Transport cost in Cambodia has the highest ratio followed by inventory carrying cost, while warehousing costs are also high. The high cost of inventory is a byproduct of the unreliability of the country's logistics system.

Time, Cost, and Reliability of Logistics Services

Among cost, time, and reliability as key factors of logistics, reliability is the most important factor for manufacturers in Cambodia**.** Cost is also important but it is a byproduct of low logistics reliability. While cost is important for improving logistics, cost levels are strongly affected by reliability, which is the main driver of logistics performance in the country and must be prioritized in designing policies to improve logistics performance.

Outsourcing and the Capacity of Logistics Service Providers

The trend in Cambodia is to outsource logistics activities, which is also a common way of managing logistics in Thailand and Vietnam. Outsourcing helps firms focus on their core business activities and use logistics service providers as partners in sustaining competitive advantage(s).

Logistics Human Resources

Logistics human resources development in Cambodia is not considered a major issue for manufacturers and logistics service providers)LSPs(. However, observations on the ground and discussions with specific LSPs highlighted some human resource issues for example related to truck drivers – while the number of truck drivers is sufficient to meet demand, they are not skilled. A priority is to professionalize the logistics labor force.

Logistics Time

Cambodia has improved travel speed by about 50% along the GMS Southern Corridor over the last decade. Now travel speeds along this corridor are about the same as in Thailand and Vietnam. However, there are still problems at border crossings. Crossing at Bavet/Moc Bai takes about 5 hours

while crossing at Poipet/Aranyaprathet takes about 2.5 hours, with time mainly required for export/import permits and inspection(s). There is considerable scope to simplify cross-border procedures and introduce a National Single Window to reduce border crossing times.

From the perspective of users of the country's logistics system, reliability is the dominant logistics performance issue. A low level of reliability affects logistics capability by forcing users to rely more on inventory and warehouses, which increases logistics cost for users. Manufacturers in Cambodia require that logistics be reliable and consistent in order to plan efficiently. As noted, it is important that Cambodia reduce its logistics bottlenecks to sustain its competitiveness in the international market; reducing logistics costs, increasing service reliability, and reducing delays will be key for Cambodia to continue its high economic growth rates over the next 15 years.

Logistics Costs

Logistics costs – including transport costs, forwarding costs, and port charges – are high in Cambodia compared to in Thailand and Vietnam. Transport costs by truck per unit distance are similar in Cambodia to those in Thailand and Vietnam, but total trucking costs tend to be higher in Cambodia due to a lack of return trips. In addition, forwarding costs in Cambodia – mainly for export/import permits and inspection(s) including both official and unofficial payments – are more than twice those in Thailand and Vietnam. Informal costs are often hidden in lump-sum service contracts between industrial firms and services operators under which services operators absorb all informal payments in the final prices presented in the service contracts. The implementation of a strong anticorruption policy is essential to reduce logistics costs and expand exports. There are certain additional costs such as the costs associated with transshipment at the border that may be reduced by improving cargo handling. Due to significant delays in implementing major reforms, private firms in Cambodia still face major constraints in doing business.

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

Cambodia has a significant number of strengths and opportunities, e.g., high economic growth and rapid development of transport infrastructure, the progress of seamless trade between/among the ASEAN countries supported by strong regional policies and programs, the globalization of supply chains, and the continuing comparative advantage(s) of production costs in the country. At the same time, there are also significant weaknesses and threats. Cambodia can overcome these issues but the RGC needs to maintain high levels of commitment and obtain further capacity to carry out projects under the Master Plan. Cambodia must make use of its strengths and opportunities and make the most of the support of international development partners in all of its dimensions. It is an appropriate time to commence implementation of this national logistics Master Plan. The RGC should also focus on weaknesses and threats, which can be overcome with comprehensive, well-crafted programs.

4 Master Plan Framework

Justification

Cambodia has achieved continuous economic growth in the current decade, which has led to substantial increases in import and export volumes. However, population has increased, especially in the larger urban areas. Urban residents have rapidly improved their income levels due to improved job opportunities as a consequence of rapid economic growth, which in turn has increased the

demand for goods, both in terms of volume and the variety of goods demanded. Accordingly, the volume of goods transported has increased and the types of goods have become more diverse (e.g., there are goods with lower prices, light but large-volume goods, heavy goods, and goods with higher prices and lower weights and small volumes).

The RGC formulated the Cambodian Industrial Development Policy 2015-2025 (IDP), which aims to shift the industrial structure to higher value-added and technology-based industry from light industry. The predominant type of industry in Cambodia at present is lower value-added light industry, which imports materials, produces with relatively low wages, and exports under the Generalized System of Preferences (GSP) trade program based on the country's advantages in terms of production cost and the application of the GSP. Higher value-added industries such as machinery, electric parts, and assembling manufacturing, as well as the sophistication of current light industry, will strategically attract the relocation of factories from Thailand, Vietnam, and China under the Thai+1, Vietnam+1, and China+1 approaches. Based on the accumulation of these industries, manufacturing and logistics businesses targeting markets in the Mekong Region and elsewhere in the ASEAN region will be attracted to Cambodia by enhancing VMI and other modern logistics services.

In this regard, lower production costs should be maintained as an advantage of Cambodia. Logistics should be improved to effectively maintain the advantages of the country by realizing lower cost, reliable, and "stress-less" logistics in terms of documentation and inspection practices/procedures.

At the same time, a global "information society" is emerging, not only in developed countries but also in countries such as those in the Mekong Region including Cambodia, where people simultaneously share information through the internet. Since middle-income urban residents strongly demand cutting-edge information and goods, it is necessary for the logistics sector to respond to these demands, e.g., through last-mile logistics for e-commerce and internet shopping.

SMART Logistics 25

SMART Logistics 25 – sufficient capacity and variety, multi-modal, advanced technology, and reliable transport – is proposed to provide a strong foundation for further economic growth and urbanization in Cambodia emphasizing the following main directions:

- Sufficient response to an increased volume of cargo;
- Sufficient response to diverse types of cargo;
- Efficient logistics (lower cost, reliable, and stress-free) to enhance the Thai+1, Vietnam+1, and China+1 approaches; and
- Modern logistics with ICT technology.

Considering the four main directions, the following five strategies should be pursued to improve logistics in Cambodia:

Strategy 1: The transport network should be improved, especially in terms of capacity and efficiency along major regional corridors.

Strategy 2: Logistics hubs should be strengthened to realize efficient cargo transport (with reasonable logistics costs), especially at international gateways (Sihanoukville, Phnom Penh, Bavet, Poipet, and Phnom Penh International

Airport).

Strategy 3: Seamless border crossing should be enhanced through port electronic data interchange (EDI), a Cambodia national single window (CNSW), and other trade facilitation initiatives.

Strategy 4: The capacity of private logistics service providers should be enhanced so that they can offer their customers a variety of logistics services responding to diverse requests.

Strategy 5: Institutional and organizational frameworks should be enhanced to support realization of the above strategies.

To implement the five strategies, a total of 25 programs have been proposed, consisting of short-, medium-, and long-term projects.

Development Strategies

In the short term, logistics development will focus on Debottlenecking to remove/mitigate current critical logistics constraints. Over the medium term, the focus will shift to Reaching Global Standards to realize more seamless physical and institutional connectivity with neighboring Mekong Region countries, especially Thailand and Vietnam. Over the longer term, the focus will become Activating Logistics Business, towards the establishment of a regional logistics hub, based on a sound globalized infrastructure, cross-border and customs-immigration-quarantine (CIQ) services, and capable logistics service providers. A total of 70 projects have been identified within the 25 action programs under the 5 strategies, which consolidate the implementation approach (see the Project Matrix at the end of this executive summary).

5 Strategies and Programs

Strategy 1: Development of Economic Corridors and International Gateways

Strategy 1 aims to enhance physical connectivity with neighboring Mekong Region countries and global markets to meet the expected increased volume of logistics requirements as well as stable and faster transport along major corridors. Under this strategy, five action programs have been identified:

- Road Transport Capacity Enhancement Program (P11);
- Promotion of Railway Freight Transport (P12);
- Inland Water Transport Improvements (P13);
- Sihanoukville Port Development (P14); and
- Phnom Penh Port Development (P15).

Under these five action programs, a total of 20 projects have been identified over the short, medium, and long terms.

Strategy 2: Development of Logistics Hubs for Multi-Modal Transport

Strategy 2 aims to enhance transport hubs to serve as more functional and efficient gateways, to realize seamless cross-border transport along the GMS Southern Economic Corridor, and to develop other specific logistics hubs to enhance capacity and efficiency in urban areas. Under this strategy, six action programs have been identified:

- Bavet Border Area Improvement (P21);
- Poipet Border Area Improvement (P22);
- Logistics Complex Development (P23);
- Air Cargo Hub Development (P24);
- Urban Transport Facilitation (P25); and
- Regional Development Support (P26).

Under these six action programs, a total of 14 projects have been identified over the short, medium, and long terms.

Strategy 3: Improvement of Cross-Border Management and Trade Procedures

Strategy 3 aims to enhance trade facilitation with seamless border management by improving import/export-related permit and inspection procedures towards a national single window (NSW) and an ASEAN single window (ASW), and by realizing smooth and flexible border crossing for business needs. Five action programs have been identified under this strategy:

- Port Management Enhancement (P31);
- Introduction of a Cambodia National Single Window (CNSW) (P32);
- Enhancement of the Best Trader Incentive (P33);
- Trade Compliance Improvement (P34); and
- Optimization of CamControl Functions and Procedures (P35).

Under these five action programs, a total of 13 projects have been identified over the short, medium, and long terms.

Strategy 4: Enhancement of Private Logistics Services

Strategy 4 aims to improve the diversity and quality of logistics services by enhancing the capacity private logistics providers. Five action programs have been identified under this strategy:

- Establishment of a Logistics Technical Training Center (P41);
- Public-Private Dialogue (P42);
- Logistics Businesses Modernization (P43);
- Introduction of Modern Logistics Technologies (P44); and
- Market Mechanism Enhancement (P45).

Under these five action programs, a total of 13 projects have been identified over the short, medium, and long terms.

Strategy 5: Strengthening of Legal and Institutional Framework

Strategy 5 aims to secure implementation of all of the above projects through strengthening the legal framework for the logistics system, and developing a self-sustaining mechanism for implementation of the logistics Master Plan and future logistics improvements. Four action programs have been identified under this strategy:

- Capacity Development of the General Department of Logistics, GDL (P51);

- Development of the Logistics Regulatory Framework (P52);
- Facilitation of Trade Agreements and Borderless Transportation (P53); and
- Optimization of Logistics Costs (P54).

Under these four action programs, a total of ten projects have been identified over the short, medium, and long terms.

6 Implementation Framework and Monitoring

Implementation Framework

The National Logistics Council (NLC) will act as the national coordinating and decision-making body regarding logistics policy including approval of the logistics Master Plan. The NLC is composed of the government agencies concerned. Under the NLC, the National Logistics Steering Committee (NLSC) – which is composed of 36 relevant organizations, both public and private – will be responsible for implementation and monitoring of the Master Plan. GDL will serve as the secretariat of the NLC and NLSC as well as an implementation body for the logistics projects.

Resources Required

The total cost to implement the Master Plan is expected to be at least USD 19 billion, with about USD 2.1 billion in the short term.

Monitoring and Evaluation Framework

Monitoring and evaluation (M&E) will be important to reach the goal of logistics development. Monitoring at a high level, to assess overall improvements in logistics through indicators such as the LPI, will be undertaken with basic macro data, while monitoring at the sector and program level will mainly examine project effectiveness and provide feedback for project identification and implementation planning. In order to move forward, it is necessary for GDL to continuously use the M&E system. There is a need for GDL to not only have the institutional authority over the system but also to develop a logistical statistical system to compile the necessary data and highlight areas for improvement. The M&E will not only monitor and evaluate the national logistics Master Plan but it will also collect key data that will be used for further policy decision making related to transport and logistics issues. Mere collection of the data will not suffice – the development of a computerized system for logistics statistics will enable further in-depth analysis that will support the formulation of more targeted logistics policies. GDL will need to further explore the possibility of establishing an ICT system for transport and logistics related statistics. Table 19 in the main text describes the list of key actions for GDL to be able to monitor and evaluate the Cambodia Logistics Master Plan and other logistics-related policies in a sustainable manner. The table indicates which actions will have the greatest impact on the sustainability of the logistics M&E system.

Table 1. Strategies, Programs, and Projects

	Program	Short-Term (2018-2019)	Medium-Term (2020-2022)	Long-Term (2023-2025 and beyond)
Strategy 1 Development of Economic Corridors and International Gateways	P11 Road Transport Capacity Enhancement	Debottlenecking of the Central Subcorridor (P11-S1)		Enhancement of Central Subcorridor (P11-L1)
		Debottlenecking of the Intercorridor Link (Sihanoukville-Phnom Penh Section) (P11-S2)		Enhancement of Intercorridor Link (P11-L2)
		Debottlenecking of the Southern Coastal Subcorridor (P11-S3)		Enhancement of National Roads (P11-L3)
		Overloading Control Capacity Enhancement (P11-S4)		
	P12 Promotion of Rail Freight Transport	Northern Line Railway Improvement Project (Phase 1) (ongoing basic improvements) *3 (P12-S1)	Northern Line Railway Improvement Project (Phase 2) (P12-M1)	
			Southern Line / Sihanoukville Port Access Railway Improvement Project (Phase 1) (P12-M2)	Southern Line Railway Improvement Project (Phase 2) (P12-L1)
				Further Enhancement/Development of Railway Economic Corridors (P12-L2)
	P13 Inland Water Transport Improvements	Mekong River Transport Improvement Project (P13-S1)		
		Mekong River Night Time Waterway Transport Implementation Project (P13-S2)		
	P14 Sihanoukville Port Development	Sihanoukville Port Capacity Enhancement Project (P14-S1)		
		Vessel Trafficking Management Information System (P14-S2) *2		
		Sihanoukville Port Service Improvement Project (Phase 1) (P14-S3)		
			Sihanoukville Port Service Improvement Project (Phase 2) (P14-M1)	
	P15 Phnom Penh Port Development	Phnom Penh Port Competitiveness Enhancement Project (P15-S1)		Phnom Penh Port Competitiveness Enhancement Project (Phase 2) (P15-L1)
		Water Taxi Development Project (P15-S2)		
Strategy 2 Development of Logistics Hubs for Multi-Modal Transport	P21 Bavet Border Area Improvement	Bavet Cross-Border Improvement Project (Phase 1) (Extension of Service Hours and Alignment with those of Viet Nam) (P21-S1)	Bavet Cross-Border Improvement Project (Phase 2) (P21-M1)	Kaorm Sormnor One Stop Processing Center project (P21-L1)
	P22 Poi Pet Border Area Improvement	Poi Pet Border Improvement Project (Extension of Service Hours and Alignment with those of Thailand) (P22-S1)		
	P23 Logistics Complex Development	Phnom Penh Logistics Complex Project (P23-S1)		
		Sihanoukville Logistics Complex Project (P23-S2)		Regional Logistics Complex Project (P23-L1)
	P24 Air Cargo Hub Development	Phnom Penh Air Cargo Hub Development Project (P24-S1)		
				Kampong Chhnang Logistics/Business Special Zone (P24-L1)
	P25 Urban Transport Facilitation	Phnom Penh 24/7 Truck Transport Project (P25-S1)		Phnom Penh Ring Road No. 3 (including Truck Traffic Control Measures) (P25-L1)
	P26 Regional Development Support			Enhancement of Regional/Local Linkages (P26-L1)
			Specialized Agriculture Logistics Center (P26-M1)	
				Battambang Cement Terminal (P26-L2)
Strategy 3 Improvement of Cross-Border Management and Trade Procedures	P31 Port Management Enhancement	Port EDI Implementation Project (Phase 1) (P31-S1)	Port EDI Implementation Project (Phase 2) (P31-M1)	
		Port Management System Enhancement Project (Phase 1) (P31-S2)	Port Management System Enhancement Project (Phase 2) (P31-M2)	
	P32 Introduction of Cambodia National Single Window (CNSW)	Border Clearance Procedures Improvement Project (Phase 1) (P32-S1)	Border Clearance Procedures Improvement Project (Phase 2) (P32-M1)	Border Clearance Procedures Improvement Project (Phase 3) (P32-L1)
	P33 Trade Support	Best Traders Incentive Mechanism Promotion Project (Phase 1) (P33-S1)	Best Traders Incentive Mechanism Promotion Project (Phase 2) (P33-M1)	
		Institutional and Capacity Building for Customs and Customs Brokers (P33-S2)		
	P34 Trade Compliance Improvement	Working Environment Improvement Project (P34-S1)	Compliance Improvement Project (P34-M1)	
	P35 Optimization of CamControl Functions and Procedures	Reform and Modernization of CamControl Functions (P35-S1)		
Strategy 4 Enhancement of Private Logistics Services	P41 Establishment of a Logistics Technical Training Center	Logistics Technical Training Center Development Project (Phase 1) (P41-S1)	Logistics Technical Training Center Development Project (Phase 2) (P41-M1)	
		MPWT Research Institute Development Project (P41-S2)		
	P42 Public-Private Dialogue	Establishment and Operations of Technical Working Group on Logistics Development (P42-S1)		
	P43 Logistics Business Modernization and Green Logistics Promotion	Truck Modernization Project (Phase 1) (P43-S1)		Truck Modernization Project (Phase 2) (P43-L1)
		Green Logistics Baseline Study (P43-S2)	Green Logistics Promotion Policy (P43-M1)	
			Introduction of Grading System(s) (Phase 1) (P43-M2)	Introduction of Grading System(s) (Phase 2) (P43-L2)
	P44 Introduction of Modern Logistics Business Models	LCL Enhancement Project (P44-S1)		
		Cold Chain Development Project (P44-S2)		
		Last Miles Logistics Development Project (P44-S3)		
		Tracking and Tracing System Promotion Support (P44-S4)		
		VMI Introduction (P44-S5)		
	P45 Market Mechanism Enhancement	Public Logistics Service Improvement Project (P45-S1)		Market Environment Improvement Project (P45-L1)
Strategy 5 Strengthening of Legal and Institutional Framework	P51 Capacity Development of GDL	Logistics Institutional Capacity Building Project (Phase 1) (P51-S1)	Logistics Institutional Capacity Building Project (Phase 2) (P51-M1)	Logistics Institutional Capacity Building Project (Phase 3) (P51-L1)
	P52 Development of Logistics Regulatory Framework	Development of Railway Regulatory Framework (P52-S1)		
		Development of Port and Inland Waterway Regulatory Framework (P52-S2)		
	P53 Facilitation of Trade Agreements and Borderless Transportation	Trade and Cross-Border Agreements Acceleration Project (P53-S1)		
		Cross-Border Transport Permit Facilitation Project (P53-S2)	Cross-border Insurance System Development Project (P53-M1)	
	P54 Optimization of Logistics Costs	Logistics Cost Optimization Project (Phase 1) (P54-S1)	Logistics Cost Optimization Project (Phase 2) (P54-M1)	

Chapter 1 Introduction

1.1 Background

Cambodia has been experiencing high economic growth in recent years, thanks to the favorable development of the manufacturing, agriculture and service sectors. The Royal Government of Cambodia (hereinafter, "the RGC") is willing to sustain economic growth and industrialization and formulated the "Industrial Development Policy (hereinafter, "IDP")" in 2015. The IDP aims at a transformation of the industrial structure from simple labor-intensive industries to high value added and technology-driven industries. For such a shift of the economic structure to occur, improvements of the logistics system are indispensable for Cambodia. It is also noted that the RGC is highly committed to strengthen regional economic linkages. While the regional economic bloc is gaining the momentum, for Cambodia to benefit from these regional trends, it is necessary to strengthen the GMS Southern Economic Corridor, and attract foreign investment to the country.

In this regard, IDP called for the necessity to develop and implement a master plan for transport and logistic system development with the aim of creating an integrated and highly effective multimodal transport and logistics system, focusing on connecting the major economic poles and the three economic corridors - Phnom Penh–Sihanoukville, Phnom Penh–Bavet and Phnom Penh–Poipet -- to become key national economic corridors through the construction of internationally standards highways and the setup of an effective logistics system.

In terms of institutional development, the RGC established the General Department of Logistics (GDL) within the Ministry of Public Works and Transport (MPWT) for formulating and implementing the Logistics Master Plan. The RGC has also established a National Logistics Council (NLC) and a National Logistics Steering Committee (NLSC) to coordinate and make decisions on logistics and relevant matters among the relevant ministries and the private sector. The GDL will become the secretariat of the NLC and the NLSC.

Under these circumstances, the RGC has requested the Government of Japan (hereinafter, "the GOJ") and the World Bank to provide technical assistance for improvements of the logistics system. In response to the request, the Japan International Cooperation Agency (hereinafter, "JICA") has decided to conduct the study on "Logistics System Improvement Master Plan" in the Kingdom of Cambodia (hereinafter, "the Study")". And, the World Bank has decided to jointly and separately take certain portion of the logistics master plan in Cambodia.

1.2 Rationale

1.2.1 Study Objectives and Expected Outputs

The Study aims to formulate a logistics Master Plan for Cambodia.

The following six outputs are planned to be prepared:

- Vision and strategy of the logistics Master Plan
- Short-term action plan of priority projects (2018-2019) and high priority action plans for technical cooperation project components
- Medium-term action plan (2020-2022)
- Long-term action plan (2023-2025)
- Scope and content of potential technical cooperation projects

1.2.2 Study Area and Logistics Modes

(1) Study Area

The study area is the entire country of Cambodia.

(2) Modes of Transport

The modes of transport to be studied will mainly be focused on land transport, including roads and railways, water transport including sea ports and river ports, and air transport.

1.2.3 Scope of Work

The work of formulating the Logistics Master Plan is divided into two phases. In the first phase up to December 2017, the JICA Study Team will focus on the formulation of a logistics vision targeting at 2025 and short-term action plans to take early actions ("low hanging fruits" actions) toward the logistics vision in 2025. Moreover, the JICA Study Team will propose potential technical cooperation projects from the short-term actin plans, which may contribute to capacity development of the GDL staffs regarding planning and management of logistics administration. Major work items in this phase are mainly:

- Analysis and Diagnosis of current logistics system
- Analysis of future perspectives related to logistics as preconditions of logistics master plan
- Formulation of vision of the logistics systemin the year 2025
- Formulation of short-term projects and shot-term priority projects for solving/mitigating current bottlenecks on logistics system
- Preparation of draft scope of technical assistance

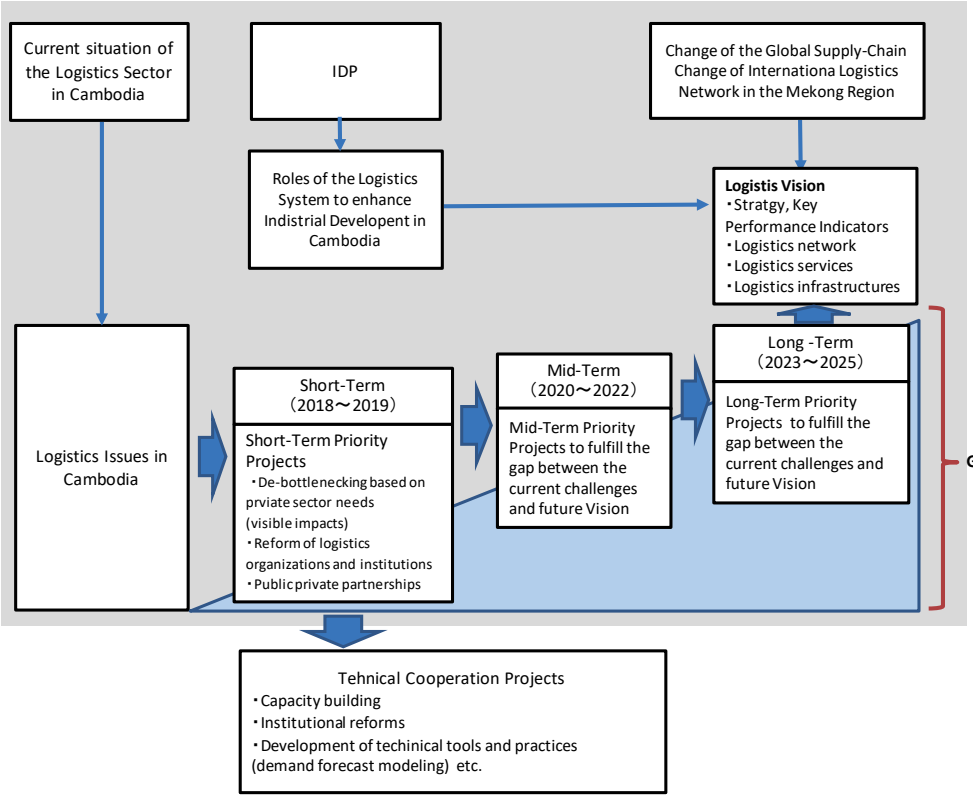
In the next phase up to March 2018, the JICA Study Team will focus on mid-term (2020-2022) and long-term (2023-2025) action plans to achieve the logistics vision in 2025.

1.2.4 Allocation of work between JICA and World Bank

JICA Study Team and World Bank Team will jointly and separately work on logistics master plan in Cambodia. JICA Study Team will take a leading role to formulate logistics master plan, while the

World Bank will take responsibility on the following 4 fields of service as inputs for the logistics master plan:

- Legal and regulatory framework for the logistics sector;
- Monitoring and evaluation system for the proposed Logistics Master Plan;
- Trade facilitation including Customs and border management processing and clearance; and
- Updated trade diagnostics to inform the design of the proposed Logistics Master Plan.



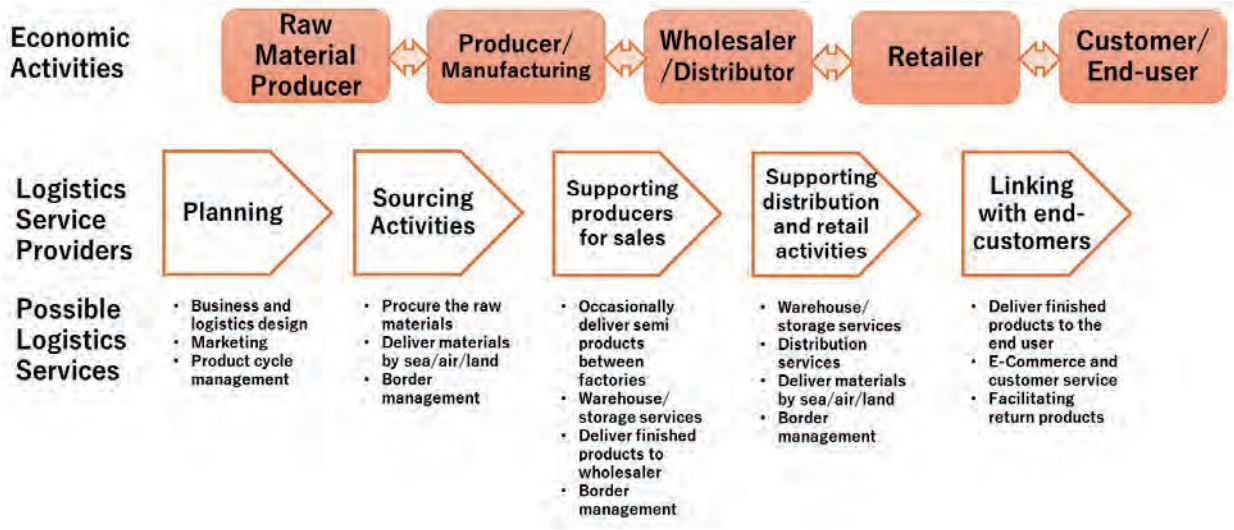
Source: JICA Study Team.

Figure 1.2.1 Coverage of Logistics Master Plan

1.3 Definitions

1.3.1 Definitions of Logistics

Logistics have been defined differently by different academia and industry associations. In the Logistics Master Plan, logistics refers to:"the process of planning, implementing and controlling the efficient, effective movements and storage of goods and services from the point of origin to the point of consumption to meet customer requirements". The roles of logistics span from planning/designing, sourcing raw materials to the producer, movements between factories, warehousing and delivering goods to wholesalers/distributors, facilitating businesses with retailers and then end-users (See Figure 1.3.1).



Source: JICA Study Team.

Figure 1.3.1 Roles of Logistics in Supply Chains

The ultimate goal of logistics is to provide goods and services of the appropriate state at the right place and within the right timeframe at a minimum cost. The government is not a logistic service provider but plays very significant roles in logistics in the following ways;

- The provision of transport infrastructure is the government's responsibility. Even if the private sector plays a role in this area under the PPP arrangement, the government should still take a coordination and overall responsibility in this regard;
- The government should set rules and regulations in the logistics industry. These are transparency rules, tax rules, safety rules, and so on. Laws and regulations are different by sector – therefore, the government needs to set different regulations by sector (e.g. railways, trucks, vessels, etc.);
- The government often sets sector strategies and actions plans. The government needs to coordinate among all stakeholders to identify issues and resolve them with the consensus;
- In logistics, tax rules and trade rules are so important. The government needs to negotiate deals with other countries and with multinational institutions and ensure the compliance with set agreements;
- Border control, including customs and quarantine, is one of the prime issues in logistics. The government needs to ensure smooth movements at each border with reasonable fairness and transparency.

Roles of logistics are significantly different depending on circumstances. Some of the key aspects are:

- **Domestic supply chain vs. international supply chain**: Domestic supply chains do not involve border management, but border management is one of the most important logistics aspects for the international supply chains.
- **Importing goods vs. exporting goods**: Logistics service providers (LSP) provide similar services in terms of border management but domestic LSPs provide services towards the end of the supply chain for imports, and higher end of the supply chain for exports.
- **Low value-added products vs. high value-added products**: Processes are broadly same but likely modes of transport could be different (e.g. air transportation is suitable for small/ high

value-added products, while railways/shipping transportation is more suitable for large and low-value added products).

1.3.2 Necessity and Benefits of the Logistics Master Plan

The Rectangular Strategy, Phase III have defined the way of the transformation of Cambodian economy in reaching a middle-income country status and have considered the industrial sector as a key driver of its economic growth. Accordingly, the RGC has adopted the Industrial Development Policy as a guide for driving the development of the industrial sector in the country, which can contribute toward maintaining a sustainable and inclusive high economic growth.

While the RGC's goal is clear, key responsibilities are widely spread around. For the management of logistics matters alone, key government agencies include MPWT, SSCA, MRD, MPP, MEF/Customs, CDC and local governments. Furthermore, in logistics, the private sector is a key player and facilitator. However, private sector voices are similarly spread around as there are so many business associations, often organized by investing country/region, but also by industry group (e.g. truck association). There is a need to coordinate among those and consolidate the views and to take co-responsibility among key logistics players, both in the government and the private sector. This is a massive coordination need but the benefits are similarly large.

In the government, there are may strategies and master plans – sometimes without coordination. In the private sector, there are many bilateral policy dialogues – often without coordination. The aim of the development of the Logistics Master Plan is to involve all stakeholders and develop the comprehensive and inclusive strategy.

Looking at the outside the country, there is a regional dimension. The government has already committed to liberalize trade activities and create a regional economic bloc with neighbouring countries. In this regard, the RGC supports ASEAN Transport Strategic Plan 2016-2025 and ASEAN Connectivity 2025.

The integrated logistics framework, which supports enhanced inter- and intra-connectivity among the various transport modes, is the catalyst for efficient and seamless movement of goods in the international and domestic markets. Efficient logistics contributes to operational efficiency by reducing time and costs of delivering goods to reach consumers and subsequently increases the comparative advantage of domestic industries. It is also a powerful tool to accelerate convergence with global supply chains and help key export industries connect with international markets. More detailed benefits are summarized in Table 1.3.1 .

Table 1.3.1 Key Benefits of Logistics Master Plan

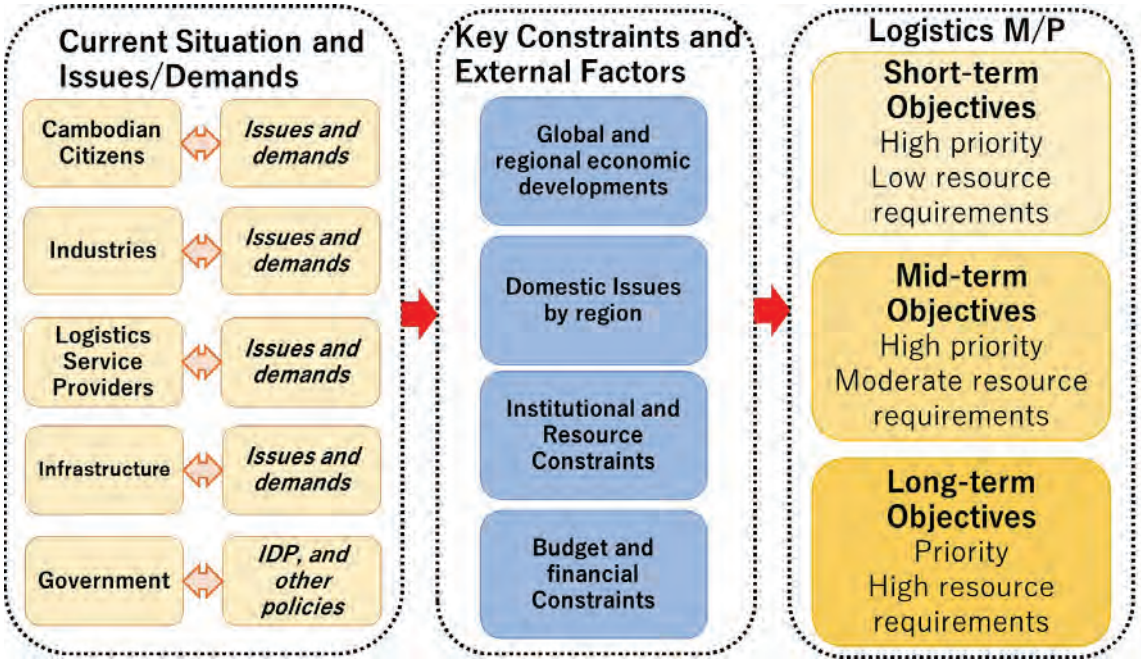
Key Benefit	Comments
Bonding various government policies in a consistent way	There are many infrastructure master plans and economic/industrial policies in the government. However, these are often developed within one ministry and not necessarily consistent each other. Logistics matters cover many different topics covered by different ministries (but for the same purposes). The development of the Logistics Master Plan can bond these initiatives together and creates one platform within the government/country.
Increase global competitiveness of the economy	Efficient logistics would reduce the costs and time of logistics activities and therefore enable competition over larger geography, allowing key export industries to compete for international markets and domestic industries to be more competitive.
Facilitating the global supply chains	Cambodian people can benefit from building the strong global supply chains – they can buy high quality products cheaply and the industry can access to larger and more attractive global markets. Manufacturers are outsourcing production of parts and components worldwide to achieve cost competitiveness and to attain economies of scale.
Supporting domestic industries	Integrated supply chains are the key to global sourcing. It helps optimize the movements of goods, thus reducing overall product costs. Logistics provides crucial support to just-in-time and zero-inventory production concepts that provide businesses with lower inventory and storage cost.
Attracting investments	The quality and costs of logistics (including the quality of infrastructure) are an important factor for foreign investors to determine investment destinations. Having the good logistics sector will be a tangible benefit to attract foreign investment.

Source: JICA Study Team.

1.4 Overall Analytical Framework

The overall logistics framework is somehow complicated as there are many important players and their issues and demands are not always the same. The analytical framework of the Master Plan starts from taking stock of the existing issues and demands from all of the key logistic players, namely Cambodian population, industries (including agricultural producers and manufacturing producers), LSPs, infrastructure providers and the government (all key ministries involved in the logistics matter). Each of the players have specific issues and demands for future improvements but priorities are not always the same and sometimes conflict each other.

These issues and demands are then filtered through constraints – namely, financial constraints, regulatory constraints, capacity constraints, government budget constraints, and other resource and financial constraints. Projects with high constraints could not become a short-term objective simply because it takes longer to unblock the resource constraints. Other factors, such as global demands, regional economic developments (such as Thailand +1 and Vietnam +1 initiatives and regional trade agreements), domestics factors by region (e.g. key issues in Poipet, Bavet, Battambang, and Phnom Penh, are all different), are also taken into consideration.



Source: JICA Study Team

Figure 1.4.1 Analytical Framework

Key measures or possible solutions against key issues can be prioritized depending on the urgency, resource availability, the degree of strategic fitting and political commitment. Short term objectives focus on: (i) "low hanging fruit" – that does not require large resources and financing in the short term but could be effective or presenting reasonable solutions for the meantime and (ii) high benefit projects with strong donor support – e.g. externally financed road corridor development projects.

Chapter 2 Economic Development and Logistics Demand

2.1 Natural Conditions in Cambodia

Natural conditions greatly affect development potentials. Especially, elevation of the land and amount of rainfall are the large elements to determine agriculture. In this regard, Cambodia can be divided into 4 main regions, including the Plain Region, Coastal Region, Tonle Sap Lake Region and Northeast region.

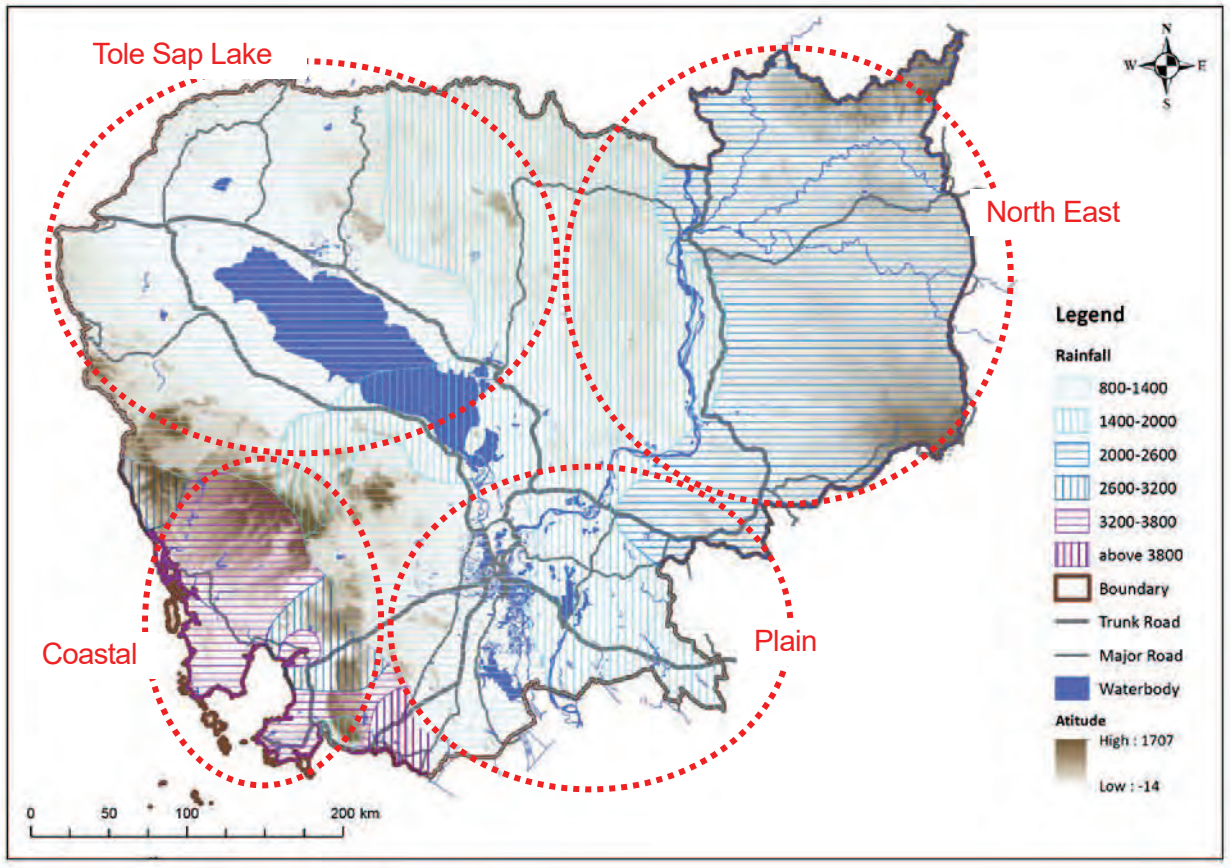
The Plain Region is located at central plain of Cambodia with lower flat land. The Plain Region has sufficient water in whole seasons from adequate rainfall and rivers (like Tonle Sap River, Mekong River, Bassac River etc.).

The Coastal Region has mountainous area behind the coastal line. In between the coastal line and the mountainous area, there is narrow plain area. Sufficient water available in rainy season in the Coastal Region, however, the region sometimes faces water shortages for drinking and cultivation in the dry season due to the lack of sufficient reservoirs.

The Tonle Sap Lake Region is the lower plain area around the Lake Tonle Sap. The Tonle Sap Lake Region is a dry area with limited rainfalls.

The Northeastern Region is located at inland area of Cambodia facing to Thailand, Laos and Vietnam. The Northeastern Region is plateau and mountainous area with sufficient rainfall. The Northeastern Region, accordingly, has sufficient water for drinking and cultivation in rainy season, while limited water in dry season.

Figure 2.1.1 shows the levels of the elevation and rainfalls of Cambodia.



Source: Cambodia Atlas.

Figure 2.1.1 Regions in Cambodia

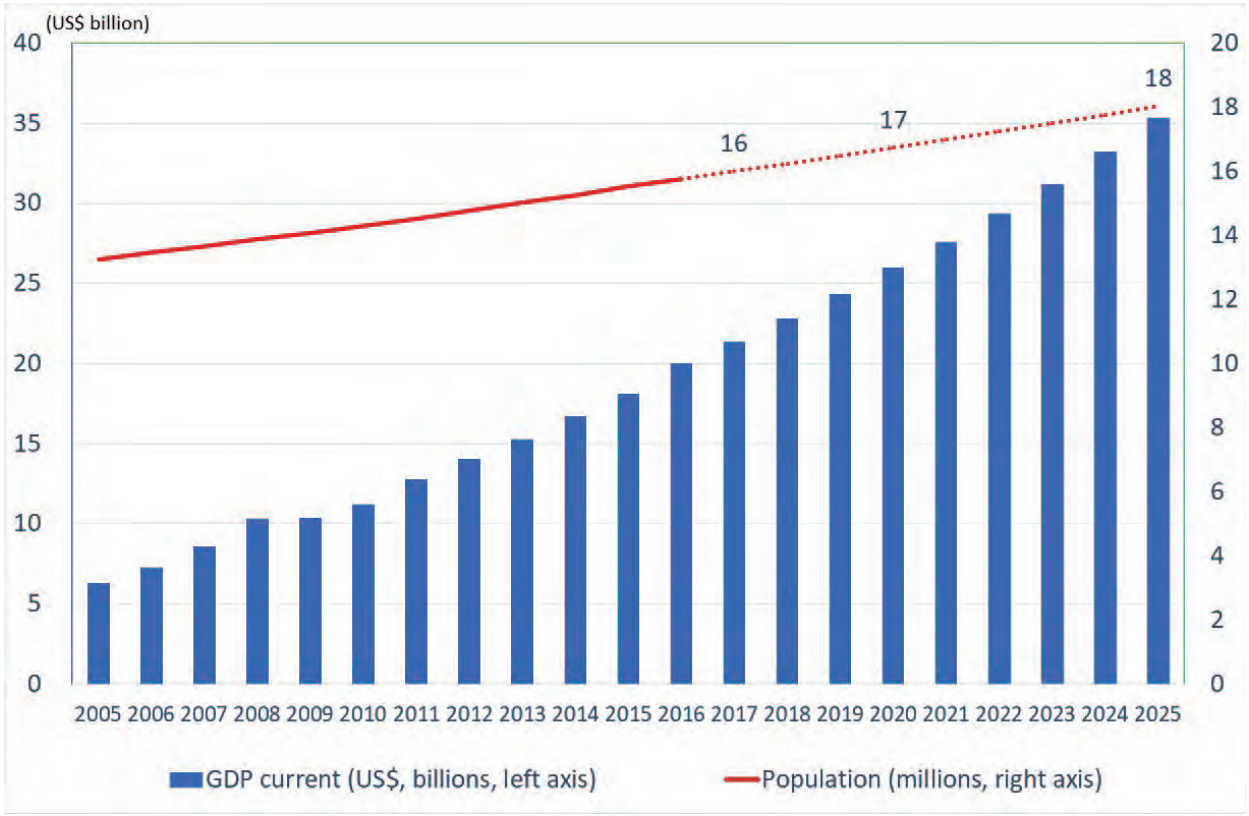
Table 2.1.1 Industrial Development Perspectives

Region	Characteristics	Province
Plain	• Low and flat plain • Sufficient water in all seasons with rainfall and river	Phnom Penh, Kandal, Kampong Speu, Takeo, Prey Veng, Savey Rieng, Tbog Khmum, Kompong Cham
Coastal	• Coastal line, narrow plain and Mountainous area • Sufficient rainfall in rainy season	Koh Kong, Sihanoukville, Kampot
Tonle Sap Lake	• Low and flat plain around Tole Sap Lake • Dray with limited rainfall	Kampong Thom, Kampong Chhnang, Siem Reap, Pursat, Battabang, Pailin, Banteay Meanchey, Oddar Meanchey
Northeastern	• Plateau and Mountainous • Sufficient rainfall in rainy season	Preah Vihear, Stung Treng, Ratanakiri, Kratie, Moundulkiri

Source: JICA Study Team.

2.2 Socio-Economic Development

Following two decades of strong economic growth, Cambodia has attained the lower middle-income status in 2015, with gross national income (GNI) per capita reaching $1,070. Driven by garment exports and services sector growth, Cambodia has sustained an average economic growth rate of 7.6% during 1994-2015. This is one of the highest in Asia. It is noted that the high economic growth has been achieved in the low inflation environment. Economic growth is expected to remain strong over the next 8 years (i.e. towards 2025) as projected by the IMF and other economic thinktanks (see Figure 2.2.1).



Sources: The forecast of population growth and GDP has been made by the JICA Study Team based on the IMF 2016 Cambodia Article IV and World Economic Outlook Database, April 2017.

Figure 2.2.1 GDP and Population Growth Projections

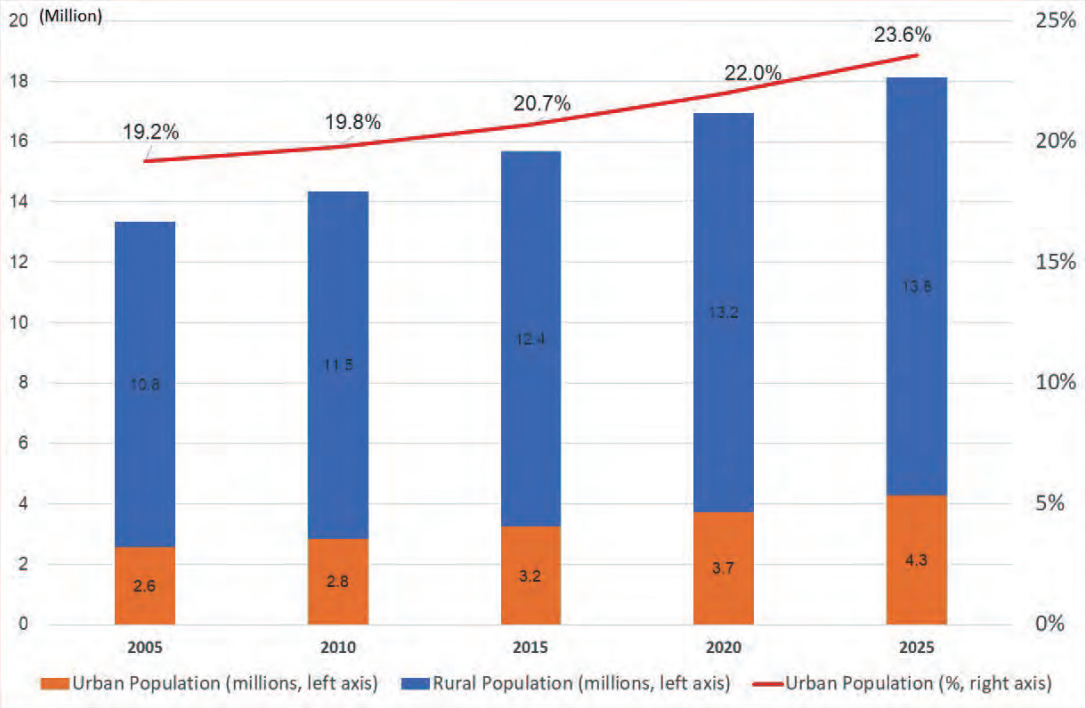
Economic growth is projected to navigate between 6-7% depending on expansion of future exports and FDI. Initial diversification from garments into new sectors such as electronics and bicycles is helping Cambodia to climb up the value chain. This trend could only be supported, though, if effective policy measures are devised and implemented to address the two main bottlenecks: high electricity and logistics costs. Moreover, labor skills will also have to be developed to sustain the growth of the manufacturing sector. If this trend continues, the domestic economic size will increase approximately by 88% by 2025. The size of the economy can be considered as a proxy for the domestic logistics demand. Therefore, domestic logistics demand is expected to increase in a similar manner and associated infrastructure and logistics capacity need to be established without delays.

In terms of population, expected growth (i.e. about 1.5% per year) is significantly lower than that of economic growth. It means that per capita income will grow rapidly (i.e., projected increase by 78% by 2025). Income growth has already been significant in Cambodia in the past decade. Particularly in the Phnom Penh area, the middle-class is emerging – who will continuously support the large and growing consumption of goods. Consumption patterns will become significantly different from those of today, and accordingly, urban logistics should be developed to meet the fast-changing business and consumer demands.

About 16 million people are living in the country and it is not a large population by Asian standards. But one of the most attractive features of Cambodia is the fact that the majority of the population is in the working age group (i.e., 64.3% of population is between15 and 64 years). In particular, youth population, defined as 15-24 years old by the United Nations, comprises 20.6% in Cambodia in 2015. This can be compared with Vietnam's youth population (16.8%) and that of Thailand (13.8%) where the population is aging rapidly. Cambodia's trends are opposite, that can be attractive to foreign

investors.

Cambodia is still a predominantly rural society, but the urbanization seems to be progressing fast (see Figure 2.2.2). In 2015, one fifth of the population (20.7%) was defined as urban population. Phnom Penh is substantially urbanized with population of 1.73 million, comprising 11.1% of country's population. According to UN projections, the urban population rate will further increase to 23.6% (or 4.3 million) by 2025.



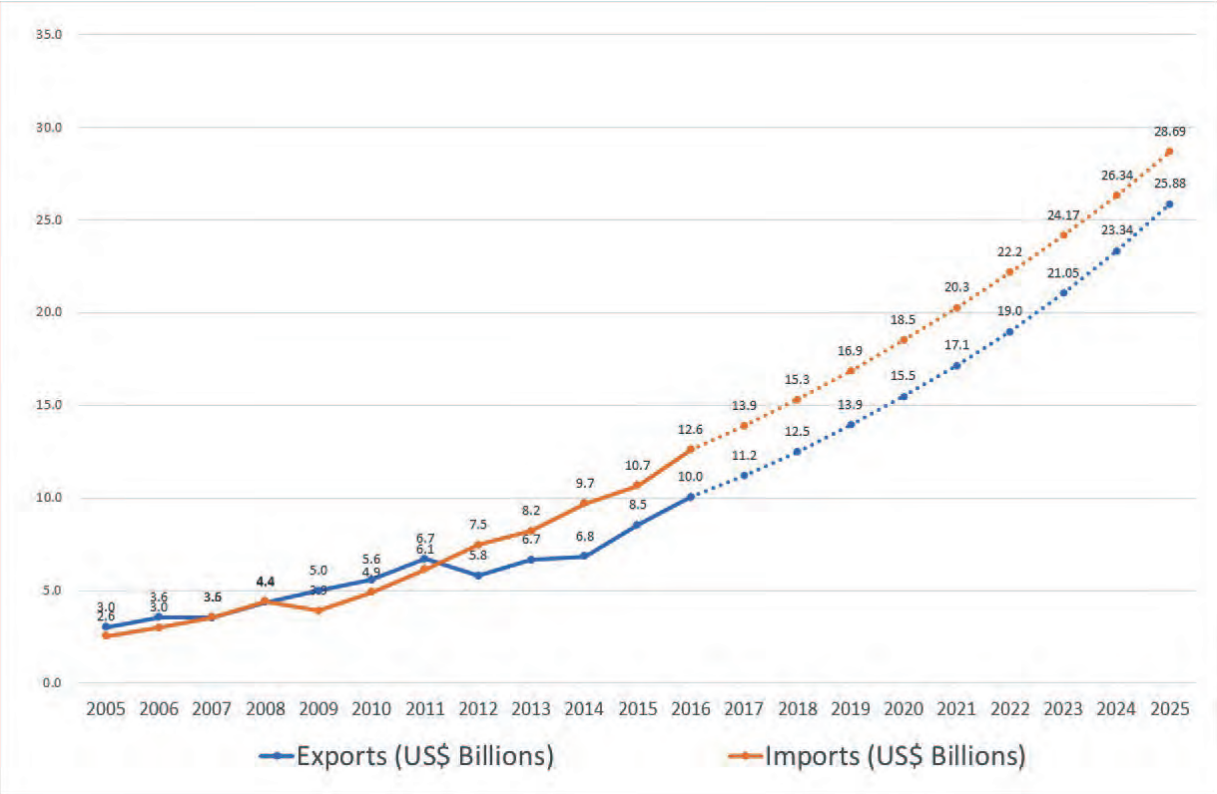
Sources: WITS, the World Bank; WEO, IMF and JICA Study Team.

Figure 2.2.2 Urbanization Trend in Cambodia

2.3 International Trade

2.3.1 Trade Patterns and Projections

In terms of trade (in value terms), both exports and imports significantly increased in the past decade. Exports increased from US$ 3.6 billion in 2006 to US$ 10.0 billion in 2016 (annualized growth rate of 12%) whereas imports increased from US$ 3.0 billion in 2006 to US$ 12.6 billion in 2016 (annualized growth rate of 23%).



Sources: WITS, the World Bank; WEO, IMF and JICA Study Team.

Figure 2.3.1 Exports and Imports in US$ billions (2005-2025)

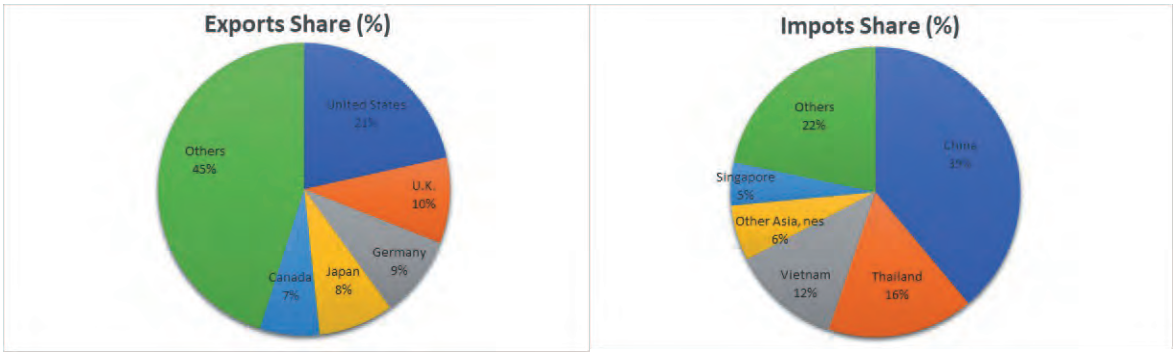
During the Master Plan period (i.e. till 2025), exports are expected to further increase by 2.6 times (see Figure 2.3.1). With the same assumptions, according to the World Bank projections, exports are expected to rise by 4.1 times by 2030 compared with those in 2016.[1] Bearing such high expansion in mind, the national infrastructure system, including highways, ports, airports and warehouses, will have to be ready to process this volume of goods. If this will not be the case, the government risks to curb Cambodia's export potential and to impact on the economy's capacity to create new and better jobs.

On the export side, Cambodia has benefited from the preferential taxation status given by the largest developed markets (i.e. the US and the EU), and exports of garments and agricultural products substantially increased over time. Exports of textile & clothing has been dominant since 2005, accounting for 71% of total exports in 2015. The basic export patterns have remained unchanged over the last ten years; however, it is noted that the export share of the manufacturing products (i.e. machines & electronics) steadily increased from 0.19% in 2005 to 4.41% in 2015. The steady increases of exports of value-added manufacturing products is partly thanks to the influx of FDI and exports from SEZs to neighboring countries. The share of agricultural products also increased from 0.19% in 2005 to 4.02% in 2015. Rice is another contributor with estimated US$ 285 million of exports or 466 thousand tons in volume terms in 2015.

Cambodia's trade direction needs to be diversified and focus on emerging growth poles. The bulk of

[1] To forecast Cambodia's exports in 2030, the World Bank used IMF's WEO projections to 2022, which have been extended to 2030 assuming that the historical growth rate after 2022 will be maintained and a constant export-GDP elasticity of 1.7. Alternative elasticities based on Constantinescu, Mattoo and Ruta (2016) are used to construct an interval and showed in dotted lines. IMF's real export growth expected in the period 2017-2022 is 10.5% per year. The real expected GDP growth in 2017-2022 (IMF) is 7% per year. The GDP growth to export growth ratio for 2017-2022 is 1.7. The historical average of GDP growth, assumed for the period 2022-2030, is 7%.

Cambodia's exports, mostly garments and footwear, are going to Europe and the USA, which have been the main exporting markets since the country started its integration in the world trading system. However, it is important to point out that part of Cambodia's export growth is associated with increasing integration in regional value chains in the East Asia and Pacific Region (EAP), particularly with China and neighboring ASEAN countries. This is in part attributable to the recent diversification from garments to electronics and machinery. Within the latter, vehicle parts and accessories' exports grew 48-fold between 2010 and 2016, from US$ 69,000 to US$ 3.35 million. Although this is still an incipient sector (only US$ 3.3 for every US$ 10,000 of Cambodian exports fall into this sector), it constitutes an area with more potential for expansion in the future development of Cambodia's exports.



Sources: WITS and the World Bank.

Figure 2.3.2 Key Export and Import Markets (2016)

On the import side, main growth contributors are textile imports and consumer goods. In particular, imports of textiles & clothing from China significantly increased from US$ 0.42 billion in 2006 to US$ 2.4 billion in 2015 (that is 23% of all the imports of Cambodia). As per capita income grew, imports of consumer goods have also increased substantially. Import share of top five countries and regions have not changed for the last ten years. The share of imports from China increased from 17.7% in 2005 to 36.8% in 2015. The share of Thailand also increased from 11.4% in 2005 to 14.6% in 2015 and that of Vietnam increased moderately from 7.1% in 2005 to 8.7% in 2015.

Cambodian firms are expected to move 4.1 times more goods in 2030 than in 2016. Logistics soft and hard infrastructure will have to be adequate to support this substantial increase. Cambodia needs to strengthen its competitiveness to ensure its exports to GDP ratio remains at least at the current level to sustain a medium and long term high economic growth. Easing logistics bottlenecks are important for Cambodia to sustain its competitiveness in the international market. Lowering logistics costs, increasing service reliability and reducing delays is key to keep Cambodia's growth story in the next 15 years.

2.3.2 Diversification and Sophistication of Exports

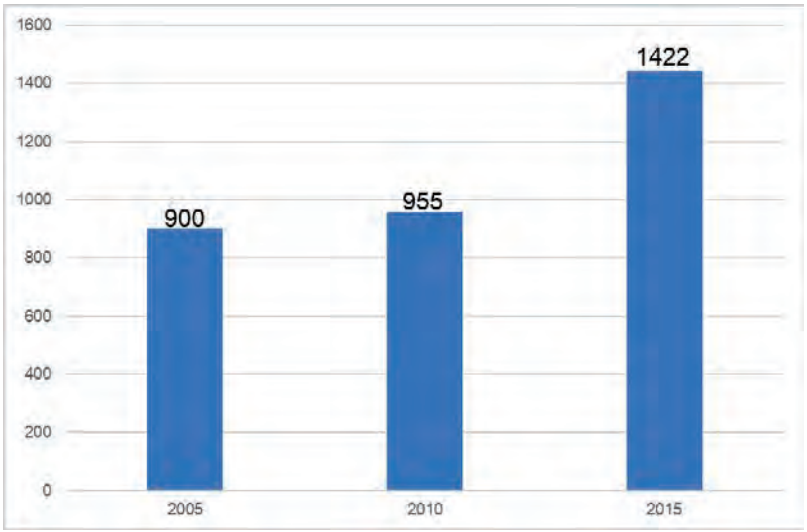
Cambodia has faced serious challenges to diversify beyond its well-established garment exports and has not yet drilled in to export sophistication activities. Outside of garments, initial diversification is occurring in a handful of sectors, including in wood products, rice and electronics. Large part of rice exports, however, are still informal.

Garments, and specifically, cut-make-trim activities account for most of the value added in manufacturing. Garments account for 55 percent of all manufactured value added in the economy and for 84 percent of all the value added exported from manufacturing. In turn, of every dollar exported of garments in gross terms, 43-cents originate in Cambodian value added, while 57 cents correspond to

imported components. Despite Cambodia's strong position in the world's garments value chain, firms are still in low-quality segments. When comparing the prices that Cambodian firms fetch in international markets for garments (with its main destination being the USA), we see that those are 70 percent lower than those fetched by top quality exporters, suggesting there is substantial space for quality upgrading. Upgrading, in turn, will require, on one hand, top class logistics, but importantly, training of both workers and managers.

Nevertheless, the diversification is certainly progressing. Over the last decade, of every 100 USD of additional exports, 44 were accounted for more exports of the same products to the same destinations, while the other 56 by some sort of diversification. Diversification took several forms. The most common being penetrating an old export market with a new product. Also, during the period, Cambodian firms reached thirty-four new destinations, fourteen of which were in Africa, nine in South America and six in Europe, with a total of 149 export partners being served by Cambodian firms. However, at the product level most of the diversification happened within garments, where the importance of logistics costs in sales is low.

The increase in exports has been based on a diversification along the product dimension, which occurred mostly within the textiles and garment sector. In 2005, 15 products only accounted for 80% of Cambodia's exports, while, in 2016, 39 products have to be considered to reach 80% of exports. On the same token, the number of export and import products also increased. In terms of exporting products, the number of HS codes increased from 900 in 2005 to 1,422 in 2015 – that is 58% increase over the past ten years. Thus, the significant diversification has been happening.



Source: Mnistry of Commerce.

Figure 2.3.3 Number of Exporting Commodities (HS code)

A comparison of the 20 most exported products in 2005 and 2016 (see Figures 2.3.4 and 2.3.5) indicates that garment still plays a significant role, accounting for 50% of the most exported products in 2016. However, initial export differentiation is confirmed by the presence of rice (cereals), bicycles and telephone parts. The top 5 products exported in 2016 were garments destined to Europe, USA, Canada and Japan. These are low value, low tech products linked to Cambodia's specialization in cut-make-trim, which is the lowest profit margin sector in the garment industry. Moving up the sophistication ladder needs to be done simultaneously with maintaining competitiveness in the low value garment segments where it is currently holding a solid position vis-a-vis its competitors. In its attempt to increase value addition, Cambodia will have difficulties in competing with more advanced countries such as Hong Kong, the Philippines and Taiwan (a province of PRC) in the area of design. Cambodia could consider increasing some upstream activities in the area of merchandising (sourcing accessories and raw materials). This will be possible if additional skills are developed as these are not currently available in the market.

Cambodia's exports remained highly concentrated in garments over the past 15 years. The percentage share of garments in total exports did not change much between 2005 and 2016. Garments are still dominant with limited diversification into other high value products. Nevertheless, signs of nascent diversification could be observed in some emerging exports (rubber, fur-skins, bicycles, telephone accessories, and cereals) but still in a small volume.

Source: Atlas of Economic Complexity (MIT).

Figure 2.3.4 Cambodia's Export Composition by Sector (2005)

Source: Atlas of Economic Complexity (MIT).

Figure 2.3.5 Cambodia's Export Composition by Sector (2016)

A comparison of the 20 most exported products in 2005 and 2016 (see Table 2.3.1 and Table 2.3.2) indicates that garment still plays a significant role, accounting for 50 percent of the most exported products in 2016. However, initial export diversification is confirmed by the presence of rice (cereals), bicycles and telephone parts. The top 5 products exported in 2016 were garments destined to Europe, USA, Canada and Japan. These are low value, low tech products linked to Cambodia's specialization in cut-make-trim, which is the lowest profit margin sector in the garment industry. Moving up the sophistication ladder needs to be done simultaneously with maintaining competitiveness in the low value garment segments where it is currently holding a solid position vis-a-vis its competitors. In its attempt to increase value addition, Cambodia will have difficulties in competing with more advanced countries such as Hong Kong, the Philippines and Taiwan (a province of PRC) in the area of design. Cambodia could consider increasing some upstream activities in the area of merchandising (sourcing accessories and raw materials). This will be possible if additional skills are developed as these are not currently available in the market.

Table 2.3.1 Main exported products in 2005

Top 20 HS6 Exported Products 2005

2005			
HS6 Code	Product Description	USD	Share
611090	Jerseys (cotton)	565.193.347	23%
610469	Women's trousers (other material)	297.252.574	12%
610839	Women's pyjamas	143.282.472	6%
610342	Men's trousers (cotton)	125.638.689	5%
610690	Women's blouses, shirts	121.635.092	5%
610349	Men's trousers (other material)	99.039.633	4%
610419	Women's suits	96.585.982	4%
611020	Jerseys (other material)	72.686.333	3%
610319	Men's suits	72.033.094	3%
610462	Women's trousers (cotton)	65.158.996	3%
610459	Women's skirts	55.889.444	2%
610510	Men's shirts (cotton)	51.624.252	2%
610590	Men's shirts (other material)	47.310.997	2%
970600	Antiques	34.881.489	1%
400129	Natural rubber	34.722.047	1%
640320	Footwear (leather)	32.845.520	1%
610729	Men's pyjamas	32.594.025	1%
610339	Men's jackets	32.126.644	1%
611190	Babies' garments	28.920.832	1%
620590	Men's shirts (not knitted or crocheted)	26.531.471	1%
Total top 20		**2.035.952.933**	**83%**

Table 2.3.2 Main exported products in 2016

Top 20 HS6 Exported Products 2016

2016			
HS6 Code	Product Description	USD	Share
610469	Women's trousers (other material)	1.058.324.547	11%
610910	T-shirts (cotton)	915.841.017	9%
610349	Men's trousers (other material)	733.139.038	7%
611090	Jerseys (cotton)	549.196.544	5%
640320	Footwear (leather)	477.047.383	5%
871200	Bicycles	345.361.707	3%
610990	T-shirts (other material)	330.914.162	3%
100630	Cereals	303.544.325	3%
610339	Men's jackets	300.177.072	3%
610449	Women's dresses (other material)	192.072.978	2%
710812	Metals, gold	186.376.645	2%
640419	Footwear (rubber or plastic)	186.020.945	2%
610839	Women's pyjamas	177.855.529	2%
610439	Women's jackets (other material)	172.956.397	2%
430211	Furskins	172.064.373	2%
611190	Babies' garments	153.319.150	2%
400129	Natural rubber	132.759.828	1%
851770	Telephone parts	129.410.056	1%
610690	Women's blouses, shirts	123.245.992	1%
610590	Men's shirts (other material)	110.672.239	1%
Total top 20		**6.750.299.927**	**67%**

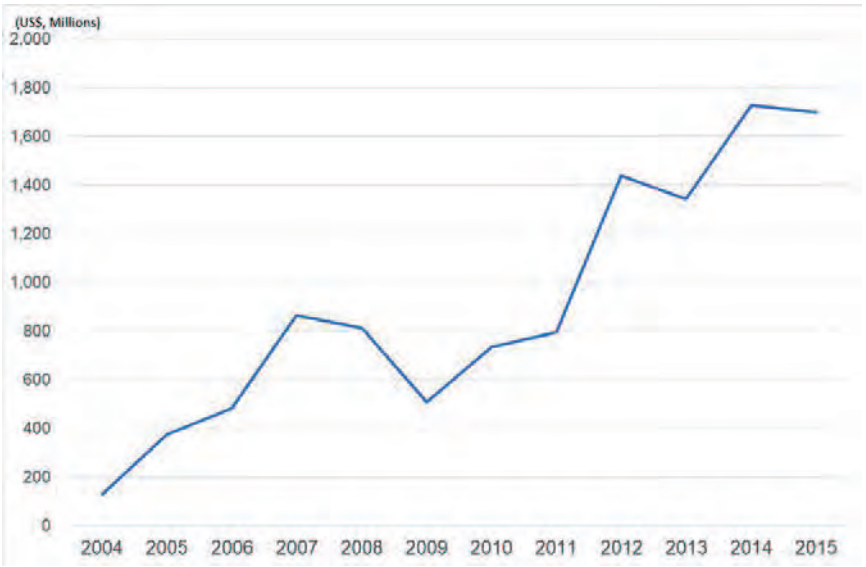
Source: Authors' calculations based on data from UN Comtrade.

2.4 Foreign Direct Investment

Before the 2010s, the role of Cambodia in the global value chains had predominantly been the production of labor-intensive products such as garments and footwear products, with the advantages of low labor costs and GSP. In addition, rice is also an important export product in terms of trade volumes and its political importance. The value chains of these products are often in the simple structure.

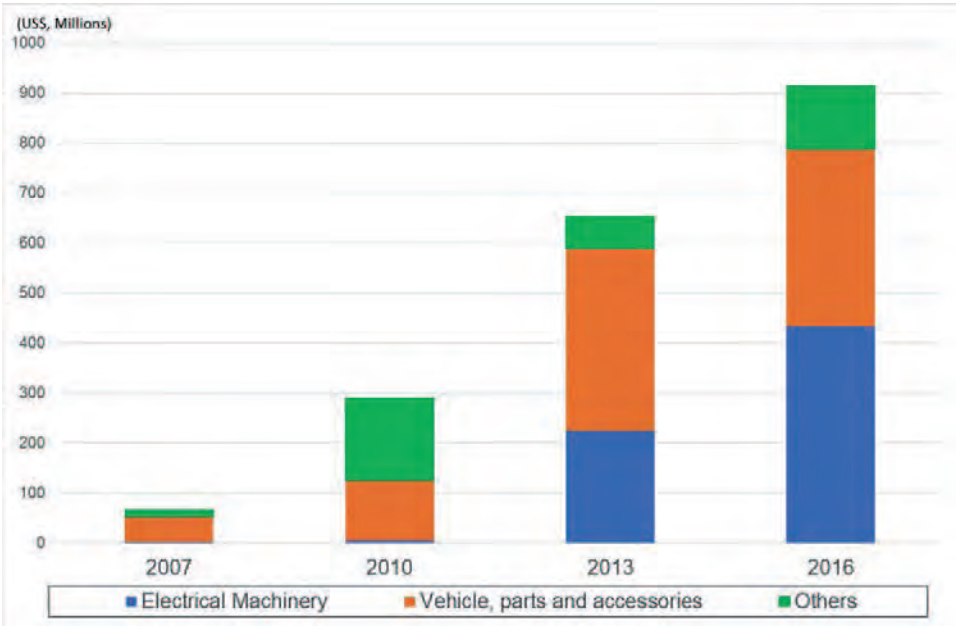
In the 2010s, the manufacturing sector and export of machinery and electric products have grown in Cambodia as a result of the relocation of some parts of production processes by multinational manufacturing companies from the existing manufacturing bases, for example, in China and Thailand. This is called the "International fragmentation" phenomenon which means that the multinational companies choose to separate the production blocks of the whole production processes and select the most efficient location globally for each part of the production blocks. It was enabled by the decrease in the service link costs (such as the logistics costs, trade and transaction costs of procurement and distribution) due to the improvement of logistics and decrease of tariff and non-tariff barriers of cross border trade.

As the international fragmentation of production has deepened in ASEAN countries, Cambodia has also been included as part of integrated regional value chains of the production network in the ASEAN region during the 2010s. Especially some of the labor-intensive parts of the production of automobiles and electronic machineries have been shifted to Cambodia. The majority of FDI has been made in SEZ areas of Phnom Penh, Sihanoukville, Koh Kong, Bavet and Poi Pet. Figure 2.4.1 shows the rapid increase of FDI inflows and exports of manufacturing products (see Figure 2.4.2).



Source: World Bank Data.

Figure 2.4.1 Net FDI Inflow to Cambodia



Source: UN Comtrade (total export amount of HS code 84-96, from Cambodia to World).

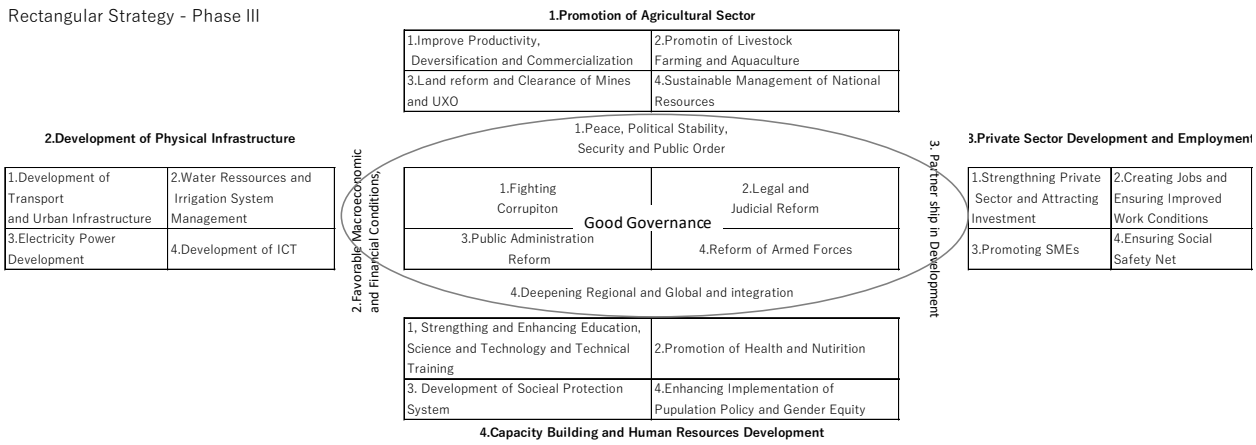
Figure 2.4.2 Export Values of Manufacturing Products

FDI of the manufacturing industry into Cambodia could be classified into three types: (i) investment in an export processing factory which produces products to be exported to foreign markets; (ii) international fragmentation of production process which is the relocation of some part of the whole production processes from foreign countries; and (iii) manufacturing to seek for the domestic market. In addition to such manufacturing products, there are also potential export products which originate domestically in Cambodia, such as the agricultural products which are locally grown and exported to foreign markets.

2.5 Industrial Development

2.5.1 National Strategies

The Rectangular Strategy (RS) has been the hallmark of development since 2004. The RS is a dynamic document that lays out the political commitment to a socioeconomic development process every 5 year. The current RS III (2014-2018) was adopted in 2013 with four strategic objectives: (i) ensuring an average annual economic growth of 7%; (ii) creating more jobs by attracting domestic and foreign investments; (iii) achieving more than one percentage point reduction in the poverty rate annually; and (iv) improving institutional capacity and governance at both national and sub-national level. By far, the implementation seems to be on track.



Source: National Strategic Development Plan 2014-2018

Figure 2.5.1 Rectangular Strategy Framework – Phase III

National Strategic Development Plan 2014-2018 (NSDP or five-year plan) is the implementing organ of RS III. NSDP outlines the actions, programs and projects that ministries and other implementing agencies will carry out. As RS III pointed out, structural transformation of Cambodian economy is necessary and industrial sector plays a key role for its economic growth.

Cambodia graduated from lower-middle-income status after its GNI per capita reached $1,070 in 2015. RS III insists that Cambodia envisage to become an upper-middle income country by 2030 and finally to become a higher-income economy by 2050. According to the World Bank's classification, the thresholds for lower-middle income country is GNI/Capita (current US$) 1,006 - 3,955 while that of upper-middle income country is US$ 3,956- 12,235.

The government adopted the ***Industrial Development Policy (IDP)*** in 2015 to provide a vision and policy framework and specific mechanism to develop a competitive industrial sector in Cambodia and to achieve its full integration into regional and global value chain. To promote a platform for growth focusing on economic diversification, strengthening national competitiveness, and enhancing productivity, following industrial changes are envisaged in the IDP towards 2025.

(1) Manufacturing (non-garment and non-footwear)

IDP puts the highest importance on non-garment and non-footwear manufacturing sector. The manufacturing sector has been growing fast in the recent past. The government focuses on fostering manufacturing ventures with the capability of breaking into new markets, with high value-added products, creative and highly competitive that focuses not only on consumer products but also production equipment such as machinery assembly, mechanic/electronic/electric equipment assembly, means of transport assembly and natural resource processing. Manufacturing in GDP is expected to grow from 16% (or US$ 2.8 billion) in 2015 to 20% (or US$ 7.6 billion) in 2025 (almost 3 times in value terms). Non-garment manufacturing exports will grow from US$ 0.4 billion in 2015 to US$ 3.2 billion in 2025 (over 8 times increase).

(2) Garments and Footwear Products

According to IDP, the relative importance of the garment and footwear sector in GDP and exports will decrease over time, as the share of exports will decrease from 60% in 2015 to 50% in 2025. However, the sector will remain the largest contributor in industry and exports and the total value will actually double from US$ 5.1 billion in 2015 to US$ 10.6 billion in 2025 (i.e. two times in value terms). The country is expected to produce more value-added garments and footwear, and the roles in the value

chains will involve design, machine-based manufacturing, marketing, packaging, etc. Thus, the logistics capacity should change accordingly.

(3) Agricultural Products

The share of Agriculture in GDP will decrease from 29% in 2015 to 23% in 2025, but the value will actually increase from US$ 5.2 billion in 2015 to US$ 8.7 billion in 2025 (67% increase). In terms of exports, both value and the share will increase. The export value will increase from US$ 0.7 billion in 2015 to US$ 2.5 billion in 2025 (3.5 times more). The diversification of agricultural products and higher value creation within the country are expected.

Table 2.5.1 Future GDP breakdown

	2015		2020		2025	
	% of GDP	US$, billions	% of GDP	US$, billions	% of GDP	US$, billions
Agriculture	29%	5.2	25%	6.7	23%	8.7
Industry	26%	4.7	28%	7.5	30%	11.4
- Manufacturing	16%	2.8	18%	4.8	20%	7.6
Services	39%	7.0	40%	10.8	40%	15.2

Sources: Ratios are from the IDP document while amounts are calculated based on IMF WEO statistics.

Table 2.5.2 Future Export Scenarios

	2015		2020		2025	
	% of exports	US$, billions	% of exports	US$, billions	% of exports	US$, billions
Agricultural products	8%	0.7	10%	1.5	12%	2.8
Industry						
- Garment and footwear	60%	5.1	55%	8.1	50%	11.9
- Non-garment and footwear	5%	0.4	10%	1.5	15%	3.6

Sources: Ratios are from the IDP document while amounts are calculated based on IMF WEO statistics.

Other expected industrial changes include the following:

(4) SME Development

IDP supports the development of SMEs with the specific focused areas in drugs and medical equipment production, industrial or handicraft construction materials, packaging equipment for export, furniture manufacturing and industrial equipment.

2.5.2 Industrial Development Perspectives

IDP supports the emergence of new industries in Cambodia – e.g. information technology, telecommunications, energy, heavy industries, cultural/historical/traditional handicrafts and green technologies. Table 2.5.3 shows key industrial development perspectives, both by industry and by area, over the three periods in the Logistics Master Plan.

Table 2.5.3 Industrial Development Perspectives

	Current Conditions	Short-term (2019)	Mid-term (2022)	Long-term (2025)
IDP	**Agriculture:** 27% of GDP, 8% of exports **Industry:** • 16% of GDP, 17% of labor force, • Garments: 60% of exports	**Agriculture:** 26% of GDP, 10% of exports **Industry:** • 18% of GDP • Garments: 55% of exports, other manufacturing: 9% of exports	**Agriculture:** 24% of GDP, 11% of exports **Industry:** • 18.8% of GDP • Garments: 53% of exports, other manufacturing: 12% of exports	**Agriculture:** 23% of GDP, 12% of exports **Industry:** • 20% of GDP • Garments: 50% of exports, other manufacturing: 15% of exports
Anticipated Regional Development Patterns	**Agriculture** • **Main agricultural products:** Rice (Battambang and Kampong Cham, Southern region), Cassava, Corn (North-East) • **Main Exports:** Rice (Kampong Cham - Battambang Corridor), Cassava, and Rubber (northeast) **Industry** **Main exports:** Garments and footwear (benefited from GSP) • **Phnom Penh:** Garments, footwear and consumer goods for urban population • **Sihanoukville:** Export-oriented industries (garments, bags, construction materials etc.) • **Poipet and Koh Kong:** Thailand +1 • **Bavet:** Vietnam +1, China+1 **Services:** Increased consumption in the urban area	**Agriculture** • Increased production and exports of agricultural products (particularly rice and cassava) • **Kampong Cham - Battambang Corridor:** Increased rice production and exports • **Kampong Cham:** Agricultural processing • **North-East:** Cassava and rubber production and exports **Industry** • **Further increases of existing industries** • **Diversification of labor intensive industries** • **Phnom Penh:** Further increases of garments/footwear, diversified consumer goods and labor intensive industries • **Sihanoukville:** Export-oriented industries • **Border areas:** Thailand +1, Vietnam +1, China+1 **Services** Increased consumption in the urban area and diversified consumption	**Agriculture** • Increased production and exports of agricultural products • **Kampong Cham - Battambang Corridor:** Increased rice production and exports • **Kampong Cham:** Agricultural processing • **North-East:** Cassava and rubber production and exports **Industry** • **Diversification of industries and changes of the industrial structure** • More value added garments and manufacturing, acceleration of import substitution of consumer goods • **Phnom Penh:** Continued increases of light industry. Increased production of high value added garments and manufacturing • **Sihanoukville:** More export-oriented industries as a result of port development • **Border areas:** Further enhancement of Thailand +1, Vietnam +1, China+1, domestic supply, export oriented industry promotion **Services** Increased consumption in the urban area and diversified consumption and food industry	**Agriculture** • Further increases/diversification of production and exports of agricultural products • **Kampong Cham - Battambang Corridor:** Increased rice production and exports • **Kampong Cham:** Increased agricultural processing • **North-East:** Increased production and exports of Cassava and rubber **Industry** • **Small and high value added manufacturing in the global value chain** • More value added garments (diversified design and fashion) • **Phnom Penh:** Deceleration of light industry, increased production of high value added garments and manufacturing, diversification of consumer goods demands • **Sihanoukville:** More export-oriented industries • **Border areas:** Further enhancement of Thailand +1, Vietnam +1, China+1, domestic supply, export oriented industry **Services** Increased consumption in the urban area and diversified consumption and food industry

Source: JICA Study Team.

2.5.3 Global Value Chains

(1) Recent Trends in GVCs

The value chains of the production of manufacturing goods have become more and more globalized and integrated. This is particularly true for multinational manufacturing companies in the automobiles and electric industries, which have the broad supply chains and production bases across the ASEAN countries to make their supply chains most efficient. The conventional production type of FDI in Cambodia is to operate for simple export processing, such as the garment and footwear industry or light manufacturing industry, for which foreign companies have the production base in Cambodia. This is mainly to produce products from imported materials and then export final products from the Sihanoukville port or Phnom Penh port through the transshipment in other ports to the final consumer markets such as the US, EU and Japan. The recent trend so called international fragmentation type of production is to produce parts or intermediate goods in Cambodia and transport it to mother factories in Thailand or other countries to produce final goods. Such international manufacturing companies categorize the ASEN countries into several groups depending on the social and economic conditions and geographical characteristics such as the distance to the consumer markets, and strategically choose the type of goods to be produced in each country.

As a result of the increase in FDI which places Cambodia as a part of such international fragmentation of the production, Cambodia has been included in the regional value chains in ASEAN and surrounding areas. This tendency is expected to be deepened more in near future. However, the competition with the surrounding countries would also become more intense at the same time. From the logistics perspectives, the logistics system in Cambodia must be improved if the country would like to increase the international competitiveness. The physical and institutional connectivity in ASEAN countries should be improved to realize smooth and faster transport of goods for both imports and

exports. The logistics costs should also be reduced in terms of both transport costs and other logistics associated costs.

(2) Human Capital Development

The position of Cambodia's capability endowments in Global Value Chains (GVCs) is still in the negative zones, implying that further significant improvements are needed for the country to join GVCs at different stages of productions. Cambodia is still far from joining the production of intermediate GVC products, but at a closer distance from GVC products and final GVC products. Limited endowments in human capital appears to be the biggest constraint for each sector to participate in the GVCs. Human capital capability is even more important for Cambodia to diversify from its current concentration toward more high value added intermediate GVC products. Cambodia needs to upgrade its human and institutional capital. The analysis of revealed capabilities required to move into more knowledge-intensive activities reported above suggest that these are the areas where the largest capability deficit lies for Cambodia. Building up skills of workers and at the managerial level will help upgrading.

Diversification and upgrading will take a combination of bold policy actions and risk-taking from firms to enhance production capabilities. To make more sophisticated activities feasible in Cambodia, it is necessary to enhance production capabilities. By comparing Cambodia's performance in a series of capability dimensions, it is possible to assess the gaps it has to address to improve its competitiveness vis-a-vis key players in different desirable global value chains.

To produce intermediate electronics and machinery, or transport equipment products, Cambodia needs to upgrade its logistics, in the short run, and its human capital in the long run. In terms of logistics capabilities, Cambodia is positioned 73rd in a ranking of 159 countries. Because logistics are crucial for this activity, on average, successful exporters of electronics, such as Thailand or Malaysia are positioned about 29 ranks ahead. In the long term, increased human capital is crucial to make this activity feasible. Cambodia's low performance in terms of years of schooling of its population - at 4.7 years - ranks 126th out of 146 countries with available information, with the average requirements for successful exporters being 9.72 years of schooling, closer to a mid-ranking position.

2.5.4 Industrial Relocation from Thailand, Vietnam and China

The increasing trend of changing regional value chains in ASEAN is the relocation of manufacturing factories from the established bases such as Thailand, Vietnam and China to the emerging locations in ASEAN. For Cambodia, the distinctive trend is the relocation of factories from Thailand because of the changes of the business environment in Thailand. In Thailand, the minimum wage was raised in 2012 and 2013, and the average wage in the manufacturing sector also rose, which was 7,822 Bahts in January 2011 to 12,824 Bahts in May 2016. In addition, the minimum wage rate was unified over the country since 2013, then the factories in Thailand lose the incentive to relocate its operation within Thailand. At the same time, the workforce in Thailand started to decrease. The unemployment rate in Thailand has remarkably been at the low level at 0.56% in 2014, as the unemployment rate has held below 1% since 2011. There are various reasons, such as the large labor absorption by agriculture and informal sector, lack of unemployment insurance system, and the low birth rate in its aging society. The population bonus has already ended in 2010. In addition, the Thai government has started to regulate the foreign immigrant workers from surrounding countries. In this situation, the manufacturing industry has started to relocate its production base, especially the labor-intensive parts to other countries. This relocation of manufacturing production bases from Thailand is called "Thailand-Plus-One" strategy of

multinational manufacturing companies.

Similarly, the new geographical industrial developments so-called "China+1" and "Viet Nam+1" have been observed in the Mekong region. The idea is for companies established in China/Vietnam establish production facilities in Cambodia connecting with their mother factories in China and Vietnam. Electricity supply, which is one of critical constraints for industrial development in Cambodia, will gradually be improved, then more manufactures may be interested in Cambodia to more their labor-intensive production process. These factories usually produce higher valued products that are often small in size and light weight. These products are more affordable for logistics due to the small size and light weights. Then the emergence of such industry will lead to different and various requirements on logistics.

2.6 Logistics Needs by Industry and by Location

2.6.1 Current Logistics Needs

Table 2.6.1 shows cargo flows of Sihanoukville and Phnom Penh ports, and Poipet and Bavet border points. Sihanoukville and Phnom Penh are main gateways of freight movement and Bavet and Point have more industrial goods. In terms of exports, 70.9% of total weight comes from Sihanoukville port whereas the value is 62.9%. Phnom Penh port shows similar trends: proportion of weight (26.5%) is higher than the value (16.1%). This illustrates that low-value/high-volume goods such as rice are transported through these ports.

On the contrary, percentage in value is higher than that of weight in Poipet and Bavet. At Poipet border, weight accounts for only 1.4% of total weight whereas the value reaches 15.7%. Similarly, percentage in value (5.3%) is higher than that of weight (1.1%) at the Bavet border. This shows that there are industrial bases and high-value/low-volume products are exported from these two borders.

Table 2.6.1 Cargo Flow at Borders and Ports (2015)

	Export (%)		Import (%)	
	Weight	Value	Weight	Value
Bavet	1.1	5.3	6.2	11.1
Phnom Penh	26.6	16.1	18	9.3
Poipet	1.4	15.7	41.3	13.4
Sihanoukville	70.9	62.9	34.5	66.2
Total	100	100	100	100

Sources: Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia, JICA, 2015.

2.6.2 Projections of Logistics Volumes

Logistics volumes are often influenced by macroeconomic conditions and changes in the industrial structure. For the formulation of the Logistics Master Plan, the basic assumptions are provided by the IDP and international organizations, including the IMF and World Bank. While volume data are not always available, some of the logistics data were substituted by logistics values. Table 2.6.2 summarizes the key projections of trade flows described by gateway and by key product.

Table 2.6.2 Key Projections

	Unit	2016	2025	Magnification
GDP	US$, billions	19.4	37.9	x 1.88
Agriculture	US$, billions	5.5	8.7	x 1.59
Industry	US$, billions	5.2	11.4	x 2.21
Services	US$, billions	7.7	15.2	x 1.98
GDP per capita	US$	1,277	2,274	x 1.78
Exports	US$, billions	10.0	23.7	x 2.58
Imports	US$, billions	12.6	26.1	x 2.28
Trade Volumes by Gateway				
PAS	Million Tons	4.0	7.0	x 1.76
PAPP	Million Tons	2.0	3.2	x 1.62
Bavet (land)	US$, bilions	2.5	5.5	x 2.20
Poipet (land)		N/A	N/A	N/A
PP Airport (cargo)	Tons	47.6	86.9	x 1.87
Proejctions by Product				
Rice Production	Million tons	10.0	13.2	x 1.32
Rice Exports	Million tons (real terms)	1.9	3.5	x 1.82
Cassava Production	Million tons (real terms)	14.2	24.2	x 1.70
Garments Exports	US$, billions	5.5	10.6	x 1.90
Non-garment manufacturing Exports	US$, billions	0.6	3.2	x 5.61

Source: JICA Study Team.

As economic growth is set to continue, logistics volumes are expected to increase accordingly. Under these circumstances, the logistics sector should expand its capacity to handle with the increased volumes of transport. In this regard, future cargo volumes are roughly anticipated up to 2025 in a simple regression analysis utilizing the actual volume data where available, and GDP forecasts made by the IMF. Table 2.6.3 shows the summary of the forecasted cargo volumes by each transport mode, including trucks, port, railway and air. With an assumption having constant GDP growth of approximately 7% from 2011 in Cambodia and a high correlation of GDP with the cargo volumes, increases in the cargo volumes are expected to continue along with GDP growth, up to the target year 2025.

Table 2.6.3 GDP and Logistics Volume Forecast

	Actual	Forecast		
	2015	2017	2020	2025
Truck Cargo Volume (tons)	NA	NA	31,297,655	35,925,673
Port Cargo Volume (tons)	5,367,000	6,351,762	7,617,968	10,209,270
Railway Cargo Volume (tons)	538,345	803,982	1,202,456	2,017,936
Air Cargo Volume (tons)	38,069	48,398	61,033	86,890

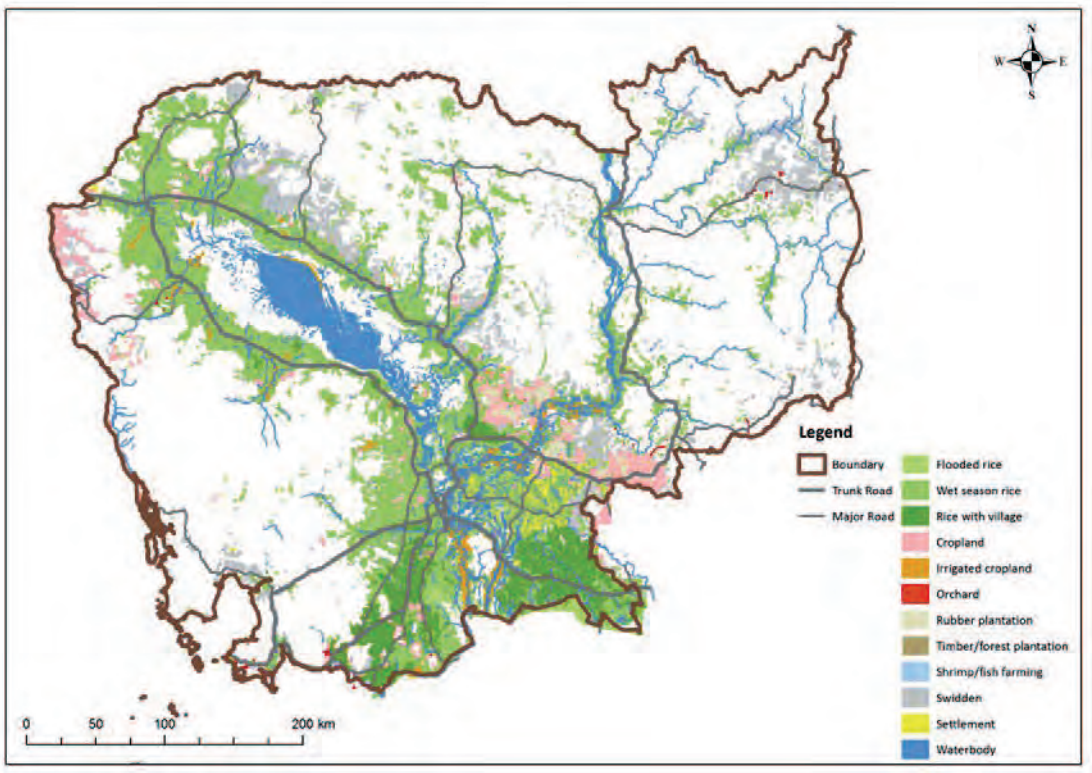
Sources: Forecast - JICA Study Team (port, railway, air cargo volume forecast); IMF Cambodia Article IV, 2016 (GDP forecast); Master Plan for Railway Network Development in Cambodia, KOICA, 2014 (truck cargo volume forecast); Actual – Statistical Yearbook 2013; Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia, JICA, 2016; Construction and Infrastructure Policy Consultation Project, KSP, 2015; Cambodia Airports website; and Royal Railways statistical data.

2.6.3 Logistics Needs by Industry

In addition to macro-level projections, this section follows recent trends and basic directions in each industry.

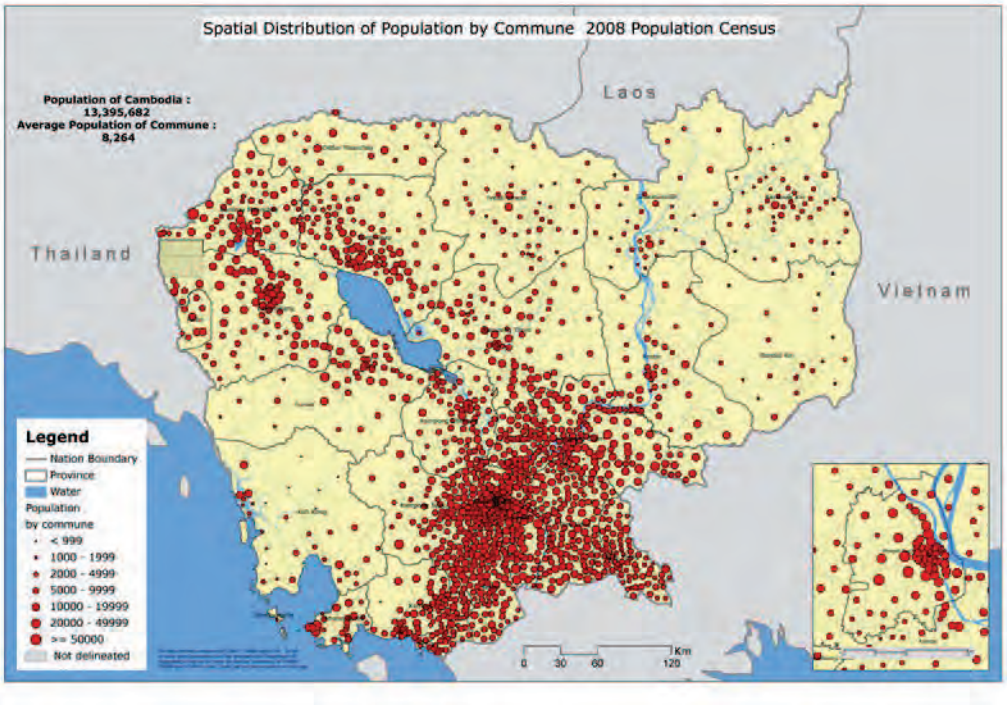
(1) Agriculture Industry

Agricultural development potentials are principally determined by the natural conditions, such as temperature, water availability and elevation. In this regard, cultivation is traditionally done in the Plain Region and the Tonle Sap Lake Region, thanks to sufficient rainfalls and water availability from the lake and rivers. The area along the lake in the Tonle Sap Lake Region and the whole area of the Plain Region are significantly covered with paddy fields.



Source: Ministry of Agriculture, Forestry and Fisheries,2009.

Figure 2.6.1 Agricultural Land Use



Source: Cambodia Statistical Office.

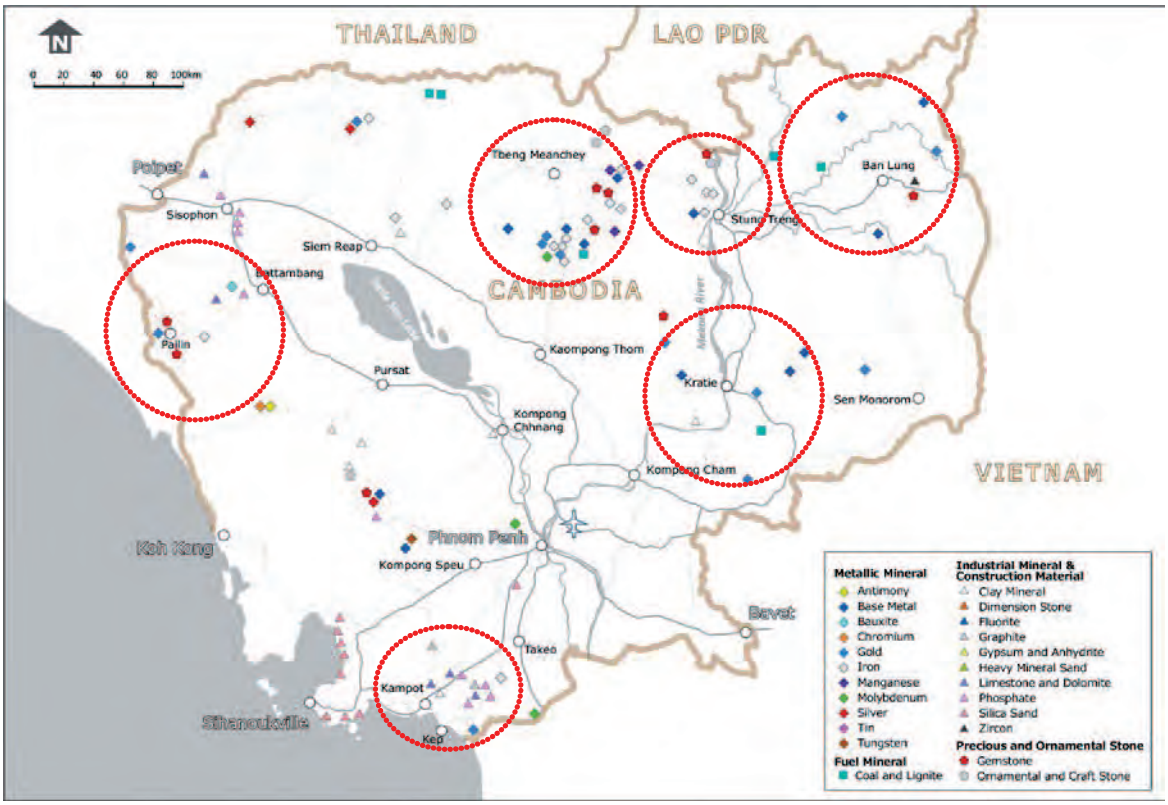
Figure 2.6.2 Population Distribution

The Plain Region produces most of rice in Cambodia for domestic consumption, while the Battambang – Khompong Cham corridor in the Tonle Sap Lake Region produce high quality rice mainly for exports. Cropland and rubber plantation are mainly exploited at lower Tole Sap Lake Region and Northeastern Region near to road and river transport. Major crop in the cropland is cassava for exports. Holistic and systematic rice logistics would be more required to be taken into account.

The Government of Cambodia promotes agricultural exports as one of the highest economic policies. Therefore, the major trend is the expansion of agricultural productions in the same regions. Another trend is to produce more value added in the country – that will generate more wealth and employment. To achieve these goals, the efficient logistics system with lower transport costs is required. While neighboring countries are providing direct and indirect subsidies in the agriculture industry, Cambodia needs to make more efforts to survive in the intensive competitive market. Holistic and systematic agricultural logistics is needed to be developed.

(2) Natural Resource Development

Cambodia has some potentials on mining development. The Ministry of Mining and Energy (MIME) has given 54 licenses of the mining exploitation to mining companies, who aim to develop natural resources such as gold, iron, bauxite, coal, silica, lime stone. However, most companies are still at the studying stage before the testing or exploitation. In case of coal, there are 10 licensed companies, but only 1 company is producing. Therefore, overall, the natural resource development is still at the infancy stage in Cambodia, although there are development potentials.



Source:JICA Study Team developed, based on MOME.

Figure 2.6.3 Mineral Resources

The potential mining sites are in mainly the Northeastern Region and the Coastal Region. The Northeastern Region has most the high potential in mining such as bauxite, gold, coal, antimony (rear metal) in Prea Vihear, Stung Treng, Ratanakiri and Kratie. While, the Coastal Region has also potential mining sites such as silica and limestone at Koh Kong and Kampot. Battambang in the Tonle Sap Region has a potential of limestone, too.

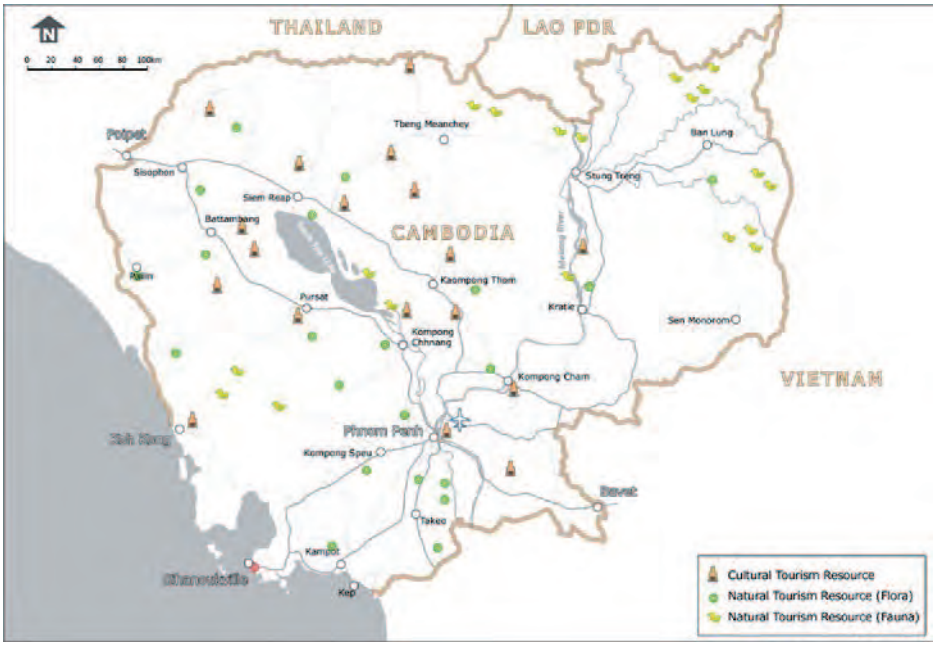
Currently, most active operations in the mining sector is soil, sand production, and cement production. The sand and soil are used domestically as the construction materials. The sand and soil are transported from Kampong Chhnang, to mainly Phnom Penh and other areas such as Sihanoukville by trucks. Cement factories are located at Kampot and Battambang, which use limestones at nearby areas. The demand on cement increases depending upon the construction boom in Phnom Penh and other regional cities, expecting to reach 2 million ton of production by 2028. The cement produced in Kampot are transported by railways and truck, while cement in Battambang is transported by truck due to the lack of railways.

There are currently two major constraints of natural resource development. One is the environmental issue. Since most of the mining sites are located in the environmentally protected areas, the legal procedures are required by the Ministry of Environment to get the approval of exploitation. The second is an accessibility issue. Since most of the mining sites are in mountainous areas without good access roads. The private investor is required to construct access roads from major roads to the site, however, construction costs are often too high, that hinders profitability of the project. To foster natural resources industry, the government may want to support by establishing the basic transport infrastructure.

(3) Tourism Development

Tourism in Cambodia quickly expands in recent years, which records approximately 4.8 million tourists in 2015 and expects to reach 7 million tourists in 2020. Major tourism resources in Cambodia are the Angkor heritage at Siem Reap and the coastal line at Sihanoukville. For the purpose of further development, the Ministry of Tourism (MOT) aims to diversify tourism products/resources and encourages cultural and natural based tourism. MOT divides the country into 4 tourism zones, including (1) Phnom Penh; (2) Siem Reap; (3) Coastal and (4) Northeastern region. MOT intends to promote the Northeastern Region and Coastal Region, closely lining with Siem Reap.

The logistics sector can contribute to the realization of the tourism development strategy to certain extents. One way is to provide the transport network connecting Siem Reap with the Northeastern Region and the Coastal Region. The second is to develop a distribution center to sufficiently serve foods, beverages, souvenirs and macerates consumptive goods.



Source: JICA Study Team.

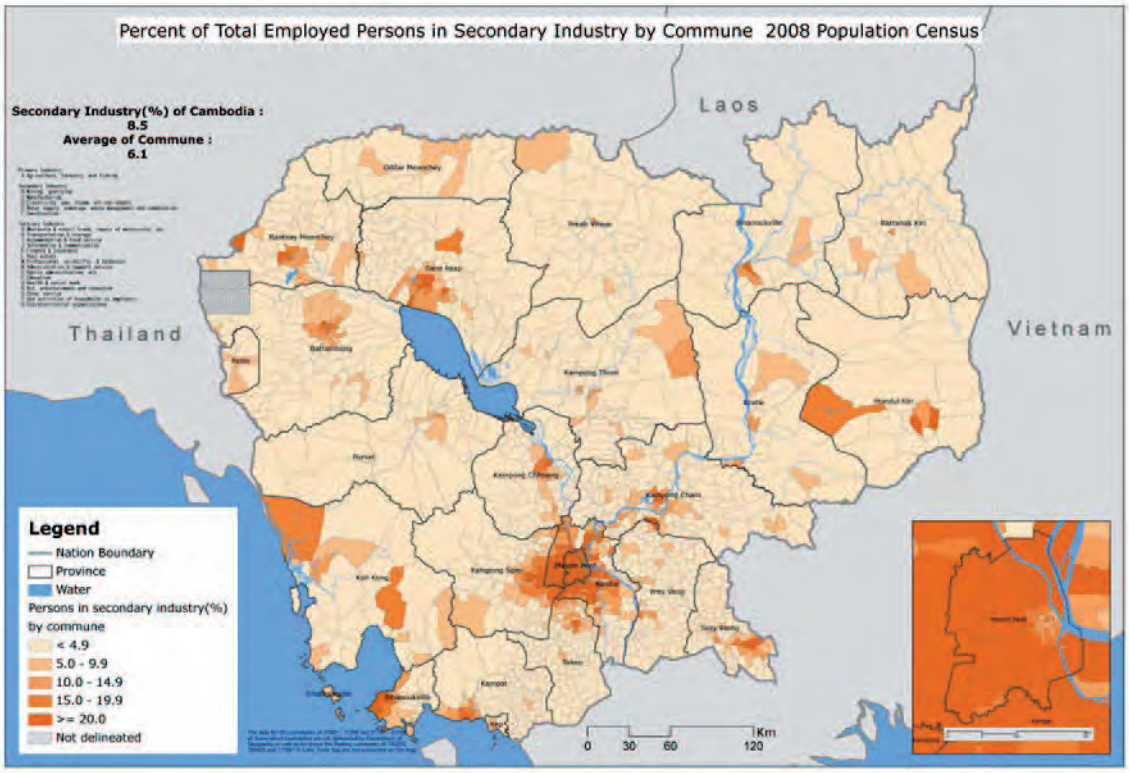
Figure 2.6.4 Tourism Attractions

(4) Industrial Development

Industry and service sectors quickly grow in Cambodia. Expansion of production leads rapid expansion of logistics volumes as well. Currently, there are four major industrial areas, including Phnom Penh, Sihanoukville, Bavet and Poipet. These areas are supposed to continuously play major roles of logistics as the major origins/ destinations at least up to the year 2025, if the industrial development goes along the IDP plan. Since the economic characteristics in each area are different, demands on logistics would also be different.

In addition to the major industrial areas, there are some local industrial areas such as Siem Reap, Battambang, Kompot and Mondlkiri. The industry in Siem Reap is handicraft production, the industry in Battambang and Kmpot is cement production, and industry in Mondlkiri is dimension stone production.

Growth in exports of electronics and of machinery is promising. Recent Japanese investments in Bavet and Poipet cities in plants producing telephone parts, could become examples of pioneer activities, and attract more FDI in these sectors.



Source: JICA Studu Team.

Figure 2.6.5 Distribution of Employment in the Manufacturing Sector

2.6.4 Logistics Needs by Location

Industry and service sectors quickly grow in Cambodia – leading rapid expansion of logistics volumes. Currently, there are five major logistics areas, including Phnom Penh, Sihanoukville, Border areas, Battambang-Compong Cham corridor and Northeastern area. These areas are supposed to continuously play major roles of logistics as the major origins/ destinations at least up to the year 2025, if the industrial development goes along the IDP plan. Since the economic characteristics in each area are different, demands on logistics would also be different.

(1) Phnom Penh

Logistics Needs from the Existing Light Industry

More than 70% of factories are concentrated in Phnom Penh and Kandal Province due to the ease of securing the sufficient labor force and the proximity to the largest domestic market. Major type of industry in/around Phnom Penh is light industry, such as garments and footwear products, which target overseas markets in the USA and EU. This type of industry fully utilizes advantages of lower production costs in Cambodia and preferential tariffs offered by the Generalized System of Preferences (GSP). Major cargo is materials and products transported along NH 4 and Sihanoukville port. Some cargo also uses river transport via the Phnom Penh Port and the Cai Mep Port of the Ho Chi Minh City, which has large capacity and direct access to overseas markets.

The IDP encourages the diversification and shifting of leading manufacturing industry to other manufacturing industry in future. Rising of production costs, especially labor costs, will gradually

harm the light industry of Cambodia as a favorite investment destination. Accordingly, the share of the light industry may gradually decline in the manufacturing due to the expansion of other manufacturing industry. Even though it may take rather long time beyond the year 2025, so the light industry still keeps large portion of logistics and continues to play an important role in employment and earning foreign currency.

Logistics Needs from New Industries

The major manufacturing industry is the light industry as mentioned above. However, there are two new movements toward future industrial developments in Phnom Penh.

- One movement is the sophistication of the existing light industry. Some companies are trying to develop new and more value-added products (e.g., new fashion);
- The other movement is the diversification of industries and more import substation activities (i.e.; targeting domestic consumption). There are some assembling manufacturing factories which recently started operations in simply assembling motor-bike others as import-substitution.

Logistics needs for new industries are different from old ones. The first type requires faster delivery (possibly using the aviation and last miles transportation). The second type requires easier access within the large city.

Logistics Needs for Transit Cargoes

Phnom Penh is the largest city with approximately 1.7 million population, which is approximately 10% of the total population. The economic size of Phnom Penh is more dominant with approximately 25 % of GDP and accommodating most high-income families in Cambodia. Continuous economic growth would increase the income level of population, resulting in increases of the logistics volumes of transit cargo. Transit cargo consists of various products, but should include consumer products for business use and citizens in Phnom Penh. Most of the consumer products are imported and transported by truck through NH5 via Poipet and NH1 via Bavet.

The Cambodia's economy is expected to grow further while the income level and population will continue to increase in near future. There are some assembling manufacturing factories which recently started operations in Phnom Penh as an import-substitution. It may gradually increase but may not reach to the stage that domestic production will completely replace current imported consumer goods by the year 2025. Therefore, logistics volumes along the NH5 and NH1 may continue to increase.

(2) Sihanoukville

Most of factories in Sihanoukville are in the light industry targeting the EU and USA markets under the GSP. These factories use the Sihanoukville port, which is the only one deep sea port in Cambodia carrying more than 60% of the country's imports/exports. Accordingly, the logistics capacity in Sihanoukville depends almost totally on the capacity of the Sihanoukville port.

There are two SEZs in Sihanoukville, i.e. the Sihanoukville Port SEZ and Sihanoukville SEZ. The Sihanoukville Port SEZ and Sihanoukville SEZ have few numbers of new types of the factories which produce not only small and light but also higher value products. It implies new seeds of further industrialization in Cambodia. Throughput of the Sihanoukville port constantly increases after opening in accordance with economic and population growth of Cambodia. The Sihanoukville port will be required to expand the capacity and flexibility for users' demands.

In addition, Kompot along the railway southern line produces cement products utilizing limestone

nearby area. Demand of cement products quickly expanded and would continue to expand, depending upon continuous increase of urban population, favorable economic growth and rise of income level. It would be a good cargo for cargo train operation in the southern line.

(3) Land Border Areas (Bavet and Poipet)

The national highways Number 1, 5, and 6 are designated as the GMS Southern Economic Corridors – i.e. the major logistics land transport routes in Cambodia. Accordingly, Bavet and Poipet areas are the most important border points. Koh Kong is newly developed border area along the GMS Southern Coastal Sub-corridor, too. Major cargo passing through the border areas is divided into two types. One type of the cargo is parts/materials from the mother factories in Thailand/ Viet Nam and products to there, which is goods movement of "Thailand +1" and "Viet Nam+1". Other type of the cargo is transit cargo from Thailand/ Viet Nam, for which the final destination is mainly Phnom Penh. The relocation of factories from Thailand and Viet Nam, especially certain labor-intensive production processes, is expected to increase gradually. Accordingly, transit cargo volumes through Phnom Penh are expected to continue to increase.

(4) Battambang – Compong Cham Corridor in The Tonle Sap Region

The southern lakeside areas of Lake Tonle Sap are well-known as the place for producing high quality rice. The export rice is often transported by truck to Phnom Penh and transported from Phnom Penh to overseas markets through Sihanoukville Port and river transport. Rice exports have increased steadily, and the Cambodian government intends to increase rice exports furthermore. Thus, logistics demands on rice exports will also expand in near future. In addition, Battambang produces cement products utilizing limestone nearby area. Demand of cement products quickly expanded, so that it would be a potential cargo for cargo train operation in the northern line in future.

(5) Northeastern Region

The Northeastern Region consists of Kratie, Modulkiri, Stung Treng, Ratanakili and Prea Vihear. The lower Northeastern Region has many cassava and rubber plantations, which expects to be major export products mainly to China. Cassava and rubber are processed in the Northeastern Region and mainly transported by river transport. This cargo is a typical cargo of large capacity and lower value. Since the international markets of cassava and rubber are stable, the cassava and rubber production is expected to continue. Therefore, the logistics demand for moving cassava and rubber is expected to continue as well.

On the other hand, the Northeastern Region has potentials on mining natural resources, including bauxite, gold, coal, antimony (rare metal) in Prea Vihear, Stung Treng, Ratanakiri and Kratie. Logistics development can contribute to enhance mining development by providing major road network in the Northeastern Region, which improve accessibility to the mining sites and reducing transport cost and access road construction cost.

(6) Regional Cities

Increases of urban population and rise of the income level of urban population are the solid trend in Cambodia. While the urban economy in the Capital City will be developed first, other regional cities are expected to follow the same path. People in regional cities will seek similar business services that are already available in Phnom Penh. Logistics businesses should be customized to accommodate these new services in regional cities.

Table 2.6.4 Logistics Demand Perspectives

	Present	Short-Term (2019)	Medium Term (2022)	Long Term (2025)
Demand on Logistics	Phnom Penh： • Transport of materials and products of light industry like RMG and footwear targeting GSP (via Sihanoukville and P.P port) • Transport of products for industrial and occupational uses and foods (processed and frozen foods) to Phnom Penh • Distribution to whole countries Border Area： • Transport of parts/materials and products with Thailand and Vietnam • Transport of products for industrial and occupational uses and foods (processed and frozen foods) to Phnom Penh) Sihanoukville： • Transport of large volume of RMG under GSP to Europe and North America Compong Cham-Battambang Corridor： • Transport of export rice via Phnom Penh, river transport and HCMC ports, and via Sihanoukville port Northeast Area： • Transport Cassava, Rubber to export (Mainly China, Malaysia)	Phnom Penh： • Transport of materials and products of light industry like RMG and footwear targeting GSP (via Sihanoukville and P.P port) • Expansion and more variety of Transport of products for industrial and occupational uses and foods (processed and frozen foods) to Phnom Penh • Expansion of distribution to whole countries Border Area： • Expansion of Transport of parts/materials and products with Thailand and Vietnam • Expansion of Transport of products for industrial and occupational uses and foods (processed and frozen foods) to Phnom Penh Sihanoukville： • Transport of large volume of RMG under GSP to Europe and North America Compong Cham-Battambang Corridor： • Expansion of transport of export rice Northeast Area： • Transport Cassava, Rubber to export via river transport	Phnom Penh： • Transport of materials and products of light industry like RMG and footwear targeting GSP • Expansion of transport demand of small and high valued products under progress of diversification and higher valued industrial location • Expansion and more variety of Transport of products for industrial and occupational uses and foods (processed and frozen foods) to Phnom Penh • Expansion of distribution to whole countries Border Area： • Transport of parts/materials and products with Thailand and Vietnam • Emerge of products for domestic and overseas markets • Transport of products for industrial and occupational uses and foods (processed and frozen foods) to Phnom Penh Sihanoukville： • Transport of large volume of RMG under GSP to Europe and North America • Transport products to domestic market Compong Cham-Battambang Corridor： • Expansion of transport of export rice Northeast Area： • Transport Cassava, Rubber to export via river transport	Phnom Penh： • Transport of materials and products of light industry like RMG and footwear targeting GSP • Expansion of transport demand of small and high valued products under progress of diversification and higher valued industrial location • Expansion and more variety of Transport of products for industrial and occupational uses and foods (processed and frozen foods) to Phnom Penh • Expansion and more variety of distribution to whole countries Border Area： • Transport of parts/materials and products with Thailand and Vietnam • Expansion of products for domestic and overseas markets • Transport of products for industrial and occupational uses and foods (processed and frozen foods) to Phnom Penh Sihanoukville： • Transport of large volume of RMG under GSP to Europe and North America • Transport products to domestic market Compong Cham-Battambang Corridor： • Multi-modal transport of export rice via Thailand by Railway • Multi-modal transport of export rice via Sihanoukville by Railway Northeast Area： • Transport Cassava, Rubber to export via river transport

Chapter 3 Current Conditions and Key Issues in Logistics

3.1 Development of Key Economic Corridors

3.1.1 Roads

(1) Overview of the Road Subsector

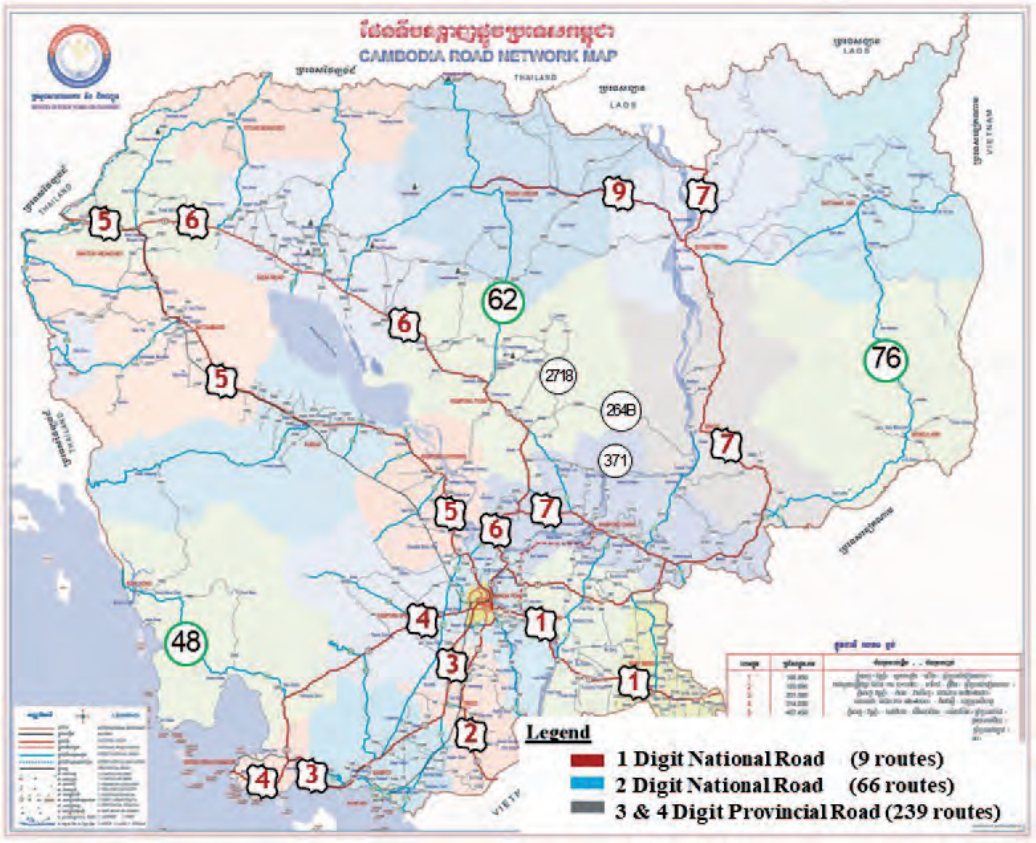
The Ministry of Public Works and Transport (MPWT) has formulated and revised its road development policy based on the National Strategic Development Plan (NSDP) of 2014-2018, based on strategies for multiple growth pole development, national integration, development of international corridors for regional integration, rural socioeconomic development, economic growth corridor development, tourism development, and cooperation and development zones along borders.[1] On this basis, road and expressway master plans have been formulated, as set out in the following subsection.

Cambodia's road network now has a total length of more than 55,000 km, with National Roads / National Highways (NR/NH)[2] accounting for about one-fifth of this total. The current (i.e., circa 2017) structure of the country's road infrastructure is shown in Figure 3.1.1, with Figure 3.1.2 showing pavement condition status.

In addition, Figure 3.1.3 presents existing and planned ring road development in Phnom Penh. The development of Phnom Penh's ring roads is closely related to logistics planning because container transporters – which are affected by a truck ban in Phnom Penh during certain hours – require a dedicated road at all hours.

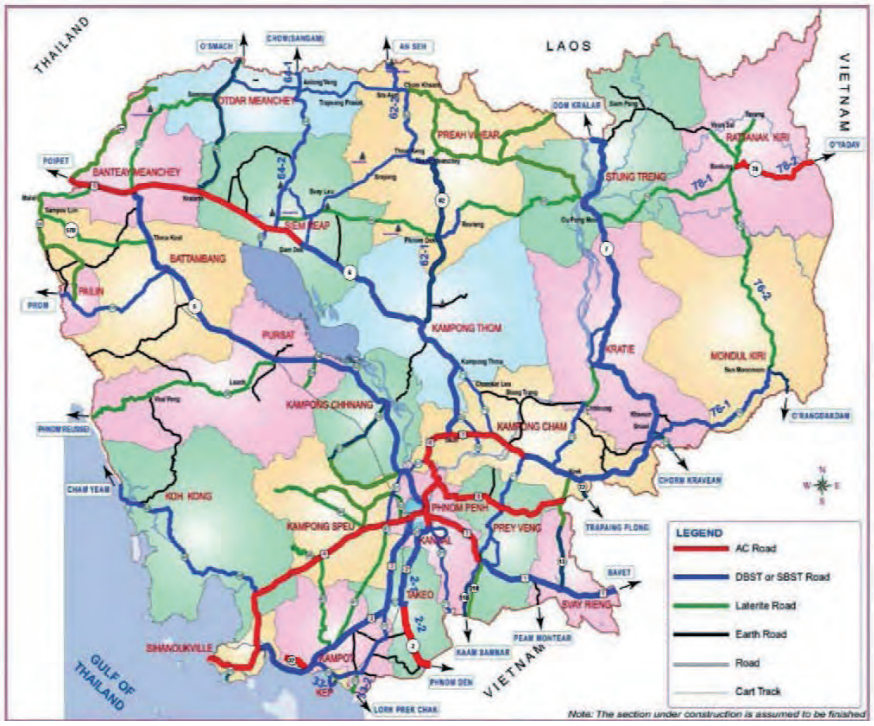
[1] See, e.g., (i) Infrastructure and Regional Integration Technical Working Group (IRITWG), *Overview of the Transport Infrastructure Sector in the Kingdom of Cambodia*, 2015, pp. 8, 13; and (ii) H.E. Kem Borey, *Policy of Road Development*, Cambodia-Japan Expressway Seminar in Phnom Penh, 9 December 2015.

[2] The term highways has been used as well as roads in this report since as Cambodia develops further the capacity of its (major) roads will approach that of highways.



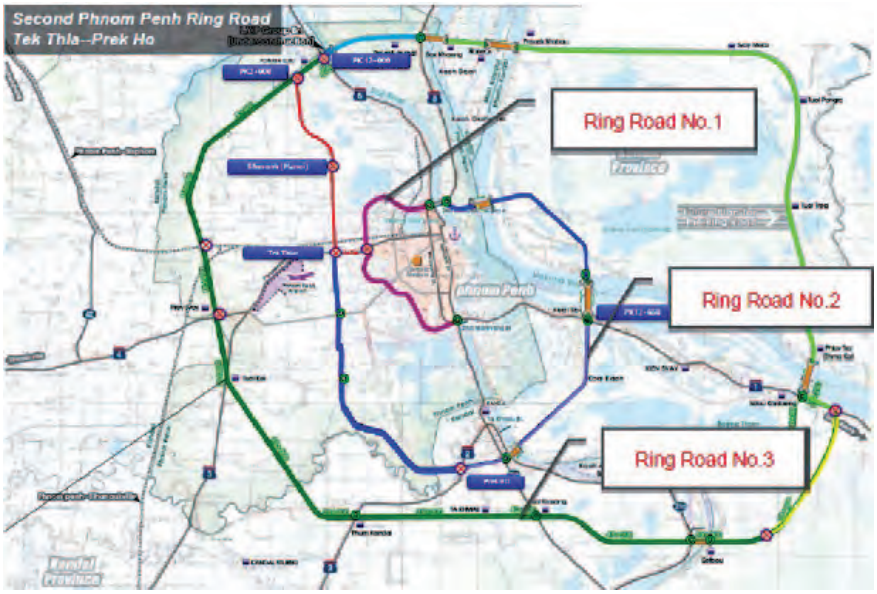
Source: After *Effective and Sustainable Road and Bridge Maintenance*, Road Related Infrastructure Sub-Technical Working Group, 27 July 2017.

Figure 3.1.1 Current Structure of Road Infrastructure



Source: Infrastructure and Regional Integration Technical Working Group (IRITWG), Overview of the Transport Infrastructure Sector in the Kingdom of Cambodia, 2015, p. 28

Figure 3.1.2 Current Pavement Status



Sources: (i) Infrastructure and Regional Integration Technical Working Group (IRITWG) meeting, 2 March 2016; and (ii) Japan International Cooperation Agency, Oriental Consultants Global Co., Ltd., Overseas Coastal Area Development Institute of Japan, and Nittsu Research Institute and Consulting Co., Ltd., The Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia, Final Report, June 2016, Figure 2-28, p. 2-90.

Figure 3.1.3 Ring Road Development in Phnom Penh

(2) Road and Expressway Master Plans

Greater Mekong Subregion (GMS) Economic Corridors

In the latest configuration of the GMS economic corridors, Cambodia is traversed by the Southern Economic Corridor, which includes:

(i) a Northern Subcorridor (Bangkok-Quy Nhon via Siem Reap, Stung Treng, and Pleiku);

(ii) a Central Subcorridor (Dawei-Bangkok-Vung Tau via Poipet, Phnom Penh, and Ho Chi Minh City), corresponding to part of Asian Highway 1 and ASEAN Highway 1;

(iii) a Southern Coastal Subcorridor (Bangkok-Nam Can, via Rayong, Koh Kong, Kampot, and Ha Tien, corresponding to ASEAN Highway 123; and

(iv) an Intercorridor Link (Sihanoukville-Savannakhet via Phnom Penh, Kratie, and Pakse), corresponding to part of Asian Highway 11 and ASEAN Highway 11.[3]

Cambodian Road and Expressway Master Plans

Cambodia has national road and expressway master plans, prepared with the support of Japan and China, although the Government has not officially adopted all of these plans:

(i) With JICA support, MPWT prepared a Follow Up Study on the Road Network Master Plan, in March 2009. The plan included a detailed implementation program for one-digit roads,[4] and among other initiatives, put forward a then new proposal for a Phnom Penh Outer Ring Road and

[3] (i) 21st GMS Ministerial Conference, *Review of Configuration of the Greater Mekong Subregional Economic Corridors,* November 2016, Table 5, p. 17; and (ii) Infrastructure and Regional Integration Technical Working Group (IRITWG), Overview of the Transport Infrastructure Sector in the Kingdom of Cambodia, 2015, p. 15.

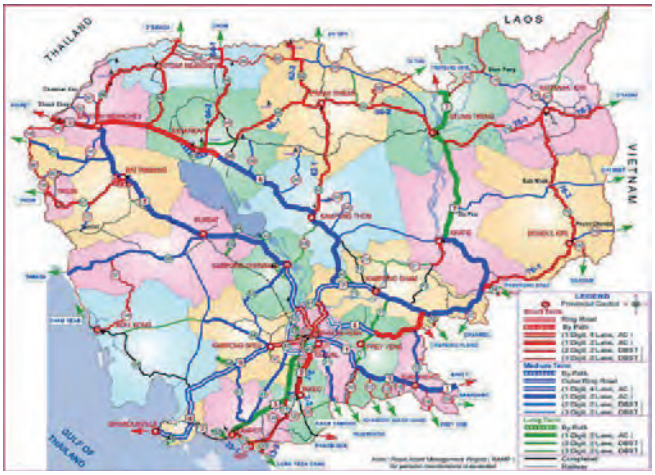
[4] E.g., including widening/improvement of NR/NH1, NR/NH 3, NR/NH 4, NR/NH 5, and NR/NH 6. Ministry of Public Works, *Follow Up Study on the Road Network Development Master Plan (Final Report)*, March 2009, p. S-1.

a Ho Chi Minh City-Phnom Penh-Bangkok Expressway Project.[5] Figure 3.1.4 presents a summary of the 2009 JICA-supported road master plan.

(ii) A Japanese (JICA)-proposed expressway master plan was put forward in 2013, as shown in Figure 3.1.5.

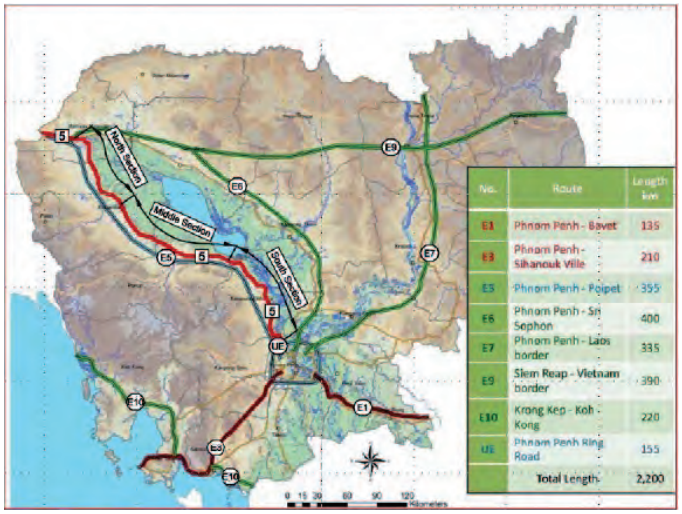
(iii) A Chinese-proposed expressway master plan was put forward in 2014, as shown in Figure 3.1.6 Broadly speaking, the Chinese expressway proposal focuses on north-south corridors, while the Japanese plan focuses on east-west corridors.

The Outline of the Road Network Planning Project for the Kingdom of Cambodia, published in 2017 by China, includes the respective expressway plans as well as suggestions for other roads.[6] However, the Government has not (yet) officially approved its proposed short-, medium-, and long-term projects (Figure 3.1.7, Figure 3.1.8 and Figure 3.1.9, respectively).



Source: Ministry of Public Works, Follow Up Study on the Road Network Development Master Plan (Final Report), March 2009 [second map after the cover page]

Figure 3.1.4 JICA-Supported Road Master Plan

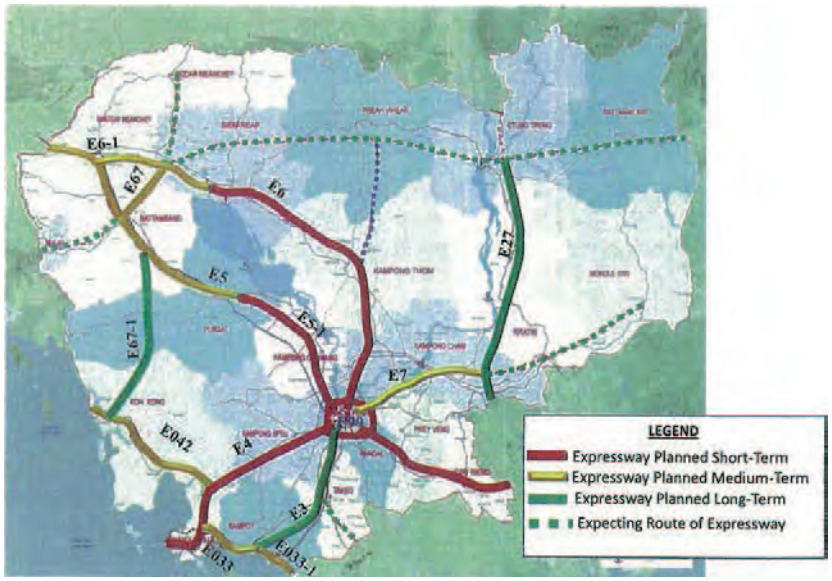


Source: Infrastructure and Regional Integration Technical Working Group (IRITWG), *Overview of the Transport Infrastructure Sector in the Kingdom of Cambodia*, 2015, Figure 2-7, p. 25

Figure 3.1.5 Expressway Development Plan Proposed by Japan

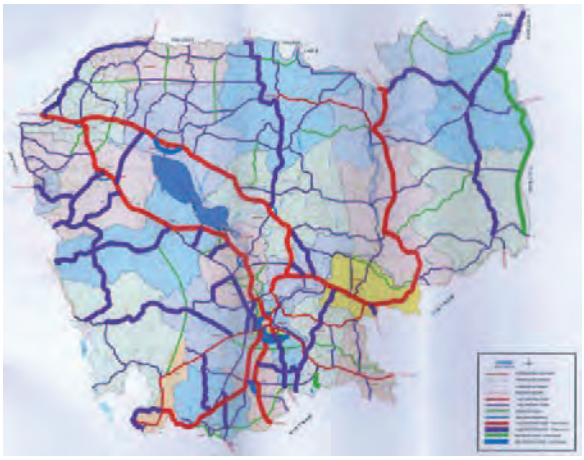
[5] Source in previous footnote.

[6] Henan Provincial Communications and Planning and Design Institute Co., *Ltd., Outline of the Road Network Planning Project for the Kingdom of Cambodia (Final Report)*, January 2017 [especially pp. 244-55 for the details of the short-, medium-, and long-term plans].



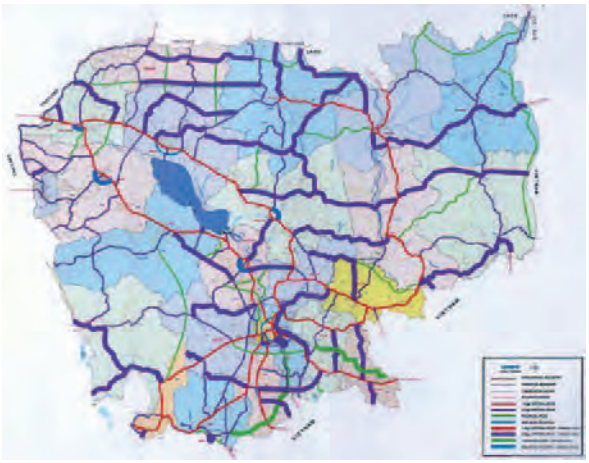
Notes: (i) short term = 2016-2020, (ii) medium term = 2021-2030, and (iii) long term = 2031-2040
Source: Policy of Road Development, Cambodia-Japan Expressway Seminar in Phnom Penh, 9 December 2015, p. 51

Figure 3.1.6 Expressway Development Plan Proposed by China



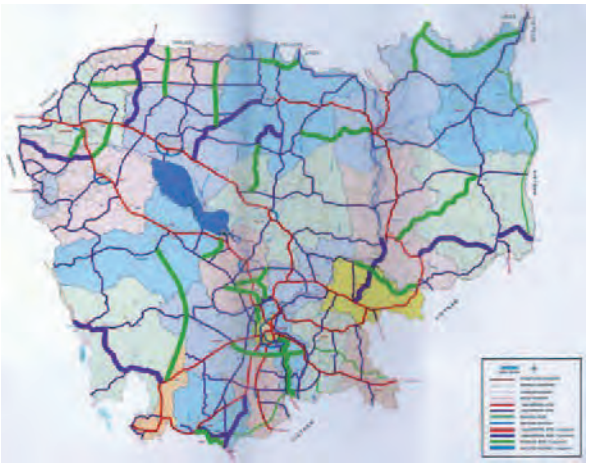
Source: Henan Provincial Communications and Planning and Design Institute Co., Ltd., Outline of the Road Network Planning Project for the Kingdom of Cambodia (Final Report), January 2017, Appended Figure 2

Figure 3.1.7 China-Supported Road Master Plan: Short-Term Projects



Source: Henan Provincial Communications and Planning and Design Institute Co., Ltd., Outline of the Road Network Planning Project for the Kingdom of Cambodia (Final Report), January 2017, Appended Figure 3

Figure 3.1.8 China-Supported Road Master Plan: Medium-Term Projects



Source: Henan Provincial Communications and Planning and Design Institute Co., Ltd., Outline of the Road Network Planning Project for the Kingdom of Cambodia (Final Report), January 201, Appended Figure 4

Figure 3.1.9 China-Supported Road Master Plan: Long-Term Projects

(3) Ongoing and Committed Road Development Projects

Ongoing and committed projects are listed in Appendix 4 at the end of the report, along with past projects, as included in the project inventory compiled by the Road Infrastructure Department of MPWT; also, Appendix 5 lists MPWT projects in the Public Investment Program, 2018-2020. Box 3.2.1 lists ongoing and committed projects regarding NH/NR 3, 4, 5, and 6, and ring roads of Phnom Penh, i.e., major projects with particular importance for the logistics master plan. In addition, of particular relevance, although not included in the box, are a planned Phnom Penh-Sihanoukville Expressway, with Chinese support, and a planned Phnom Penh-Bavet Expressway (along a new alignment), with Japanese support; feasibility studies have been conducted for both projects.

Box 3.2.1: Relevant Ongoing and Committed Projects

NH/NR 1

PK317-PK367) = 50 km, AC overlay, Road Network Improvement Project, 2018-2022

NH/NR 3

Road Asset Management Project-2, (RAMP-2; Cr. 57890 KH), NR 3: PK147+100-PK201+400)=54 km, AC overlay, 2018-2022

NH/NR 5

Improvement, L=81.2 km (Battambang-Sisophon), AC, supported by Japan, 2015-2020

Improvement, L=135.4 km (Prek Kdam-Thlear Ma'am), AC, supported by Japan, 2016-2021

Improvement, L=157.1 km (Thlear Ma'am-Battambang), AC, supported by Japan, 2016-2021

NH/NR 6

PK62-PK159 = 97 km, Road Network Improvement Project, AC overlay, 2018-2022

Phnom Penh Ring Roads

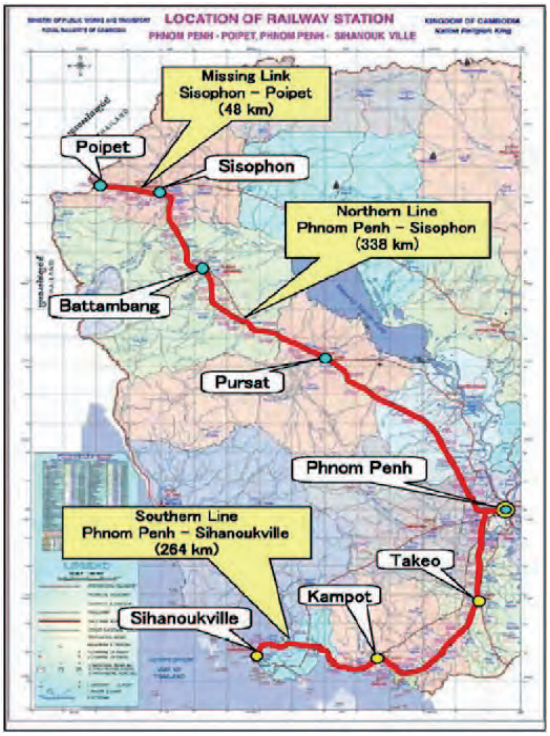
Phnom Penh-2nd Ring Road- PK 9+000(NR5)-Prek Ho (NR2), supported by China from 3 June 2017

Notes: (i) Widening of NH/NR 1 is difficult since there are many cities and towns along the route, and it is difficult to widen the (cable-stayed) Tsubasa Bridge, which would therefore present a bottleneck even if the road is widened. (ii) The NR/NH 5 improvements with Japanese support may also be divided into: (i) NR 5 Improvement, Middle (2018-2021, 36 km), (ii) NR 5 Improvement, North (2017-2020, 85 km), (iii) NR 5 Improvement, Middle (2018-2021, 113 km), and (iv) NS Improvement, South (2017-2021), 135 km).
Abbreviations: AC = asphaltic concrete, DBST = double bituminous surface treatment, PK = kilometer post
Sources: (i) Road Infrastructure Department, Ministry of Public Works and Transport, 26 July 2017; (ii) JICA Experts to MPWT, Current Situation of JICA Projects in Transport Sector, 23 October 2017; and (iii) Japan International Cooperation Agency, *Preparatory Survey for Phnom Penh-Bavet Expressway Development Project in the Kingdom of Cambodia*, August 2017, p. 1-3.

3.1.2 Railways

(1) History

The first railway line in Cambodia was the 386 km, meter-gauge Northern Line, from Phnom Penh northwesterly to Poipet, through Kampong Chhnang, Pursat, Battambang, and Sisophon, constructed between 1929 and 1942. In the 1960s a second meter-gauge line, the 266 km Southern Line, was built from Phnom Penh to Sihanoukville Port, to reduce dependence on ports in Vietnam (Saigon) and Thailand (Bangkok). Substantial lengths of both lines were destroyed during the civil war. Figure 3.1.10 presents a map of the two lines.



Sources: (i) Railway Department, Ministry of Public Works and Transport, The Current Situation and Future Development Plan of Railway Network in Cambodia, March 2017, slide 5; and (ii) Infrastructure and Regional Integration Technical Working Group (IRITWG), Overview of the Transport Infrastructure Sector in the Kingdom of Cambodia, 2015, p. 41

Figure 3.1.10 Map of the Northern and Southern Railway Lines

(2) Current Status and Plans

Southern Line

Rehabilitation of the Southern Line was undertaken with by the Government of Cambodia with support from the Asian Development Bank, the Organization of the Petroleum Exporting Countries (OPEC) Fund for International Development, and the Governments of Australia and Malaysia. A concessionaire with a 30-year contract, Royal Railways, has been undertaking operations along its entire length since December 2012. Figure 3.1.11 presents freight traffic statistics for the line from 2010 to 2016. Speeds are slow along the line, with travel times between Phnom Penh and Sihanoukville about 8-11 hours,[7] with 3.4 trips per day in FT 2016-2017. Current/remaining infrastructure issues with the Southern Line include (i) the need for automatic signaling, at an estimated cost of US$ 3-10 million, depending on future traffic and train frequencies[8]; (ii) the need for about 30 electric level crossings, at a cost of about US$ 6 million (US$ 200,000 each); and (iii) the need to add stations/sidings to the (single-track) line. Over time, when the development of freight traffic along the Southern Line becomes clearer, double tracking may be considered, from Sihanoukville to Veal Rinh (38 km) and from Samrong junction to Komarachea (37 km, near Phnom Penh), at a total cost of about US$ 15 million, with the latter having greater priority.

[7] Arguably, the service level is close to at par with that of road transport; while it takes 3-4 hours by road, trucks need to then wait at the gate of the port for 2-3 hours, while railways benefit from fast track service from customs. Interview with Royal Railways, 16 August 2017.
[8] The Railways Department indicated that the need was (mainly) from the point 45 km from Phnom Penh to Sihanoukville. Interview with the Railways Department, Ministry of Public Works and Transport, 1 September 2017.

Note: (i) Units are tons. (ii) The traffic includes bulk fuel, bagged cement, bulk coal, ballast, and containers.
Source: Railway Department, Ministry of Public Works and Transport, The Current Situation and Future Development Plan of Railway Network in Cambodia, March 2017, slide 11

Figure 3.1.11 Freight Traffic Statistics for the Southern Line, 2010-2016

Northern Line

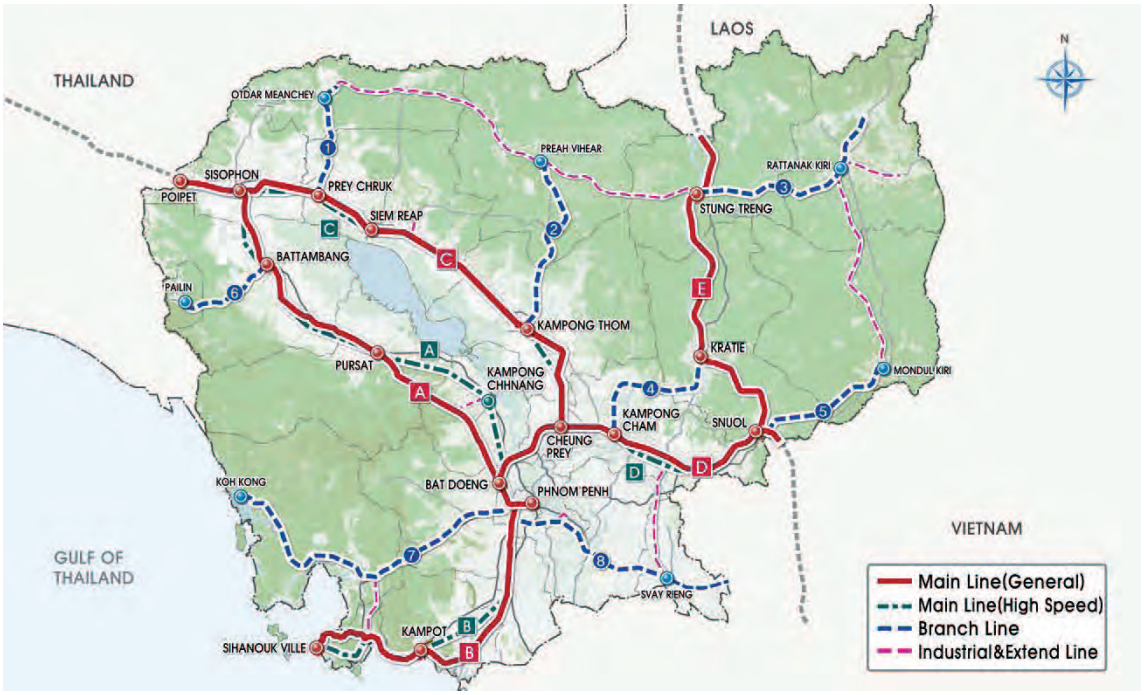
Basic, short-term rehabilitation of the Northern Line has been proceeding, from the same sources as for the Southern Line (and from Thailand for the border bridge), although resettlement issues have slowed the work. An Agreement on Joint Traffic Working between the Government of the Kingdom of Thailand and the Government of the Kingdom of Cambodia is at an advanced state of negotiations[9] considering that rehabilitation work is close to complete near the border. Remaining sections of the Northern Line in the first 9.4 km from Phnom Penh and from km 32 (Bat Deung) to km 165.7 (Pursat) will be rehabilitated with national budget in 2018 and 2019 (and 2020), with supplemental funding from China.[10] Even when this basic work is completed, the Northern Line will require additional improvements, e.g., more crossing (passing) loops (sidings), signaling improvements, motorized points, track circuiting, level crossings, in the medium or long term, or beyond.

(3) Longer-Term Railway Plans

Figure 3.1.12 presents longer-term railway plans of MPWT, including (in order of current governmental priority) (i) a 257 km Bat Deung-Snuol-Vietnam railway link (D; a missing link in the Singapore-Kunming Rail Link, which is now under China's One Belt, One Road (OBOR) initiative, and the Trans-Asian Railway), (ii) a 319 km, high-speed Sisophon-Siem Reap-Cheung Prey railway link (C), and (iii) a 248 km Snuol-Stung Treng-Lao PDR railway link.[11] Implementation dates will depend on funding availability; at least some of the projects, especially the link with Vietnam (D), have been discussed for decades. A previous planning study by the Korea International Cooperation Agency study[12] estimated the costs of each of these lines in excess of US$ 1 billion in 2012.[13]

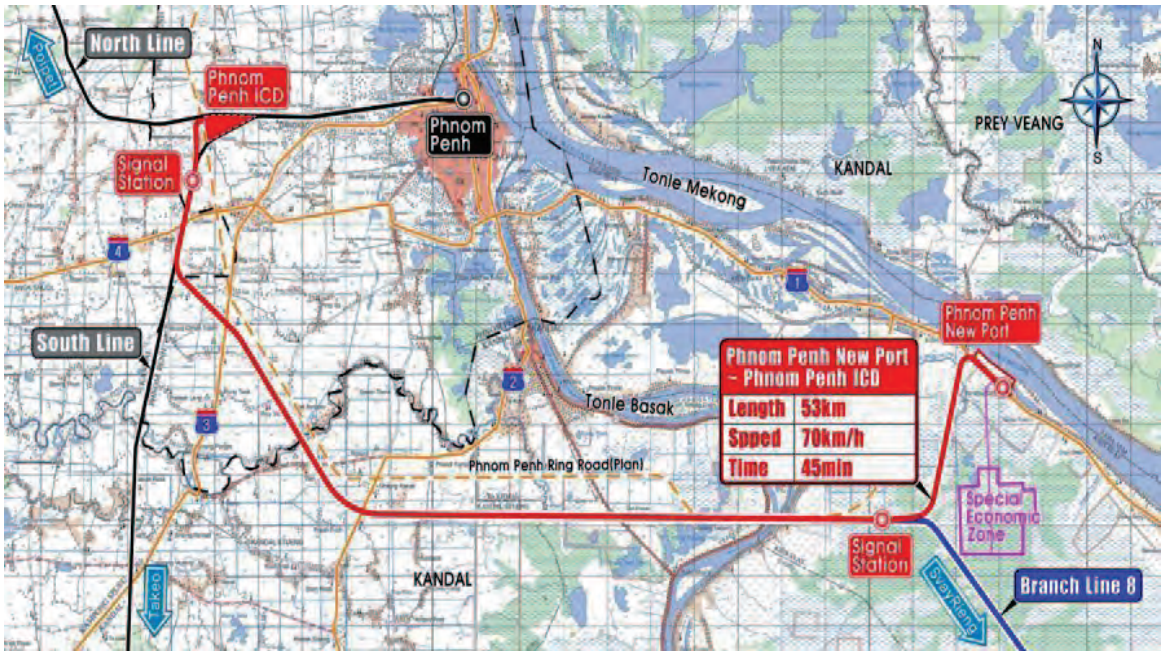
Also worth noting is a planned 40+ km new railway line from Prateas Lang (km 22+ along the Southern Line) to the new Phnom Penh Port (Figure 3.1.13), at an estimated cost of US$ 75 million. The China Railway Construction Company No. 16 has conducted a prefeasibility study and the project could be completed by 2025.

[9] A similar agreement was reached between Cambodia and Vietnam on 4 November 2008. *Cambodia Country Report for Seminar on China-ASEAN Infrastructure Interconnection*, Beijing, 9-29 July 2013, slide 13.
[10] See, e.g. Railway Department, Ministry of Public Works and Transport, *The Current Situation and Future Development Plan of Railway Network in Cambodia*, March 2017, slide 19.
[11] Government priorities were stated in the 1 September 2017 interview with MPWT's Railways Department. Alternatively, Royal Railways has suggested that the priorities might be C (because of tourist traffic), E (because of potential minerals traffic in northeast Cambodia), and then D.
[12] The KOICA study is cited for reference purposes only regarding engineering estimates of costs; the Government has not been officially approved by the Government
[13] Additional lines have also been proposed, e.g., a line from Preah Vihear province to Koh Kong, to haul minerals, and for which a Chinese prefeasibility study has been undertaken.



Abbreviation: SKRL = Singapore-Kunming Railway Link
Source: Railways Department, Ministry of Public Works and Transport, presentation to Land Transport Sub-TWG Meeting, 28 July 2017, slide 15

Figure 3.1.12 Longer-Term Railway Plans



Source: Railway Department, Ministry of Public Works and Transport, *The Current Situation and Future Development Plan of Railway Network in Cambodia*, March 2017, slide 24

Figure 3.1.13 Proposed New Railway Line to the New Phnom Penh Port

3.1.3 Multimodal Transport Facilities

(1) Inland Container Depot

The development of multimodal (or intermodal) transport facilities[14] in Cambodia is still in a nascent stage. With respect to the "issue of connectivity between modes", the 2016 JICA-supported logistics data collection survey observed that while there is a rail dry port in Phnom Penh, its performance has not been effective.[15] Accordingly, the predecessor JICA study proposed a project for a Railway Inland Container Depot (ICD)[16] in Phnom Penh, which is consistent with the Phnom Penh Land Use Master Plan 2035.[17]

The particulars of the planned railway ICD project in Phnom Penh include the following:

(i) The land owner is the Port Authority of Sihanoukville, while the facility operator is Royal Railways, the railway concessionaire.

(ii) The facility is located along the Southern Line at the 13 to 15 kilometer post from Phnom Penh Central Station along the northeast corner of the junction with NH 4 to Sihanoukville.

(iii) One issue is that since there is no sidetrack,[18] container loading and unloading is undertaken on the mainline. It is impossible for two trains to enter the ICD at the same time.

(iv) Another issue is that since there is only one reach stacker for cargo handling, there are long queues on nearby roads, causing congestion.

(v) There is also a shortage of container storage area and cargo handling equipment to meet increase volumes of container traffic.[19]

Figure 3.1.14 presents the layout plan for the Railway ICD Project in Phnom Penh. If sufficient land is available, the scope could be enhanced, e.g., container freight stations (CFS) functions for less than container load (LCL) shipments may be added, a focal point may be created for the gathering of rice from many different directions, containers may be sealed before shipping to Sihanoukville or Vietnam, a cold storage/freezer warehouse may be added.

Full operation of this rail-based ICD may be expected by 2025, if not earlier.

Benefits of the proposed project include customs clearance near the factory, with shipping line (as opposed to cargo owner) responsibility for haulage from the rail-linked ICD to Sihanoukville Port, which will enable the shipping line to collect more containers and therefore reduce transport time and cost.[20]

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[14] E.g., for reference, according to European definitions, multimodal transport is the carriage of goods by two or more modes of transport, and intermodal transport is movement of goods in one and the same loading unit or road vehicle, which uses successively two or more modes of transport without handling the goods themselves in changing modes. See http://www.unescap.org/sites/default/files/pub_2285_Ch1.pdf.

[15] Japan International Cooperation Agency, Oriental Consultants Global Co., Ltd., Overseas Coastal Area Development Institute of Japan, and Nittsu Research Institute and Consulting Co., Ltd., *The Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia, Final Report*, June 2016, pp. 5-3 to 5.3 ["If the trade procedure in the railroad dry port would become more efficient, the connectivity between rail and port will be strengthened as an effective system"].

[16] For clarification, an ICD is "a container terminal located inland from seaport(s), which offers services for the handling, temporary storage and customs clearance of containers and general cargo that enters or leaves the ICD in containers. In essence, and ICD has the same functions as a port container terminal except the ship to shore transfer." United Nations Economic and Social Commission for Asia and the Pacific, *Planning, Development and Operation of Dry Ports of International Importance*, November 2015, Table 2, p. 9.

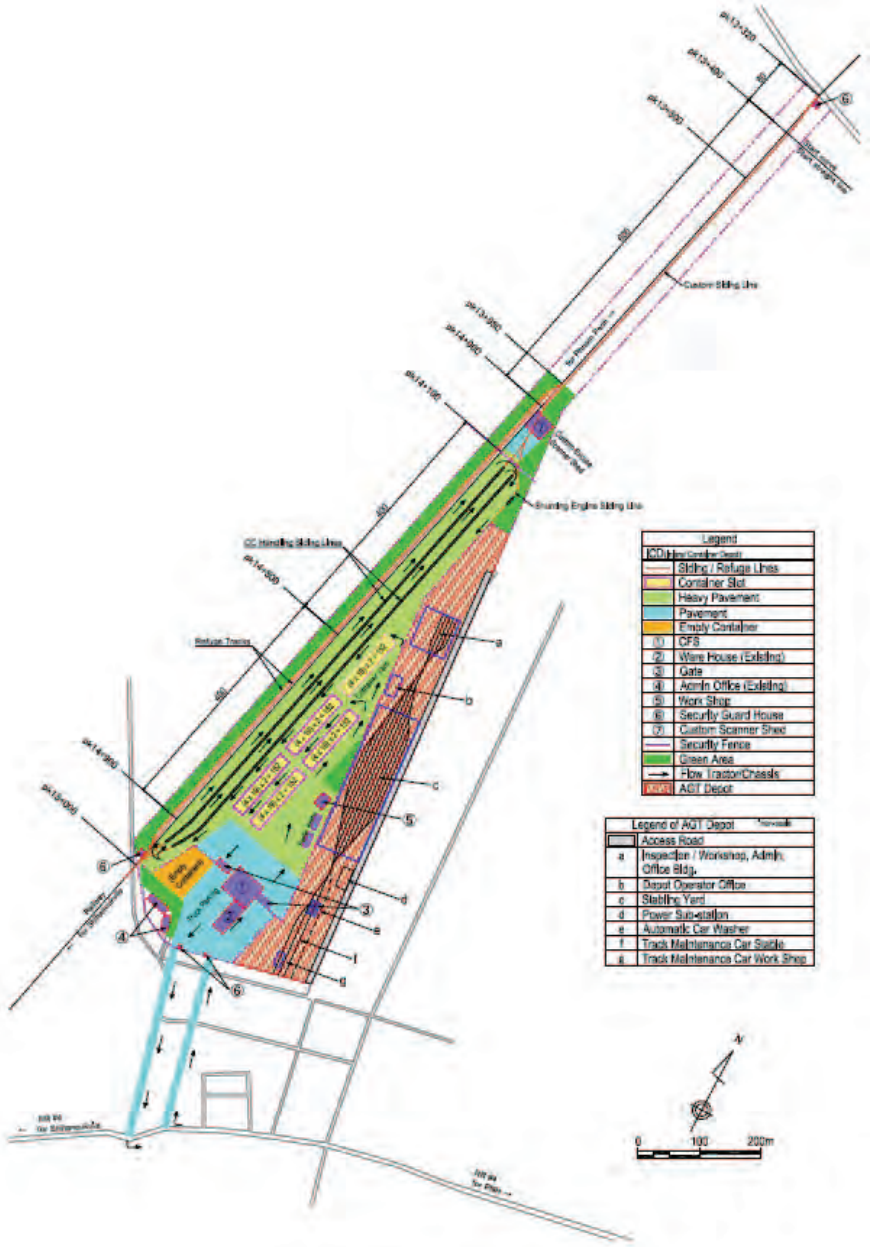
[17] *Phnom Penh Land Use Master Plan 2035*, Sub-Decree 181 on the Implementation of the Master Plan for Phnom Penh Land Use, 23 December 2015, Appendix, subsection 4.3.5.

[18] A sidetrack is a railway track other than a siding that is auxiliary to the main track. Sidetracks allow railways to order and organize rail traffic flows.

[19] Japan International Cooperation Agency, Oriental Consultants Global Co., Ltd., Overseas Coastal Area Development Institute of Japan, and Nittsu Research Institute and Consulting Co., Ltd., *The Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia, Final Report*, June 2016, pp. 7-3 to 7-9.

[20] Japan International Cooperation Agency, Logistics Situation and Challenges in Cambodia, *Summary of the Data Collection Study on International Logistics of the Kingdom of Cambodia*, August 2016, p. 11 [Issue 6: Insufficient ICD and Railway Capacity].

Development of the proposed project – and other ICDs in Cambodia – will require development of the associated institutional framework, as set out elsewhere in this report.



Source: Japan International Cooperation Agency, Oriental Consultants Global Co., Ltd., Overseas Coastal Area Development Institute of Japan, and Nittsu Research Institute and Consulting Co., Ltd., The Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia, Final Report, June 2016, Figure 7.9, p. 7-10

Figure 3.1.14 Layout Plan for the Railway ICD Project in Phnom Penh

(2) Dry Ports

A dry port is an inland intermodal terminal directly connected by road or rail to a sea/inland waterway ports and operating as a center for the transshipment of cargo. As a matter of principle, all the CIQ checks can be done at the dry port. In addition to their role in cargo transshipment, dry ports may also include facilities for storage/warehouse (goods, containers and empty containers), consolidation of goods (such as CFS/LCL), and maintenance of trucks and trailers. Therefore, dry ports can speed the

flow of cargo between ships and major land transportation networks, creating a more central distribution point. Moreover, dry ports can improve the movement of imports and exports, moving the time-consuming sorting and processing of containers inland away from congested seaports.

In Cambodia, the warehouse business remains underdeveloped. But there are numbers of dry ports that are mainly owned by trucking companies (mostly CAMTA members). There are around 10 dry ports in Phnom Penh, and almost all of them are located south-west part of the city around the Phnom Penh International Airport. Moreover, there are a few dry ports in Sihanoukville, Bavet and Poipet including the one being under construction. A few of them offer LCL services, however, each dry port has its niche market and trading partners and the competition among dry ports is not so intense. Some shippers consider dry ports services in Cambodia are expensive (see 4.3.2 for the cost analysis for warehouse services). In all dry ports, the ASYUCUDA system is installed and all customs and CamControl functions are available. Containers could be sealed in all dry ports.

Names of Dry Ports
1. So Nguon Dry Port
2. TOLL Dry Port
3. Tech Srun Dry Port
4. Bok Seng Dry Port
5. Olair World Wide Dry Port
6. Union Dry Port
7. Sokan Transport Dry Port
8. Hong Leng Huor Dry Port
9. Teng Lay Dry Port

Source: Japan International Cooperation Agency, Oriental Consultants Global Co., Ltd., Overseas Coastal Area Development Institute of Japan, and Nittsu Research Institute and Consulting Co., Ltd., The Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia, Final Report, June 2016.

At PPAP, there is a new dry port development plan within the land for future expansion of the terminal. Also, a new railway line to connect PPAP and a railway ICD in Phnom Penh is planned.

At Sihanoukville, a JICA funded Sihanoukville Port SEZ is under operation by PAS since 2012. The SEZ is located next to the sea port and has 48 plots with 45 ha of land. The total area of the SEZ including relevant facilities is 70 ha. In order to attract more investment, a plan to develop facilities such as warehouse and cold storage is under consideration.

While logistics volumes are expected to increase drastically, there will be a significant need to make urban logistics more time and cost efficient. The KOICA study in 2014 recommended establishing a logistics complex in Phnom Penh and in regional cities. Regarding Phnom Penh, the holistic approach in line with the of Master Plan for Phnom Penh Land Use should be adopted, taking into consideration the truck regulations/restrictions in the city and the development of Ring Road No.3. A good access between dry ports/logistic complex and PAS/PPAP is essential for smooth and efficient multi modal transport.

In summary, key issues in the dry port sector in Cambodia relate to the following: (i) there are a limited

number of dry ports with specific niche routes/markets and they are directly linked with trucking companies/services, therefore, there is limited competition among them; (ii) dry port services including warehouse operations, CFS services, and container storage are expensive compared with neighboring countries; (iii) available services are either limited or fragmented. For example, LCL services is available only for certain destinations (e.g. China and USA) and certain customers (e.g. trucking companies' customers); (iv) the linkages between logistics hubs (e.g. PAS, PPAP, current and future railway ICD) towards multi-modal transport are still weak. Moreover, there are no truck terminals and distribution functions towards last-miles delivery are limited.

3.2 Development of Logistics Hubs

3.2.1 Sihanoukville Autonomous Port (PAS)

Situated along the Cambodian coastline, Sihanoukville Autonomous Port (PAS) has smooth operational conditions year-round, with calm seas and winds. PAS plays a vital role for Cambodian economic growth – it accounts for about 73% of the country's trade with ASEAN nations as well as with the European Union and the United States.[21]

From 2007 to 2016, PAS handled the cargo as shown in Table 3.2.1.

Table 3.2.1 Cargo Throughputs at Sihanoukville Autonomous Port (PAS), 2007-2016

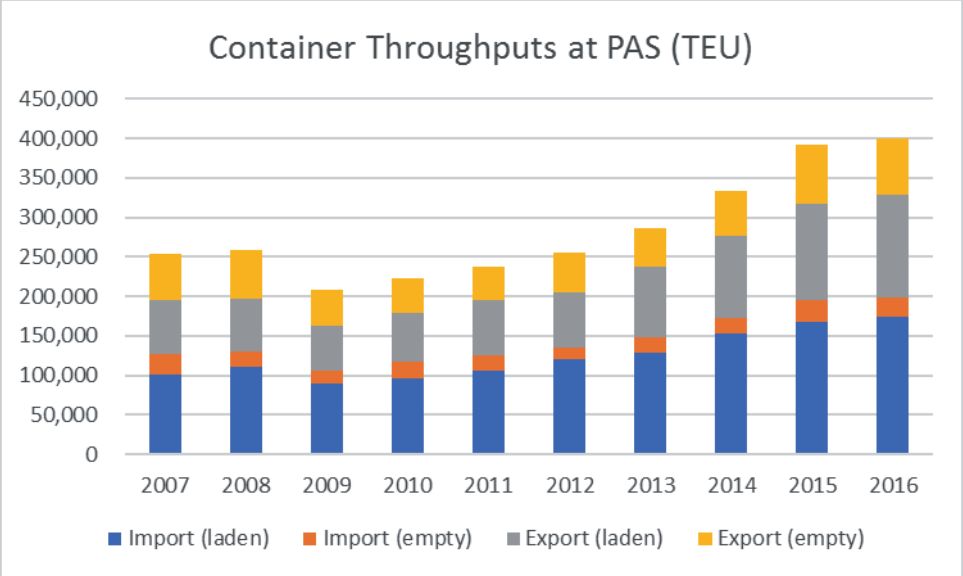
Unit: ton

	Item	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cargo Imported	Rice				3,977				3,928		
	General Cargo	20,577	36,328	16,041	121,175	40,752	70,058	69,656	51,325	40,693	108,868
	Machinery	24,640	18,632	15,083	16,728	64,588	57,047	54,002	49,865	62,227	91,063
	Cement	86,886	72,190	53,431	13,242	15,750	18,224				
	Live Cows										1,275
	Steel	14,577	34,896	11,416	19,650	34,830	61,520	38,726	25,952	10,466	14,781
	Steam Coal	36,825	125,066	116,245	128,356	161,187	67,771	54,359	91,027	99,662	135,136
	Salt			29,049							
	Fuel	389,885	452,294	564,570	626,985	625,235	785,035	923,943	986,986	1,125,253	1,158,777
	Containerized Cargo	844,965	941,288	772,681	872,475	943,966	1,045,404	1,072,425	1,299,723	1,406,639	1,471,959
	Total Imported										
	Not Include Fuel	1,028,470	1,228,400	1,013,946	1,175,603	1,261,073	1,320,024	1,289,168	1,521,820	1,619,687	1,823,082
	Include Fuel	1,418,355	1,680,694	1,578,516	1,802,588	1,886,308	2,105,059	2,213,111	2,508,806	2,744,940	2,981,859
Cargo Exported	Corn				8,846						
	Tapioca Chip							34,118	86,883	38,880	27,525
	Machinery				465		984	789	1,000	317	385
	Wood Chip				62,173	50,473	18,618	19,447			
	Wood Processing		4,002								
	Steam Coal						8,003				
	Sugar									5,881	
	General Cargo	10,067		228	189	1,339	238	1,366	281	169	258
	Containerized Cargo	390,454	373,271	295,350	342,889	497,629	526,883	743,386	826,948	973,130	1,030,127
	Total Exported	400,521	377,273	295,578	414,562	549,441	554,726	799,106	915,112	1,018,377	1,058,295

Source: PAS.

Import and export container throughputs from 2007 to 2016 including empties are shown in Figure 3.2.1.

[21] PAS Port Book 2017.



Source: PAS.

Figure 3.2.1 Container Throughput of Sihanoukville Autonomous Port (PAS)

PAS is carrying out a Multi-Purpose Terminal Project, which will be operational in 2018 to handle agriculture, agro-industry, industry, and trade, especially for the export of Cambodian agricultural products such as dried tapioca and bulk cargo. Among other components, the project consists of a 330m quay with -13.5m depth and a 200m quay with -7.5m depth.

PAS is planning to undertake a New Container Terminal Development Project (2020 – 2023) with an official development assistance (ODA) loan from Japan at a total cost of JPY 23,502 million (US$ 203 million equivalent) to avoid deterioration of logistical efficiency and potential economic losses due to insufficient port capacity and to meet forecast demand. The project consists of a 350m quay with -14.5m depth to accommodate one over-Panamax container or two under-Panamax container vessels at the same time. The terminal is expected to be operational by the end of 2022 and handle 200,000 TEUs and 450,000 TEUs two and five years after completion, respectively. Therefore, in 2027 PAS's container handling capacity will be 900,000 TEUs/year in total including the existing capacity of about 450,000 TEUs/year. PAS has provided for further development of container terminals in its plan to meet demand increases.

PAS is one of the two major gateways of Cambodia for international trade: PAS handled 400,187 TEUs in 2016. PAS is expected to increase its share of Cambodia's international trade in the future.

3.2.2 Phnom Penh Autonomous Port (PPAP)[22,23]

Except for New Phnom Penh Port, the port facilities of Phnom Penh Autonomous Port (PPAP) are located on the Tonle Sap River about 3-4 km from its confluence with the Mekong River. The PPAP facilities are about 330km from the mouth of the Mekong River, of which about 102km is in Cambodian territory. The New Phnom Penh Port is located about 30km downstream from Phnom Penh

[22] As the port authority, PPAP maintains navigation channels; installs navigation aids; provides pilotage, tug assistance, and mooring/unmooring services; arranges berthing; and protects the environment within its commercial zone. PPAP is authorized to collect port dues and charge fees for services such as pilotage, tug assistance, mooring/unmooring, and shifting. PPAP operates its two dredgers mainly to maintain the navigation channel and ensure easy access to the port. PPAP may use the sand from dredging for commercial purposes.

[23] As the port operator, PPAP has four main terminals: the New Container Terminal (LM17) along the Lower Mekong River in Kandal Province, Tonle Bet Port (UM2) along the Upper Mekong River in Thbong Khmom Province, and the Multipurpose Terminal (TS3) and the Passenger Terminal (TS1) along the Tonle Sap River in Phnom Penh.

city center on the Mekong River and along NH1, which connects Phnom Penh with Ho Chi Minh City by road.

PPAP is one of the two major gateways of Cambodia for international trade: PPAP handled 151,781 TEUs in 2016. The Phase III development of PPAP's new container terminal is targeting 300,000 TEUs/year. Table 3.2.2 shows cargo throughputs of PPAP from 2007 to 2016.

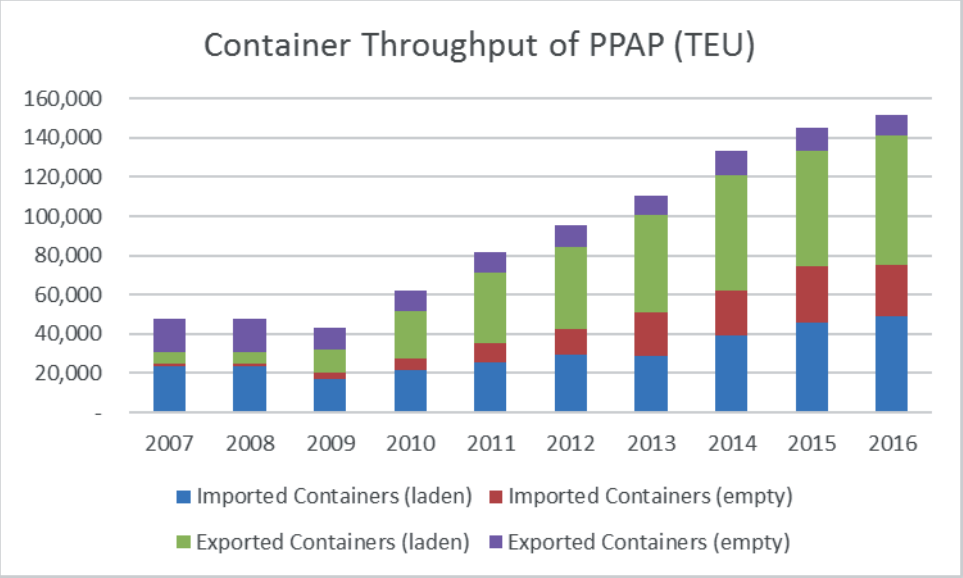
Table 3.2.2 Cargo Throughputs at Phnom Penh Autonomous Port (PPAP), 2017-2016

Unit: ton

	Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Imported Cargo	Animal food						6,504	3,054	4,069	27,165	27,680
	Coal			32,448	18,143	39,523	29,300	25,103	42,753	40,429	56,001
	Fertilizer			2,653		3,217	16,756	45,380	7,110	67,938	58,430
	Steel Coil- Steel Bar (Pole)		18,214	26,242	12,677	13,055	23,319	22,476	1,368	30,973	72,205
	Soy Bean									35,758	67,920
	Other General Cargo	50,695	69,977	32,257	17,134	28,237	26,560	36,317	153,368	57,644	81,875
	Total Imported General Cargo	50,695	88,191	93,600	47,954	84,033	102,438	132,331	208,668	259,907	364,111
	Containerized Imported Cargo	265,195	283,035	227,887	257,945	308,124	379,185	395,740	571,677	722,618	782,575
	Total Imported Cargo	315,890	371,226	321,487	305,899	392,156	481,623	528,071	780,345	982,524	1,146,687
Exported Cargo											
	Total Exported General Cargo	-	-	671	7,628	10,082	14,256	32,402	61,180	39,123	84,277
	Containerized Exported Cargo	44,894	42,971	78,787	141,244	211,178	246,702	323,960	380,269	392,131	411,706
	Total Exported Cargo	44,894	42,971	79,458	148,872	221,260	260,957	356,362	441,449	431,254	495,983

Source: PPAP

Import and export container throughputs including empties from 2007 to 2016 are shown in Figure 3.2.2.



Source: PPAP.

Figure 3.2.2 Container Throughputs of Phnom Penh Autonomous Port (PPAP)

Currently, the old Phnom Penh Port, which is located near the city center, has ceased container cargo and its berth is used for passenger vessels.[24] The New Phnom Penh Port is the only port facility of PPAP that handles containers.

In 2016, the New Phnom Penh Port handled 151,781 TEUs and its capacity is being expanded to 300,000 TEUs in Phase II (2016-2018) and Phase III (2019-2028) development plans.

The New Phnom Penh Port has a 300m quay with 22m width. It is equipped with, among other facilities, three 40-ton travelling quayside cranes, two barge cranes, six rubber-tired transfer cranes, three 45-ton reach stackers, three top loaders, and five forklifts.

[24] Passenger ships have rooms for guests to stay aboard and reportedly navigate up to Kampong Chhnang along the Tonle Sap River or up to Kartie along the Mekong River.

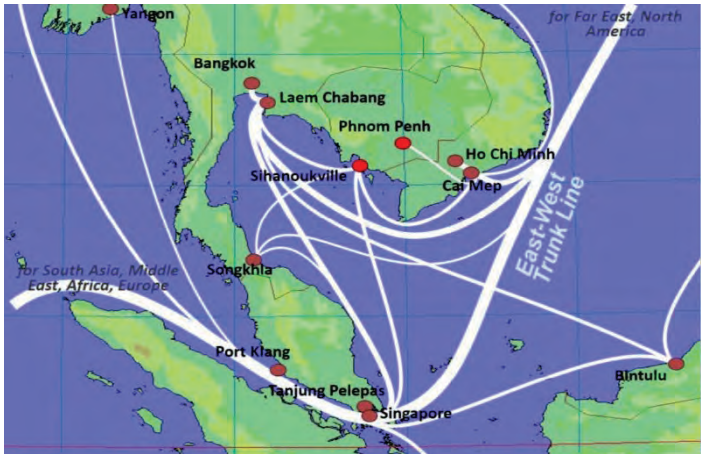
Phase II development of the New Phnom Penh Port is underway and the additional 300m quay will be developed as part of the Phase III development plan.

In addition to its cargo handling operations, PPAP is managing and developing a Port Commercial Zone[25] and regulating waterway transportation. In this regard, PPAP is planning to provide several conveyers at its premises on the Mekong River as well as on the Tonle Sap River under its short-term plan (2016-2018) and a logistics center near the New Phnom Penh Port under its long-term plan (2019-2028).

Because the New Phnom Penh Port is situated only 30km from the city and will be connected with the suburbs of Phnom Penh by Ring Road 3 in the near future, PPAP will maintain its important role in international trade, particularly with Vietnam, China, Japan and North America using inland waterway transport along the Mekong River.

3.2.3 Advantages and Disadvantages of PAS and PPAP from Logistics Viewpoint

PAS is located on the coast of Cambodia and PPAP is located on the Mekong River basin. Their locations are shown on the regional maritime transport map prepared by PAS (see Figure 3.2.3).



Source: PAS

Figure 3.2.3 Regional Maritime Transport Map

In view of the above map and on-land transportation, etc. the comparison between PAS and PPAP is attempted from the logistical viewpoint and concluded in Table 3.2.3.

[25] The Commercial Zone of PPAP consists of the following:
1) Neak Leung at the Lower Mekong River (56km)
2) Tonle Bet at the Upper Mekong River (105km)
3) The Tonle Sap River (7km)
Within the zone, PPAP is given the authority to regulate and oversee private terminals including petroleum/ gas terminals and other general cargo terminals.

Table 3.2.3 Comparison between Sihanoukville Port (PAS) and Phnom Penh Port (PPAP)

Items to compare:		PAS	PPAP
Hinterland connectivity	Access to/from OD of majority of container cargo (Phnom Penh Area)	About 230km by road	Within 50km by road
	On land transport	Railway and road	Road
Maritime connectivity	Access to/from abroad	Direct	Via Cai Mep in Vietnam
	Border crossing	None	Border with Viet Nam
	Access to/from Maritime Trunk Transport Route	Via Singapore	Via Cai Mep and Shanghai
	Max. ships to accommodate	Cargo ship: 20,000 DWT	Cargo ship: 5,000 DWT
		Container ship: 1,500 TEU (now), 4,000 to 5,000 TEU (new CT completed)	Container barge: 200 TEU
	Port deepening	Technically feasible	Technically not feasible
Transport cost in general		High on land, low on the sea	Low on land, high on river and sea
Potential competition with other logistics means		With PPAP to compete by lowering transport cost on land by use of railway	With PAS to compete by streamlining the nighttime navigation and border crossing with Vietnam
		With Laem Chabang Port to compete by attracting cargo in North-eastern area of Cambodia by use of railway	With road transport via NR 1 or expressway to/from Cai Mep to compete by streamlining the nighttime navigation and border crossing with Vietnam
Hinterland development		SEZ	SEZ, ICD

Source: JICA Survey Team

From the above comparison and for the improvement of the logistics in Cambodia, the following issues will be pointed out:

PPAP should exploit the advantage of its location that it has better connectivity with the industries around Phnom Penh City area than PAS. A logistics center is recommendable to be located near the port. A better connectivity with Cai Mep Port is the key to increase cargo to/from China, Korea, Japan and the west coast of USA.

PAS should augment the advantage that it can accommodate larger ships. It should attract more cargo by lowering the on-land transport cost, e.g. enhancing railway container transport and mitigating the gate congestion.

3.2.4 Local and Regional Ports

The JICA Study Team visited the river ports at Stung Treng, Kratie, and Tonle Bet (Kampong Cham) along the Mekong River, and at Battambang, Siem Reap (Chong Kreas) and Kampong Chhnang in the Tonle Sap River basin. Based on the information collected from the Departments of Public Works and Transport (DPWT) of the relevant provinces, no cargo is being handled at these river ports but has been shifted to road transport after development of NH7 in the Mekong River basin and NH5 and NH6 in the Tonle Sap River basin.

The role of these ports – basically lift-on, lift-off (LOLO) facilities on the river bank for inland water cargo transport – is limited due to competition from PPAP's Commercial Zone, which can handle international bulk cargo, e.g., tapioca exported to China and fodder imported from Vietnam.

(1) Mekong River Basin Ports

Stung Treng

For cargo handling, two berthing facilities were used at Stung Treng, one on the Secong River and the other on the opposite bank of the Mekong River. The former, a concrete paved slipway, has been used by small passenger boats (water taxi) after NH 7 was completed in 2014 and the latter, a pontoon-type jetty, was abandoned after the New Mekong Bridge of NH 9 was completed in 2015. Cassava is occasionally exported to Vietnam by road and rubber is hauled by truck to Kratie.

Kratie

For cargo handling at Kratie, two berthing facilities were used to accommodate vessels from/to Phnom Penh; one is a pontoon type and the other an unpaved slipway. Since the calling of cargo ships from Phnom Penh stopped after NH 7 was completed, the former is now used for small roll-on, roll-off (RoRo) vessels plying the opposite bank of the Mekong River carrying agricultural products and daily necessities and the latter is used to unload dredged materials from barges onto trucks.

Tonle Bet

Tonle Bet Terminal at Kampong Cham is located within PPAP's Commercial Zone and is operated by PPAP. Ocean-going cargo ships can call at the berthing facilities at Tonle Bet since the navigation is regulated and maintained by PPAP. The terminal is equipped with two pontoons and a belt conveyer system for tapioca export (the facilities are temporarily disassembled during floods). A 2,000 DWT class bulk carrier has called at the terminal four times in 2017 to export tapioca to China. Near the PPAP terminal, a private firm is operating fodder import facilities equipped with a belt conveyer system and weighbridge.

(2) Tonle Sap River Basin

Battambang

There are no berthing facilities for cargo ships on the Sangker River in Battambang City. Steel stairs near the provincial hospital is used for passengers and tourists[26] only and a concrete paved slipway is used for a small catamaran-type ferry for motorcyclists to cross the river. As NH5 has been developed, it is unlikely that the waterway will be used for cargo transport.

Siem Reap (Chong Kneas Port)

In the past when the road was blocked, cargo was transported to Siem Reap/ Chong Kneas by inland waterway. However, after the road was developed and maintained, no cargo ship is calling at Chong Kreas except for a small petroleum tanker calling at a private jetty.

A concession for Chong Kneas was awarded to a Korean firm in 2008, which developed the facility as a year-round port for tourists by dredging the port basin and navigation channel to accommodate tourist boats. Since then, Chong Kneas has not been used by cargo ships.

Kampong Chhnang

There is a pontoon type jetty for passengers and belt conveyer system for cargo loading. But no large cargo ships are calling Kampong Chhnang port while small cargo ships are calling during rice harvest season to export rice to Vietnam. The ship size varies from 70 to 280 DWT. Besides, passenger ships are calling the port from Phnom Penh. Passengers stay aboard and enjoy sightseeing at the Tonle Sap

[26] Tourists use a boat from Battambang to Siem Reap and vice versa for birdwatching and sightseeing.

River Basin during daytime.

The port is the local logistics center to distribute and collect various goods for the residents at the Tonle Sap River basin. But it plays no significant role in the national and international logistics.

3.2.5 Air Cargo Hubs

There are three international airports in Cambodia – of which the Phnom Penh International Airport dominates the air cargo traffic demand. The Siem Reap International Airport is a gateway for international tourists as there are many direct flights connecting with regional capitals and large cities, such as Bangkok, Hong Kong, Beijing, Seoul, etc. The Sihanoukville Airport operates both domestic flights (mainly to and from Siem Reap) and international ones (direct routes to Vietnam/Ho Chi Minh City, Malaysia/Kuala Lumpur and several Chinese destinations), supporting business demands in the region from foreign investors, particularly from China.

All three airports are operated by Cambodia Airports (name of the concessionaire company identified as well through the name "Societe Concessionaire de l'Aeroport/SCA") under a concession contract up to 2040, for which the French concessions and construction company, VINCI, is the major shareholder. The Concessionaire has constantly been expanding airport facilities, where Cambodia Airports present their investment plans at the Airport Committee[27] through the Independent Engineer in order to receive any comments and to provide them with relevant information required by both Airport Committee and Independent Engineer for their follow up on the implementation. Due to the nature of the concession agreement (fully confidential), the details of the investment obligations are unknown, but it seems that investment decisions are mainly led by the duty granted to Cambodia Airport to serve and develop the traffic demand. The passenger volume of the three airports combined reached 7 million in 2016, and the traffic has been growing rapidly in the recent years. Air cargo activities have also been increasing, especially at Phnom Penh International Airport. The major products include garments – i.e. product samples, urgent orders, or delayed orders. There are about 25 airlines operating aviation cargo, either through freighters or passenger aircrafts. Being able to handle cargo through both ways (full freighter and belly) seems to be a key positive factor of the steady growth of cargo activity Each airline has a base airport and targets different markets. Therefore, competition amongst few of the airlines is intense. Qatar Airways, Emirates, and Turkish Airways are the main cargo carriers towards Europe. Thai Airways and Cathay Pacific Airways carry goods towards China and the United States. Qatar Airways, Cathay Pacific Airways, Emirates and Turkish Airways operate freighters on a weekly basis. All Nippon Airways does not operate a freighter, but carries goods in the spare space of passenger aircrafts (but only up to 16 tons per flight). Broadly speaking, the loading factor is high (between 70-100%) and some airlines have a plan to increase cargo capacity in the near future.

Competition with neighboring airports (such as Suvarnabhumi Airport in Bangkok and Tan Son Nhat International Airport in Ho Chi Minh) is intense but Phnom Penh airport has actually gained a significant market share over the neighboring airports in the recent years, with the increase of connectivity (belly) and the new airline capacity offer (freighter and belly).

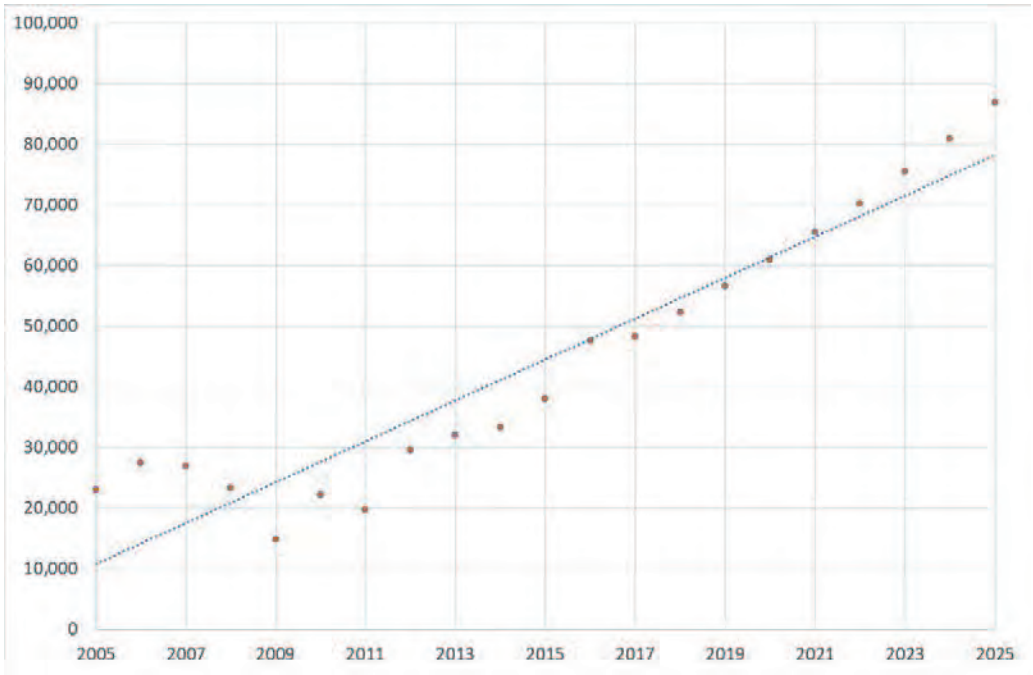
In parallel the competition between the air cargo and the land transportation (with multimodal transshipment in Ho Chi Minh or Bangkok) is also intense. Despite the higher cost of air transport over land, there has been some shift from land to air observed, in particular for express goods, to fulfil time constraints and take benefit of the new capacity offer.

Cargo traffic increased from 27,548 tons in 2006 to 47,575 tons in 2016 (73% increase in the last 10 years). It is projected to further increase up to 87,000 by 2025 (see Figure 3.2.4). Key destinations are

[27] Airport Committee is chaired by the Senior Minister of the Office of the Council of Ministers and the State Secretariat of Civil Aviation as a member.

expected to remain broadly the same (i.e. USA and Europe) but the share of cargo movement, both imports and exports, to China is expected to grow.

If IDP objectives have duly been implemented, the traffic demand for air cargo is expected to grow even faster. In addition to garments, the share of value-added manufacturing products will increase in the future.



Source: Actual figures from Cambodian Airports, Forecasted figures by the JICA Study Team

Figure 3.2.4 Air Cargo Traffic in Cambodia

It is noted that the rapid growth of air cargo combined with the development of freighter traffic from the airport, have generated new peaks.

Further to this new pattern, the existing cargo facilities at Phnom Penh International Airport have been developed swiftly to adapt to the growing demand, in particular with new workstations, security devices, storage facilities and large airside hangars. In addition, some regulation of the export acceptance and import release has been implemented by the airport, in order to avoid the shortage of storage or processing facilities.

Some significant patterns of the cargo process have also to be mentioned:

- **Long clearance process**: It takes 2-3 days for clearance for imports and often 1 day for exports, generating storage needs that are higher than the standard practice.
- **Express goods**: The current facilities and processes have not been initially developed for express cargo. This is a new trend at Phnom Penh airport, which is taken into consideration by the airport concessionaire.
- **Border control operating hours causing long queues**: Border control agencies generally operate from 7am to 5:30pm on weekdays and 7am to noon on Saturdays. This practice does not meet business demands and there often is congestion over the weekend and before public holidays.
- **Cold chain cargo handling demand is growing rapidly:** the warehouse space for cold chain

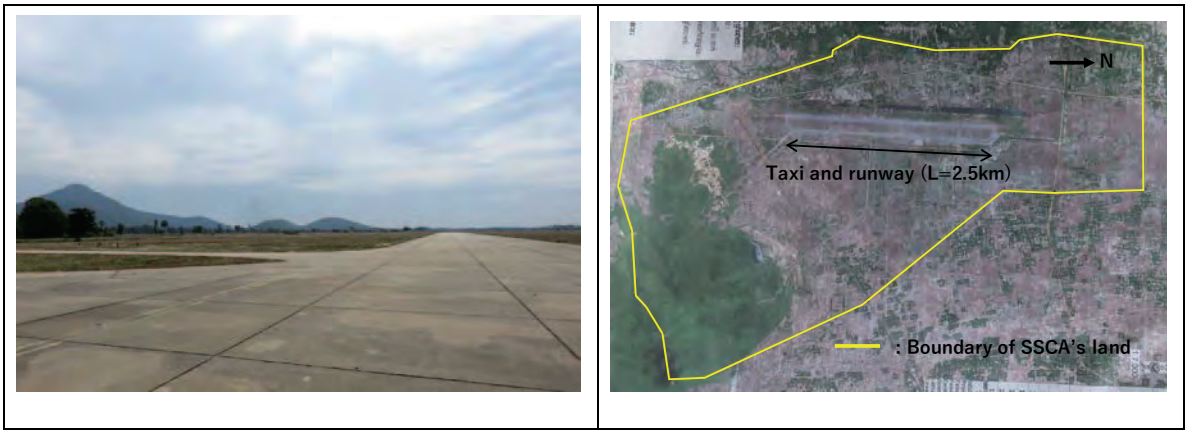
cargoes and facilities to control the temperature will therefore need further development.

Considering the above specific patterns, the airport concessionaire is planning a major investment plan to develop new cargo and logistics facilities within the boundaries of Phnom Penh Airport in the short/ mid-term.

3.2.6 Kampong Chhnang Airport

Kampong Chhnang Airport is located within the Kampong Chhnang Province bordered by the river, national highway no. 5 and the railway line. The site is only 95 km from Phnom Penh city. It is a military airfield built by China in 1979 with the runway of 2.5km in length and accommodate most types of aircraft including 747 series. There is an existing airport tower and ware houses which needs rehabilitation or restoration. The airport is currently hardly used except by military.

The airport is under the supervision of Secretariat of Civil Aviation (SSCA) and being maintained while military soldiers are staying in the airport yard for security purposes. In fact, no maintenance has been implemented because the budget has not been allocated. The area of 1,415 hectare including existing airport is owned by SSCA.



Source: Photo taken by JICA study team

Figure 3.2.5 Photo of Runway (left) and Map of SSCA's Land Boundary (right)

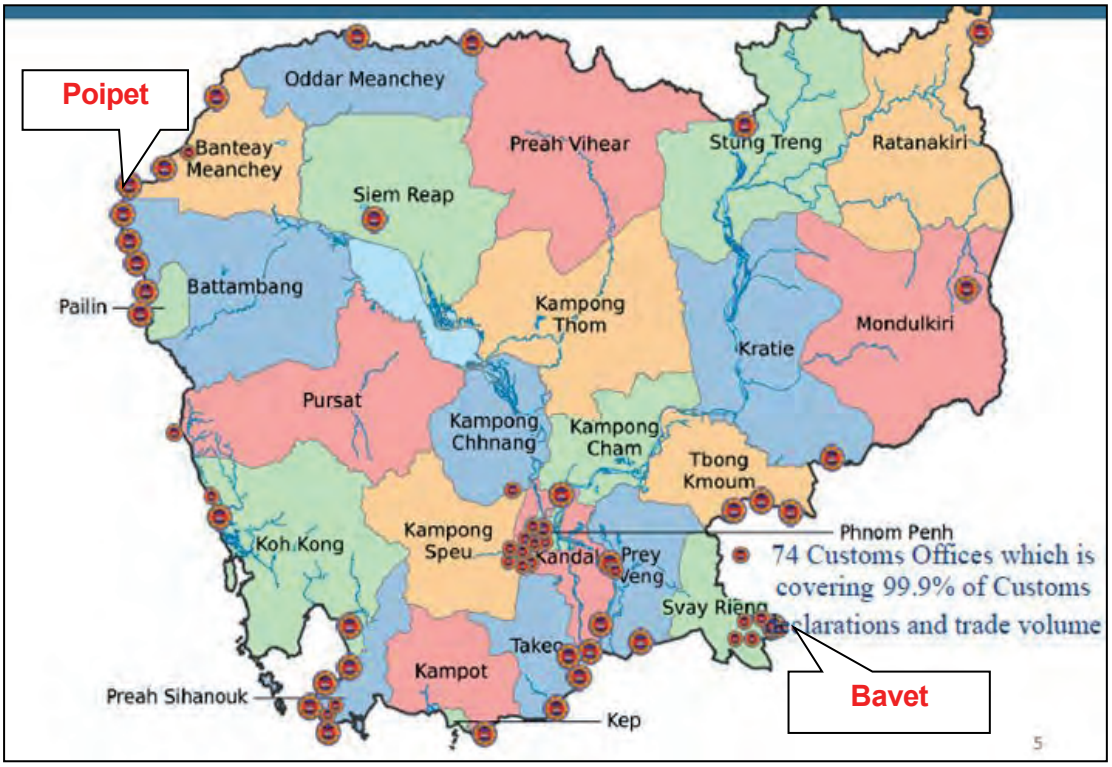
The Cambodia government has tried to promote the airport to be upgraded to the international airport and make it as a logistic hub, together with the development of surrounding area such as free enterprise zone. Private investors have made development plans and relevant studies, but nothing has materialized until now.

Considering its strategic location and distance from regional centers like Phnom Penh, Battambang and Siem Reap etc., the Cambodia government desires to attract investment to develop the area possibly as a logistics/business special zone. In relation to this, access road to national highway and railway branch line to northern railway line are under planning by the government.

3.3 Border Control and Management

Cambodia has 74 customs clearance offices, located throughout the country. Among the 27 land borders, Bavet and Poipet, Cambodia's gates to South East Asia's Southern Economic Corridor which extends from Ho Chi Minh City, Vietnam, enters Cambodia, and continues through Thailand up to Myanmar, are regarded as strategic border for Cambodia's development. The main trading items are fabrics, auto parts and accessories of vehicles and bicycle, and motorcycles.

Bavet has the advantage of being close to Ho Chi Minh City's largest international port, and Poipet to that of Laem Chabang. The impacts of the so-called "Thai Plus One" effect has reached border cities, where Special Economic Zones (SEZs) and casinos have been developed to attract domestic and foreign investments, taking advantage of their strategic location and cheaper labor costs.



Source: GDCE presentation used at First Dialogue between GDCE and JBAC titled Customs Automation & National Single Window 09 August 2017.

Figure 3.3.1 Customs Office Map

3.3.1 Land Borders

(1) Poipet

SEZs in Poipet

Poipet, once a quiet border town, has seen a rapid economic growth in recent years. Located in Cambodia's west end and bordering Aranyaprathet of Thailand, Poipet has three SEZs in operation and one under construction along the border. The activities of the companies in operating SEZs are in full swing, and the new SEZ is expected to attract several large manufactures in the near future.

Border Facilities in Poipet

The border has only one traffic lane for each direction -entry and departure- causing congestion. Trucks, buses, trolleys, and private cars share the same lane. In the Cross Border Trade Agreement (CBTA), 150 Thailand vehicles are allowed to circulate beyond the 20-km point from the border in both countries per day.

The traffic lanes are also congested with large in and out flux of buses carrying Thai people and foreign tourists visiting casinos in Poipet and Angkor Wat, the world heritage site in Siem Reap, three-hour drive from Poipet. To ease the congestion, Cambodia's MPWT is planning to open a second border crossing called "Stung Bot Border."

Source: Google map.

Figure 3.3.2 Poipet Border Area Map Showing New Border "Stung Bot" Location

The Thai Government will provide the "no compensation" fund aid for the project to build the cross-border bridge on the Cambodian side, as well as the concessional loan for building the infrastructure and for installing equipment along the new border, which will be connected to National Road No.5, one of ASEAN Highway Route One. The Poipet Customs has already set up the PVN Dry Port, which has been partially operating since September 2017. All the cargo trucks will be required to follow the clearance process, transiting and trans-loading at this facility.

(2) Bavet

SEZ in Bavet

Bavet is Cambodia's east gate to the Southern Economic Corridor, bordering Moc Bai, Vietnam. There are nine SEZs near the Bavet border. The oldest one has been operating since 2005. Many Japanese and international companies operate at Bavet SEZs. A large volume of cargo passes through the Bavet border every day.

Traffic Situation of Bavet Border

The existing traffic lanes at the Bavet border have so far been able to let all types of vehicles moving along. The border has a four-traffic-lane gate: one for private cars, one for buses, and passengers, and two for trucks. The both truck lane is wide enough for allowing two trucks to cross the border at the same time. The road connecting Bavet and Moc Bai border facilities has two lanes on each side.

By the Cross-Border Transport Agreement (CBTA), both countries agreed 500 trucks, buses enter and drive each other country, and the border is congesting.

Traffic congestion at the border crossing has several causes. The reason is that the cargoes and the truck need to be confirmed by the border police by support of the owner (customs broker) but the communication between the Moc Bai side and Bavet side is not well established and taking time to identify the truck and the cargoes. In addition, the four lanes road connecting Bavet and Moc Bai border facilities have no parking space for vehicles entering the Bavet.

Source: Google map

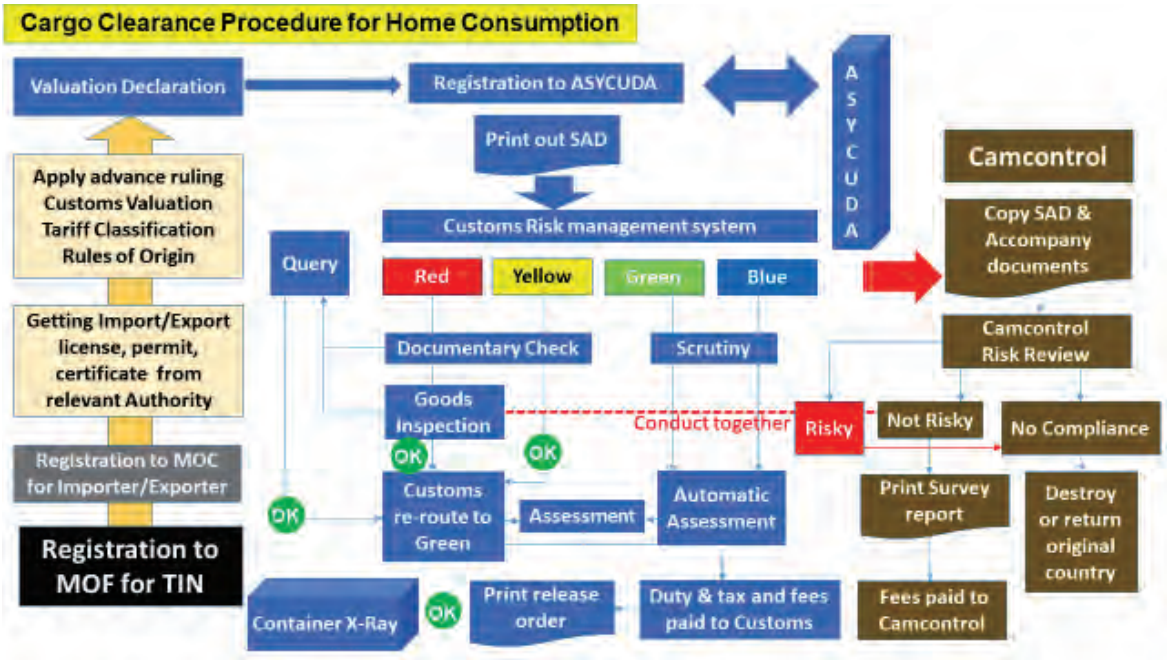
Figure 3.3.3 Bavet Border Area Map

Moreover, the roads after crossing the border is a major problem. The existing roads are not wide enough and in bad condition. The sidewalks are not well maintained either. In addition to that, the customs X-ray examination facility is located alongside the road about 1 km from the border and the trucks are waiting on the road for their turn, blocking other traffic and causing heavy traffic jam.

To ease the traffic congestions in Bavet, certain measures have been introduced. The General Department of Customs and Excise (GDCE) has implemented a measure by constructing a new X-Ray examination facility with a large truck parking area behind the existing facility. In addition, the municipal government planning to widen the road from the border point up to two km inland. The road will be paved, and an additional four-meter-wide road will be added on each side of existing road.

3.3.2 Customs Clearance Procedures

The cargo clearance procedure involves many different Cambodian government authorities.



Source: JICA Study Team

Figure 3.3.4 Customs Clearance Procedure for Home Consumption

The flow chart shows the steps for cargo clearance for goods intended for home consumption. A number of steps must be followed before proceeding to the customs clearance through the Automated System for Customs Data (ASYCUDA). The declarant needs to obtain a Tax Identification Number (TIN) from the Ministry of Economy and Finance; register the business as an importer/exporter with the Ministry of Commerce; obtain an import/export license, a permit, or a certificate from the relevant government authorities whenever applicable; and if necessary, apply for advance ruling and receive guidance from the GDCE.

The customs declaration starts from the non-computerized valuation declaration procedure. The declarant has to submit the necessary documents manually to the GDCE with original invoice and sales contract. The computerized customs clearance procedure starts when the necessary data is registered to the ASYCUDA. Risk assessment, documentary examination, and cargo inspection will follow. If no outstanding matters are identified, duty, tax and fees are paid and a release order is consequently issued.

In Cambodia, container cargoes are subject to 100% X-ray scanning. Scanning is conducted even from the green or blue-channel selected goods by the risk selectivity system as the purpose of conducting 100% X-ray scanning is for national security reasons and not only for customs risk management examination purpose.

3.3.3 Licenses, Permission Letters and Certificate required for Importing/Exporting Goods

(1) Licenses, Permission Letters and Certificates for Imports

The government agencies that issue import licenses and permits are listed in the document entitled "The implementation of the list of prohibited and restricted goods" under the ANUKRET No. 209 ANK.BK, dated December 31, 2007, and updated in July 2012. The list indicates the HS Code (type of goods) and the government authority that requires such licenses, permits and certificates. Examples of these licenses include animal health certificates for live animals, sanitary and phytosanitary certificates for animal products, fresh fruit, vegetables, plants, and agricultural materials for plant quarantine. More than 13 ministries issue such licenses, permits, and certificates.

(2) Licenses, Permission Letters and Certificates for Exports

For exportation of goods, the type of license, permission letter, or certificate that are required and the government agencies where they can be obtained are listed in the Handbook on Customs Clearance published by GDCE. An example of such a license is that for exporting unprocessed rubber, issued by the Ministry of Commerce. The table below summarizes the documents issued by different authorities.

Table 3.3.1 License, Permission Letter and Certificate

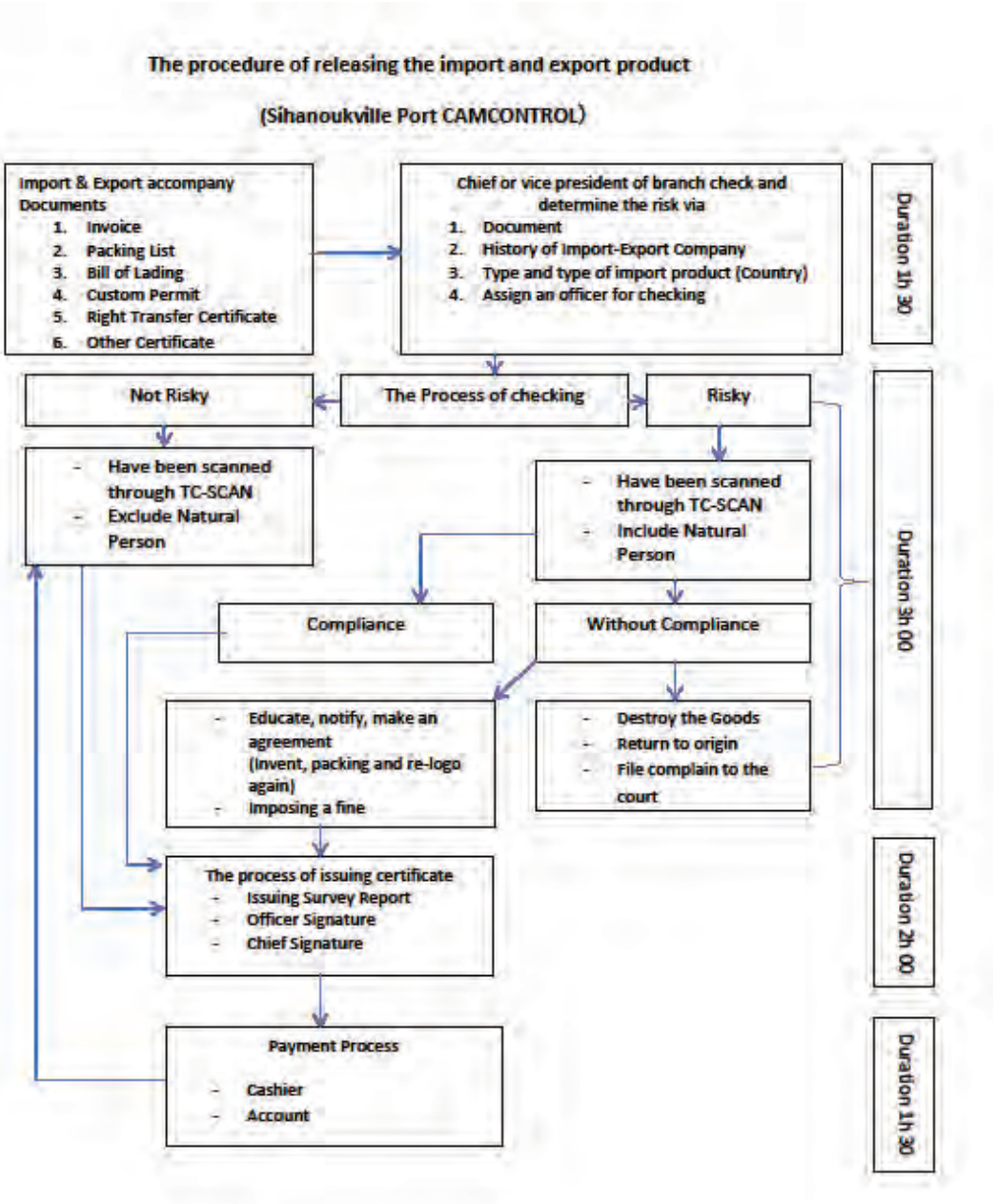
	Type of Goods	Documentation	Government Authority
Export License	Unprocessed Rubber	– Export License	– Ministry of Commerce
	Processed Wood and non-timber forest products	– Export License – Permit Letter	– Ministry of Commerce – Ministry of Agriculture, Forestry, and Fisheries – Council of Ministers
Certificate	Fresh Fruit, Vegetables, Plants and Agricultural Materials (including Pesticides, Fertilizers, Seeds, Seeding Materials and Feed Additives)	– Customs and Excise Permit – Sanitary and Phytosanitary Certificate	– Customs and Excise House – Ministry of Agriculture, Forestry, and Fisheries
	Garments	– Certificates of Origin	– Ministry of Commerce
	Drugs and Medicines	– Ministry of Health Certificate	– Ministry of Health
	Live Animals	– Animal Health Certificate or CITES* Certificate	– Ministry of Agriculture, Forestry, and Fisheries
Permission Letter	Art and Cultural Products	– Permit Letter	– Ministry of Culture and Fine Art
	Fish, Crustaceans, Mollusks, and Other Aquatic Products	– Permit Letter – Certificate of Origin – Customs Permit	– Ministry of Commerce – Ministry of Agriculture, Forestry, and Fisheries – Customs and Excise House
	Jewelry, Silverware, and Unprocessed Precious Stones	– Permit Letter	– National Bank of Cambodia

*CITES: Convention on International Trade in Endangered Species of Wild Flora and Fauna
Source: Handbook on Customs Clearance, GDCE.

The survey team found out that among these licenses, permission letters, and certificates, the only computerized document is the Certificate of Origin. For other licenses, permission letters, and certificates, development of a computerized system needs to be considered.

3.3.4 Clearance Procedure by the Cambodia Import-Export Inspection and Fraud Repression Directorate General (CamControl)

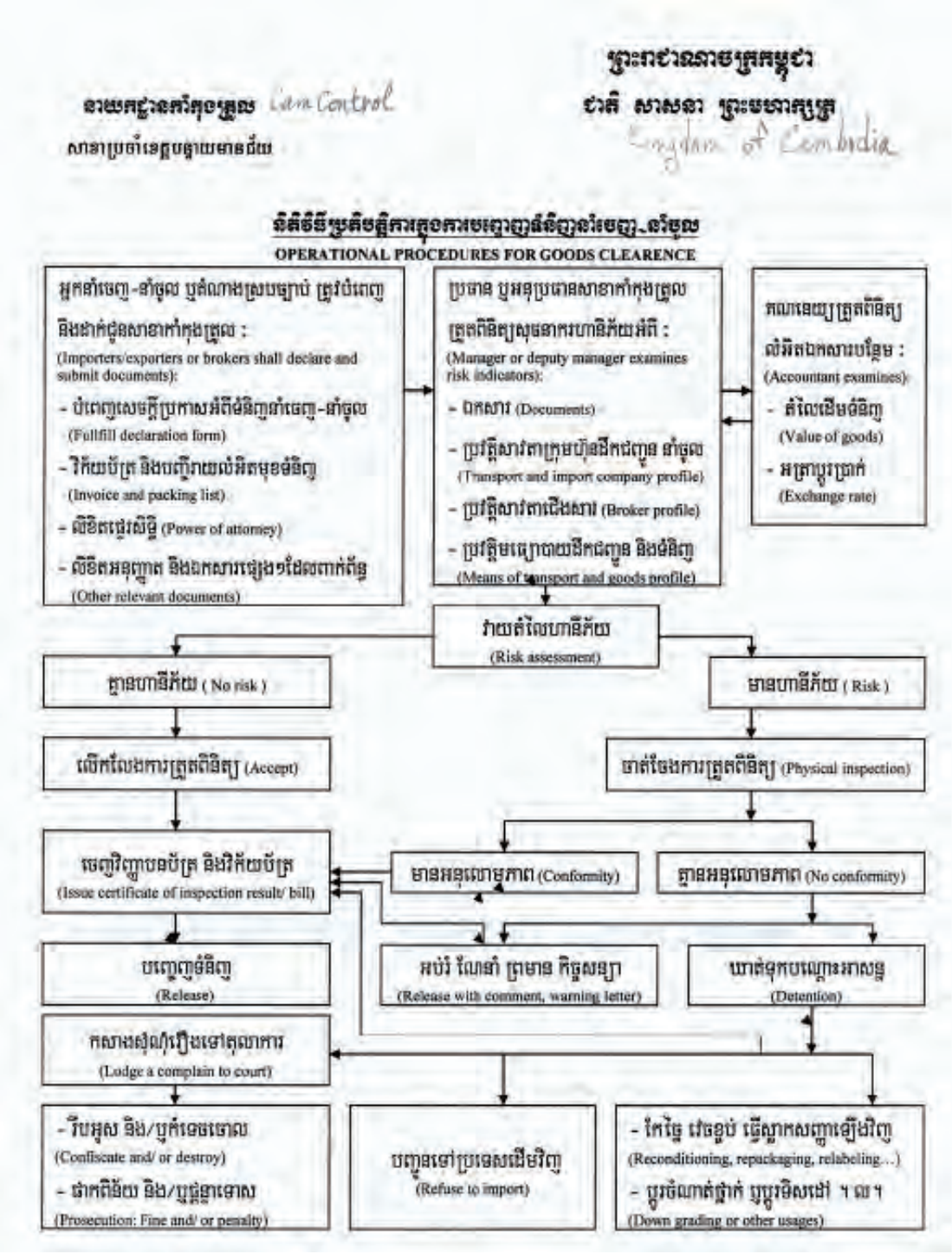
Another unique aspect of the Cambodian clearance procedure is the examination by the Cambodia Import-Export Inspection and Fraud Repression Directorate General (CamControl), in the General Directorate of the Ministry of Commerce. The declarant must go through this clearance procedure in addition to the customs clearance. After lodging a declaration to customs and completing a risk assessment, the declarant must submit a copy of the customs' accepted declaration to the CamControl office, and pay corresponding fees after documentary and physical examination. The tables below show the CamControl procedures at Sihanoukville Port.



Source: CamControl office of Sihanoukville translated by JICA Study Team.

Figure 3.3.5 CamControl Clearance Procedure at Sihanoukville Port Office

This clearance procedure is basically the same at land border and airport Camcontrol. Poipet Camcontrol office provided the team below releasing procedures, Figure 3.3.6.



Source: CamControl office of Poipet provided to JICA Study Team.

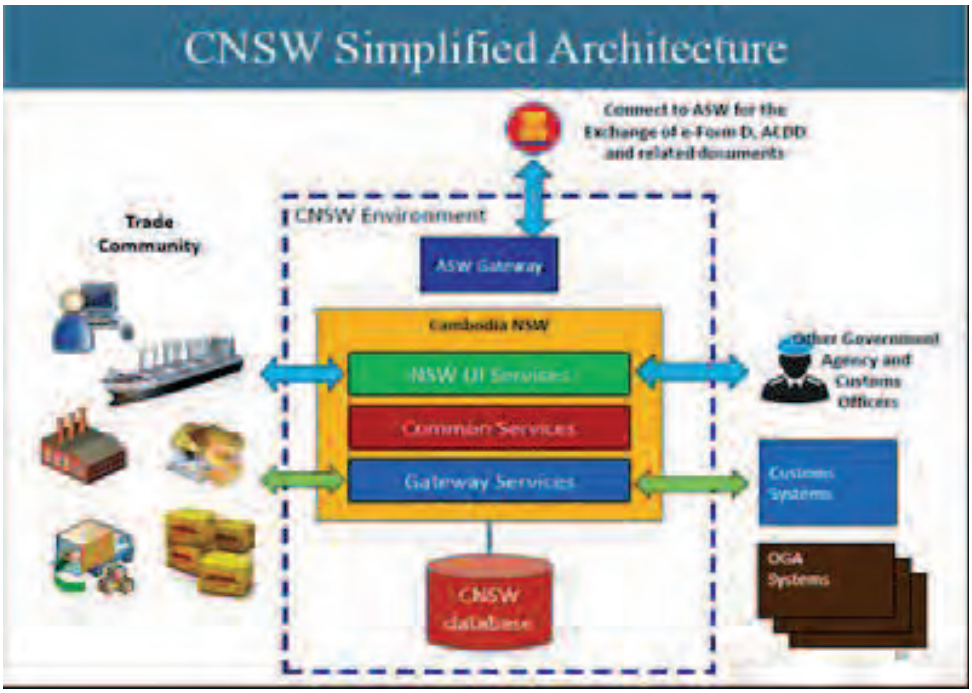
Figure 3.3.6 CamControl Clearance Procedure at Poipet Office

The CamControl aim to inspect of all the import/export goods at the time of their declaration, however CamControl particularly conduct examination focusing on the food safety and security for Cambodian consumers. CamControl takes a risk management approach and does not examine all the goods. Its policy is to examine physically 10% to 15% of the imported goods and 5% of the exported goods. However, the inspection fee is collected from all the declarations even if the examination is not conducted.

The function of CamControl is similar to the plant and animal quarantine examination of Ministry of Agriculture Forestry and Fisheries, and sanitary and phytosanitary measures of the Ministry of Health, which is implemented for consumer protection purposes.

3.3.5 The Cambodia National Single Window (CNSW)

The CNSW is one of the countermeasures that have been proposed to address some of the challenges that mentioned above. Preparation for the CNSW started in October 2013 with the assistance of the World Bank (WB). A blueprint of the CNSW was developed in April 2014 and the Cambodia National Single Window Steering Committee (NSWSC) was established in March 2015. The main objective of the CNSW is to simplify the cargo clearance procedures and enable the user to make in one-stop that all the necessary declarations will be made to all relevant authority through a single submission. The figure below shows that the CNSW has a scope to involve all the stakeholders including the ministries issuing non-computerized import/export licenses, permission letters, or certificates.



Source: the presentation made by GDCE at First Dialogue between GDCE and JBAC from titled Customs Automation & National Single Window 09August 2017

Figure 3.3.7 CNSW Simplified Architecture

(1) Blue Print for Cambodia National Single Window

The blueprint for CNSW shows that the plan for developing and implementing the CNSW is divided into the following three phases.

Phase 1: *Basic CNSW that connects ASYCUDA System of GDCE and e-Country of Origin (CO) System of Ministry of Commerce (MOC) to the ASEAN Single Window (ASW) for the exchange of e-Form D and ASEAN Customs Declaration Document (ACDD).*

*-**Timeframe:** started in October 2016 and planned to complete by December 2017 with assistance from US ACTI*

*- **Progresses:** completed internal user acceptance test and requested the installation of ASW Gateway Software for testing the exchange of e-Form D with other ASEAN member states from*

November to December 2017

- ***Status:*** *plan to join the live implementation of the e-Form D via ASW on 1 January 2018*

Phase 2: Integrate following government agencies (particularly Certificate License and Permit Issuing Agencies-CLPIAs) to the CNSW for the implementation of e-License, e-Certificate or e-Permit (Approximately 15 months after awarding to Contractor).

- General Department of Customs and Excise (GDCE)
- Council Development of Cambodia (CDC)
- Ministry of Agriculture, Forestry and Fisheries (MAFF)
  - General Directorate of Agriculture (e-Phytosanitary Certificate)
  - Department of Animal Health and Production (Animal Health Certificate)
  - Fisheries Administration (Aquatic Product License)
- Ministry of Health (MOH)
  - Food Safety Bureau
- Ministry of Industry and Handicrafts (MIH)
  - The institute of Standard of Cambodia (Chemical Substance License)

Phase 3: Implement the complete CNSW as highlighted in the Blueprint and connect to ASEAN SINGLE WINDOW if it is ready.

(The italic parts above are excerpts from a presentation made by GDCE at First Dialogue between GDCE and JBAC titled Customs Automation & National Single Window 09August 2017)

The preparation and implementation of Phase 1 is in progress. A connection test between ASYCUDA and e-CO has been completed. In January 2018, CNSW will be partially implemented.

According to the CNSW Phase 2 implementation plan, the next step is to develop and integrate other government agencies systems (particularly Certificate, License and Permit Issuing Agencies-CLPIA) to CNSW for the implementation of e-Certificate, e-License and e-Permit. Table 3.3.2 shows the on-going computerized system integration to CNSW, and the systems that need to be developed.

Table 3.3.2 Proposed CNSW and its Integration Plan

Name of Authority	Current status	Short Term 2018-2019	Middle Term 2020-2022	Long Term 2023-2025
GDCE Customs	ASYCUDA platform	Consider renewal of platform and develop a new system	Integration as CNSW	Integration to CNSW
	ASYCUDA sub-systems E-Customs system	Integration to ASYCUDA		
MPWT KAMSAB Port EDI	No system	Develop Port EDI System		
MPWT Sihanoukville PA Port Management System	Container Terminal Management System Single Window System	Merge two systems into one		
MOC Export-Import Department	e-Country of Origin	Integration to ASYCUDA		
Council Development of Cambodia	No system	Develop the necessary system		
MAFF GD of Agriculture (Plant Quarantine)	No system	Develop the necessary export license system and e-Phytosanitary Certificate system		
MAFF Department of Animal Health and Production	No system	Develop the necessary export license system and the Animal Health Certificate system		
MAFF Fisheries Administration	No system	Develop the necessary export license system and the Aquatic Product Certificate system		
MOH Food Safety Bureau	No system	Develop the necessary system		
MIH The Institute of Standard of Cambodia	No system	Develop the necessary system		
Other Government Agencies	No system		Develop the Necessary System	

Source: JICA Study Team.

(2) The life of ASYCUDA World

The CNSW is meant to be an evolved version of ASYCUDA. Cambodia has started using ASYCUDA since 2008 and has been using the system by adding some functions. Computerized systems are commonly renewed every seven to 10 years to match rapid changes in information communication technology. The ASYCUDA system is developed by UNCTAD and the latest version, which is ASYCUDA World, is implemented in Cambodia May 2008. Since then there is no upgrade of the main software and the technology used is rather old. Now that ASYCUDA is on its 10th year, it would be a good time to consider revising the system.

3.3.6 Port EDI system

Port EDI is a system to process the entry and departure procedures of vessels. "When a vessel arrived in a port, the clearance committee consists of port authority, immigration police, quarantine and ship agent (KAMSAB) go on board the ship and conduct the necessary entry procedures called "entry clearance". Similar procedures will be taken at the time of the departure of a vessel. The crew master must submit the following documents such as: Ship Report, Cargo Manifest, Crew List, List of Crew's Personal Effects, Discharge List, Passenger List, Bill of Lading, Ship Registration Certificate, to relevant authorities through KAMSAB.

The Port EDI will allow the ship operator to submit these documents electronically to all the authorities concerned in a single step, thereby enabling the entry and departure procedures to be completed in an hour.

The Port EDI will be integrated into the CNSW. The information on the entry and departure procedures of vessels, the manifest information will be useful for the CNSW. In June 2017, JICA approved the Port EDI project. The implementation project will start soon.

3.3.7 Best Trader Incentive Mechanism

The Best Trader Incentive Mechanism was introduced to expedite the complex and time-consuming customs clearance. It is applied to highly compliant traders. This program has officially been implemented since June 2014. The GDCE has a plan to increase the number of Best Traders from the current 17 companies to 50 companies. The GDCE has a plan to upgrade the Best Trader System to a full-scale system of Authorized Economic Operator (AEO) program in accordance with the World Customs Organization Guideline.

(1) Incentives to be a Best Trader

The advantages to be a Best Traders include enjoying first priority during the time of lodging declaration, inspection of goods, or documenting and releasing goods. Other advantages are as follows: exemption from verification of customs valuation and verification of Rule of Origin, and reduction in number of containers to undergo X-ray scanning machine in accordance with the existing regulations. Just half of the containers will be subject to X-ray inspection (This incentive is not yet implemented).

(2) Selection Criteria

In Prakas No. 452 MEF dated 11 April 2013 on High Compliant Trader Incentive Mechanism, the GDCE announced the selection criteria for a Best Trader. The GDCE conducts risk assessment based on the past declaration records and invites low-risk importers and exporters to apply for the Best Trader System. The Best Trader System requires the highest compliance level with regard to the requirements of customs laws and regulations. One of such requirements is the absence of a serious offence against the customs authorities within a determined period of time. For multinational companies that have been certified as AEO companies in their home countries, some of the qualification criteria are waived.

(3) Conclusion

The implementation of the AEO system helps secure high compliance of importers, exporters and the business community with the customs laws and regulations. This will in turn help improve the trade and logistics in Cambodia. Thus, it is fair to say that providing support in increasing the number of Best Trader and the implementation of the AEO program will prove effective.

3.3.8 Border Point Management

Bavet facing Vietnam and Poipet facing Thailand, the two Cambodian border checkpoints in the Southern Economic Corridor, are busy with trucks and buses. Table 3.3.3 shows the numbers of trucks crossing the border in Bavet and Poipet. The daily average number of trucks crossing the border through the checkpoints is 200.

Table 3.3.3 Number of Trucks with Cargo and Bulk Cargo per Year Crossing the Border in Bavet and Poipet (Empty Container not included)

		2013	2014	2015	2016
Poipet	Import truck with container	2,886	5,616	5,271	TBA
	Import truck with Bulk cargo	NA	51,505	66,236	TBA
	Sum of import truck	2,886	57,121	71,507	TBA
	Import Per day/365	8	156	196	TBA
	Export truck with container	0	912	998	TBA
	Export truck with bulk cargo	NA	NA	NA	NA
	Sum of export truck	0	912	998	TBA
	Export Per day/365		2.5	2.7	NA
	Daily average	8	159	199	NA
Bavet	Import truck with container	32,618	37,309	40,115	44,784
	Import truck with bulk cargo	8,583	14,270	21,532	24,683
	Sum of import truck	41,201	51,579	61,647	69,467
	Import Per day/365	113	141	169	190
	Export truck with container	9,800	11,947	12,800	15,276
	Export truck with bulk cargo	1,943	2,590	2,693	3,335
	Sum of export truck	11,743	14,537	15,493	18,611
	Export Per day/365	32	40	42	50
	Daily average	145	181	211	240

Source: Data from JICA (The data collection survey on international logistic function strengthening in the Kingdom of Cambodia Final Report June 2016). 2016 data is by JICA study team.

(1) Status of Bavet Border Checkpoint

The Bavet border checkpoint is open from 6 a.m. to 10 p.m. The customs business hours are the same as the checkpoint opening hours. However, when it is busy, the customs processes declarations even after 10 p.m. The CamControl office applies the same business hours. At the Bavet, there are 39 customs officers and 38 CamControl officers working. According to the customs, the number of import declaration is about 150 per day and the export declaration is about 20 per day.

The main issue of the checkpoint is the congestion by trucks. Cargoes from the Vietnamese side enter the checkpoint between late morning and the afternoon, because the customs processes the declarations in the morning at Moc Bai. According to the customs, the clearance office becomes busy after 2 p.m. Another view by a frequent user of the checkpoint is that this is because of poor coordination among the customs broker on the Vietnamese side, Cambodian truck drivers, the customs broker on the Cambodian side, and Vietnamese truck drivers. Trucks wait in the middle of the border to identify the owner of the cargo by the border police and this is taking time and choking the entry road to Cambodia. Therefore, the departure road from Cambodia to Vietnam is used for the entry road to Cambodia.

To avoid such congestion, the Bavet customs is taking measures. The trucks that go to the SEZ within 20 km from the Bavet checkpoint can go directly to the SEZ and process the declarations at the one-stop service center in the SEZ. The trucks that go to the SEZ in Cambodia that is more than 20 km away from the checkpoint can also process the declarations in the SEZ with an approved transit request letter. The clearance time at the border is not long for those going to the SEZ. However, it takes time for the goods for home consumption. Some goods must go through valuation declaration, and this process may take two days.

(2) Status of Poipet Border Checkpoint

The Poipet border checkpoint is open at 6 a.m. and closes at 10 p.m. Forty-eight customs officers work at the checkpoint. The customs business hour is between 7 a.m. to 11:30 a.m. and between 2 p.m. to 5 p.m. at the Poipet border clearance office but customs works outside working hours depending on the request made by the importers and exporters. The busiest time of the office is around 9 a.m. in the morning. The CamControl office has 11 officers and works 7 a.m. to 10 p.m. According to the customs at Poipet, the number of import declaration is about 60 to 80 per day.

The major cargoes at the Poipet are new cars and motorcycles, construction materials, and agriculture-related items such as fertilizer and tractors. In addition to trucks and busses, trolleys are used for importing daily goods from Thailand, and increasing the congestion at the border.

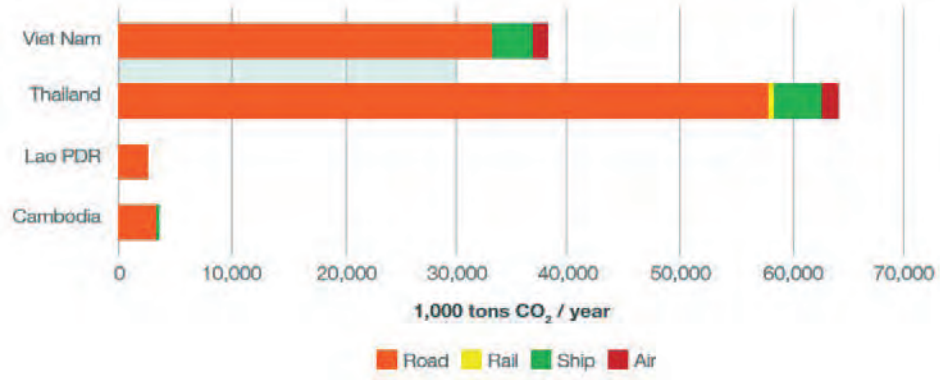
The major issue of the Poipet checkpoint is that there is only one lane for crossing the border. However, this problem will be solved in two years with the establishment of a new checkpoint, called "Stung Bot" about 8 Km inland from Poipet border along the route 5 National road.

3.4 Green Logistics

3.4.1 Overview of Green Logistics in Cambodia

The climate change mitigation has become one of key long-term policies in Cambodia. With the respect to the logistics services, the concept of green freight and logistics also becomes the important policy initiative. The green freight is the logistics strategy to realize cleaner and energy-efficient freight transport to lower greenhouse gas (GHG) emissions, by promoting technologies, policies and practices which help to minimize environmental cost and impact. This includes all activities of the forward and reverse flows of products, information and services between the point of origin and the point of consumption, aiming to create a sustainable company value using a balance of economic and environmental efficiency.

The total amount of CO_2 emissions from transport is considerably lower compared to the surrounding countries such as Thailand and Vietnam, although slightly higher than Lao PDR. However, within Cambodia, the transportation sector is reported as the second largest contributing sector to the emission in CO2 equivalent (26% of total emissions in 2000) next to the residential energy sector.

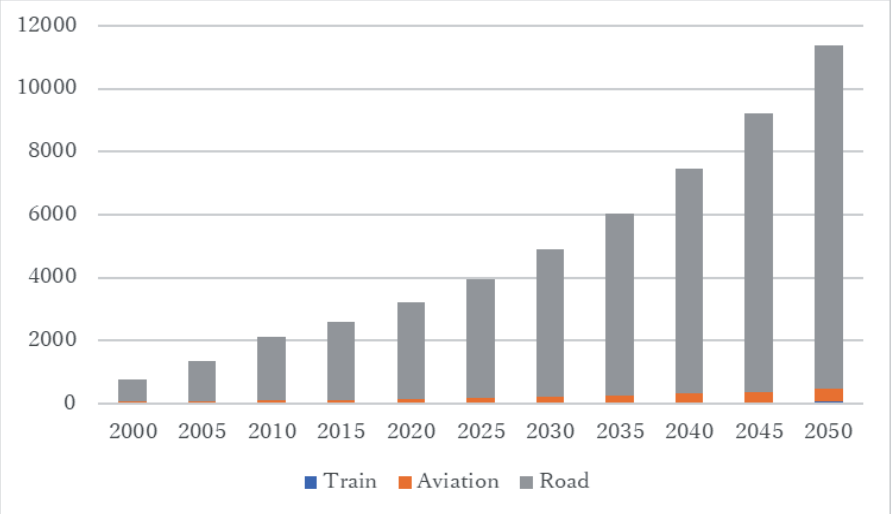


Source: ADB, Institute of Transportation Studies and Clean Air Asia (2014)

Figure 3.4.1 CO_2 Emissions from Transport by Mode of Transport in 2010 in Selected GMS Countries

3.4.2 Emission by the mode of transport

Figure 3.4.2 shows the long-term estimation of emissions from the transport sector by the mode of transport. GHG emissions from the transport sector are expected to increase rapidly by 1.8 times in 2025 and 3.5 times in 2040, compared to those in 2010. Emissions from the land transport are dominant among the transport modes and its proportion will further increase in the future. Within the land transport, trucks are the most affecting vehicle among all vehicle types.



Source: Ministry of Environment (2010), MPWT (CCAP for Transportation Sector).

Figure 3.4.2 CO_2 Emissions from Transport ($GgCO_2$ Equivalent)

(1) Land transport

Trucks imported to Cambodia are mostly second-hand. The average fleet ages are old, which negatively affects the fuel efficiency. Another issue is that the inefficient cargo transport by trucks such as a number of empty truck which results in increase of truck transport. The institutional issue is that there is no database or comprehensive data about the trucks in Cambodia. It is difficult to monitor the situations of emissions.

(2) Railways, Inland Waterways and Aviation

The Infrastructure of the railways and inland waterways has been improved and further development projects are formulated. However, there are not quite a few private logistics service providers which currently use the land transport, interested in shifting it to railway or inland waterway transport. Currently aviation does not contribute to the CO_2 emissions very much due to the less use of air cargos. Although there are also development projects ongoing in the aviation sector and CO_2 emissions are expected to increase in the future, the proportion of emissions by aviation in the transport sector is insubstantial compared to the land transport.

3.4.3 Policy Actions

(1) Domestic Policy Action

MPWT has formulated “Climate Change Action Plan for Transport Sector (CCAP), 2014-2018” to take actions in order to control the increase of GHG emissions. This action plan mainly focuses on the transport, although some actions are related to the logistics sector. However, the comprehensive policy

action or plan to promote green freight and support public awareness (e.g. labelling, regulations, and incentives) has not been formulated.

(2) Projects Supported By International Donors

The promotion of green freight has also been supported by the international donors such as ADB and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). ADB and GIZ has supported to promote green freight transport in Asia and the Mekong Region. In 2014, ADB and GIZ co-organized "the Workshop on Green Freight and Logistics in Asia" in Singapore with the participants from 17 Asian countries, to help Asian countries' peer learning and exchange good practices and experiences in the region. More recently GIZ, with the European Union (EU), the GMS Freight Transport Association and the Mekong Institute launched the project on "Sustainable Freight Transport and Logistics in the Mekong Region" in Cambodia, Lao PDR, Myanmar, Vietnam and Thailand for three years from 2016 to 2019. In Cambodia, GIZ organized the seminar on the eco and defensive driving, in cooperation with MPWT. The seminar held by GIZ and other international donors reported that main priorities are; 1) Eco-driving training, 2) ITS improvement, 3) information campaign, 4) Sustainable urban freight policy, 5) Freight operators' certification program/improved inspection and maintenance, 6) Financial incentive to cleaner vehicles. In the seminar, the MOU was signed with MPWT, CAMFFA and CAMTA to provide a framework of cooperation and facilitation of projects to improve sustainable truck freight transport system. GIZ has implemented the truck driver training program for the trainers and companies (Training of Trainers and Training of Company) including the eco-driving test in 2016 and 2017.

3.5 Logistics Service Providers

3.5.1 Logistics Service Providers in Cambodia

(1) Types of LSPs

Logistic service providers generally consist of mainly three service sectors: namely trucking, forwarding and warehouse services.

Trucking firms could be classified into three levels in Cambodia in terms of company size and type of service; 1) large-scale companies which own more than ten trucks and provide mainly international freight services, and total number of their trucks were estimated from 800 to 1,000, 2) middle-scale companies which are registered small-medium enterprises (SME) serve for the logistics of agricultural and construction industry, and total number of their trucks were estimated from 1,100 to 1,400, and 3) small-scale companies which tend to be unregistered do micro business for local industries, and total number of their trucks were estimated from 2,300 to 3,000[28]. Forwarder companies which provide custom clearance as their dominant business by hiring licensed custom brokers. The number of customs brokers are reported to reach 200 in the country which includes not only forwarder companies but also trucking firms. The warehouse services shouldered by dry ports in Cambodia which were 19 companies[29] in surroundings of Phnom Penh, and major logistics point such as Sihanoukville, Bavet (Svay Rieng), Koh Kong, and Poipet (Banteay Meanchey). The dry ports have functions of custom clearance and cam control for international freight.

With regard to trucking and forwarder services, there are respectively formal associations, specifically Cambodian Truck Association (CAMTA) and Cambodia Freight Forwarders

[28] Truck number estimated by JICA survey team based on the reports of "Green Freight in Cambodia" 2014 WB and "The Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia" 2016 JICA.
[29] As of May 2016, UNESCAP

Association (CAMFFA). CAMTA had around 15 associated trucking companies[30]. They share the updated information on law and regulation related to logistics and projects by relevant government agencies among the members. They also state the requests and suggestions based on the regular discussion with the members to the government with the aim of logistics system improvement. On the other hand, CAMFFA had 70 regular members[31]. They, similar to CAMTA, provides necessary information to the members and create opportunities to opinion exchange among them in order to strengthen the logistics system. Both CAMTA and CAMFFA have opportunities to discuss about logistics service because they are members of the Government-Private Sector Forum (CAMFEBA).

(2) Feature of Logistics Services

In Cambodia, logistic service providers tend to do overlapped services. For example some forwarder companies offer not only custom clearance but also trucking service, and the other trucking companies run warehousing business. Notably large-scale companies who own more than 20 trucks are likely to deliver a consistent service including custom clearance, transportation and storage for the customers. Furthermore, logistics providers tend to have one key client rather than have large number of customers. Accordingly, many companies report to have more than half sales originated from such key company[32].

The size of enterprise comprises wide varieties. In particular, trucking industry, the largest company owns more than 100 trucks for domestic and international fleet. In contrast family-operated trucking companies do their business with one small truck for local fleets. These micro level firms could not be figured out in details since they tend to do their business informally and without any registration.

3.5.2 Human Resource of Logistics Industry

(1) Quality of Human Resource of Logistics Industry

Through the interview surveys, skill up of truck drivers and custom brokers are identified as some of the issues in the logistics industries. The delays or uncertain time of freight transportation were claimed as one of critical logistics problems in Cambodia. One contributor could be the low quality of truck driving skill. Since this country has no institutionalized training for heavy truck drivers, they have less driving skills and knowledges. Poor driving skills might contribute to cause accidents and breaking the traffic rule such as overloaded transport, then finally give rise to delays. The other, time consuming customs clearance also arise for disturbing the logistics service because of mistakes in documentation and procedure by custom broker. The custom broker needs to pass the qualification examination and be authorized by the Ministry of Economy and Finance in order to obtain the formal license. However, since there is no formal association of brokers, the updated information, rule and regulation might not be shared well among them.

(2) Current Human Resource Development

As mentioned above, there are no opportunities to improve the capacity of truck drivers in Cambodia. According to the report by the ADB, the truck drivers reportedly acquired their license without practical lessons[33]. Under such circumstances, trucking firms including large-scale companies,

[30] As of August 2017
[31] As of September 2017
[32] Corridor Performance Assessment, 2014, World Bank
[33] Green Freight in Cambodia, 2014, ADB.

state it is difficult to manage and retain skilled truck drivers.

Regarding the custom clearance, General Department of Custom and Excise (GDCE) gives instructions for logistics industries annually in order to share updated rules and regulations, however it conducts in only Phnom Penh. Besides CAMFFA conducts some trainings with payment as well. However geographical or/and economic constraints might be obstacles to enhance their skills and knowledges for the custom brokers. Regular trainings or information sharing for custom brokers would encourage the logistics services. Furthermore, CAMFFA conducts a variety of vocational trainings regularly so as to enhance the skills and education about forwarding systems and operations. The following table shows the trainings shall be conducted in 2017.

Table 3.5.1 Vocational Training Course by CAMFFA 2017

Course	Duration	Training Fee (US$)	
		Member	Non-Member
Sea freight Forwarding Operations	3 days	130	150
Dangerous Goods	2 days	110	130
Basic of Freight Forwarding	2 days	90	110
Risk Management and STC	2 days	90	110
Warehouse Management	2 days	TBC	TBC
Multimodal Transport Operations and International Convention	2 days	90	110
Marketing in the Transport Industry	2 days	90	110
Import and Export Procedures	2 days	90	110
Road Transport	2 days	90	110
Fundamental Logistics and SCM ICT in Freight Forwarding	2 days	90	110

Source: CAMFFA

3.5.3 Issues for Improvements in Logistics Services

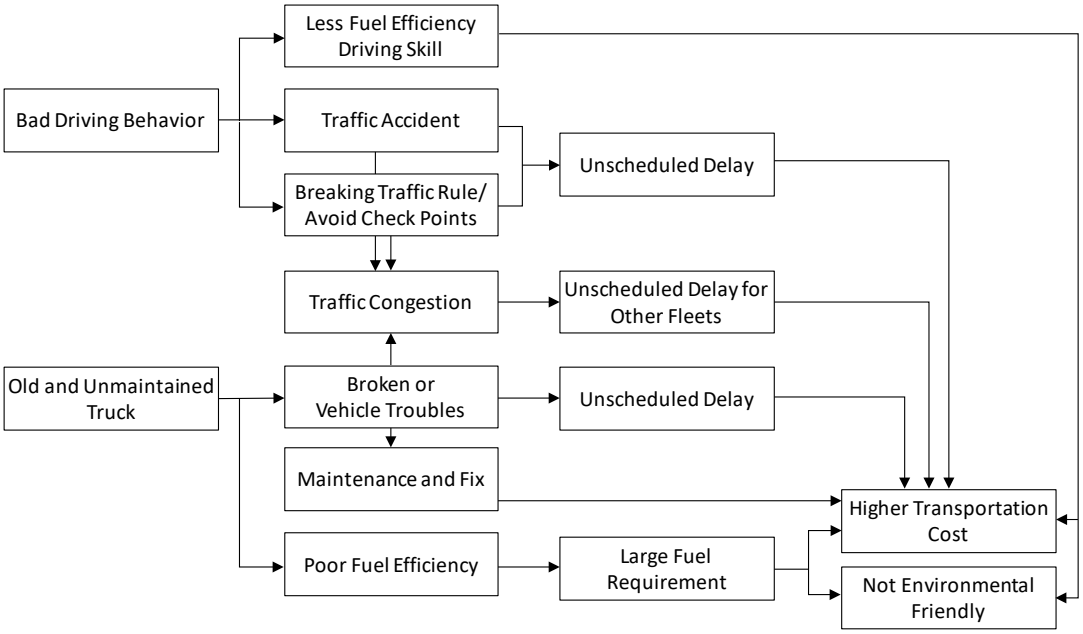
Through the interview surveys and literature studies, some issues are identified for logistic system in Cambodia such as delays of freight transportation, long time customs clearance and relatively higher cost of logistics services compared to neighboring countries. For tackling such issues, the logistics industrial companies need to improve their existing structure.

Human resource development for truck drivers and custom brokers could improve smooth procedure of logistics as mentioned. Notably for truck drivers, not only skill up the driving techniques but also the management of drivers working condition are necessary.

In order to reduce the transport cost, introducing new or/and eco trucks for fleet is expected to be effective. In Cambodia, second-hand trucks are mainly used for the fleet because of high purchase cost. Two third of the commercial trucks excluding pickup trucks were the model in 1990s and 1980s, and one third were around 10 years old and less. Non or less maintained trucks could be found many in logistics. These trucks cause not only vehicle troubles in a middle of road also consuming more fuels due to poor fuel efficiency. Such unscheduled delays and much fuel consumptions effect to the fleet cost. According to the report by WB, one example stated that 70 percent of the total transportation cost accounted by fuel[34]. Reducing the fuel might help to revise the current cost and to make affordable price for more customers. On the other hand, much fuel

[34] Corridor Performance Assessment, World Bank, 2014.

consumption means unfriendly to the environment. The following figure attempts cause and effect of logistics services.



Source: JICA Survey Team

Figure 3.5.1 Contribution Factors of Trucking Issues

Furthermore, traffic accidents by trucks and trailers are also reported. Traffic polices attempt to check unsafe vehicles like below photo, however the drivers try to escape the checkpoints by passage at night. It could cause traffic congestion in major logistics corridors. The current condition causes a vicious cycle for logistics services in Cambodia. The appropriate measures for improvement are necessary such as capacity building of logistics human resource and step out from usage of old and unsafe vehicles for logistics.

Without Twist Lock due to Old Vehicle

Bald Tire for the Trailer

Figure 3.5.2 Photos: Old and Less Maintained Conditions of Trailer

3.5.4 Modern Logistics Technologies and Business Models

In the global logistics industry, modern technologies and new business models have been developed. Many of these technologies and business models are yet to be developed in Cambodia. This is partly

because of the unmatured nature of the economy and partly due to excessive/ inadequate regulations. During the Master Plan period, the logistics demand in these new technologies and business models is expected to increase significantly.

- ***LCL Operations***: Less than Container Load (LCL) operations are fairly common in developed nations. While the economy is dominated by small and medium enterprises and supply chains are becoming more international, LCL services seem to be required to satisfy business demands for Cambodian small businesses and international supply chains. However, LCL services are not commonly available and/or very expensive in Cambodia. Currently LCL services are provided by some of the international logistics companies and domestic trucking/ dry port companies. Some of them have their own specialized logistics routes for their LCL activities, and others use Singapore as a LCL hub to dispatch less than full container goods to anywhere in the world. Coordination among the key players is limited and there are lots of missing business opportunities. Moreover, due to excessive bureaucracy on border management, there is limited flexibility in delivering LCL goods in different places. Therefore, currently all goods need to be gathered in Phnom Penh for international LCL operations (i.e. one of the reasons for expensive LCL operations).
- ***e-Commerce:*** Online-shopping is a growing market practice in most of the developed countries. In developed nations, the home computer penetration rate is high and computer based business transactions are safe and secured. In Cambodia, the ownership of home computers and credit/debit cards remains low and people's trust on online transactions is yet to be established. Therefore, the domestic market is currently limited or non-existent. However, international online-shopping is becoming common. Cambodian people started buying consumer goods directly from foreign online sites. With the establishment of a new e-commerce law, it is expected that this market segment will expand rapidly.
- ***Delivery of small parcels***: As the economy develops to the next stage, the delivery of small parcels will become important for international businesses (e.g. shipments of garment samples) and domestic services (i.e. not only B2B operations but also between families and friends). Currently there are a number of internationally reputable express delivery service operators in Cambodia. Their express services are often interrupted by the lack of express cargo capacity at the international airports and government bureaucracy regarding border control management. However, apart from the speed issue, there are limited barriers. On the other side, domestic delivery operations face more visible business obstacles as the parcel delivery market has not been liberalized yet and there is no or limited competition among service providers. It is also noted that Cambodian postal addresses and postal codes are not explicit enough to identify the exact locations. Often confirming the place by phone is required before dispatching. The establishment of the solid address and postal code system is essential in the medium term.
- ***Tracking and Tracing***: The GPS based tracking system has already been introduced and utilized by some private companies in Cambodia. GPS based tracking services and the provision of on-time information would raise customer satisfaction. It also enables logistics companies to carry out cost-benefit assessment and fleet management, which in turn will enhance their competitiveness. In Cambodia, tracking and tracing activities are fairly wide-spread for international logistics services. However, services are not common for domestic logistics operations, in particular for bulky products.

- ***Cold Chains***: Cold chains are commonly-used logistics supply chains with the temperature control throughout the processes. Historically Cambodian food supply chains are without temperature control. This is partly because refrigerators are often unavailable at one part of the supply chains or final destinations and supply and demand locations are fairly close. In the recent past, a few Japanese and Thai companies started operating temperature-controlled logistics services in Cambodia. Such demand is likely to be increased in the future and logistics industry should get prepared for the growing demand.
- ***VMI (Vendor Managed Inventory)***: VMI a family of business models in which the buyer of a product provides certain information to a supplier (vendor) of that product and the supplier takes full responsibility for maintaining an agreed inventory of the material, usually at the buyer's consumption location (usually a store). A third-party logistics provider can also be involved to make sure that the required level of inventory is stored constantly by adjusting the demand and supply gap.

3.6 Legal and Regulatory Environment

Cambodia's logistics and transport services currently operate under numerous decrees, sub-decrees and regulations, orders and guidelines but not all activities in the sector are covered. The Government has drafted laws for these sectors though they are still to be enacted. In fact, the process of enacting new legislation seems to face long delays in part due to limited capacity of the lead agencies as well as a seemingly convoluted bureaucratic process. Furthermore, Cambodia's regulatory framework for logistics does not fully conform to regional commitments and is inconsistent with international good practices and standards, namely implementation of transport facilitation agreements including the GMS Cross Border Transport Facilitation Agreement (hereinafter, CBTA), ASEAN Framework Agreement on the Facilitation of Goods in Transit (hereinafter, AFAFGIT) and ASEAN Framework Agreement on the Multimodal Transport (hereinafter, AFAMT).

Cambodia needs to modernize its legal and regulatory framework for logistics. A modern framework should be clear on what needs to be regulated and what needs not to be regulated in support of a dynamic and innovative transport and logistics services sector. Along those lines, the preparation and adoption of primary and secondary legislations for transport and logistics services should involve adequate and wide participation of stakeholders. It is also good practice when formulating legislation to carry out some regulatory impact assessment to balance costs and benefits of such new legal instrument. Other good practice principles are:

- Regulation should be kept minimal and limited to only a few issues relating to the interests of safety or market failures such as the existence of monopolies that one market player can create more income and profit that than would be allowed in a healthy market.
- Regulations should be accessible, simple and understandable (Cambodia established a national trade repository or trade portal but it has not been regularly updated to enrich the content, especially legal and regulatory contents on transport and trade related issues)
- Rules and regulations should be consistent with transport and logistics policy goals
- Special sectors may require special policies and regulations
- Conform to bilateral, regional and international agreements
- Establish guidelines and administrative structure for implementation and enforcement

- Monitor implementation of laws and regulations and their impacts.

3.6.1 Laws and Regulations

(1) Road Transport

Domestic Regulation on Road Transport

Cambodia does not have land transport law but is in preparation like many other laws in the transport and logistics sector. The general transport issues are being regulated in the existing road law and land traffic law. These include registration for obtaining an operator's license and overloading of trucks as they directly affect the road infrastructure and road traffic safety. Access to the road transport market and access to the profession of road transport operator and truck or bus driver is hardly regulated in the country. Often registration and fulfilling the administrative requirements are sufficient to obtain an operator's license for carrying out road transport. The professional driver only needs a driver's license and is often able to obtain such a license without driving lessons and examination.

Harmonization of Cambodian Road Transport Legislation with Neighboring Countries

The harmonization of Cambodian road transport legislation with the neighboring countries – Vietnam, Thailand and Laos – remains a great challenge. Although there are two important signed international agreements concerning road transport within the framework of ASEAN and GMS with its CBTA, it seems the countries did not transpose the contents of all these agreements into national legislation and continue to apply their own technical standards, for instance. Technical standards for vehicle weight and dimensions still differ, which makes smooth international road transport difficult as certain trucks with certain load will not be allowed to cross the border to the neighboring country.

It is, therefore, important that the four countries discuss these differences and agree upon establishing and implementing the same technical standards. Both the national Ministries of Transport and the national road transport associations should participate in these discussions. As stated before, there is a need to transpose international agreements into national legislation in order to enforce the application and to provide national inspection agencies with legal power for this enforcement.

(2) Railway Transport

Railway transport operates with a regulatory regime of some secondary legislations but important legislations are still missing as it does not have a proper legal framework at the primary legislation. Although there is a concession agreement, there is no Law on Railway Transport nor technical standards or manuals adopted. Moreover, similar to the road and inland water sectors, specific regulation for dangerous goods is also missing. In the field of international railway transport, the RID (Regulation for the International Carriage of Dangerous Goods by Rail), under the guidance of OTIF (International Organization for International Carriage by Rail) is often applied. Although the OTIF and RID are for international carriages, in many countries RID is also applied to the domestic traffic.

(3) Port, Maritime Transport and Inland Waterway Transport

In the field of maritime transport, inland water transport and ports, three draft laws below have been developed, but neither one of them is implemented at this very moment:

- Draft Port Act

- Draft Law on Maritime Transport
- Draft Law on Inland Waterway Transport

Draft versions of the laws have been developed with assistance of foreign experts in capacity building technical assistance projects funded by foreign donors, some of them already 10 years ago or more. Implementation process is ongoing, but no clear time-path is set for approval and implementation. Capacity available in MPWT is one of the major issues in the development process.

It should be noted that the above draft laws distinguish between maritime transport and inland water transport, where the latter relates to domestic shipping or cabotage. In international shipping, the IMO is the major party, and Cambodia follows most of the conventions in this field. A Maritime Law of a country is commonly made in uniform with international maritime treaties and conventions. However, not every country is party to all Conventions and the existing Conventions do not always cover all questions regarding a specific subject. In those cases, conflict of law rules is necessary to decide which national law applies. These conflict of law rules can either be found in a Treaty or, in most cases, in national law. The International Maritime Organization (IMO) is the UN body that deals with ports and maritime traffic.

Cambodia became a member of IMO in 1961 and has ratified all of the principal conventions. The majority of conventions adopted under the auspices of IMO fall into three main categories. The first group is concerned with maritime safety; the second with the prevention of marine pollution; and the third with liability and compensation, especially in relation to damage caused by pollution. Outside these major groupings are a number of other conventions dealing with facilitation, tonnage measurement, unlawful acts against shipping and salvage, etc.

The enforcement of IMO conventions depends upon the governments of member parties. Contracting governments enforce the provisions of IMO conventions as far as their own ships are concerned and also set the penalties for infringements, where these are applicable. They may also have certain limited powers in respect of the ships of other governments. In some conventions, certificates are required to be carried on board ship to show that they have been inspected and have met the required standards. These certificates are normally accepted as proof by authorities from other states that the vessel concerned has reached the required standard, but in some cases further action can be taken.

The key IMO conventions are:

- International Convention for the Safety of Life at Sea (SOLAS)
- International Convention for the Prevention of Pollution from Ships (MARPOL)
- International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW)

A number of relevant codes are part of these conventions. For example, the International Ship and Port Facility Security Code (ISPS) is an amendment to SOLAS which contains the minimum requirements related to security on ships and to port facilities.

In mid-2017, an audit team of IMO has visited Cambodia and the aim of this audit is determining the extent to which Cambodia gives full and complete effect to its obligations and responsibilities contained in a number of IMO treaty instruments. The mandatory IMO instruments included safety of life at sea (SOLAS 1974 and its 1988 Protocol); prevention of pollution from ships (MARPOL); standards of training, certification and watchkeeping for seafarers (STCW 1978); load lines (LL 66 and its 1988 Protocol); tonnage measurement of ships (Tonnage 1969); and regulations for preventing collisions at sea (COLREG 1972). The audit report has been sent to MPWT recently and contains a set

of findings and recommendations that have to be implemented. Again, the human capacity in MPWT seems to be an important factor in the slow process of implementation. For example, the ministry is required to set up designated bodies, officers for specific activities.

Draft Port Law

The Draft Port Law was drafted some years ago, and a number of discussion rounds in the ministry and workshops with stakeholders were held. The consultation process is on-going, and the Draft Law is therefore not yet submitted to the Council of Ministers. The ministry is running behind schedule, and it expects that at the earliest in 2019 the approval process can start. The international conventions as mentioned before are all integrated in the Draft Law.

The Draft Law contains substances of adopting international good practices and standards. It defines four classes of port categories (international, bilateral, domestic, and special ports e.g. for a specific commodity and for a specific user), and the port zone. The responsibilities of the port management body are described, these include, amongst others, port facilities and channels, harbor master function, port development and implementation plan, and supervising and/or conducting port operations, including third party/private involvement. It specifies the principles of port dues and charges and the requirement for publication of those, and the possibilities of the MPWT to set limits. The Draft Law has a chapter on safety and environment, e.g. for ship generated waste, spill contingency plan, and port facility security requirements, all in line with IMO regulations, and chapters on pilotage and the navigation channels and navigation. Details are to be included in sub-decrees. Similar to the land transport sector, regulations and guidelines for dangerous goods is also necessary for the port sector.

The current system of tariffs is determined by the Board of Directors, formed by representatives of MPWT and the Ministry of Commerce, as well as independent experts and employee representatives. The port due consists of several components (e.g. pilotage, canal fee, vessel fee, fee to the cargo owner) and tariffs are published, and information is easily accessible to all. The tariff system also provides volumes discounts.

Draft Law on Maritime Transport

The Draft Law on Maritime Transport was developed in 2012, but it is expected to take at least to 2021/2022 before it will be implemented as pending issues, such as the development of the secondary legislation and sub-decrees still have to be discussed. The existing procedures are not included in a general overall law but does not mean that improvements are not being recorded. Within the existing regulatory framework, the registration for vessels etc. is planned to be accelerated, although the complexity of the issue and capacity limitations need to be dealt with first. Similar to the Port Law, the international conventions in IMO play a role, and Cambodia follows the main conventions, following the international practices.

The purpose of the law is to determine the administration and management of maritime transport and to provide general principles for the governance of the development, administration and management of maritime affairs. Each chapter in the law addresses the international conventions (Solas, Marpol etc.). The general provisions describe the objectives, (a.o. safety of ships, environment, maritime operations and commerce, development of the sector, labor force), followed by the marine area and the exclusive economic zone of the Kingdom of Cambodia. Respective chapters deal with ship registration, business licenses for shipping companies (to be issued by MPWT), crew requirements, safety of ships, safety and environment, navigation and entry permits, inspection and control of vessels, investigations in case of incidents, shipyards and repairs, and finally enforcement and penalties. The provisions are of a general nature, and details are not included, as concluded they all have to be detailed and included in the secondary legislation.

Draft Law on Inland Waterway Transport

A first draft law on inland waterway transport has been prepared a number of years ago, followed by workshops, consultation rounds and meetings in the Council of Ministers. Following the appointment of a new minister the law was reviewed again, and is now back in the Council of Ministers. The law is planned to be approved in 2018. MPWT is now building up the human resources to manage the implementation of the law, but indicates that time and people are restricting factors, and that they are always running behind its planned schedule.

The inland waterway transport is currently operated under MPWT's secondary legislations and regulations without a proper law. For passenger transport, these regulations appear adequate in practice but not in a sense of commercial cargos transport since several safeguards regulations are still missing. In particular, the regulation to safeguard transport of dangerous goods is not in place. Inland waterway transport (IWT) in most countries relates to the transport on the rivers and canals, and accordingly the IWT laws focus at the transport on the rivers, canals and lakes. In contrast, Cambodia's inland waterways transport refers to cabotage, or domestic shipping, which makes a comparison between international practice in IWT complicated, since also maritime transport can be part of inland waterways transport in Cambodia. There is also the draft law on Maritime Transport described above, and there could be some confusion with regards the differences between the two draft laws and potential overlaps.

IWT in a narrow sense follows the guidelines set up by the United Nations Economic Commission for Europe (UNECE). The UNECE in Geneva is the body that has a worldwide mandate in this field and its guidelines are also used by many countries outside Europe. This applies for example to the transport of dangerous goods, regulated in the European Agreement on International Carriage of Dangerous Goods by Inland Waterways (ADN), which is more and more followed by countries outside Europe. Also in the field of training of crew, the STCIN (Development of the Standards of Training and Certification in Inland Navigation) becomes a standard, like STCW in maritime transport. In Cambodia, the Mekong River Commission (MRC) plays a role as a regional facilitating and advisory body governed by water and environment ministers of the four participating countries. The MRC ensures the efficient and mutually beneficial development of the Mekong River while minimizing the potentially harmful effects on the people and the environment in the Lower Mekong Basin.

Promoting and coordinating cross-border waterborne transportation on the Mekong River is permitted by the Article 9 of the MRC Agreement that covers the Freedom of Navigation. However, unlike the Rhine Commission (CCNR) the MRC in practice does not have legislative powers. The navigation use of the Mekong in practice still requires a bilateral agreement between Member States. For Cambodia, it signed a Bilateral Agreement with Viet Nam for transport on the Bassac and the Mekong, which was facilitated by MRC. The bilateral agreement on waterway transportation has the aim to reduce cross-border navigation restrictions and improve efficiency and safety standards on the Mekong. Improved regulations, monitoring, coordination, and control of navigation activities contribute towards a healthier riverine environment by reducing shipping accidents that result in oil spills and other dangerous substances. For example, specialized port facilities can eliminate the risks involved in the beach landings of petroleum tanker barges. MRC can provide a useful source for regulations still to be developed e.g. in the field of transport and handling of dangerous goods (e.g. through the risk analysis, guidelines and action plan for the carriage, handling and storage of dangerous goods along the Mekong River).

The draft law contains 15 chapters and 99 articles. The purpose of the law is to maintain order, security and safety of inland waterway transport, to protect human and wildlife and environment of the inland waterways, to prevent adverse effects to human health and damage of public and private property, and

to protect and encourage the development of the inland waterway sector. The law is applicable to the ships, the crew, the shipowners and shipping companies, and the construction of waterways and other activities related to navigation. The law only relates to Cambodian waters, it does not include border crossing international transports.

While draft Law on Inland Waterway Transport has not yet been adopted, MPWT has issued a number of instructions and procedures for ship registration and issuance of licenses. Registration process takes more than 5 working days if documentations are complete and accurate. Regulations, procedures and fees are not published widely or available in any electronic platform. MPWT is responsible for the ship registration and issuance of license, and the ships need a technical inspection certificate from MPWT, inspections shall be held once a year. The draft law specifies who can carry out this inspection, and MPWT is entitled for providing ship technical inspection to the private sector. Ships that do business on the inland waterways shall possess a license for such business, to be granted by MPWT, the requirements and procedures for obtaining such license shall further be defined by regulation by MPWT. Currently, ship licenses are administered and issued by MPWT under its administrative procedures and such procedures are not available in a public domain. The draft law also deals with the inland waterway and vessel signs, navigation rules and responsibilities of the captain, compensations in case of collisions and incidents and liability, carriage of goods, crew requirements regards training, certification and manning, ship construction and repair, inspections and penalty provisions. An interesting chapter deals with the inland waterway transport policy and masterplan, which according the draft law is to be prepared by MPWT. The Ministry also has to set up a maritime institute of technology, of which the organization and functioning is to be determined by a sub-decree. The law specifies only the main provisions and details will be specified in the sub-decrees, where many still needs to be developed.

The major bottleneck in the adoption of the draft law is the time factor and that human resources are being built up to manage the implementation. This is to be done from the annual budget, therefore, considering the fact that the other two draft laws are also on the table and require substantial input, poses a major challenge to the Government.

(4) Customs

The legal and regulatory framework for customs is rather complex but is in place in Cambodia, administered by various government agencies, including the Ministry of Economy and Finance, Ministry of Commerce and the Council for the Development of Cambodia (CDC).

In 2007, the new framework for the customs declaration provision and procedures was adopted (Prakas No. 1447), along with the Law on Customs, which was adopted on 22nd June, 2007. The new framework enforced all exports and imports, whether or not exempt from duties and taxes, must be the subject of customs declaration[35] made in writing or by electronic means. Moreover, the exported or imported goods need to be declared by their owners or by persons authorized to act on the owners' behalf.

In 2008, the new framework for customs brokers was enforced (Prakas No. 115), stating that the qualified persons to fulfil customs formalities are 1) the importer, exporter, owners of goods or their authorized representatives, which are allowed to declare goods only for themselves; and 2) persons authorized to act as qualified customs brokers by the Ministry of Economy and Finance, which may declare goods to customs on behalf of others.

[35] Stated in the Law on Customs Article 29 and Prakas No. 1447 Praka 1

Article 7 of Regulation No. 115 stipulates that "the Customs and Excise Department shall define the minimum specialized subjects relevant to customs broker profession and may organize training courses for persons who intend to take the Customs Broker Qualification Examination". The Customs and Excise Department have the legal obligation to organize at least once every year a Customs Broker Qualification Examination.

In Article 8 it is stated that customs broker licenses shall be issued on an individual basis to persons who are determined to be qualified customs broker. A legal person shall only be licensed as a customs broker if at least one employee of the company is a qualified person. The customs broker license also specifies the customs offices where the customs broker is licensed to operate. The license shall be granted for a fixed period of two years. All licensed customs brokers must pay an annual license fee of 2,000,000 Riels to the Customs and Excise Department. A licensed customs broker must deposit security with the Customs and Excise Department sufficient to cover duty, taxes and fees to be paid at any for its customs clearance operations before commencing operations. The form and amount of security shall be established by the Director of Customs.

However, the quality of the customs brokers' services remains relatively poor. There are complaints claiming that their service quality is not good due to many mistakes in the documentation needed for the clearance of the goods. Traders and manufacturers often suffer from time losses resulting in unnecessary financial costs. Additional training of customs brokers should be provided to professionalize and improve their service skills serving the trade supply chains.

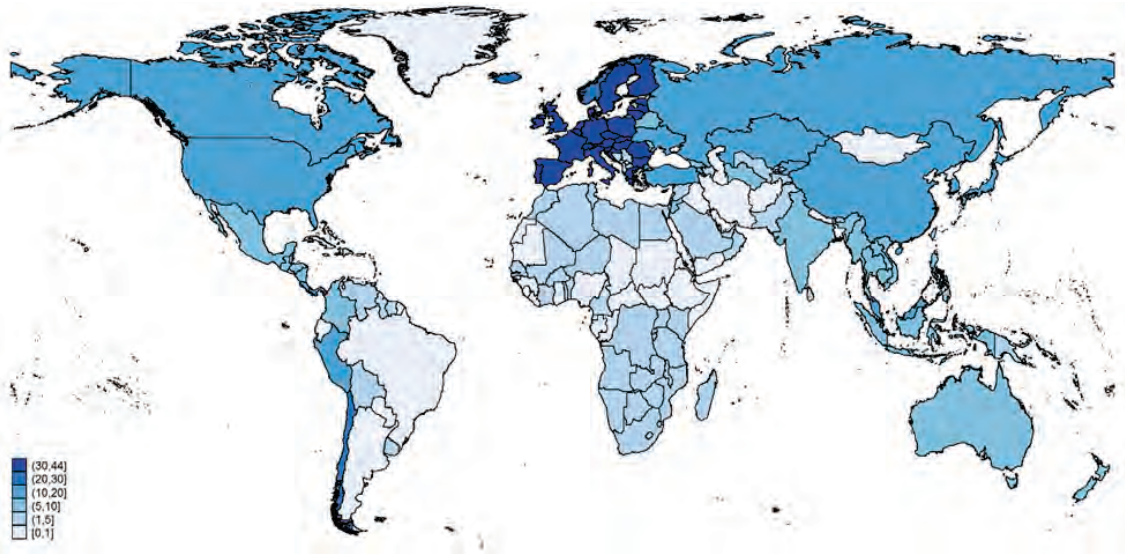
The Law on Customs and Prakas No. 115 provide Customs all the tools to establish and enforce minimum standards of training for the customs broker by organizing training programmes and examinations for customs brokers. The challenge, however, is that the laws, regulations and practices are changing rapidly and the use of ICT systems and on-line applications is increasing every day and the licensed customs brokers have to accompany these processes and apply new methods and techniques in their field of work.

The General Department of Customs and Excise (GDCE) of Cambodia is during the last ten years very proactive in facilitating trade and assisting the importers, exporters, logistics operators and customs brokers by publications about rules and regulations including applications on import, export, customs clearing, etc. In October 2015 GDCE published the Handbook on Customs Clearance for the business community in Cambodia. The basic information on customs clearance is easily accessible for everyone. GDCE could play an even more active role through organizing mandatory refresher courses and examining the Customs brokers more rigidly.

3.6.2 Regional Connectivity

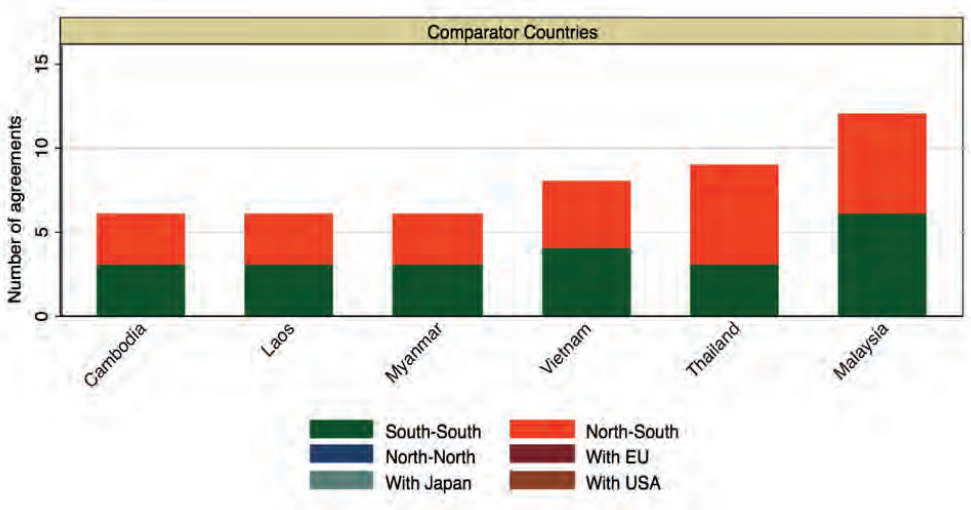
Cambodia is lagging behind regional peers such as Vietnam, Thailand and Malaysia in negotiating and signing bilateral free trade agreements as shown in the figure below. In the last thirty years, the number of trade agreements has increased substantially, as countries seek to reduce cross-border trade costs. Cambodia is part of only six agreements, all of which have been negotiated in the ASEAN framework. Cambodia belongs to the ASEAN free trade area (1992) and is part of the ASEAN +1 agreements with China, Japan, Australia-New Zealand, India and South Korea. Cambodia belongs to a group of countries which have not succeeded in increasing their market access through trade agreements. Moreover, Cambodia's agreements fail to include provisions beyond WTO rules that can help protect assets and attract sophisticated, knowledge-intensive FDI. Only half of Cambodia's agreements include provisions on intellectual property rights, or competition policy, that have been found to be key to attract knowledge-intensive investments– crucial conduit for diversification into sophisticated tasks.

It is also essential for the Government to be proactive in promoting market access through higher quality bilateral and regional trade agreements that will help to mitigate the erosion of preferences. It is expected that Cambodia will lose much of its trade preferences when the economy graduates from its LDC status, expected to occur in 2025. Cambodia will only benefit from free trade agreements if it can implement trade agreements to improve market efficiency and to be attractive for more high quality foreign direct investments. As indicated in the ITC database, the level and complexity of Cambodia's tariff protection as a result of its trade policy still ranks poorly and remain very restrictive. Cambodia has not yet benefited much from reciprocal conditions in trade agreements but mostly from its entitlement to trade preferences for foreign market access. In this context, Cambodia operates in a less favorable environment than it used to do in terms of market access. Implementation of key reforms required and encouraged by trade agreements is extremely crucial to upgrade Cambodia's foreign market access.



Source: Calculations based on World Bank PTA content dataset (2016)

Figure 3.6.1 Number of Agreements Country



Source: Calculations based on World Bank PTA content dataset (2016)

Figure 3.6.2 Number of Preferential Trade Agreements

Furthermore, in order to enhance the regional connectivity and to facilitate the cross-border transport of goods and people, the Royal Government of Cambodia has signed several Facilitation Agreements with neighboring countries, namely the CBTA, Bilateral/Trilateral agreements and the ASEAN Framework Agreement on the Facilitation of Goods in Transit (hereinafter, AFAGFIT). Below table shows the list and status of such Agreements.

Table 3.6.1 List and Status of Key Agreements

Name of Agreement	Countries	Status	Quota
CBTA	Cambodia, Thailand, Vietnam, Laos, Myanmar, China	• Main Agreement and Annexes/Protocols have been signed and ratified by all countries. • Undergoing signing of MOU - Signed by Cambodia, Thailand, China and Myanmar - Waiting for Laos and Vietnam	500 (not implemented yet)
iiCBTA	Cambodia, Thailand	Signed (2008)	150
Bilateral Agreement	Cambodia, Vietnam	Signed (1998)	500
Bilateral Agreement	Cambodia, Laos	Signed (1999)	40
Trilateral MOU	Cambodia, Vietnam, Laos	Signed (2013)	150
AFAFGIT	Cambodia, Thailand, Vietnam, Laos, Myanmar, Indonesia, Malaysia, Philippines, Singapore, Brunei	Pending signing of Protocol 2 Pending ratification of Protocol 7	NA
ASEAN Framework Agreement on Multimodal Transport	Cambodia, Thailand, Vietnam, Laos, Myanmar, Indonesia, Malaysia, Philippines, Singapore, Brunei	Signed (2015)	NA
Intergovernmental Agreement on Dry Ports	Cambodia, China, Indonesia, Laos, Myanmar, Thailand, Vietnam, Bangladesh, Mongolia, and others	• Signed (2013) • Ratification process undergoing	NA
Waterway Transport Agreement	Cambodia, Vietnam	• Signed	NA
Agreement on Railway Border Crossing	Cambodia, Vietnam	• Signed (2008)	NA
Agreement on Joint Traffic Working Over Railway	Cambodia, Thailand	• Pending	NA

Note: CBTA "Cross Border Transport Facilitation Agreement", iiCBTA "initial implementation CBTA", AFAFGIT "ASEAN Framework Agreement on the Facilitation of Goods in Transit"
Source: Compiled by the JICA Study Team through interview to General Department of Land Transport and Railway Department, MPWT and UNESCAP website.

(1) Cross Border Transport Facilitation Agreement (CBTA)

The CBTA is a single comprehensive legal instrument that includes all non-physical measures for cross-border land transport, to promote the elimination of intermediary stops as well as to reduce the amount of time spent in crossing borders in the GMS (Greater Mekong Sub-region) amongst the Governments of the Kingdom of Cambodia, Kingdom of Thailand, Socialist Republic of Viet Nam, Lao People's Democratic Republic, Union of Myanmar, and People's Republic of China. The major areas covered by the CBTA are as follows:

- Single-stop/single-window customs inspection
- Cross-border movement of persons, including visas for transport operators
- Transit traffic regimes, including exemptions from physical customs inspection, bond deposit, escort, agriculture and veterinary inspection
- Road vehicle requirements for eligibility of cross-border traffic
- Exchange of commercial traffic rights
- Infrastructure, including road and bridge design standards, road signs, and signals.

All above mentioned countries have signed the main agreement and ratified the annexes and protocols, as shown in below table. However, because the ratification by all countries took a very long time, update of certain protocols became necessary (such as Protocol 1 – Designation of Corridors, Routes and Points of Entry and Exit, as new border points have been created). An MOU with the updates have been signed by Cambodia, Thailand, China and Myanmar[36], and is pending for signature by Vietnam and Laos[37]. As the first step once the MOU is signed by all counterparts, Cambodia is planning to first list the transport operators within the country and allocate the permits/admission documents (i.e., to utilize the 500-quota stated in the agreement).

Table 3.6.2 Status of CBTA

	Country	Main Agreement	Annexes and Protocols	MOU
1	Cambodia	Signed (2001)	Ratified (2008)	Signed (2016)
2	Vietnam	Signed (1999)	Ratified (2009)	Pending
3	Laos	Signed (1999)	Ratified (2007)	Pending
4	Thailand	Signed (1999)	Ratified (2015)	Signed (2016)
5	China	Signed (2002)	Ratified (2008)	Signed (2016)
6	Myanmar	Signed (2003)	Ratified (2015)	Signed (2016)

Source: JICA Study Team, through interview to General Department of Land Transport, MPWT.

(2) iiCBTA, Bilateral Agreements and Trilateral Agreements

Cambodia has signed the Initial Implementation Cross Border Transport Facilitation Agreement (hereinafter, iiCBTA) with Thailand and Bilateral Agreements with Vietnam and Laos.

The iiCBTA with Thailand was signed in 2008, mainly due to the delay of the implementation of CBTA. The actual implementation of the quota of 40 vehicles first took place in 2012. By 2016, the quota was increased to 150. However, the quota is limited to the border at Poipet. The Royal Government of Cambodia has already authorized a quota of 500 vehicles with Thailand and opening of other borders, and is in negotiation with the Government of Thailand. According to MPWT, it is not certain at this point on whether the quota of 500 by the implementation of CBTA will be counted in addition to the iiCBTA (ie, quota of current 150 + 500) or part of the quota (ie, quota of current 150+ 350).

Cambodia also holds Bilateral Agreements, which are separate agreements from the CBTA (therefore, separate quotas), with Vietnam signed in 1998 and Laos signed in 1999. With Vietnam, the quota has been increased to 500 in 2012. Currently, the Government of Vietnam is proposing an annual increase of 100 vehicles and for a no quota limit by 2020. The Royal Government of Cambodia is yet to consider such proposal. With Laos, the current quota is set at 40, however, demand is limited, with only 4 buses currently registered to utilize the permit.

Separate from the Bilateral Agreement, Cambodia also holds a Trilateral Agreement with Vietnam and

[36] Myanmar has requested a one-year delay of start
[37] Signing of MOU is done by the designated Ministers of each country and would not need to go through the ratification procedures.

Laos, signed in January 2013. The quota set is 150 vehicles for each country, at specified crossing points and transit routes stated in the Agreement.

(3) ASEAN Framework Agreement on the Facilitation of Goods in Transit (AFAFGIT)

The ASEAN Economic Community (AEC) has created the AFAFGIT as an instrument to implement the following objectives; i) to facilitate transportation of goods in transit and support the implementation of the ASEAN Free Trade Area, ii) to simplify and harmonize the transport, trade and customs regulations, and iii) to establish an effective transit transport system in ASEAN.

Cambodia has ratified all protocols except for Protocol 2 – Designation of Frontier Posts, which all countries have not signed yet and still in discussion. The current status of each protocol is summarized in below table. Singapore, Malaysia and Thailand are expected to start a pilot project to test the operation of protocols (excluding Protocols 6, 8 and 9).

Table 3.6.3 Status of AFAFGIT (as of July 2017)

Protocol		Ratification by Cambodia	Ratification by Other Countries
1	Designation of Transit Transport Routes and Facilities	27th Oct, 2009	Pending - Malaysia, Singapore
2	Designation of Frontier Posts	Not yet	To be signed and ratified by all countries, including Cambodia
3	Types and Quantity of Road Vehicles	9th May, 2007	All countries ratified
4	Technical requirements of vehicles	9th May, 2007	All countries ratified
5	ASEAN scheme of compulsory motor vehicle insurance	30th Jan, 2002	All countries ratified
6	Railways Border and interchange stations	17th Oct, 2013	Pending - Brunei, Indonesia, Malaysia
7	Customs Transit System	13th Jan, 2017	Pending – Brunei, Indonesia, Laos, Malaysia, Vietnam
8	Sanitary and phytosanitary measures	23rd May, 2003	All countries ratified
9	Dangerous goods	14th Jun, 2007	Pending – Malaysia

Source: JICA Study Team, interview to General Department of Land Transport, MPWT, UNESCAP, 2nd Meeting of the Regional Network of Legal and Technical Experts on Transport Facilitation

(4) ASEAN Framework Agreement on Multimodal Transport (AFAMT)

Cambodia does not have a national legal framework for multimodal transport, though it has signed the ASEAN Framework Agreement on Multimodal Transport with its Member States on 17 November 2005. In the Agreement, "International Multimodal Transport" is defined as the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery situated in a different country.

An important element in this agreement is the registration of the multimodal transport operators. For inclusion in the register of multimodal transport operators, the person concerned shall submit an application to the respective competent national body and shall fulfil all requirements as prescribed by national law. As a minimum, the applicant shall a) possess the legal capacity as required by the provisions of the Member Country in which he is applying for registration; b) have domicile in the Member Country in which he is applying for registration; c) have an insurance policy, a coverage from a protection and indemnity club, or an alternative of a financial character to cover payment of

obligations for loss, damage or delay in delivery of goods under multimodal transport contracts, as well as contractual risks; and d) maintain minimum assets equivalent to 80,000 SDR[38].

Lack of a national legal framework for multimodal transport in Cambodia has constrained its compliance with this agreement. This is a serious bottleneck for the international and national operation of multimodal transport operators. It is challenging for Cambodia to ensure transparency of its respective laws, regulations and administrative procedures concerning the registration. The ASEAN Framework Agreement on Multimodal Transport further states the Member States to deposit their register of multimodal transport operators not later than six months after the Agreement has entered into force.

While Cambodia does not have a system to authorize and recognize operators registered in other member states, its operators are also not yet widely recognized by any of other Member Countries. Having a national legal framework for multimodal transport operators would help address this constraint. The benefit of implementing this agreement by transposing into a national legal framework is to enable a registration by the Cambodian competent national body to authorize and recognize the multimodal transport operators to operate in Cambodia and any of the Member Countries provided that the operator submits a copy of the registration certificate to the competent national body of the other Member Country in which he should have a legal representation such as through agency agreement or branch office.

Implementation of the ASEAN Framework Agreement on Multimodal Transport is facing quite a number of challenges. Only Malaysia, Singapore, Thailand and Vietnam have transposed this agreement into national legislation. Implementation of this agreement is important as it will strengthen the legal position of the international Multimodal Transport Operators. Without having such a transposition into national legislation, the multimodal transport operator may theoretically issue, for instance, a FIATA Multimodal Transport Bill of Lading and assuming liability for the cargo from the place for the taking in charge of the goods by the multimodal transport operator until the delivery of the goods as provided for in the multimodal transport contract. However, in case of incidents and irregularities during the implementation of the contract, legal protection by national legislation works much faster, cheaper and better than just go to court without any regulation in this respect.

It is, therefore, recommended to start discussions again with neighbouring countries, such as Vietnam, Thailand and Laos about the implementation of the ASEAN Framework Agreement on Multimodal Transport.

(5) Intergovernmental Agreement on Dry Ports

The Intergovernmental Agreement on dry ports has been developed under the UNESCAP to promote international recognition of dry ports, facilitating investment in dry port infrastructure, improving operational efficiency and enhancing the environmental sustainability of transport. It has been signed by Cambodia along with other member countries including Thailand, Vietnam, Laos, Myanmar, China and others in November 2013 and is currently undergoing the procedure for ratification in each country.

The agreement specifies the functions of the dry ports as per below;

Receipt and dispatch,

Consolidation and distribution,

Warehousing, and

[38] SDR – Special Drawing Rights – is a currency determined by the value of a basket of currencies: Chinese Yuan, Euro, Japanese Yen, U.K. Pound Sterling and U.S. Dollar. The value on 1.11.2017 was 1.403480 USD.

Trans-shipment.

The agreement also recommends the dry ports to provide facilities and services such as; a secure area with a gate for dedicated entrance and exit; covered and open storage areas separated for import, export, and transshipment and for perishable goods, high-value cargoes and dangerous cargoes; warehousing facilities; customs supervision, control, inspection and storage facilities; vehicle holding areas with adequate parking space for freight vehicles; administrative building for customs, freight forwarders, shippers, customs brokers, banks and other related agencies; and information and communication systems.

Currently, the dry port operation is regulated under various customs related legislations, including the following;

Letter No. 1867 GDCE dated 12 September 2014, improvement of efficiency on implementation of customs procedures at Dry Ports

Letter No. 653 GDCE dated 02 August 2011, on facilitation of Customs procedures for transporting goods out of Special Economic Zone to Dry Ports to consolidate into the container with other goods to be exported to foreign countries

Prakas No.508 MEF dated 01 July 2008 on customs transit and other Instructions related to imported goods transit to the dry ports

In such situation, in order to secure safe and reliable logistics services, a new comprehensive law for logistics service companies including warehouse and dry port businesses is recommended.

(6) Waterway Transportation Agreement

An agreement for waterway transportation has been signed between Cambodia and Vietnam to accelerate and facilitate waterborne transportation of cargo and passengers between the two countries as well as to and from third states within the territory of the two countries. Specifically, the agreement aims for the establishment of the legal framework for the navigation in the Mekong River and creation of favorable conditions for transit and cross border navigation of the regulated waterways. As for the implementing status of the Agreement, although the Agreement allows 24-hour transport on the regulated waterways, in actual practice, transportation outside of working hours is not possible at the moment.

(7) Railway Agreements

Cambodia and Vietnam have signed an agreement on railway border crossing in 2008. Currently, an Agreement on Joint Traffic Working Over Railway is in discussion between Cambodia and Thailand. This agreement aims for the mutual operation with the Thai Railway to accelerate the transportation of cargo by railway between the countries.

3.6.3 Cambodia status of WTO Trade Facilitation Agreement

Cambodia became the 148th member of World Trade Organization (WTO) in 13 October 2004. Cambodia ratified the WTO Trade Facilitation Agreement (TFA) in February 2016. The WTO TFA entered into force 22 Feb. 2017. According to the WTO TFA database, Cambodia status of rate of implementation commitments, category A which already implemented is 60.7%, category B rate of implementation commitments from December 2018 to December 2020 without capacity building support is 19.7%, and category C rate of implementation commitments from December 2018 to December 2022 upon receipt of capacity building support is 19.7%.

Category C that Cambodia seeking international assistance are,

Article 1.2 information available through internet,

Article 1.4 notification of contact information,

Article 7.1 pre-arrival processing,

Article 7.2 electronic payment of duties taxes and fees,

Article 7.7 additional trade facilitation measures such as authorised operator system,

Article 7.9 treatment of perishable goods,

Article 8.2 coordinated border procedures at common borders,

Article 10.3 providing Single Window environment.

Chapter 6 of this report proposes improvement of the issues in category C above under the strategy 2 and 3 of the projects.

3.6.4 Private and Public Partnerships

The Law on Concessions was enacted in 2007. However, detailed PPP rules and regulations have not been set because of difficulty in all the line ministries to agree in the terms. In the meantime, concession agreements have been signed for certain operations, namely for the railway and airport operation in the logistics sector.

For the airport operation, a concession agreement has been signed with Vinci Airports for the operation of the Phnom Penh Airport, Sihanoukville Airport and Siem Reap Airport up to 2040. According to the operator, proposals on the development and new investments for the airports are made to and agreed with the Royal Government of Cambodia depending on the needs. Moreover, the current contract does not contain mechanical triggers (i.e., traffic volume hitting a certain threshold) for further development and investment at the airport.

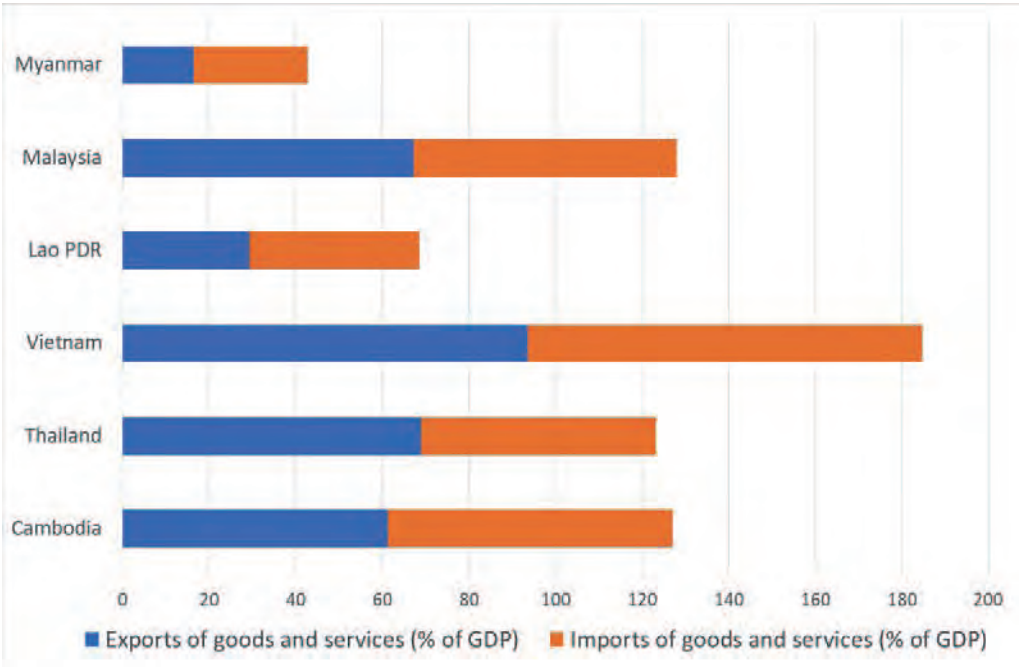
Railway operation is being conducted by the Royal Railways under a 30-year concession agreement covering the Southern Line and Northern line, signed in 2009. The agreement sets the demarcation as; assets and infrastructure to be owned and maintained by the government, and wagons/locomotives are property of the operator.

In 2016, the "Policy paper on PPP for Public Investment Project Management 2016-2020" was formulated, with the aim of implementing the full set of rules, regulations, guidelines, mechanisms of PPP by the end of 2020, During the process, it is expected for a new PPP law to be drafted to replace the current Law on Concessions. Further, for implementation of such PPP Policy, an Inter-Ministerial Committee (IMC) has been established, with a Central PPP Unit and a Risk Management Unit as the interim technical secretariat of the IMC. In the short term, the Royal Government of Cambodia plans to focus on the revenue-based payment projects, which allows the private sector to generate enough revenue for operation without the need of subsidies. As a financial support mechanism, a Project Development Facility (PDF) will be established to provide support to the ministries for project development. Viability Gap Fund (VGF) manual will also be created, though implementation is not within the target in the first phase. Through the improvement of the legal and regulatory framework for PPP, the Royal Government of Cambodia is expecting enhancement of private sector involvement.

Chapter 4 Trade and Logistics Competitiveness

4.1 Trade Performance

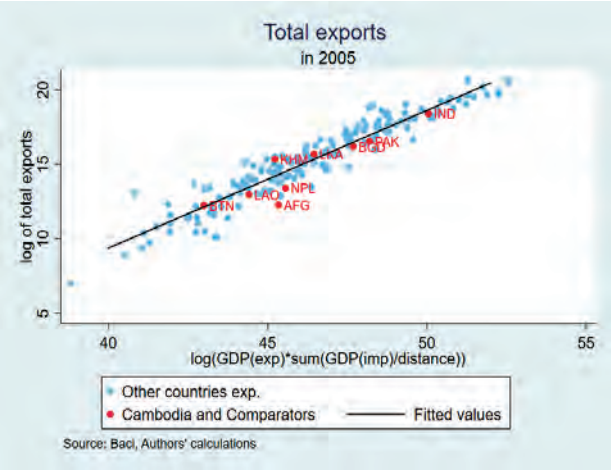
Overall trade performance is best described by the trade/GDP ratio. The ratio shows the level of economic openness relative to the size of the economy. Overall, Cambodia's trade performance/openness is relatively good. It is broadly on par with Thailand and Malaysia – i.e. regional trade leaders. Trade volumes have constantly been increasing over time and trade growth is continuously higher than GDP growth. Therefore, the trade/GDP ratio has continuously been increasing.



Source: World Development Indicators, World Bank.

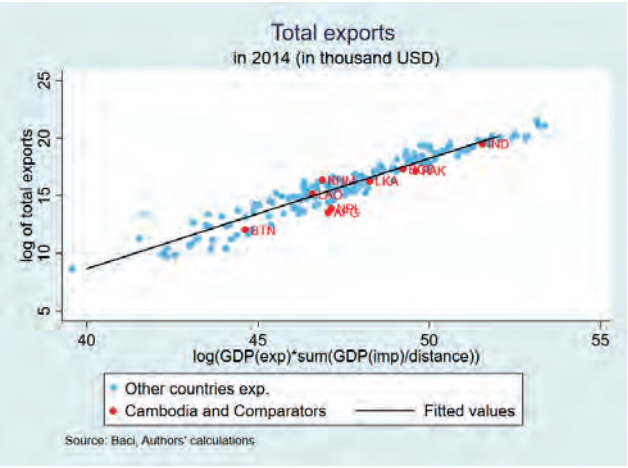
Figure 4.1.1 Trade Ratio to GDP (%)

In 2005-2014, Cambodia's export performance was impressive (Figures 4.1.2 and 4.1.3). This strong performance was sustained by strong FDI flows, indicating a strong participation in GVCs. Cambodia's performance outstands even when compared to other countries in the region that have been significantly integrated into GVC over the past decades such as Thailand and Vietnam. Cambodia's FDI has been increasing since the turn of the century. Between 2001 and 2005 Cambodia attracted on average 178 million dollars per year (about 3 percent of GDP), between 2011 and 2015 this reached 1.7 billion USD (closer to 9 percent of GDP) (figures 7 and 8). The main sources of investment in Cambodia are China, the Republic of Korea, Malaysia, Taiwan, Hong Kong, and Thailand.



Source: Authors' calculations based on BACI.

Figure 4.1.2 Cambodia's export performance in 2005



Source: Authors' calculations based on BACI

Figure 4.1.3 Cambodia's export performance in 2014

Cambodia's exports of merchandise, at 10 billion USD in 2016 stood at 50 percent of GDP, reaching 148 destinations – and standing at 13.3 billion USD when adding services exports. Export performance was on the back of integration into Global Value Chains (GVCs), with substantial FDI from EAP sources, and strong trade links with the USA and China. Exports, however, have been concentrated in textiles and garments, with little sophistication and technological content. Indeed, exporters in Cambodia are specialized in the cut-make-trim phase of the garments value chain – a segment with low profit margins. With, on the one hand labor costs increasing, and on the other, prospective trade agreements between developed countries and several ASEAN countries potentially eroding preferences and diverting trade, the competitive edge of Cambodia is at stake. This makes it compelling for the country to seek new drivers of export growth, in more sophisticated and diversified activities to sustain long-term growth. The connectivity played by the logistics sector has been and continues to be an important part of the Cambodia's growth storyline and global market integration.

4.2 Infrastructure Competitiveness

Despite significant progress of building key infrastructure in the past decade, the quality and extensiveness of infrastructure is one of the weakest points of the Cambodian logistics sector. The road is the prime infrastructure that plays the most important role in logistics. However, the road network is significantly short by regional standards (only 55,000km of which about 20% is national roads). Moreover, the road quality, measured by % of paved roads, is one of the worst in the region. It is also noted that most of road users perceive Cambodian roads as unsafe (that contributes to higher logistics costs and slower delivery).

Table 4.2.1 Extensiveness and Quality of Roads

Country	LPI ranking (Infrastructure) 160 countries	WEF Quality of Roads (rank/138)	Road Network ('000 km)	Paved Roads ('000 km)	Paved Roads (%)
Malaysia	33	5.5 (20)	144	116	80
Thailand	46	4.2 (60)	396	208	53

Vietnam	70	3.5 (89)	210	122	58
Cambodia	99	3.4 (93)	55	N/A	7
Myanmar	105	n/a	157	31	20
Lao PDR	155	3.4 (91)	40	5.6	14

Sources: World Development Indicators, LPI, ADB estimates, World Economic Forum and Wikipedia.

The railway network is currently only 264km long and transport volume remains insignificant. This can be compared to Thailand's 4,431 km railway network and Vietnamese 3,186km. Railways are not yet used as the meaningful transport mode because of insignificant length of the network and high local transpiration costs (including trucking costs and transloading costs). The only modal competition is observed between Phnom Penh and Sihanoukville.

Among those, port infrastructure is relatively well placed. There are two major ports – one is a river port near the capital city and the other is facing open ocean. Competition between the two is there for trade with long distance locations. The Sihanoukville port is the largest port in Cambodia with the capacity of 450,000 TEU. However, compared with regional neighbors, the port size is not one of the largest in the GMS region.

The major airports are managed by the private concession and the quality of airport services is reasonably competitive. Cargo traffic is growing fast but remains small compared with larger airports in Cambodia's neighbors. It seems airport investment is lagging the fast-increasing demand. Overall, people's perceptions on the airport infrastructure are unsympathetic (ranked 99th in World Economic Forum indicator on air infrastructure).

Table 4.2.2 Extensiveness and Quality of Railways, Ports and Air Transportation

Country	Railways Network (km)	Railways, goods transported (million ton-km)	WEF Quality of Railroad Infrastructure (rank/138)	WEF Quality of Port (rank/138)	WEF Quality of Air Transport Infrastructure (rank/138)
Malaysia	2,250	3,071 (2014)	5.1 (15)	5.4 (17)	5.7 (20)
Thailand	5,327	2,455 (2014)	2.5 (77)	4.2 (65)	5.0 (42)
Viet Nam	3,186	4,125	3.1 (52)	3.8 (77)	4.1 (86)
Cambodia	264	184 (2016)	1.6 (98)	3.9 (76)	3.9 (99)
Myanmar	3,168	885	n/a	n/a	n/a
Lao PDR	n/a	n/a	n/a	2.0 (132)	3.8 (100)

Sources: World Development Indicators, ADB estimates, and World Economic Forum.

4.3 Logistics Performance Measurements

4.3.1 High Level Performance Measurements

For the high-level indicators, data can be pulled and framed to establish some baseline for evaluation of its national logistics system, covering four dimensions – i.e. infrastructure, Institutions, Logistics Services and Shippers/Consignees. By using these indicators and sources, it is important to understand the scaling used in the various reports in order to better understand what each score means. Table 4.3.1 defines the current baseline score of Cambodia's national logistics system. In the World Economic Forum)WEF(report, the indicators derived from the Survey are always expressed as scores on a 1–7 scale, with 7 being the most desirable outcome. The scale in the Logistics Performance Index)LPI(is expressed as scores on a 1-5 scale, with 5 being the highest score. The data provided in the Trading Across Borders database illustrate actual values while there is no information related to Cambodia in the IMD competitiveness report.

Table 4.3.1 Cambodia's Baseline Performance

Dimension	High Level Indicator Score	Baseline Score
Infrastructure	**World Economic Forum**[1]	
	Quality of overall infrastructure	3.4 out of 7
	IMD[2]	
	Distribution infrastructure	No Score for Cambodia
	Logistics management	
	Logistics Performance Index[3]	2.36 out of 5
	The quality of trade and transport infrastructure	
Institutional	**World Economic Forum**[4]	
	Irregular payments and bribes	3.0 out of 7
	Burden of government regulation	3.4 out of 7
	Transparency of government policymaking	3.2 out of 7
	IMD[5]	
	Tariff barriers	No score for Cambodia
	Customs' authorities	
	World Economic Forum[6]	
	Prevalence of trade barriers	4.1 out of 7
	Burden of customs procedures	2.9 out of 7
	Trading Across Borders[7]	
	Time to Export (Border Compliance)	48 hours
	Cost to Export (Border Compliance)	US$ 375
	Time to Export (Documentary Compliance)	132 hours
	Cost to Export (Documentary Compliance)	US$ 100
	Time to Import (Border Compliance)	8 hours
	Cost to Import (Border Compliance)	US$ 240
	Time to Import (Documentary Compliance)	132 hours
	Cost to Import (Documentary Compliance)	US$ 120
	Logistics Performance Index	
	The efficiency of customs and border clearance	2.62 out of 5
Logistics service providers	**Logistics Performance Index**	

[1] 2nd Pillar: Infrastructure, Global Competitiveness Report, World Economic Forum
[2] Basic Infrastructure, IMD World Competitiveness Yearbook
[3] World Bank's Logistics Performance Index
[4] 1st Pillar: Institutions, Global Competitiveness Report, World Economic Forum
[5] Government Efficiency, IMD World Competitiveness Yearbook
[6] 6th Pillar: Goods Market Efficiency, Global Competitiveness Report, World Economic Forum
[7] Trading Across Borders, Doing Business

	The competence and quality of logistics services Timeliness	2.6 out of 5 3.3 out of 5
Shippers/ Consignees	**World Economic Forum**[8] Control of international distribution	 3.0 out of 7
	Logistics Performance Index The ease of arranging competitively priced shipments The ability to track and trace consignments	 3.11 out of 5 2.7 out of 5

Cambodia has made some good progress in these indicators, but its performance is still below average. In the dimension for quality of infrastructure, Cambodia performs relatively at the average level but falls behind for its railroad infrastructure. The institutional and policy dimension is assessed to have relatively poor performance with serious issue related to governance and transparency. Efficiency and effectiveness of policy and rules implementation still needs further improvement. Irregular payments and bribes remain a serious issue in obtaining permits, certification and inspections for industry traders and service providers. Despite huge investments in customs modernization and automation, the burden of customs procedures remains high and at the alarming level for traders and services providers. The dimension for logistics services providers and industry traders such as shippers and consignees is not captured fully at this high level of indicators.

The baseline scores of high level indicators for Cambodia is illustrated in Table 4.3.1. From an infrastructure perspective, the obtained average score is slightly under the mean of each scale thus meaning that infrastructure is perceived to be slightly below par and would need further improvement in order to obtain higher scores. The same could also be said for the institutional environment where the average score is around the mean for each scale. Irregular payment or bribes and burden of Customs procedures under WEF highlight that this is a very challenging environment from an institutional perspective with lack of transparency, complicated government procedures not conducive to the establishment of a facilitating business environment. The LPI score is slightly over mean which also reflects on the limited efficiency of Customs and border clearance. Much is needed to improve the various scores in this dimension which require real political will and implementation capabilities form related Government agencies in Cambodia. The trading across border data describes the actual time and fee for border crossing in Cambodia and should be used as an initial baseline. Logistics service providers' competence and timeliness when combined are again close the mean which means again that much is still needed to improve the competence of logistics service providers in the country. The same can be also said for the shippers/consignees dimension. The overall observation of Table 4.3.1 is that Cambodia has just an average score on all the high-level indicators thus meaning that the overall baseline performance is not so bad but much more can be done to improve the various dimension scores. Cambodia has made some progress, but a much more in-depth assessment of its logistics performance is needed, especially in the two dimension that requires more performance data at the company and industry level)LSP and shippers/consignees dimensions(.

Table 4.3.2 provides more details on the available indicators that could be used for the baseline assessment of Cambodia's logistics system based on the proposed scope for M&E.

[8] 11th Pillar: Business Sophistication, Global Competitiveness Report, World Economic Forum.

Table 4.3.2 Existing Baseline Indicators for Logistics M&E Framework 2017

Dimension	Data	Score	Rank	Source
Infrastructure	Quality of Overall infrastructure Quality of roads Quality of railroad infrastructure Quality of port infrastructure Quality of air transport infrastructure Quality of electricity supply	3.4/7 3.2/7 1.6/7 3.7/7 3.7/7 3.5/7	99/137 99/137 94/137 81/137 106/137 106/137	2nd Pillar: Infrastructure Global Competitiveness Report 2017-2018 World Economic Forum[9]
	The quality of trade and transport infrastructure	2.36/5	99/160	Logistics Performance Index[10]
Institutional and policy framework	Irregular payments and bribes Burden of government regulation Efficiency of legal framework in settling disputes Efficiency of legal framework in challenging regulations Transparency of government policymaking	3.0/7 3.4/7 2.9/7 2.8/7 3.2/7	113/137 68/137 108/137 96/137 120/137	1st Pillar: Institutions Global Competitiveness Report 2017-2018 World Economic Forum
	Prevalence of trade barriers Trade tariffs (%) Prevalence of foreign ownership Business impact of rules on FDI Burden of customs procedures	4.1/7 9.3% 4.5/7 4.4/7 2.9/7	93/137 96/137 68/137 77/137 127/137	6th Pillar: Goods Market Efficiency Global Competitiveness Report 2017-2018 World Economic Forum
	Trading Across Borders (including hereunder) Time to Export (Border Compliance-Hours) Cost to Export (Border Compliance-US$) Time to Export (Documentary Compliance-Hours) Cost to Export (Documentary Compliance-US$) Time to Import (Border Compliance-Hours) Cost to Import (Border Compliance-US$) Time to Import (Documentary Compliance-Hours) Cost to Import (Documentary Compliance-US$)	N/A 48 375 132 100 8 240 132 120	108/212	Trading Across Borders Doing Business[11]
	The efficiency of customs and border clearance	2.62/5	77/160	Logistics Performance Index
Logistics services providers	The competence and quality of logistics services	2.60/5	89/160	Logistics Performance Index
	The frequency with which shipments reach consignees within scheduled or expected delivery times	3.30/5	72/160	Logistics Performance Index
Shippers/ Consignees	Local supplier quality State of cluster development Nature of competitive advantage Value chain breadth Control of international distribution Production process sophistication	3.6/7 4.0/7 3.2/7 3.6/7 3.0/7 3.1/7	122/137 48/137 90/137 90/137 115/137 114/137	11th Pillar: Business Sophistication Global Competitiveness Report 2017-2018 World Economic Forum
	The ease of arranging competitively priced shipments	3.11/5	52/160	Logistics Performance Index
	The ability to track and trace consignments,	2.70/5	82/160	Logistics Performance Index

[9] The score for the GCR-WEF is on a scale of 1-7 and the number of economies assessed is 137.
[10] The score for the LPI is on a scale of 1-5 and the number of economies assessed is 160.
[11] The Doing Business database has 212 economies.

4.3.2 Firm Level Performance Measurements

From an extensive literature review, two sets of questionnaires were developed and used to collect key data on Cambodia's logistics performance at the firm level in three aspects: i.e., logistics costs, logistics time and logistics reliability. The first set of questionnaires was designed to capture an overview of manufacturing firms' logistics performance and costs. These include garments, electronic and electrical components and agro-processing firms. The second set of questionnaires was designed to capture an overview of freight forwarders and logistics service providers' logistics performance and costs. Representatives from key professional organizations including GMAC, CAMTA and CAMFFA in the Cambodia were also involved in the validation and collection of the data.

Data collection involved a total of 55 manufacturing and agro-processing firms and 43 logistics service providers responding the questionnaires in Phnom Penh, Cambodia. Data collection was benefited from a strong collaboration with the Cambodian Chamber of Commerce)CCC(, CAMFFA, CAMTA, GMAC, Rice exporters' association, etc. The data was collected through a workshop format in collaboration with the main related professional organizations in the country. Majority of respondents were small and medium size enterprises)SMEs(. The data was collected during September 28 and 29, 2017 and on December 22, 2017. A total of more than 100 manufacturing and ago-processing firms and over 100 logistics service providers were approached based on a purposive approach focusing on the key strategic sectors of Cambodia.

Measuring the logistics cost over sales for key logistics performance in the World Bank study has four main components. The first major component is the transport cost over sales, which includes both outbound and inbound costs of the surveyed manufacturing and agro-processing firm. The transport cost is relatively easier to find, as firms tend to outsource their transportation activities thus making the cost identification simpler. Warehousing cost over sales is the second main component, which covers all the activities related to the operations in the warehouse. If the warehouse activity is outsourced, then again, the identification of the cost becomes easier but if done in-house then an estimate of the expenses of running the warehouse will then be required. The third major component is the inventory carrying cost over sales and is probably the most challenging to gauge as it is the cost of having the physical inventory instead of using that money for other purpose, often referred to as the "opportunity" cost.

Aside from the three main components, logistics administration cost over sales needs to be taken into account as well. This last component is a proxy that is imputed by summing up the transport, warehouse and inventory carrying cost. The logistics administration cost is equivalent to 10 percent of the sum. This is derived from the literature[12] where it is stated that if transport, warehouse and inventory carrying cost is obtained then 90 percent of the total logistics cost is available.

[12] Banomyong)2007(, "Thailand logistics costs/GDP", Thammasat Logistics Research Paper, Vol. 3 No.1, pp. 1-2

Table 4.3.3 Logistics Cost/Sales by Component

Activity/Sales	Cambodia	Vietnam	Thailand	Indonesia	Philippines
Transport	8.95%	7.04%	5.57%	8.81%	10.71%
Warehousing	3.69%	3.78%	2.49%	3.45%	5.20%
Inventory Carrying	6.00%	4.00%	2.04%	7.19%	8.78%
Logistics administration	1.87%	1.48%	1.01%	1.95%	2.47%
Logistics Cost/Sales	**20.52%**	**16.3%**	**11.11%**	**21.40%**	**27.16%**

Source*:* Survey data.

Cambodia suffers from high level of logistics cost over sales when compared to Vietnam and Thailand. Thailand has the lowest cost (illustrated in Table 4.3.3). The Philippines has the highest logistics cost at more than 27 percent. It is possible that the nature of the Philippines and Indonesia negatively impact logistics cost as logistics activities tend to be more expensive in islands countries.

The transport cost has the highest ratio followed by the inventory carrying cost in Cambodia. Transport and warehousing cost in Cambodia is even higher than in Indonesia. This means that reducing logistics cost in the Cambodia is not just an issue of reducing transport cost. The high cost of inventory is a by-product of unreliability in the logistics system in Cambodia. Another key issue is that logistics cost is driven by the sector in which the responding firm operates. Firms that operate in high-value sectors will often have lower logistics cost/sales when compared with firms in lower value sectors.

Table 4.3.4 Logistics Cost/Sales by Sector

Sector	Cambodia	Vietnam	Thailand	Indonesia	Philippines
Automotive	15.83%	33.55%	14.75%	16.84%	23.08%
Chemical products	16.50%	27.14%	10.09%	27.01%	43.3%
Food	20.38%	17.60%	10.32%	20.97%	32.72%
Textile & Garment	13.06%	14.30%	8.55%	16.01%	20.35%

Source*:* Survey data.

Overall, logistics cost by sector in the Cambodia is higher than in Thailand. However, when compared with Vietnam, there is just one sector with higher logistics cost/sales which is the food sector. Thailand is more industrialized with more value-added in the final product and therefore benefits more from lower overall logistics cost/sales.

In 2017, the value of logistics cost in Cambodia can then be estimated at US$1.96 billion of its total exports. According to the latest statistics from the Cambodian Ministry of Commerce, Cambodian exports grew by more than 19 percent in 2017, reaching US$9.55 billion in value.[13] Compared with last year, the total value of Cambodian exports increased by more than US$1.5 billion. Table 4.3.5 provides a component breakdown costs for each key logistics activities.

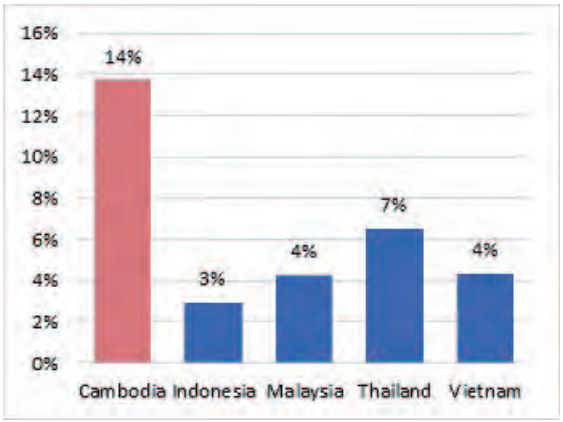
[13] Source: http://www.khmertimeskh.com/5098372/exports-19-percent-2017 (accessed January 1, 2017).

Table 4.3.5 Value of Logistics Costs)in US$(

Activity	Cambodia
Transport	854,725,000
Warehousing	352,395,000
Inventory Carrying	573,000,000
Logistics administration	178,585,000
Logistics Costs	**1,958,705,000**

Source: Calculated from Table 4.3.2 and Cambodia 2017 export value.

From another source, the transport sector alone accounts for 14 per cent of the value-added exports in Cambodia and has a larger share in the exporting structure than in comparator countries (average 4 percent) (Figure 4.3.1). Transport and storage, together with wholesale and retail services, play a crucial role in the Textile and Garments export strategy: together they account for about half of the value-added exports by the garments value chain. Cambodia faces challenges in terms of trade facilitation that must be addressed to better integrate with the world and embrace GVCs.

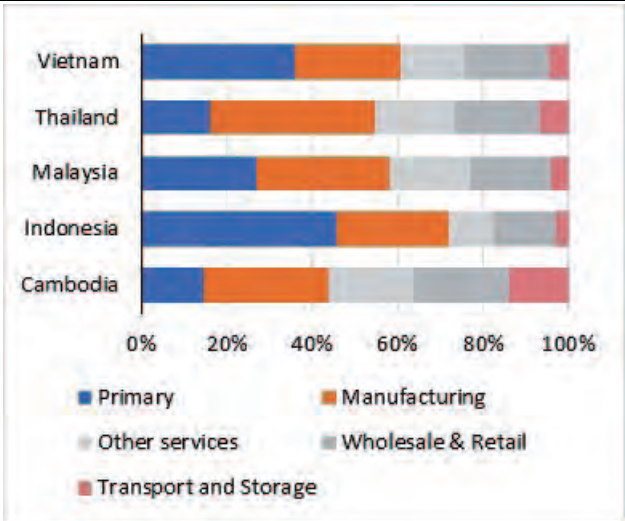


Source: World Bank calculations based on OECD TiVA (2011).

Figure 4.3.1 Forward Exported Value Added by Transport and Storage (% of total exported value added)

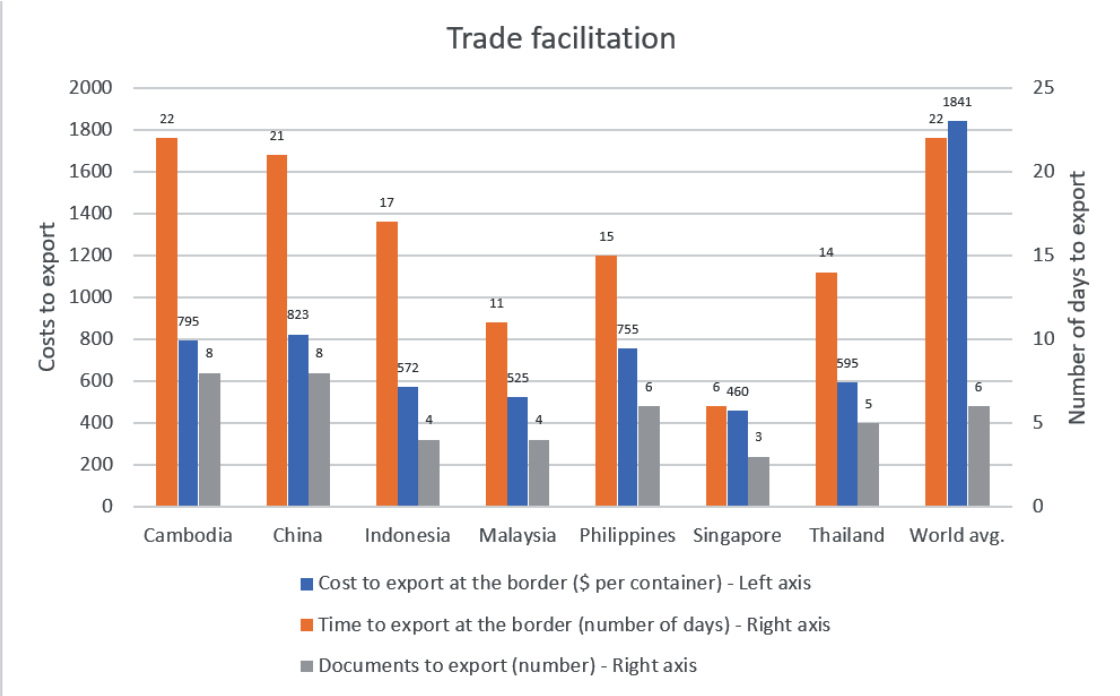
For Cambodia to remain competitive, it is required to reduce trade costs which are currently very high. In Cambodia, 43% of the garments' value corresponds to domestic value added, and 57% to foreign value. Only transport and storage costs explain a big chunk of exported value added in Cambodia. The contribution of logistics to Cambodian exports of value added is significantly higher than in other countries in the region. Forward exported value added by transport and storage accounted for about 14 percent of total exported value added. In contrast, its neighbors—Thailand and Vietnam have transport and storage contributing to their exports of value added only at 7 percent and 4 percent, respectively.

Overall logistics contribution to value added in Cambodia is high when compared to the region, it is even higher for exported value added. By decomposing forward linkages, logistics contribution to total domestic value added is almost 10 percent. Decomposition of forward linkages for exported value added also shows that logistics contribution is the highest, as much as more than 14 percent.



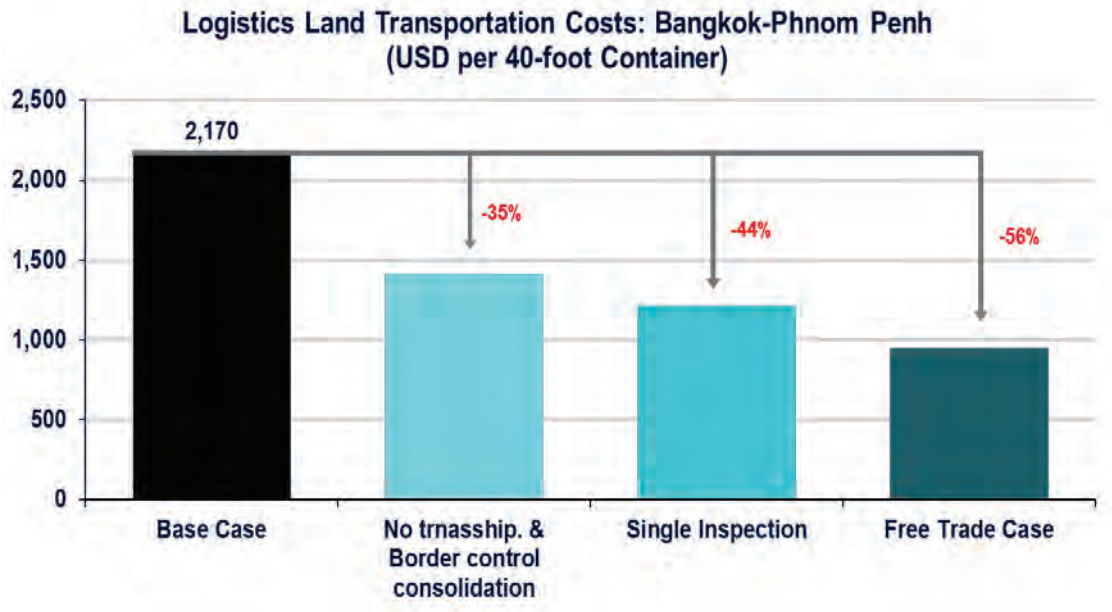
Source: Authors' calculations based on OECD TiVA (2011).

Figure 4.3.2 Total Exported Value Added (forward linkages decomposition)



Source: World Bank Group's doing business database.

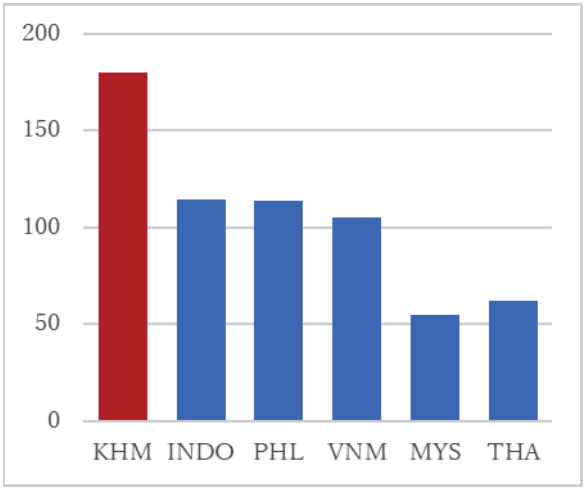
Figure 4.3.3 Costs and Time to Exports



Source: Artuso et al (2017), Draft trade competitiveness update for Cambodia.

Figure 4.3.4 Decomposition of Logistics Costs (right)

Trade costs in Cambodia remain extremely high, mostly because of high logistics costs and informal transaction costs. Logistics costs remain high due to poor quality of logistics services and adequate quality of transport infrastructure. The cost and time to export and import a container through from Sihanoukville, Cambodia's major sea port, is still high compared to regional competitors, as reflected in its poor ranking in the Trading Across Borders indicators of the Doing Business (108th out of 190 countries).



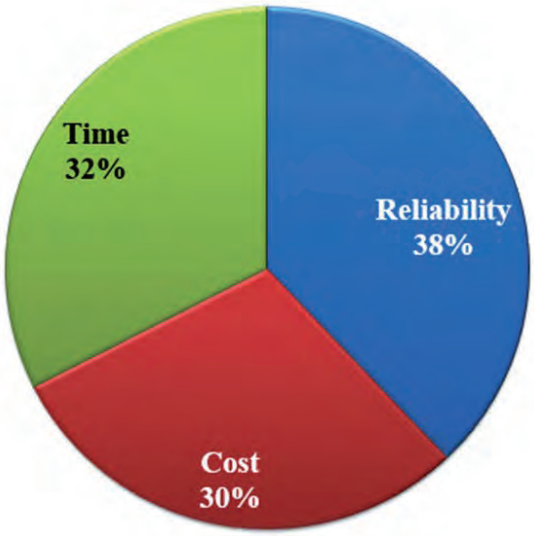
Source: Trading Across Borders, 2018 World Bank Doing Business Indicators.

Figure 4.3.5 Time for Documentary and Border Compliance to Export (in hours)

Figure 4.3.5 shows that documentary and border compliance procedures take 180 hours in Cambodia, over 70% more time than in Vietnam and almost tripling the time needed in Thailand. Documentary and border compliance procedures imply greater costs to Cambodian firms than in most comparator countries: while the cost adds up to 475 US$ in Cambodia, it is 10% lower in Vietnam (429 US$) and 33% lower in Thailand (320 US$) (Figure 4.3.5).

4.4 Logistics Key Performance Indicators

Overall logistics performance can be composed of three main dimensions, namely cost, time and reliability. The combination of these three dimensions reflect the overall performance. The survey respondents were asked to weigh which dimensions were the most important based on a multi-criteria decision-making technique.



Source*: Dr. Ruth Banomyong*'s estimates based on data from Logistics Costs and Performance Surveys in 2017.

Figure 4.4.1 Logistics Performance Dimensions

Reliability is the most important issue for manufacturers in the Cambodia at 38 percent**.** Cost is also important but high logistics cost is a by-product of low logistics reliability. If reliability is not improved, then cost issues cannot yet be given priority in the country. At the end of the day, high costs tend to be further transferred back to either customers or suppliers. In improving logistics, cost is still important, but the level is highly affected by the obtained reliability.

Reliability is the main driver of logistics performance in the country and must be given priority when policies are designed to help improve logistics performance in the country. Table 4.4.1 describes the overall logistics performance of the respondents. A number of Key Performance Indicators (KPIs) have been selected to reflect overall logistics performance in the country. The main KPIs are: Delivery In Full and On Time)DIFOT(; damage rate; customer complaint rate; ratio of returns; forecast accuracy and the cash conversion cycle.

Table 4.4.1 Comparing Logistics Key Performance Indicators

Key Performance Indicators (KPIs)	Cambodia	Vietnam	Thailand	Indonesia	Philippines
Delivery In Full & On Time (%)	**82.32**	90.99	87.84	81.92	89.62
Damage rate (%)	**3.46**	2.18	4.16	2.01	3.7
Customer complaint rate (%)	**5.80**	6.65	2.64	6.61	5.97
Ratio of returns (%)	**3.68**	2.26	3.58	3.55	5.15
Forecast accuracy (%)	**81.25**	75.53	84.40	81.68	80.15
Cash Conversion Cycle (days)	**9.49**	20.29	N/A	19	21.77

Source*:* Survey data, WB logistics performance surveys, Banomyong et al *(*2014*).*

A comparison of these KPIs against selected ASEAN countries shows that Cambodia is performing relatively well**.** Cambodia's cash conversion cycle (C2C) is shorter when compared to other countries. It is possible that because the country is still a cash economy where payment is often made upon delivery of goods and services. The country's DIFOT capability is slightly better than Indonesia. This is one of the key weakness of the Cambodian logistics system.

Cambodia's ratio of returns is the 2nd highest with the Philippines having the highest at 5**.**15 percent**.** The accuracy of forecast in Cambodia is better than in Vietnam, but worse than in Thailand. These various KPIs reflect different aspects of logistics performance. However, the focus of these KPIs are output-based and do not reflect inputs or processes. The cash conversion cycle is the only indicator that reflects the financial dimensions in logistics while the other KPIs are all outputs of logistics activities.

It is important to have the overall logistics cost and performance of the country. However, logistics cost and performance are very much dependent upon the industrial sectors. Table 4.4.2 compares the delivery in full and on time)DIFOT(capability of key industrial sectors in Cambodia and selected ASEAN countries. DIFOT is a critical KPI that reflects the output of a given logistics system.

Delivery In Full & On Time (DIFOT) in **%**	**Cambodia**	Vietnam	Thailand	Indonesia	Philippines
Automotive	**95.25**	98.00	82.45	83.75	97.18
Chemical products	**85.00**	100.00	87.57	81.17	85.71
Food	**74.92**	100.00	89.41	91.14	88.02
Textile & Garments	**84.38**	80.00	90.66	93.75	91.55

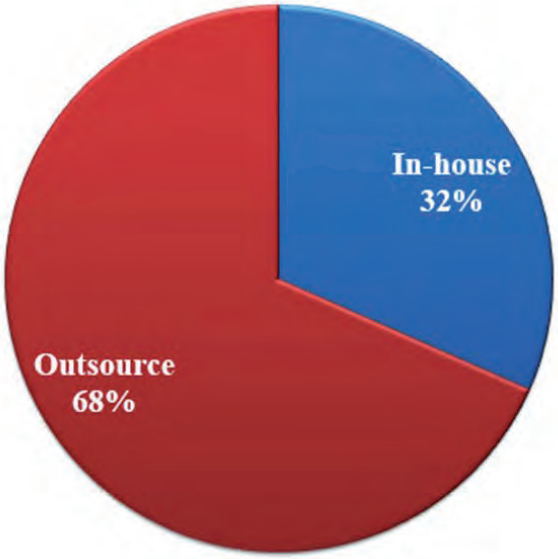
Source*:* Survey data, WB logistics performance surveys, Banomyong et al *(*2014*).*

Table 4.4.2 Comparative DIFOT Assessment

The DIFOT level for automotive is the highest in Cambodia. This is probably due to the nature of the automotive industry where just-in-time practices are the norm. It is also interesting to notice that the textile and garment sector has a relatively low DIFOT level when compared with Indonesia and Thailand but higher than Vietnam. This is probably a possible reason where this sector is still competitive when compared to Vietnam even though there is not much difference in terms logistics costs/ sales. Food produce suffers from lower DIFOT when compared with other selected ASEAN countries.

4.5 Outsourcing and LSP Capability

The ratio of logistics outsourcing in Cambodia is as high as 68 percent**.** The management of logistics can be done either in-house or outsourced. The trend in Cambodia is to outsource logistics activities)Figure 4.5.1(. This is in line with the data obtained from Vietnam and Thailand where outsourcing is the common way of managing logistics. The rationale behind outsourcing may be varied such as trust in the capability of logistics service providers from the perspective of users or because the administrative procedures are too complex to be done in-house. Outsourcing does help firms focus on their core business and use logistics service providers as partners in sustaining competitive advantage.



Source: Survey data.

Figure 4.5.1 Outsourcing Ratio

In Cambodia, the most outsourced logistics activities are international transport, customs brokerage and domestic transport**.** Transport related activities are the most outsourced activities as it is a burden for the manufacturers to manage their own vehicle fleet and ocean vessels. However, value-added logistics services and logistics IT systems are mostly done in-house. International logistics activities tend to be more outsourced as respondents do not own the main means of transport whereas domestic logistics can often be handled in-house. Table 4.5.1 describes the main outsourced logistics activities and the extent of their outsourcing.

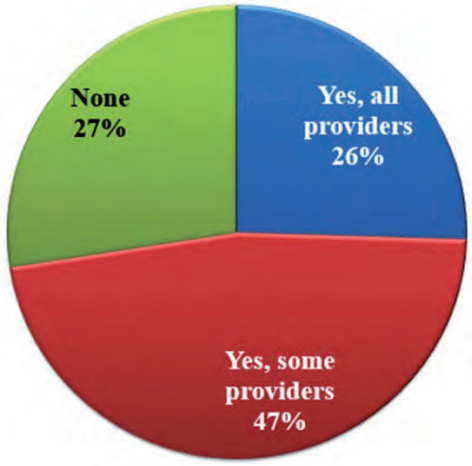
Table 4.5.1 Level of Outsourcing

	0 percent	1 to 25 percent	26 to 50 percent	51 to 75 percent	76 to 100 percent
Domestic transportation	9.5%	20.6%	15.0%	24.1%	16.3%
Domestic freight forwarding	9.5%	20.6%	5.0%	13.8%	17.0%
International transportation)including international freight forwarding)	5.4%	5.9%	10.0%	17.2%	22.7%
Warehouse and inventory management	24.3%	14.7%	30.0%	10.3%	9.2%
Value added services, such as product finishing and customization	24.3%	14.7%	20.0%	6.9%	7.1%
Logistics IT systems	18.9%	14.7%	10.0%	6.9%	12.1%
Customs brokerage	8.1%	8.8%	10.0%	20.7%	15.6%
Total	100%	100%	100%	100%	100%

Source: Survey data.

The results are quite surprising as more than one quarter of respondents do not have any type of service level agreements (SLAs) with their service providers. It is important for users of logistics service providers to have SLAs in the provision of logistics services. However, this is probably because

outsourced logistics is often done on an ad-hoc basis based on the current need and is not considered of strategic value but more of an expense that needs to be reduced. Figure 4.5.2 also describes that one out of four respondents have SLAs with all of their service providers. This ratio is quite low. Almost half have SLAs with some of their providers.



Source: Survey data

Figure 4.5.2 Service Level Agreements

The capability of service providers in Cambodia are not so different from other ASEAN countries. Table 4.5.2 details information on the logistics performance of logistics service providers in Cambodia and selected ASEAN countries. The most important KPI is the DIFOT KPI, which reflect the overall capability to deliver in full and on time as per the customers' instructions. The cash conversion cycle (C2C) for Cambodia is 6 days and this seems to be even better than in other countries. However, the trend is that this C2C will increase in terms of time due to higher levels of customers' expectations in the provision of logistics services. Logistics service providers in the Cambodia are subject to a number of constraints that affect their capability to provide their services efficiently and effectively. Survey data shows that delays in customs processes are considered the most problematic.

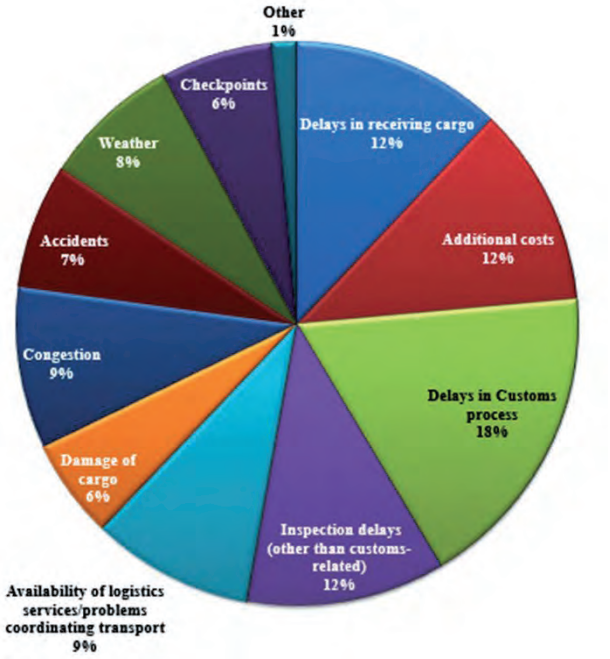
Table 4.5.2 Comparative Logistics Performance Assessment of Service Providers

Key Performance Indicators (KPIs)	Cambodia	Vietnam	Thailand	Indonesia	Philippines
Average Order Cycle Time (days)	**6.48**	6.35	7.13	10.27	8.71
Transportation Lead Time (days)	**4.16**	4.35	NA	9.06	4.97
Cash Conversion Cycle (C2C) (days)	**6.03**	16.1	13.09	13.85	12.29
Delivery in Full on Time (DIFOT) (%)	**85.84**	93.70	86.6%	81.13%	85.12
Damage rate (%)	**2.86**	NA	NA	3.71	2.37

Source*:* Cambodia logistics service provider survey data, WB logistics performance surveys, Banomyong et al (2014*).*

Other inspection delays when combined with Customs delays represents almost a third of the most common problems faced by local logistics service providers. Apart from delays in processes,

congestions and weather also affect the performance of surveyed providers. These are issues that are outside the control of the service provider, some are fabricated such as delays but some are natural such as the weather.



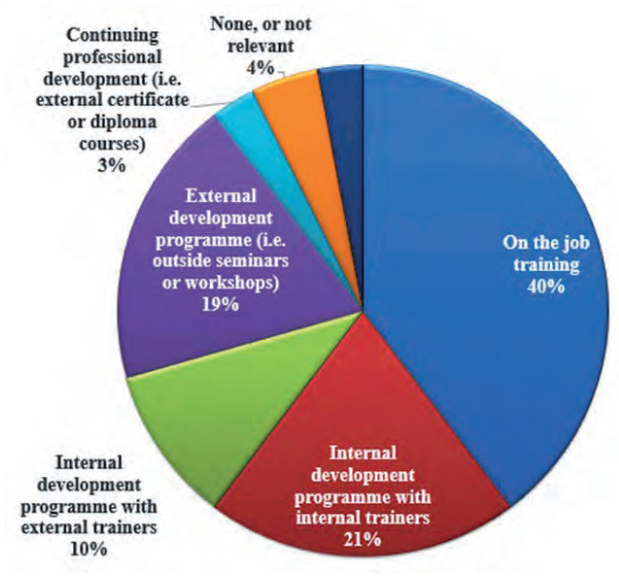
Source: Cambodia logistics service provider survey data.

Figure 4.5.3 Most Common Problems Faced by Logistics Service Providers

4.6 Logistics Human Resources

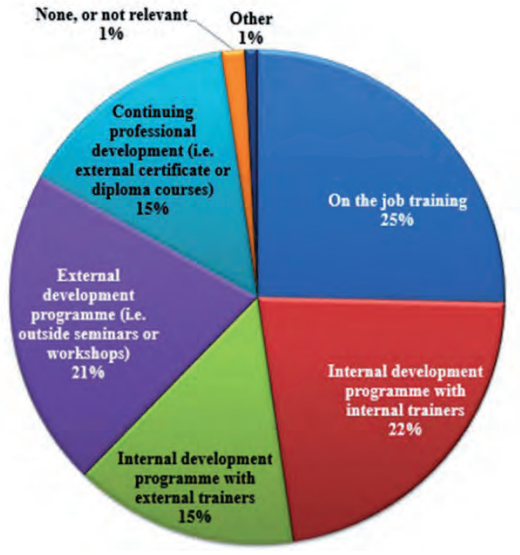
Logistics human resources development in the Cambodia is not considered a major issue from both manufacturing and logistics service providers)LSPs(respondents. When asked about the availability of finding logistics talent, the majority of respondents perceived that most logistics skills were easily available. This is quite interesting as in most of the ASEAN countries, logistics human resource is difficult to find, especially those that are qualified. However, observation on the ground and discussion with specific LSPs highlighted some human resource issues as in the case of truck drivers. It is true that there is an availability of truck drivers in the country but they are not skilled and one of the identified priorities to professionalized the logistics labor force. Even though this is based on anecdotal evidence, logistics jobs are still considered more operational than strategic and therefore is less attractive to the workforce. It is interesting to note that most firms still have to provide on the job training for their logistics related staffs which means that that there is a lack of formalized logistics training in the country and more is needed to further develop the logistics competency of the Cambodian workforce.

Manufacturing firms



Source*:* Manufacturing Survey Data.

Logistics Service Providers



Source*:* Logistics Service Provider Survey Data.

Figure 4.6.1 Logistics Skills Development in Cambodia

4.7 Logistics Time

Table 4.7.1 presents the distance and time required for transport between Phnom Penh and (i) Poipet (Thai border), (ii) Bavet (Vietnam border), (iii) Sihanoukville, and (iv) Cai Mep (Vung Tau, Vietnam).

Table 4.7.1 Distance and Time for Transport along Major Logistics Routes for Cambodia

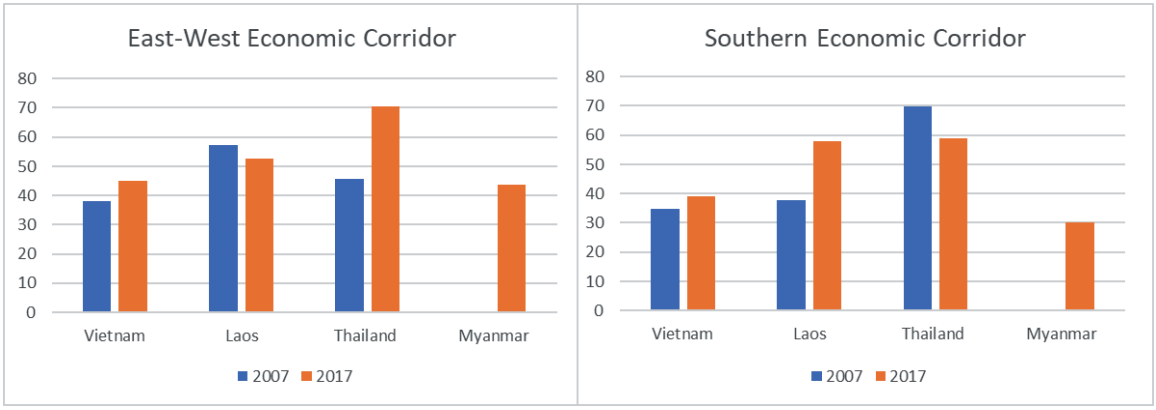
Route	Distance (km)	Time (hours)	Remarks on Distance	Remarks on Time
Phnom Penh ⇔Poipet by road	390-433	7.0-9.5 (transport time) 1-21.2 (border crossing time)	Distance alternately shown as 390-391 km in source i, 406 km in source iii, 407.5 km in source iv, 409 km in source v, and 433 km in source ii	Transport time alternately 7.0 hours in source ii and 9.5 hours in source (i) Border crossing time alternately 2.3 hours in source ii (including 1.7 hours for clearance time and 0.6 days for queuing time; plus 1 day for document preparation), 1-4 hours in source i, and 21.2 hours in source iii (2.0 hours for customs only)
Phnom Penh ⇔Bavet by road	160-190	3.0 (transport time) 2.4-4.5 (border crossing time)	Distance alternately shown as 163 km in source v, 164 km in source iv, 167 km in source iii, 170 km in source ii, 190 km on p. viii of source i	Transport time alternately 3.0 hours in source ii (and 7.5 hours in source I, including time in SEZ and dry port) Border crossing time alternately 2.6 hours in source ii (including 1.9 hours for clearance time and 0.7 days for queuing time; plus 1 day for document preparation) and 4.5 hours in source iii (0.7 hours for customs only)
Phnom Penh⇔ Sihanoukville by road and rail	221-250 (road) 266 (rail)	5.0 hours by road (transport time); 8.0-11.0 hours by rail 57.3 (“border crossing time”)	Distance by road alternately shown as 221 km in source v, 226 km in source iv, and as 250 km in source (i) Distance by rail based on source iv	Transport time alternatively 5.0 hours by road in source i, 8.0-9.0 hours by rail in source vi, and 11.0 hours by rail in source (i) “Border crossing time” based on goods clearance time in source (iii) (2.8 hours for customs only)

Phnom Penh↔Cai Mep (Vung Tau) by waterborne transport	340	40	Based on source (i)	Based on source (i)

Sources: (i) Japan International Cooperation Agency, *The Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia, Final Report*, June 2016, pp. viii-ix, pp. 4-66 to 4-68 [see also Hidetoshi Kume, JICA Expert / Transport Policy Advisor, *Improvement of Transport and Logistics in Cambodia*, 4 April 2017]; (ii) *Data Collection Survey on Connectivity Enhancement in Republic of the Union of Myanmar*, prepared for the Japan International Cooperation Agency, August-September 2017 [transport test runs along the Southern Economic Corridor]; (iii) General Department of Customs and Excise and Asian Development Bank (Japan Fund for Poverty Reduction), *Time Release Study, Cambodia, 2013* [only imports were assessed in this initial time release study in Cambodia; the next time release study is planned to be undertaken in December 2016]; (iv) Infrastructure and Regional Integration Technical Working Group (IRITWG), *Overview of the Transport Infrastructure Sector in the Kingdom of Cambodia*, 2015, pp. 15, 43; (v) distancesfrom.com; and (vi) Interview with Royal Railways, 16 August 2017.

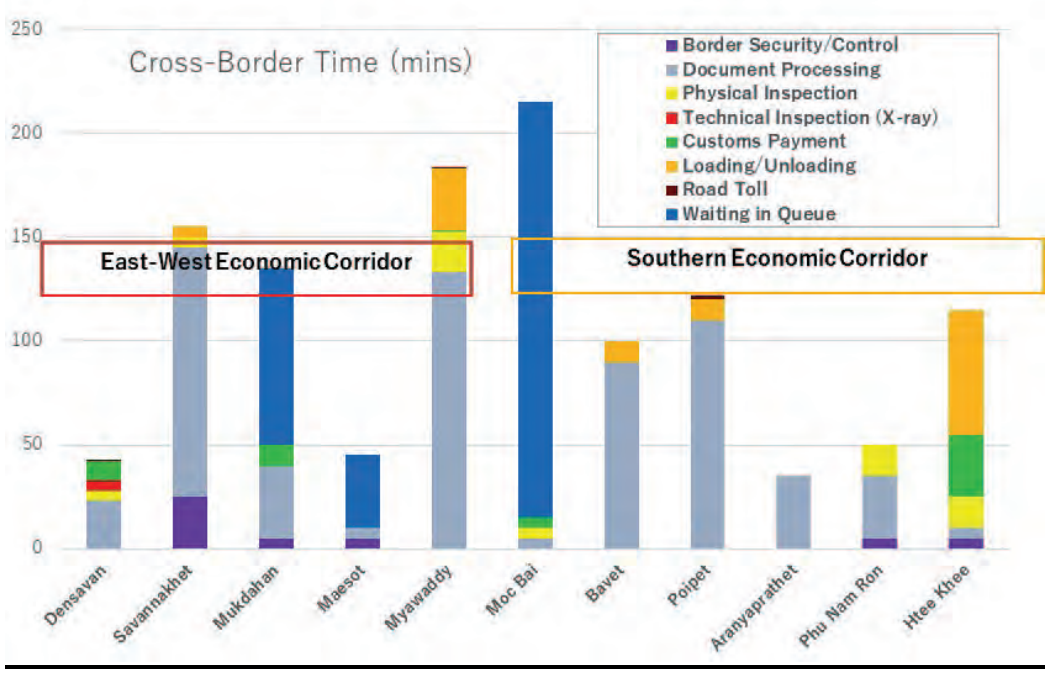
The major road network in Cambodia has significantly been developed, and travel speed between key market destinations along the economic corridors has much been improved. According to the freight test-run survey conducted by JICA in July 2017, Cambodia's travel time/speed has improved by 50 % in the Southern Corridor compared with 10 years ago. According to the survey, travel speed in Cambodia is almost at the same level as in Thailand and Vietnam.

However, there is still an issue at the border-crossing points. The Bavet/Moc Bai border takes about 5 hours to cross. Similarly, the Poipet/Aranyaprathet border takes 2.5 hours for border crossing. Most time at the Bavet and Poipet borders is spent for border control management, including export/import permits and inspections. The simplification of cross-border procedures including the introduction of the National Single Window will be effective to reduce overall transport time.



Source: Freight test-run survey conducted by JICA in July 2017.

Figure 4.7.1 Average Travel Speed (km/h)



Source: Freight test-run survey conducted by JICA in July 2017.

Figure 4.7.2 Border Crossing Time by Border Point (minutes)

4.8 Breakdown of the Logistics Costs

Logistics costs at the firm level were discussed in 4.3.2. The analysis is based on the questionnaire results and logistics costs are expressed in terms of the percentage against sales revenue (i.e. the mixture of unit pricing and sales volumes). This section sheds light on detailed logistics costs in nominal terms. This is partly because the government (or Logistics Master Plan stakeholders) can hardly control corporate sales or product pricing, but is more able to control government related costs and pricing. For public-private dialogue purposes, it is also useful for GDL to monitor nominal prices.

In terms of transportation (i.e. without warehouse/inventory costs), total logistics costs can be divided into the following criteria: (i) transportation costs; (ii) connectivity costs; (iii) (government related) border costs and (iv) agency costs. The characteristics of each cost are different (see Table 4.8.1). In theory, any cost reductions of any components will contribute to the reduction of the logistics costs. However, many of the cost components are not controllable by the government. Therefore, initially the government should focus on the cost components that the government can either directly or indirectly influence on. As the market competition will be enhanced, other cost components (such as labor costs and profit margins) will be reduced eventually.

Table 4.8.1 Breakdown of the Logistics Costs and Characteristics

	Cost item	Key cost components
Transportation costs	Trucking Costs	Labor costs, depreciation, maintenance costs, diesel oil
	Railway Costs	Labor costs, depreciation, maintenance costs, diesel oil
	Shipping Costs	Labor costs, depreciation, maintenance costs, diesel oil
	Aviation Costs	Labor costs, depreciation, maintenance costs, aviation fuel, airport usage charges
Connectivity Costs	Transshipment/ transloading costs at the border	Labor costs, depreciation, maintenance costs, electricity costs
	Port charges (infrastructure charges, terminal handling charge, other service charges, etc.)	Depreciation of infrastructure, O&M costs (labor costs, diesel oil and electricity, etc.).
	Warehouse, ICD, logistic centers, dry ports, etc.	Labor costs, depreciation of equipment, maintenance costs, lands, electricity costs, etc.
Government-related/ Border Costs	Customs Clearance	Depreciation of computer system, documentation, unofficial fees, (labor costs) etc.
	Scanning	Depreciation of scanning machines, documentation, unofficial fees, electricity, (labor costs), etc.
	CamControl	Documentation, unofficial fees, (labor costs) etc.
	Quarantine	Documentation, unofficial fees, (labor costs) etc.
	Certificates (Certificate of origin, phytosanitary certificate, fumigation certificate, quantity certificate, chemical tests, etc.)	Documentation, unofficial fees, (labor costs), etc.
Agency Costs	Forwarding Charge	Labor costs, documentation, facilitation costs, etc.
	KAMSAB	Labor costs, documentation, etc.

Notes: Small fees and/or random fees are omitted in this table. O&M refers to operational and maintenance costs. Sources: JICA Study Team based on the interviews conducted with government agencies and private/ logistic companies.

4.8.1 Transportation Costs

(1) Roads

The average unit costs of truck-based transportation in Cambodia are relatively low. This is because: (i) labor costs are lower than neighboring countries; and (ii) the quality of trucks is lower (often second hands/ old trucks after significant depreciation). These factors are partly offset by relatively high fuel prices but overall, trucking costs in Cambodia are still lower than regional neighbors.

According to the World Bank Corridor Performance Assessment (2014), one trucking company noted that fuel costs accounts for up to 70 percent of the total costs. Indeed, many trucking and logistics companies claimed that fuel costs in Cambodia are expensive. According to GIZ's 2014 survey, Cambodia's gasoline prices are higher than those in Malaysia and Vietnam. Gasoline prices are almost on par with Japan and Thailand. Broadly speaking prices are above the green benchmark line (i.e. Category 3 - good level to cover fuel costs and road maintenance costs) – that is considered as a good sign from a road sector policy point of view. However, it is noted that regional neighbors including Thailand, Vietnam and Malaysia are all in Category 2 (i.e. with state subsidies) for diesel prices. On

one hand, subsidizing fuels is not a good government policy in the global warming era, but the Cambodian government may want to consider the right balance to maintain the competitiveness of the business environment for Cambodian enterprises.

Table 4.8.2 Trucking Costs in the GMS Region

		Trucking costs for one 40ft container	
		US$	US$ per km
Cambodia	PP – Poipet	250	1.56
	PP - Bavet	600	1.46
	PP - Sihanoukville	220-270	1.00-1.13
	PP – Battambang	312	1.06
Thailand	Poipet – Bangkok	700	2.69
	Bangkok - Mukdahan	1,000	1.61
Laos	Savannakhet - Densavan	553	2.21
Vietnam	Bavet – Ho Chi Minh city	150	1.60

Note: PP: Phnom Penh.
Sources: The JICA Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia. Data was updated as necessary from various sources from operators and ports.

As shown in Table 4.8.2, the unit cost varies by route. It is noted that the total trucking costs for cross-border trade are not cheap because two trucks are required for the transportation of one route and each truck needs a round trip and one journey is almost always without cargo.

(2) Railways

Railway cargo tariffs are not publicly available (while passenger tariffs are), but according to the preliminary survey by the JICA Study Team, the railway tariff for one 20ft container from Phnom Penh to Sihanoukville (i.e. the only operating section – 240km) is approximately US$ 100 (or US$ 0.42 per km). This is lower than in Thailand where the price of the operating kilometers could be US$ 185 (which would be US$ 0.77 per km). In the meantime, the Ministry of Public Works and Transportation (MPWT) is responsible for building infrastructure while the concessionaire (i.e. the Royal Railways) oversees operations and maintenance. The operating company does not pay infrastructure access charge to the government for the time being.

Therefore, railway transportation charges seem to be significantly lower than transportation costs by trucks (i.e. US$ 220 for PP to Sihanoukville), but it takes significantly more time (11 hours compared with 6 hours by trucks). Moreover, even if the shipper uses railway transportation, the shipper still needs to use trucks to deliver goods to its inland container depot (that costs an additional US$ 80). The shipper normally considers the total balance among pricing, convenience, timeliness, stability and safety. Overall, the market share of the railways between PP and Sihanoukville is low – i.e. only about 12.6% for exports and 2.3% for imports.

(3) Shipping Costs

Table 4.8.3 shows ocean transportation costs by country in the region, reaching key markets (i.e. China, Europe, Japan and the United States). While large vessels are available in Singapore (i.e. no need for feeder vessels or transloading), the lowest transportation costs are compiled. The total estimated costs from Singapore to key markets (i.e. USA, EU, China and Japan) is set as the benchmark. From the benchmark, shipping costs from Thailand are approximately 50% higher, costs from Myanmar and Vietnam are approximately 80% higher, and costs from Cambodia are approximately 106% higher.

Table 4.8.3 Transportation Costs by Ocean Vessel

	Tokyo	Singapore	Los Angeles	Shanghai	Rotterdam
Sihanoukville	703	560	2,484	621	1,383
Phnom Penh		N/A	N/A		N/A
Ho Chi Minh City	585	539	2,301	502	1,238
Bangkok	436	509	2,057	354	1,050
Yangon	735	570	1,872	635	1,499
Singapore	550	N/A	827	245	895

Notes: Taxes and duties are not included. Transport costs only based on 20ft container (assuming electrical equipment is carried by vessel). Lower-end quotation is noted above. However, according to some shipping lines, these quotations are on the expensive side. For consistency and comparison purposes, data are taken from the same source.
Sources: World Freight Rates http://worldfreightrates.com/freight

(4) Modal Competition

Modal competition in Cambodia is limited. There are only two sections where potential modal competition exists; these are: (i) section between Phnom Penh and Sihanoukville and (ii) section between Phnom Penh and Ho Chi Minh City.

For the first section, even though railway tariffs are significantly lower, the total costs, including trucking costs and transloading and handling costs at the port, are not significantly lower. While the railway transportation takes significantly more time, the road transportation dominates the transportation made in this section with the market share of 87.4% for exports and 97.7% for imports. Therefore, modal competition seems to be weak in this section.

The second section is more competitive. There are many products (not time sensitive products such as rice and low-value added garments) shippers prefer to deliver via river transportation. Although it takes significantly more time (up to 40 hours by ship compared with 6 hours by trucks), the market share of river transportation is 71% for exports and 36% for imports. Therefore, modal competition seems to be high in this section.

Table 4.8.4 Transportation Costs by Different Modes of Transport (20ft Container, US$)

	Roads	Railways	River
Phnom Penh – Sihanoukville	220	100-110	N/A
Phnom Penh – Ho Chi Minh City	1,000	N/A	400

Note: Transport Costs charged by the railway company are different from PP to SHV and SHV to PP.
Sources: The JICA Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia.

4.8.2 Costs of Crossing Borders

(1) Costs of transloading

There are two types of transloading operated in Cambodia. The most dominant type is to change trucks at the border while the container remains unchanged (i.e. not opened). This type of the transloading is costly. Even though the direct costs are approximately US$ 130, two sets of trucks in two countries need to be prepared, with round trips necessary for both vehicles.

Another way is to change the heads of the trucks only – leaving the container and chassis unchanged. This is rather uncommon due to the lack of availability of such trucks, but can save the costs of lifting the container.

The trucks with dual licenses (so called passports) are increasing between Cambodia and Vietnam and those between Cambodia and Thailand are starting to emerge. With such licenses, the same truck can be driven on certain roads/routes in two countries. For safety reasons, it may be a common practice to supply two drivers with different nationalities, but the total travel distances would become half of the above-mentioned models, therefore, the total costs seem to be significantly lower.

(2) Ports

Port charges largely depends on the capacity and the levels of services/value added at the port. Therefore, comparison of Cambodian port charges with other ports in the region is rather difficult. However, from interviews to shippers, freight forwarders as well as several Chambers of Commerce in Cambodia, it seems that the port costs in relation to international shipping are significantly higher in Cambodia than other ASEAN countries. It has been estimated that port dues (chargeable per Gross Register Tonnage) are 3.65 times higher than those of Cai Mep Port. Government's efforts can be acknowledged as port prices have been decreased by PAS by 10% and by PPAP by 5%, but further efforts need to be made for these ports to become internationally competitive. Distorted prices between imports and exports also need to be corrected.

Table 4.8.5 Port Related Tariffs in GMS Region

	Capacity ('000 TEU)	Number of Container Berths	Depth (m)	Port dues and charge (US$ per GRT) [1)]	LOLO (US$) [2)]
Sihanoukville	450	1	10.5	1.15	Import: 63 Export: 22
Phnom Penh	300	1	4.2-5.5	0.49	Import: 47 Export: 47
Leam Chabang	7,000	8	16	N/A	Import: 22 Export: 17
Cai Mep	N/A	2	14	0.31	Import: 20 Export:20
Singapore	35,000	52	16	0.22	N/A

Notes: 1) Port dues and charge per GRT includes all infrastructure related dues and charges, including tonnage dues, navigation charges, and harbor dues. 2) Lift On Lift Off for laden container 20ft (US$) from the container yard to trucks.
Sources: Preliminary survey by the JICA Study Team, EuroCham (Cambodia), Wikipedia, and tariff tables from port web sites.

(3) Warehouse, ICD and dry ports

Warehouses, ICDs, and dry ports are often operated through private initiatives and competitively priced. Because of private initiatives, there are no set tariffs (although each company can publish its tariffs) and no government regulations. LOLO rate is estimated to be around US$ 1.5 per ton or US$ 35 per full 20ft container. During the survey, the JICA Study Team did not hear any complaints about the pricing of these warehouses, inland container depots and dry ports.

4.8.3 Government-related Border Costs

For cross border trade, there are many border related costs in Cambodia as well as in the importing/exporting country. On the Cambodian side, these costs include customs clearance, CamControl, quarantine and other government permits and certifications. Although each of these costs may seem not too significant, when all costs are bound together, the total costs become significant and loses competitiveness to the neighboring countries. On top of these official charges, there is often a need to make unofficial payments. According to the World Bank, this is one of the biggest impediments in the logistics sector. Normally no receipts can be issued for unofficial

payments – that is quite a challenge for companies adopting sound accounting standards because taxable profits would become larger than real profits. It means companies may have to pay excessive taxes based on unreal profits. In addition to the above-mentioned costs, it is noted that there are often associated forwarding charges to obtain official documentations in Cambodia. For details, see below case studies as examples. In the first case study, the sum of official fees amounts to US$ 110, whereas the sum of forwarding costs (broadly speaking 50% of these costs are regarded as unofficial payment costs) is US$ 430. Associated costs are significantly larger. Please note that fees and practices are very different by each border point and by product (e.g. preferential tariffs for strategic products like rice).

4.8.4 Agency Costs

Agency costs relate to the costs associated with the preparation of official documents, obtaining stamps/signatures and passing the border control. Estimated forwarding costs in Cambodia are high compared with regional neighbors. This is partly because: (i) there are more required documents with signatures in Cambodia; (ii) there remains a practice to provide unofficial payments; (iii) officials in charge in location in some cases use his/her powers for final approvals by personal decisions.

Table 4.8.6 Forwarding Charge

	Estimated Forwarding Costs per 20ft container (US$)
Cambodia	540
Thailand	200
Vietnam	250

Notes: PP: Phnom Penh.
Sources: JICA Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia.

In addition to the forwarding charge for shippers, there are an agency fees associated with vessels. Currently all international vessels arriving in Cambodia are required to use the state agency called Kampuchea Shipping Agency & Brokers (KAMSAB). KAMSAB charges an agency fee in arranging formalities of the entry and departure of the vessel and in arranging the delivery, surveying, weighing, measuring cargo, etc. depending on the GRT of the vessel and the volume and type of commodity transported.

4.8.5 Case Studies

Based on the data obtained by the preliminary study by the JICA Study Team, two case studies are analyzed in detail. One case study is on the land transportation between Bangkok and Phnom Penh. There are many examples that are cheaper than this example (e.g. no transloading is required within 20km from the border and about 30 trucks have a passport to drive the roads in two countries), however, this example is designed to identify the worst-case scenario along this corridor.

The other case study is on the land transportation between Phnom Penh and Ho Chi Minh City port. Again, there are many better examples and there are more dual licenses between Vietnam and Cambodia. The objective is to identify potential reductions of the logistics costs. Findings are as follows.

- Compared with the market approach (e.g. EU type free market approach), the costs of logistics (including transportation costs) are 2.3-3.6 times higher;

- If the government implements the following actions, the logistics costs can be reduced by 33-34%;
  - If CamControl functions are reviewed and redesigned to be simplified and in line with neighboring countries, 7.6-16.1% of the current logistics costs can be reduced;
  - If trucks could provide non-stop services from the origin to the destination without transloading (i.e. because of CBTA implementation or bilateral agreement), about 16.9-22.4% of the current logistics costs can be reduced.
  - If all the document submissions and payments are made online and no unofficial payments are made, additional 10.7-12.7% of the current logistics costs can be reduced.
- Ultimately, in addition to above mentioned measures, if a single inspection scheme is implemented between Thailand and Cambodia, the total costs of this section can be reduced by 43%.

Table 4.8.7 Case Study 1: Bangkok-Phnom Penh (40-foot Container)

	Item	US$	% of total	Comment
Thailand side	Transport charge	700	32.7	260km (US$ 2.69 per km), 5 hours (US$ 140 per hour)
Border Costs (Thai side)	Forwarding charge (incl. customs process handling operation)	200	9.3	
Border Costs (Cambodia side)	Cambodian side Forwarding charge for import permits and certifications	230	10.7	
	Forwarding charge for declaration process	200	9.3	
	Customs processing fee (official rate)	15	0.7	
	CamControl (official)	63	2.9	
	Scanning(official)	32	1.5	
	Container Trans-loading	130	6.1	
Cambodia side	Transport to PP	600	28.0	410km (US$ 1.46 per km), 10 hours (US$ 60 per hour)
Total		2,140		

Note: The prices in the above table were based on the field survey to several local logistics companies handling import taxation cargos in March 2016.
Source: Preliminary study by the JICA Study Team based on interviews from market participants.

Table 4.8.8 Case Study 2: Ho Chi Minh-Phnom Penh (40-foot Container)

	Item	US$	% of total	Comment
Vietnam side	Transport charge, HCMC - border	200	14.1	90km (US$ 2.22 per km), 2 hours (US$ 100 per hour)
Border Costs (Vietnam side)	Forwarding charge (incl. customs process handling operation)	250	17.6	
Border Costs (Cambodia side)	Cambodian side Forwarding charge for import permits and certifications	230	16.2	
	Forwarding charge for declaration process	200	14.1	
	Customs processing fee (official rate)	15	1.1	
	CamControl (official)	63	4.4	
	Scanning(official)	32	2.3	
	Container Trans-loading	130	9.2	
Cambodia side	Transport to PP	300	21.1	160km (US$ 1.88 per km), 4 hours (US$ 75 per hour)
Total		1,420		

Note: The prices in the above table were based on the field survey to several local logistics companies handling import taxation cargos in March 2016.

Source: JICA preliminary study on logistics improvement plan (based on interviews from market participants).

4.9 SWOT Analysis

Based on the analyses in Chapter 2 and 3 and performance analysis discussed above, the SWOT in the logistics sector in Cambodia was analyzed. The SWOT analysis is the basis for further actions/ projects that are proposed in Chapter 5. The ways of SWOT analysis are somehow complicated, but below we noted some of the most outstanding strengths, weaknesses, opportunities and threats in the Logistics sector in Cambodia (see Table 4.9.1 below).

Table 4.9.1 SWOT Analysis

Strengths	Opportunities
• High economic growth, higher income levels, increasing domestic production and trade volumes • Political stability and strong political commitments on the logistics and transport improvements. Existing infrastructure master plans, strategies and preparation of large-scale projects with strong donor commitments • Experienced Customs and border control agencies with strong reform commitments • Strong foreign participation in the logistic industry • Official commitments on building seamless trade relationships with countries in the region (including NSW/ASW, iiCBTA, AFAGIT etc.)	• Expansion and sophistication of production and supply system of manufacturers in Cambodia under global production and supply chain system • Agricultural development for exports • Increased momentum in regional politics for building seamless economic bloc in the region • Increased diversification in logistics demands • Very strong donor support to build infrastructure
Weaknesses	**Threats**
• Insufficient investment in logistics businesses • Inadequate las and regulations • Insufficient capacity and professionality of human resources in logistics businesses • Insufficient capacity of the GMS southern economic corridors • Fragile border points and insufficient port capacity to handle increasing volumes • High costs and long waiting time on transport and border crossings	• Decrease of employees due to lack of attractiveness in logistics businesses comparing to other businesses • Sophistication of economic corridors and low costs of logistics in neighboring countries • Low growth of industrial locations under "Thailand +1" and "Vietnam+1" with heavy competition with Myanmar and Laos • Limited capacity of private sector to generate logistics services which does not satisfy logistics demands from users

• Lack of state capacity to implement the logistics master plan. Lack of cooperation among government stakeholders • Lack of regional agreements and implementation capacity in the government	• Difficulties to secure qualified employees due to lack of attractiveness of logistics businesses • Higher wages and competition with new follow-up countries like Myanmar, Bangladesh, Sri Lanka, etc.

Source: JICA Study Team.

4.9.1 Strengths

There are a number of strengths in the Cambodian logistics sector and the country can benefit from them. Overall, it is the best time to start developing logistics systems in the country. First, it is the time for high and long lasting economic growth, together with rising income levels, increasing domestic production and trade volumes. The economy is in a good shape and the country is now ready to further strengthen the logistic system. Second, the government is fully committed to improve the logistics system this time. Even though infrastructure development is not at the sufficient level yet, there has been impressive progress of transport infrastructure development with many committed infrastructure projects. There are existing infrastructure master plans, strategies and preparation of large-scale projects. Thirdly, there is a strong political support for building seamless trade relationships with countries in the region (including NSW/ASW, iiCBTA, AFAGIT etc.). All initiatives are well supported by the international community. Strong foreign participation at every level (including the private logistics services) is also a plus.

To make use of the above-mentioned strengths, following actions should be undertaken;

- Build the priority infrastructure with donor support;
- Establish seamless border control management;
- Benefit from an economy of scale and reduce logistics costs;
- Make use of foreign or private companies to build and facilitate logistics infrastructure.

4.9.2 Weaknesses

Without saying, there are a number of serious weaknesses as well. First, the current state of logistics infrastructure remains poor, but due to lack of public funds, public investment is insufficient. Moreover, private investment in logistics businesses is also insufficient due to small scale of businesses and fragmented competition. Secondly, border points and international hubs remain fragile and port capacity is limited to handle increasing volumes. Thirdly, in the private sector, the capacity and professionalism in logistics businesses should be much to be improved. Overall, logistics performances are not favorable with high costs and long waiting time on transport and border crossings. The lack of regional agreements and implementation capacity in the government add to these weaknesses.

To overcome the above-mentioned weaknesses, following actions should be undertaken;

- Prioritize public investment with high economic benefits;
- Reduce logistics costs while fastening logistics speed – i.e. improve the competitiveness against neighboring countries.
- Improve skills and capacity in the private sector;
- Make use of donors' support to achieve above-mentioned objectives.

4.9.3 Opportunities

There are a number of good opportunities for Cambodia to develop the solid logistics sector. First, there is a large potential for industrial relocations from Thailand, China and Vietnam and foreign companies may start building more factories in Cambodia. Although Cambodia's wage levels have been rising in recent years, Cambodia remains an attractive investment destination for many of these countries. Secondly, the global demand on agricultural goods has been on a high side. Third, there is a regional momentum on building an economic bloc in the region and neighboring countries are open for trade talks and eager to lower trade barriers. Fourth, the Cambodian economy is booming, and income levels are rising continuously. As a result, logistics volumes are increasing significantly. Fifth, donors' attention/appetite in infrastructure financing is highest ever in history.

To make use of the above-mentioned opportunities, following actions should be undertaken;

- Develop logistics infrastructure (both hard and soft) to support industrial relocations;
- Lower logistics costs for agricultural goods to enhance international competitiveness;
- Accelerate trade talks and enforce agreed trade agreements without delay;
- Provide needed logistics to support diversified needs for middle-income families;
- Make use of donors' support to materialize much needed infrastructure projects.

4.9.4 Threats

There are a number of threats as well. First, there are some risks for Cambodia to lose against regional rivals in the global competition. Insufficient capacity expansion on trade facilities and hubs would be a source of losing the attraction from investors. Secondly, it is the time of logistics buildup booming in the region. Other countries may be faster than Cambodia to build the solid logistic infrastructure. Third, it is the time of increasing wages and electricity prices – i.e. an enough threat to lose against competitors. Fourth, Cambodia may lose GSP status in the future. Fifth, because the economy is booming, the qualified labor force would be attracted to the much prestigious and well paid other jobs rather than dangerous and hard logistics jobs.

To act against the above-mentioned threats, following actions should be undertaken;

- Build logistics infrastructure and reduce logistics costs;
- Accelerate the logistics infrastructure development faster than other countries in the region;
- Modernize the logistics market with solid regulations and human resource development.

Chapter 5 Master Plan Framework

5.1 Justification of Logistics Development

5.1.1 Importance of Logistics in Cambodia

Socio-economic conditions of Cambodia have been changed a lot during the past 20 years. The economic structure has shifted to industry and service-oriented economy from agriculture-oriented economy. Population reached 16 million persons and percentage of urban population has rapidly increased. GDP per capita increases over USD1,300 per person, so that the Cambodia economy and society is on the way to reach the middle-income country. As the result, trade volume as well as transport volume drastically increases in the past.

On the other hand, the circumstances regarding logistics in Cambodia, regional connectivity has been gradually improved in both physical and institutional aspects to establish efficient and practical framework of regional economic cooperation and global logistics. In the physical aspect, global transport network with surrounding Mekong countries and domestic truck network among major cities has been almost completed. Meanwhile, the institutional connectivity like trade facilitation under AEC and CBTA has been agreed among the ASEAN/ GMS countries. By these tools, industrial relocations beyond the border as well as formulation of global supply chains are dynamically observed in the Mekong Region.

Under the population increase and progress of urbanization, Cambodia may be required to have many important measurements to well sustain economic growth, and to realize more rich and convenient peoples' life. One of the required measurements is the logistics development to function well as a social infrastructure to be a basis of modern business activities.

To be more specifically, the logistics development should contribute to the socio-economy of Cambodia through 1) improvement of productivity and rise of competitiveness by logistics improvement to survive globalization competition of production sector, 2) emerge of regional development potentials in remote areas by improvement of transportation and logistics of agricultural products, natural (mineral) resources and tourism, and 3) response to new and variety of demands on logistics in urban area. It will be of great importance to properly utilize new technologies, new business models and to develop human resources in both public and private sectors to proceed the logistics improvement.

In other word, the logistics improvement should be realized to offer the industrial sector and urban economy sufficient capacity and variety of logistics and transport services to prepare a solid basis for economic expansion as a goal. It may contribute Cambodia to participate in the global value chain in Mekong Region in the future.

Based on the consideration above, the expected functions of the future logistics in Cambodia are clarified in the flowing sections.

5.1.2 Expected Functions of Logistics in future

(1) Logistics Development for Industrial Development under Globalization

Under the globalization of supply chain, the Mekong countries improve regional connectivity in both infrastructural and institutional aspects. Taking into consideration of this situation, the Royal Government of Cambodia develops Industrial Development Plan (IDP) in the year 2015.

The IDP emphasizes the transformation of the industrial structure from labor-intensive industries to technology-driven industries. To realize such transformation, 1) strengthening connectivity with the global supply chain, 2) integration with the industrial network in the Mekong region, 3) formation of industrial clusters that would enhance competitiveness and productivity, and 4) development of policies focusing on initiatives towards technology-driven, knowledge-driven industries, are necessary.

To realize the IDP objectives mentioned above, it is important for Cambodia to uplift several aspects of the business environment. In this regard, logistics improvement is one of important issues of the improvement of the business environment in Cambodia. Industrial development and logistics development stimulate each other as an inseparable pair for promoting participation in the global value chain such as providing support to the shipment of manufactured products and transportation of semi-products/parts under AEC and in relation with Thailand and Vietnam.

The light industry in Cambodia like garments and footwear totally relies on low production costs in Cambodia and GSP benefits. Major competitors in the global markets are Myanmar, Bangladesh and Sri Lanka, and some African countries which may join into this market segment. Although Royal Government of Cambodia intends to shift industrial structure to be more value-added and skilled oriented, it may take more years before the structural change will be fully completed. Therefore, the light industry will continue to take a leading role in the employment generation and exports during the transition period. However, economic growth pulls labor costs up in Cambodia, for example, the official minimum wage level has quickly been uplifted. Under these circumstances, it is necessary for Cambodia to maintain the competitiveness against the major competitors. In this regard, reducing logistics costs is indispensable for the light industry in Cambodia by efficient transport and scale merits.

On the other hand, factories at border areas currently have a little channel to domestic market or overseas markets. Those factories would consider domestic and overseas markets as a new and potential business development in addition to the existing business model, depending upon future expansion of domestic market under economic growth. Therefore, better connectivity between the border areas and Phnom Penh or Sihanoukville Port are important for the factories in the border areas.

- Reducing logistics cost by efficient transport and scale merits to keep competitiveness
- Better connection with new domestic and overseas markets with variety of transport mode choices
- Smooth and stress-less cross border and import/export procedure

Factories under “Thai+1/ Viet Nam+1” need lower production costs and stable delivery transport as a part of the global supply chain. And, higher valued products with smaller size and lighter weights are more affordable for the choice of logistics services. Reductions of logistics costs as well as sufficient capacity of existing transport mode are not sufficient improvement of logistics. Accordingly, the logistics sector should provide with the following values to the new manufacturing industry:

- Lower cost and stable time of cross-border transport to maintain investment value of Cambodia (to maintain expected production cost);

- More choices of transport modes;
- More choices and sophisticated logistics services like LCL and VMI etc.;

(2) Logistics Development for Regional Development

Regional development, in particular the rural development is one of the most priority policy issues in the past NSDP. For this purpose, the latest NSDP, targeting 2014 to 2018, continuously focussing on "promote of agricultural sector" as one of import pillar of "Rectangular Strategy".

The NSDP emphasizes commercialization in agriculture by expansion of agricultural exports and agro-industry production. Rice production is major farming activity in Cambodia, especially in the plain and north-western regions. The area along Battambang-Komong Cham Corridor besides Lake Tonle Sap produces high quality rice for export.

For the expansion of exports of the agricultural products, different directions of logistics improvements will be required by agricultural products. Existing major agricultural products for export in Cambodia, which are rice, cassava and rubber, are in general large size with relatively heavy weights. However, the value of the products per weight is lower than industrial products. Therefore, the reduction of logistics costs is more important than other industries. Particularly, logistics improvement by improving transport efficiency with lower cost, diversification of export should be carefully considered because the expansion of rice export is a promising national policy which may have direct and wider benefits of the nation.

- Reducing logistics cost by efficient transport and scale merits to keep competitiveness of rice export from the north-west region along Lae Tonle Sap (Battambang-Komong Cham Corridor)
- Improving transport efficiency and reducing logistics costs by scale merits for cassava and rubber in the northwestern Region
- Diversifying transport routes and modes as alternatives to alleviate risk on the over- dependency to certain country

On the other hand, several new agricultural products will be promising in accordance with increase of demand in urban area and export. In the coastal region (consisting of Koh Kong, Sihanoukville, Kampot and Kep provinces), there is the large potential for seafood production and seafood processed production, while livestock, nuts and forest products in the north-western and north-eastern regions would be potential products for tourists.

Sea-food, livestock and their processed foods need speedy and quality transport based on the higher affordability on the logistics.

- Faster and Stable time transport and delivery
- Less-damage transport

Looking at other potentials in the rural area such as tourism and natural resource development. Tourism has been positioned as an important economic sector in Cambodia and would be a promising sector to continue growth. Accordingly, more tourism receipts in more diversified tourism areas are important development policy in the latest NSDP. Tourism and its supporting business would stimulate local economy well.

- Local logistics complex to support supply to tourism sector
- Faster and stable time of transport and delivery for foods and beverage etc.

(3) Logistics Development for Urbanization and Modernization of Society and Business

Urban population has been increasing in Cambodia. The urban population was 15% against the total population in 2005, and it increases to 21.4 % in 2013. This tendency is supposed to continue in near future. The increase of the urban population together with economic growth accelerates expansion of rich and middle-income groups in the urban areas in Cambodia. Under this situation, capacity of the urban logistics, to manage more volume and quality of services, is strongly required to be enhanced.

Demands on consumer goods in urban area especially Phnom Penh are expected to increase in volumes. The variety of goods will increase as well. In response to these situation, there are various business chances to meet changing demands with higher volumes and more variety of demands on goods. Logistics improvements are required to prepare sound basis to respond to these demands.

Particularly, information society will be deeper and wider in the urban dwellers especially rich and middle-income urban peoples in Phnom Penh, so that new technologies, new consumption styles, and business models through internet will accelerate change or demand on new services in logistics like "last mile logistics" under e-commerce, net-shopping, TV shopping and delivery services, etc.

In this regard, the logistics system shall be required to work more functionally and effectively to respond variety and expansion of transport and delivery demand with new technologies and business models.

- Expansion of capacity of logistics to meet increased demands
- Diversifying variety of logistics services depending on type of commodity and needs
- Last mile logistics

On the other hand, manufacturing sector will be strongly required more cost reduction to keep competitiveness to produce in Cambodia. In this regard, reduction of logistics cost is one of the most promising and possible elements to reduce/maintain production cost even under future increase of wage in Cambodia. For this purpose, logistics sector shall be more strongly required from the manufactures to increase storage volume, frequent and flexible small parcel delivery, integration of storage and distribution processing.

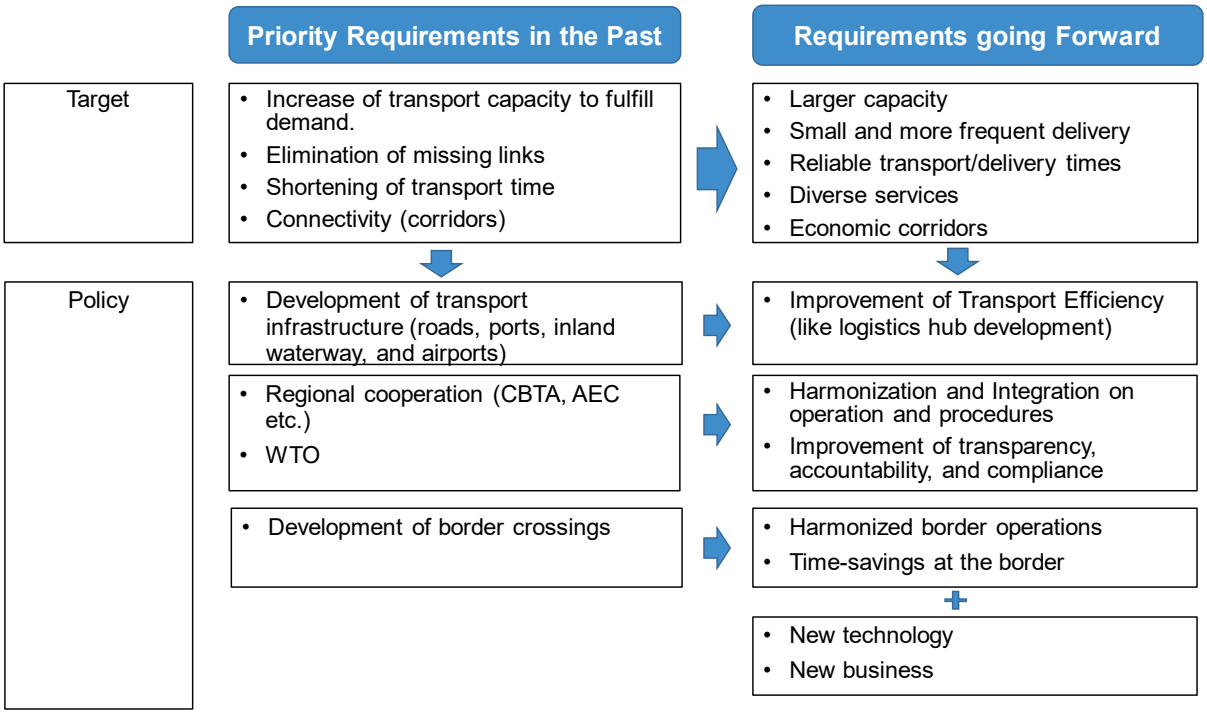
Cambodian society will be more diversified and complicated in socio-economic structure, so that efforts of single individual private company has been limited to change the situation. Accordingly, it is necessary to coordinate and integrate efforts of stakeholders for improving logistics. Otherwise, Cambodia can't compete with other Mekong countries in attracting investment.

In the developed countries, new technologies with IOT technology and Big-data, so called as "Industry 4.0", are quickly developed and adopted. Those new technologies contribute in strengthening sales strategy and production based on accurate marketing analysis, and in improving productivity. These technologies also realize close integration of production, logistics and sales, and improvement of efficiency of supply chain. Cambodia should respond these current "cutting-edge" technologies and business models to attract more investment and higher-valued manufacturers as well as to be "regional logistics hub".

- Introduction of new technology to catch-up and harmonize with Thailand and Vietnam
- Promotion of new logistics business like cold-chain, LCL, VMI (vender managed inventory)

5.1.3 Requirements on Logistics in Future

As mentioned above, surroundings of logistics and required functions have been changed and sophisticated. Under increase of population, economic growth and urbanization, requirements on logistics from modern industry and society may continue to be more sophisticated and diversified.



Source: JICA Study Team

Figure 5.1.1 Changes of Requirements on Logistics

- The emphasis of requirements on logistics had gone to complete physical connectivity like roads, ports, railways and airports in the past. In terms of road, a lot of efforts have bee made to connects Mekong countries with paved highways. Currently, almost of major corridors are upgraded or under upgrading with paved highways. Accordingly, the emphasis shifts to quality of infrastructure including inter-modality among the transport modes, efficiency of transport/traffic flow etc. The development of logistics hubs is a typical project to improve transport/ traffic flow.
- Cross-border points had been increased to realize variety of connecting points to surrounding countries in the past. Cambodia now has 27 land cross-border points against Thailand, Laos and Viet Nam, so there is no constrain in terms of location of cross-border points. accordingly, the emphasis shifts to more smooth and flexible cross-border in terms of time and procedure.
- In the past, a lot of efforts were on formulation of "institutional connectivity" in the region (sometime GMS, sometimes ASEAN), so that Cambodia concentrated to participate in regional cooperation scheme like CBTA and AEC and to facilitate trade under WTO rules. Cambodia successes it, and then, the emphasis changes from participation to outputs/outcomes. In particular, the focal point shifts to improvement of harmonization and compatibility of procedure among ASEAN countries to emerge actual benefits from the institutional connectivity. Improvement of transparency, accountability and compliance are also paid more attention.
- Peoples in ICT era can easily approach "cutting-edge" information. Rise of income levels and increase of urban population largely diverse demand on goods and information. It is greatly

business chance for private logistics providers. In this regard, new logistics technologies and business models like cold-chain, LCL, VMI (vender managed inventory), IT tags etc. as well as last mile logistics, e-commerce and internet-shopping etc. shall be paid more attention as a "game-changer".

5.2 SMART Logistics 25

5.2.1 Necessity of Logistics Master Plan

As mentioned in the previous section, logistics improvement/ enhancement is an indispensable condition for further economic and industrial developments in Cambodia. IT technology as well as internet are also indispensable items for urban people, especially in Phnom Penh, so that demand on internet shopping, e-commerce, and last mile delivery will be quickly and drastically expanded. Under these drastic changes on the logistics, individual logistics provider can't take sufficient actions alone. It is necessary to cooperate all stakeholders on logistics including public and private sector including consumers, consignors and consignees.

Accordingly, it is necessary to establish the logistics master plan to share overall direction of logistics development in the mid and long terms by all stakeholders on the logistics, and to coordinate necessary actions among the government agencies concerned under the master plan, to cooperate in taking the actions between the public and the private sectors. The logistics master plan has functions to support it through sharing common understandings on issues and policy directions on logistics development among the stakeholders.

5.2.2 Principles for logistics Improvement

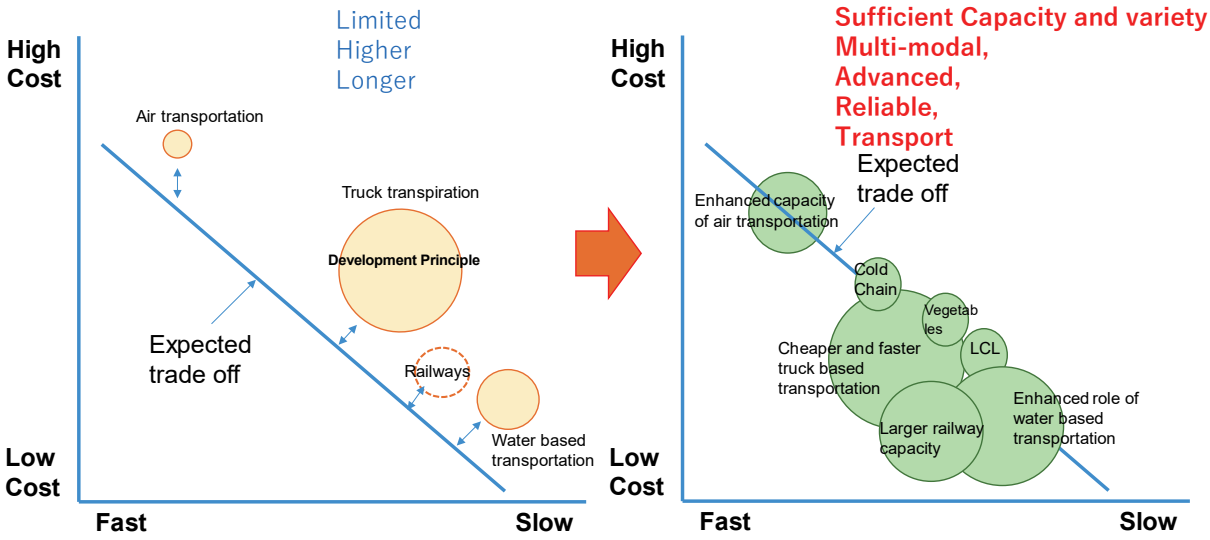
Simplifying current logistics in Cambodia with analysis model, the illustration of Figure 5.2.1 shows the time in X axis and cost in Y axis. There are four freight transport modes in Cambodia; namely, truck transport, water-based transport (sea transport and river transport), air transport and rail transport.

Here, it is assumed that an optimum trade-off line showing the relation between time and cost. All transport currently locates apart from the trade-off line because:

- Air transport: volume is limited to sufficiently function scale of economy.
- Truck transport: transport cost is relatively higher comparing to Thailand and Viet Nam due to single direction freight transport (caused by unbalance of import/export volume), higher energy cost and higher export/import procedure cost. Transport time is relatively longer due to current road condition.
- Rail transport: rail transport cost itself is lower, but it is necessary to include track cost, loading/unloading cost and storage cost. It makes rail transport cost higher without effective multi-modal facility.
- Sea transport: transport cost in relatively higher comparing to the ports in Thailand and Viet Nam due to higher terminal cost and higher export/import procedure cost.

The model analysis clearly indicates that logistics improvement to enhance sufficient capacity and more variety of logistics services theoretically requires a shift of each transport services to the trade-off line and to generate more transport services along the trade-off line with certain public intervention. The public intervention means that the public sector takes certain actions to encourage/promote the shit of each transport to the trade-off line, which can be realized though reduction of transport cost and time.

Various logistics services can be created with fair competition among the logistics service providers under fair and transparent market. In particular, current logistics cost is a critical issue not only for existing factories and transport companies to reduce profits but also for attracting more foreign investment.



Source: JICA Study Team

Figure 5.2.1 Logistics Improvement Principles (model analysis)

As a result, public intervention for logistics improvement needs the following five (5) principles;

(1) Sufficient Transport Capacity (to meet demand)

Firstly, sufficient capacity of transport modes are key principles to meet increased and various logistics demand including capacity of infrastructure, cross-border and export/import procedure. Effective integration of transport modes is also necessary to properly function transport modes to offer efficient transport services.

(2) Diversified Transport Modes/Services (to respond diversified demands)

Secondly, logistics services should be sufficiently diversified to meet diversified demands from clients. For this purpose, transport modes and private logistics service providers should be diversified to generate new services targeting new and "niche" markets.

(3) Reliable Logistics Services (to ensure punctuality with quality and reasonable costs for industrial relocation under "Thai+1", "Viet Nam+1" and "China+1")

Thirdly, transport time and cost should be properly reduced to keep competitiveness of Cambodia and to promote new affordable logistics services. This is a must to promote industrial relocation from Thailand, Viet Nan and China. Consequently, Cambodia should pursuit "Reliability" on logistics. Reliability may be born from punctuality on delivery time and constant quality services at the same and reasonable costs.

In addition, it is necessary to pay attention on logistics service providers. Variety of logistics services and cost reduction should be realized with fair competition among the private logistics providers in fair and transparent logistics market. In this regard, the following two (2) principles are added to the

principles above:

(4) Variety of Logistics Services/ Private Providers in fair and transparent market

Forth, logistics services should be increase by enhancing private sector and building air and transparent logistics related businesses in both public and private sectors. Sufficient capacity of private service provides as well as the related human resources should be strategically enhanced in both quality and quantity aspects.

(5) Modern Technologies and Businesses for next decade

New logistics technologies and business models like cold-chain, LCL, VMI (vender managed inventory), IT tags etc. as well as last mile logistics, e-commerce and internet-shopping etc. shall be paid more attention as a "game-changer".

5.2.3 Logistics Vision in 2025

Logistics should respond the future economic demands mentioned above. Consequently, the sufficient logistics system to deal with large volumes of good transport to generate "scale of economy" and to deal with various good transport to respond more various logistics demand ranging size of cargo from large to small, weight of cargo from heavy to light, speed from slow to fast, and cost from low-affordable to high-affordable. To realize it, the wide range of alternatives on transport route, transport mode and service provider should be provided. Based on this consideration, the logistics vision in 2025 are symbolically presented as follow:

SMART Logistics 25

Sufficient capacity and variety by Multi-modality and Advance technology for Reliable Transport and Logistics

- Optimum transport under efficient transport network and hubs, ad modal-mix,
- High connectivity in Mekong Region and seamless transport
- Diversified logistics services to respond various demand
- High quality and efficient logistics with "cutting-edge" technology and business model
- Enhancement of competition in logistics market

SMART Logistics 25 Vision statement (draft)

The Royal Government envisages a transformation and modernization of Cambodia's logistics sector from a high cost, slow and inefficient industry to an affordable, speedy and efficient industry by 2025, linking with global value chain and supporting industrial development, which will be achieved through realizing

1. optimum transport under efficient network and hubs, and modal-mix,
2. high connectivity in Mekong Region and seamless transport

3. diversified logistics services to respond various demand,
4. high quality and efficient logistics with "Cutting-edge" technology and business model, and
5. enhancement of competition in logistics market.

The Royal Government will pay close attention to drive the structural-change in the current logistics system in three important phases: 1) debottlenecking current logistics obstacles in In the short-term, 2) reaching global standards in the medium term, and 3) activating logistics business regional hubs in the long term.

5.3 Strategy and Scenario

5.3.1 Development Strategy

Under the 5 principles in the previous section, the following practical and action-oriented strategies are taken into consideration:

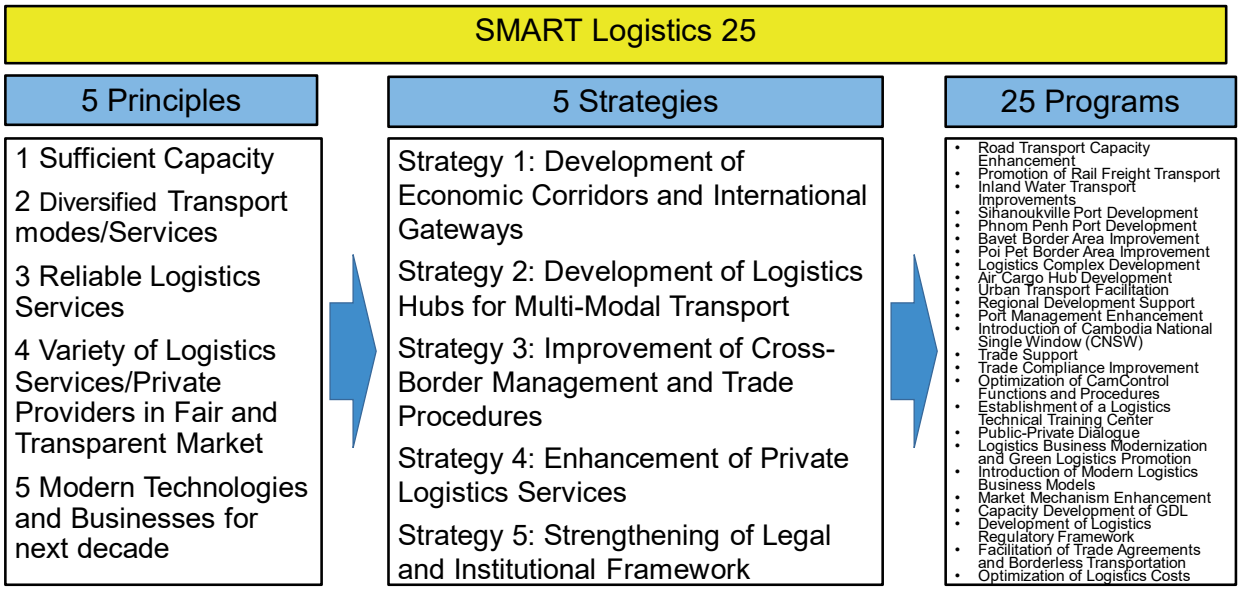
Strategy 1: Development of Economic Corridors and International Gateways

Strategy 2: Development of Logistics Hubs for Multi-Modal Transport

Strategy 3: Improvement of Cross-Border Management and Trade Procedures

Strategy 4: Enhancement of Private Logistics Services

Strategy 5: Strengthening of Legal and Institutional Framework

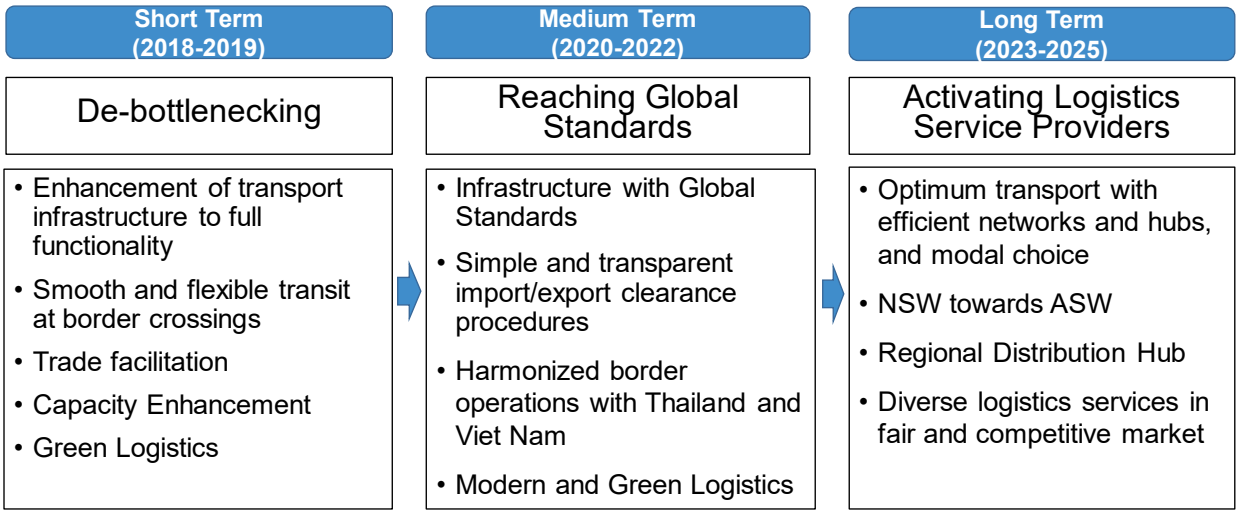


Source: JICA Study Team

Figure 5.3.1 5 Principles and 5 Strategies of SMART Logistics 25

5.3.2 Development Scenario

The process to achieve the vision is shown as development scenario.



Source: JICA Study Team

Figure 5.3.2 Focal Theme in Each Term

In the short term, logistics development will focus on Debottlenecking to remove/mitigate current critical logistics constraints. It can achieve to enhance transport infrastructure, to improve more smooth and flexible transit at border crossing, to facilitate trade, and to carry out capacity development for shareholders on logistics in both public and private sector. Green logistics should also be promoted to reduce negative impacts on environment.

Over time, the focus will shift to Reaching Global Standards to realize more seamless physical and institutional connectivity with neighboring Mekong countries, especially Thailand and Vietnam with global standards of infrastructure, over the medium term. Based on the globalized business circumstances, logistics service providers should diversify their services to reply the demand in the market with providing modern logistics technologies and business models. For this propose, the public sector should consolidate market mechanism to function well.

Over the longer term, the focus will become Activating Logistics Service Providers, towards the establishment of a regional logistics hub, based on a sound globalized infrastructure, cross-border and import/export clearance procedures, and diverse logistics services in fair and competitive logistics market. Based on the seamless market in the Mekong region, logistics service providers should more diversify their services to reply the demand in the expanded market targeting the Mekong region with providing cutting-edged logistics technologies and business models. The public sector should continue to improve fairness and transparency of market and compliance of stakeholders.

The following Table 5.3.1 shows overall focal issues by strategy by term.

Table 5.3.1 Focal Theme in Each Term

	Short Term 2018-2019	Medium Term 2020-22	Long Term 2023-25
Focal Theme	Debottlenecking of Logistics	Reaching Global Standards	Activating Logistics Service Providers
Strategy 1	・Improvement of physical bottlenecks ・Early harvests to keep Transport efficiency	・Sufficient capacity of transport modes to meet various transport demand	・High performance transport ・Variety of transport modes and services for multi-modal transport services
Strategy 2	・physical improvement at border areas ・Introducing “Hub b& Spork” transport system	・Improvement of border management ・development of logistic complex	・Achieving CCA/SSI ・Developing regional logistics complex
Strategy 3	・Preparation toward NSW and trade facilitation	・Progress of NSW and trade facilitation	・NSW and ASW ・Compliance and Transparency in Trade Procedures
Strategy 4	・Human resources in logistics business ・Public-private partnership ・Introducing modern logistics businesses ・Green logistics	・Enhancement of logistics business ・New technologies and businesses for logistics ・Green logistics	・Fair and Transparent logistics market ・Green and modern logistics services provided by Variety of logistics service providers
Strategy 5	・Strengthening of logistics administration through capacity Development ・Unblocking regulatory obstacles to realize above	・Enhancement of regional framework ・Building regulatory environment to realize above	・Enhancement of regional framework ・Building regulatory environment to realize above

Source: JICA Study Team

A total of 75 projects have been identified within the 25 action programs under the 5 strategies, which consolidate in the next chapter and project profiles in the appendix.

Chapter 6 Strategies and Programs

6.1 Strategy 1 – Development of Economic Corridors and International Gateways

6.1.1 Scope of Strategy 1

Strategy 1 aims to enhance physical connectivity with neighboring Mekong countries and global markets to meet the expected increased volume of logistics requirements as well as stable and faster transport along major corridors. The transport network should be improved, especially in terms of capacity and efficiency along GMS Southern Economic Corridors and international gateways. In addition, alternative transport such as railway and inland waterway should be highlighted to provide alternative transport modes as well as expand choice and variety of transport services with multi-modal transport. Phnom Penh Port and Sihanoukville Port should be parallelly improved to keep good port competition in transport market.

Under this strategy, five action programs have been identified:

- Road Transport Capacity Enhancement (P11)
- Promotion of Railways as an Emerging Transport Mode (P12)
- Inland Water Transport Improvements (P13)
- Sihanoukville Port Development (P14)
- Phnom Penh Port Development (P15)

6.1.2 Key Issues and Objectives

Currently key road corridors are narrow, slow, and costly – i.e., not yet in line with international corridor standards. Railway operations have restarted, but are still at an early stage and not yet considered as an alternative to road transport. Port infrastructure is better in comparison but still a major bottleneck in the logistics sector. Considering the fast-growing demand, it is important to keep these international gates fully open for international trade.

Under these circumstances, Strategy 1 aims at increasing the capacity of economic corridors and international gateways. Achievement of this strategy will support efficient flows of goods and decrease transport costs and time.

Key issues identified and addressed under Strategy 1 are as follows:

- ***Limited Road Capacity along Key Economic Corridors***: Cambodia – together with other ASEAN member states – have identified key economic corridors. However, much of this road network remains only two lanes and congestion is becoming a problem in many sections along the corridors. In some areas, trade facilitation is required, a situation that must be urgently addressed considering that trade may double or triple during the Master Plan period.

- ***Railways Remain Underdeveloped***: Railway operations ceased during and after the civil war due to damaged infrastructure. The Southern Line – linking the capital city and Sihanoukville Port – has started operating again, but travel speeds are slow and the overall costs are high. Along the Northern Line – connecting to the Thai border – operations have not yet restarted and thus there is no modal competition between road and railway (again resulting in high transport costs). There is a need to restart operations to encourage modal competition and lower costs in the logistics industry.
- ***Port Capacity is Limited***: Thanks to the past development partner (including JICA) support in the port sector, port infrastructure is in relatively better condition than other infrastructure. However, the current capacity is reaching limits and will become a constraint in the future unless further capital investments are made to meet increasing demand. Moreover, there is a need to improve operational efficiency since current port operations are expensive and inefficient.
- ***Inland Water Transport is Not Fully Utilized:*** While Cambodia benefits from its wealth of water resources, the use of river transport remains limited even though there is significant untapped potential in the subsector. While seasonal factors need to be taken into consideration, the aim is to activate commercial inland waterway routes with the improvement of supporting infrastructure along the Mekong River.
- ***Transport Time and Costs are High***: Interviews with the private sector showed that logistics operations in Cambodia are slow and costly. There are many underlying factors, but the lack of adequate physical infrastructure is one of the most important. The aim is to reduce logistics times and costs with the provision of improved infrastructure.

6.1.3 Programs and Projects

(1) Road Transport Capacity Enhancement Program (P11)

Program 11 seeks to increase the road transport capacity along major economic corridors. Key issues identified are;

- Most major national roads are still only two lanes and do not meet international corridor standards.
- There are no expressways in Cambodia and some of the national roads traverse city centers, causing congestion, road traffic safety concerns, noise and pollution, etc.
- Road transport capacity between major corridors and local roads is limited.
- Cambodian roads are unsafe – causing significant economic losses/costs in the economy.

Program 11 is designed to address these issues. Main components include the construction of new and the rehabilitation of existing roads and highways, e.g., road widening and the construction of new expressways. Projects include the following:

- Debottlenecking of the Central Subcorridor (upgrading/widening of NR 1, NR 5) (P11-S1)
- Debottlenecking of the Intercorridor Link (upgrading/widening of NR 4, PP-SHV Expressway) (P11-S2)
- Debottlenecking of the Southern Coastal Corridor Subcorridor (NR 48) (P11-S3)
- Overloading Control Capacity Enhancement (P11-S4)
- Enhancement of Central Corridor Subcorridor (PP-BVT Expressway, PP Ring Road No. 3)

(P11-L1)

- Enhancement of Intercorridor Link (PP-SHV Expressway continued, Battambang-Koh Kong Road Link) (P11-L2)
- Enhancement of National Roads (4-laning of the whole or part of NR 1, NR 3, NR 4, and NR 6) (P11-L3)1
- Enhancement of Regional/Local Linkages (Battambang-Sihanoukville Road Link, Siem Reap-Battambang Road Link, Kampong Thom-Kampang Chnnang Road Link, Improvement of Roads Connecting Northeastern Cambodia and the Northern Corridor / Improvement of Roads to Support Minerals Development in Northern and Northeastern Cambodia) (P26-L1)

It is difficult to estimate total costs without detailed studies. As programmed by MPWT, capex requirements have been estimated at about US$ 48 million for the NR/NH 1 sections (2018-2022) and US$ 80 million for the NR/NH 5 sections (2015-2021). The World Bank has estimated costs for improvement of NR/NH 4 at about USD$ 110 million. About half of this total may be assumed in 2018-2019 and half in 2020-2021.

Costs of the entire Phnom Penh-Sihanoukville Expressway are estimated at about USD 1.7 billion, although estimates vary. Assuming a six-year construction period (i.e., 2018-2023), and costs spread evenly throughout the period, one-third of the costs (USD 567 million) will be in 2018-2019, and one-half of the costs will be in 2020-2022 (USD 850 million). Funding has been made available under China's Belt and Road Initiative. The total project cost, including the Ring Road 3 portion, was estimated at JPY 409.964 billion (equivalent to US$ 3.83 billion). Costs of the entire Phnom Penh-Sihanoukville Expressway are estimated at about US$ 1.7 billion, although estimates vary; a tender is forthcoming. Assuming a six-year construction period (i.e., 2018-2023), and costs spread evenly throughout the period, one-six of the costs (US$ 283 million) will be in 2023. Funding has been made available under China's Belt and Road Initiative.

The cost of improving NR 55 is US$ 132.8 million; the cost of improving the relevant part of NR 48 is part of US$ 75.7 million. Preliminary costs of a more direct Battambang-Koh Kong road link can only be determined after a detailed route selection study in the planning stage.

(2) Promotion of Rail Freight Transport Program (P12)

Program 12 promotes railways as an alternative mode of transport for more efficient logistics services. Bulky, relatively low-value items are normally best transported by railway, in particular over long distances. However, in Cambodia, such a railway option is unavailable – causing high transportation costs for bulky goods for long distances. Other key issues identified are: (i) the limited operations along the Southern Line and the lack of current operations along the Northern Line; and (ii) the high cost of the connectivity with railways (resulting in relatively high total costs). Overall, the lack of modal competition results in high prices and low productivity compared to road transport operations. Under these circumstances, the emergence of viable railway operations will strengthen the Cambodian logistics sector and make it more competitive.

Program 12 is designed to address these issues. Key components involve the rehabilitation of existing infrastructure and the construction of new infrastructure.

Projects under Program 12 include the following:

[1] This project is listed as long term, but may be better classified as short-, medium-, and long-term.

- Northern Line Railway Improvement Project, Phase 1 (P12-S1)
- Northern Line Railway Improvement Project, Phase 2 (P12-M1)
- Southern Line / SHV Port Access Railway Improvement Project, Phase 1 (P12-M2)
- Southern Line Railway Improvement Project, Phase 2 (P12-L1)
- Further Enhancement/Development of Railway Economic Corridors (e.g., new railway line to new PP Port, strategic development of one of the proposed new lines (P12-L2)

The total cost is difficult to estimate without more detailed studies over time. The costs of P12-S1 "Northern Line Railway Improvement Project (Phase 1)" are undisclosed. The costs of P12-M1 "Southern Line / Sihanoukville Port Access Railway Improvement Project (Phase 1)" are estimated at about US$ 20 million (to be specified in feasibility and design studies, excluding the component in Project P12-M1, a rail access line to Sihanoukville Port. Costs of P12-L2 "Southern Line Railway Improvement Project (Phase 2)" are estimated at about US$ 15 million (to be estimated in feasibility and design studies). The estimated cost of the proposed Rail Link to the New Phnom Port is of the order of US$ 75-250 million, while the Phnom Penh-Viet Nam Railway could cost US$ 700 million-US$ 1.5 billion.

(3) Inland Water Transport Improvements Program (P13)

The key objective of the program 13 is to activate inland waterway transport. The Mekong River can potentially serve a large potential market for the sector, but currently the only active route is between Phnom Penh and Ho Chi Minh City. Therefore, the Government of Cambodia aims to activate other routes and provide support for growing industries.

Program 13 is designed to address these issues. There will be capital cost requirements to be borne by the public sector, including the costs for construction of navigation aids, dredging, and rehabilitation of existing port infrastructure. On the other hand, most operating costs will be incurred by the private sector.

Projects include the following:

- Mekong River Transport Improvement Project, including maintenance/development of navigation aids between Kaorm Sormnor and Kampong Cham, activation of the Cambodia National Committee to implement the Agreement on Waterway Transportation between Cambodia and Vietnam for nighttime border navigation, implementation of the Navigation Channel and Dredging Plan (Phase 1) between Phnom Penh and Kampong Cham, construction of PPAP's Multi-Purpose Terminal (UM2) at Tbong Khmum and implementation of Sustainable Waterway Dredging and River Training (P13-S1)
- Mekong River Night Time Waterway Transport Implementation Project (P13-S2)

The total estimated cost depends on the scope of further expansion of commercial routes. The projects listed above could cost about US$ 120 million.

(4) Sihanoukville Port Development Program (P14)

The key objective of Program 14 is to enhance the functions and capacity of Sihanoukville Port (e.g., through a new multi-purpose terminal, a new container terminal, deepening of the port, and development of a new access road) and improve connectivity around the port. Key issues identified include: (i) the limited capacity of the port, which will soon reach its capacity constraint due to increasing demand; and (ii) the lack of efficient connectivity around the port, which increases

logistics costs.

Program 14 is designed to address these issues. There will be large capital cost requirements – including for the construction of new multi-purpose and container terminals and deepening of the harbor to accommodate larger, deeper-draft vessels. While most the costs for new construction is expected to be financed by international development partner(s), the port should make (relatively minor) investments from retained cash flows. There will be some savings coming from improved efficiency and increased sales/revenues at the port level.

Projects include:

- Sihanoukville Port Capacity Enhancement Project (P14-S1)
- Vessel Trafficking Management Information System (P14-S2)
- Sihanoukville Port Service Improvement Project (Phase 1) (P14-S3)
- Sihanoukville Port Service Improvement Project (Phase 2) (P14-M1)

The total estimated cost depends on the scope of the medium- and long-term investments. Short-to-medium term investment alone could go up to US$ 460 million.

(5) Phnom Penh Port Development Program (P15)

The key objective of Program 15 is to enhance the capacity of Phnom Penh Port (e.g., through expansion of the New PP port and container terminal) and improvements in safety standards and connectivity around the port.

Key issues identified include the following:

- Port capacity is limited and will soon reaching its constraint due to increasing demand.
- Connectivity around the port is not smooth and is costly, resulting in relatively high total logistics costs.
- Safety standards should be improved with a better navigation system and the development of an area for dangerous goods.
- There is a need for waterborne transport in and around the capital city.

Program 15 is designed to address these issues. There will be large capital cost requirements – including the costs for expansion of the new PP port, construction of a container terminal, installation of navigation equipment, and development of a designated area for dangerous goods.

Projects include:

- Phnom Penh Port Competitiveness Enhancement Project (P15-S1)
- Phnom Penh Port Competitiveness Enhancement Project (Phase 2) (P15-L1)
- Water Taxi Development Project (P15-S2)

The total estimated costs are about US$ 220 million for P15-S1 and US$ 40 million for P15-S2.

(6) Strategy 1 Objectives and Actions in Each Phase

Table 6.1.1 presents the objectives and actions of the strategy in each phase.

Table 6.1.1 Strategy 1 Objectives and Actions in Each Phase

	Short-Term 2018-2019	Medium-Term 2020-2022	Long-Term 2023-2025 and beyond
Road Transport Capacity Enhancement (P11)	・ An asphaltic concrete (AC) overlay along NR/NH 1, between Neak Loeang and the western edge of Bavet City [*6] ・ Road Widening/Upgrading (ongoing and/or programmed; NR/NH 5) [*2]		・ Phnom Penh-Bavet Expressway
	・ Road Upgrading: NR/NH 4 [*5] ・ Road Widening: NR/NH 4 ・ Phnom Penh-Sihanoukville Expressway[*3]		・ Phnom Penh-Sihanoukville Expressway (continued) ・ Battambang-Koh Kong road link
	・ Road Rehabilitation NR/NH 48 [*7]		・ 4-laning of the whole or part of NR/NH 1, NR/NH 3,[*3] NR/NH 4, and NR/NH 6
	・ Simplification and unification of inspection procedures at weighbridge stations ・ Increase of weighbridge stations ・ Revision of penalties and incentives ・ Public Relations and Education		
Promotion of Rail Freight Transport (P12)	・ From km 32 (Bat Deung) to km 165.7 (Pursat) ・ First 9.4 km from Phnom Penh	・ Conduct Feasibility and Design Studies ・ Implement Cost-Effective Project Components, e.g., More Crossing (passing) Loops (sidings), Signaling Improvements, Motorized Points, Track Circuiting, and Electric Level Crossing in Phase 2 ・ Implement Social and Environmental Impact Mitigation Measures	
		・ Conduct Feasibility and Design Studies ・ Implement Cost-Effective Project Components, e.g., Automatic Signaling, Electric Level Crossings, Stations/Sidings in Phase 1 ・ Implement Social and Environmental Impact Mitigation Measures	・ Conduct Feasibility and Design Studies ・ Implement Cost-Effective Project Components, e.g., Double Tracking ・ Implement Social and Environmental Impact Mitigation Measures
			・ New Railway Line to New Phnom Penh Port ・ Strategic Development of One of the Proposed New Lines (Phnom Penh-Viet Nam)
Inland Water Transport Improvements (P13)	・ Maintenance/Development of Navigation Aids from Kaorm Sormnor to Kampong Cham ・ Activation of Cambodia National Committee to implement of Agreement on Waterway Transportation between Cambodia and Vietnam for Nighttime Border Navigation ・ Navigation Channel and Dredging Plan (Phase 1) from Phnom Penh to Kampong Cham ・ Construction of PPAP's Multi-purpose Terminal (UM2) at Tbong Khmum ・ Sustainable Waterway Dredging and River Training		
	・ Implementation of 24 hour navigation		

	Short-Term 2018-2019	Medium-Term 2020-2022	Long-Term 2023-2025 and beyond
Sihanoukville Port Development (P14)	・ New Container Terminal *2 ・ Multi-purpose Terminal *2 ・ Operational and Management Improvements of PAS (Phase 2)		
	・ Replacement of the existing outdated radar with a high-performance radar ・ Installation of 4 units of AIS (Automatic Identification System) to cover the coast of Cambodia ・ Installation of 2 units of ITV (Industrial Television), one offshore on a navigation buoy, the other at VTMIS center ・ Installation of 4 units of VHF along the coast of Cambodia		
	・ Construction of Truck Parking Area *1 ・ Port SEZ Logistics Center *2 (Preparing the Study) ・ Dangerous Goods Area Development		
		・ Improvements of Railway Connectivity ・ Port Access Railway Iimprovements ・ Implementation of Port Promotion Strategy	
Phnom Penh Port Development (P15)	・ Expansion of New Phnom Penh Port *1 ・ Port Service Improvements ・ Dangerous Goods Area Development, including its operation and management ・ Capacity Building for Maintenance of Navigation Channel ・ Vessel Trafficking Management Information System ・ Development of Multi-purpose Terminals along the Rivers		・ Further Expansion of Port Capacity ・ Development of Port Promotion and Sales Enhancement Strategy
	・ Facility Development of the 15 Docking Stations ・ Procurement of about 30 Boats of a Capacity to Accommodate 90 Passengers ・ Training of Water Taxi Drivers		

Source: JICA Study Team

6.2 Strategy 2 – Development of Logistics Hubs for Multi-Modal Transport

6.2.1 Scope of Strategy 2

Strategy 2 aims to enhance function and efficiency of transport through realizing seamless cross-border transport along the GMS Southern Economic Corridor and developing other specific logistics hubs to enhance capacity and efficiency in urban areas and potential regional development areas. In this regard, logistics hubs include border hubs in Bavet and Poipet, logistics complexes in Phnom Penh and other economic centers, airport hubs in Phnom Penh and in Kampong Chhnang, logistics facilitation in urban areas and regional logistics hubs for rural development.

To achieve the goals mentioned above, the following 6 programs are proposed under Strategy 2:

- Bavet Border Area Improvement (P21)
- Poipet Border Area Improvement (P22)
- Logistics Complex Development (P23)
- Air Cargo Hub Development (P24)
- Urban Transport Facilitation (P25)
- Regional Development Support (P26)

6.2.2 Key Issues and Objectives

Currently logistics hubs in Cambodia are underdeveloped with narrow gateways and inefficient/insufficient operations. Crossing the border is very costly in Cambodia and government

related operations are not suitable to meet business demands.

One of the key objectives of the Strategy 2 is to promote seamless cross border transport at Bavet and Poipet to meet increasing trade volumes and to attract more factories at the border areas. For this purpose, cross border transport should be improved to reduce negative factors such as the congestion at the border points and high costs to cross the borders. These measures are supposed to contribute to maintaining comparative advantages of Cambodian industries and attracting more factories in Cambodia. In addition, logistics complexes, which are the designated areas to integrate logistics activities such as dry ports, ICD, truck terminals, supporting services including financing service, accommodation and shopping areas, could be formed in major cities to optimize transport efficiency and costs.

Key issues identified and addressed under Strategy 2 follow:

- ***Limited Border Capacity***: Along the south economic corridor, two major border points (i.e. Bavet and Poipet) are considered as the main land gateways connecting with key trade partners (i.e. China, Vietnam and Thailand). However, these gates are constantly congested and trade facilitation functions are already constrained. Knowing that the trade facilitation demand will be doubled and tripled during the Master Plan period, urgent expansion of these border points is required. Key objective is therefore to reduce congestion and speed up border crossing time at the border points.
- ***Lack of Alignment between Government Working Hours and Business Needs***: For the Cambodian logistics sector to be internationally competitive, the government needs to make efforts to accommodate business needs – i.e., for commercial goods to arrive in time, particularly when shippers need to meet the departure time of large international vessels. Current border operational hours are often not fit for business needs. Increased flexibility in official working hours would be necessary and rules need to be set for out-of-hours operations. Eventually border points should move towards 24-hour operations. Key objective here is therefore to facilitate trade across the borders within reasonable time.
- ***Lack of Modern Logistics in Major Economic Centers***: Goods movements in Phnom Penh are slow and costly due to numerous truck regulations in the urban areas, trucks are often waiting outside the city during the day time – that would add to the total costs. Existing dry ports are often competitive, but they are usually for their own customers for trucking businesses. New logistics services, such as cold chains, LCL, VMI, last miles transportation, are often not available. Therefore, the two distinctive objectives are: (i) to facilitate the logistics demand in the urban areas; and (ii) to meet fast changing logistics demands in the modern society.

6.2.3 Programs and Projects

(1) Bavet Border Area Improvement Program (P21)

Program 21 aims at smoothing out the Bavet border point (and in the future • Kaorm Sormnor river crossing point). Key issues identified are: (i) high levels of the congestion on the both sides of the borders. Some of the congestion is caused by the mixture of passenger cars and cargo traffic at the same gate; (ii) lack of alignment of operational hours between Viet Nam and Cambodia and these operational hours are not fit for business needs; (iii) slow clearance time due to lack of scanning machines and other inspections; and (iv) lack of cooperation between two countries –

causing double-checking for the same purposes.

Program 21 is designed to address these points. Some of the components involves the construction of the additional infrastructure (including road widening and opening additional gate). Other components need two countries to enhance cooperation to resolve common issues. Note that the current congestion (i.e. sometimes over 4 hours) is already significant and traffic volumes are expected to increase by 4 times. More fundamental solution is required – including the establishment of a new gate. Specific solution(s) will be determined after the indepth analysis in the feasibility study.

Projects include the followings:

- Bavet Cross-Border Improvement Project, Extension of Service Hours and Alignment with those of Viet Nam (P21-S1)
- Bavet Cross-Border Improvement Project (Phase 2) (P21-M1)
- Kaorm Sormnor One Stop Processing Center project (P21-L1)

The total cost is difficult to be estimated at this point and largely depends on the design of P23-M1 and P23-L1. P23-S1 focuses on soft measure but the hard components (such as land acquisition for parking space and road widening) should cost a little more than US$ 10 million.

(2) Poipet Border Area Improvement Program (P22)

Program 22 is similar to Program 21 and aims at smoothing out the Poipet border point. Key issues identified are: (i) high levels of the congestion on the both sides of the borders. Some of the congestion is caused by the mixture of passenger cars and cargo traffic at the same gate; (ii) lack of alignment of operational hours between Thailand and Cambodia and these operational hours are not fit for business needs; and (iii) lack of cooperation between two countries – causing double-checking for the same purpose.

Program 22 is designed to address these points mentioned above. Some of the components involves the construction of the additional infrastructure (including the construction of the new border point at Stung Bot and Construction of the new railway station). Other components need two countries to enhance cooperation to resolve common issues.

Projects include the followings:

- Poipet Border Improvement Project, Extension of Service Hours and Alignment with those of Thailand (P22-S1)

The government already secured a bilateral loan from Thailand (US$ 26 million), however, for the new border point to be fully functional, additional US$ 20+ million funding seems to be required.

(3) Logistics Complex Development Program (P23)

Key objective of the program 23 is to smooth out goods movements in local and capital logistics hubs. Key issues identified are: (i) long waiting time and lack of smooth logistics operations within the Phnom Penh area; (ii) high logistics costs due to inefficient operations and number of transshipments/transloading requirements; (iii) lack of modern logistics services available for businesses (e.g. cold chains, VMI and LCL services).

Program 23 is designed to address these points mentioned above. There will be large capex

requirements – including the construction of logistics complexes. Projects include the followings:

- Phnom Penh Logistics Complex Project (P23-S1)
- Sihanoukville Logistics Complex Project (P23-S2)
- Regional Logistics Complex Project (P23-L1)

While the majority of operational investment will be incurred by the private sector, the government may want to secure the land (i.e. in-kind contribution) and plays a coordination role with the private sector. At this early stage, it is impossible to estimate the total cost (key components and project design are not yet developed).

(4) Air Cargo Hub Development Program (P24)

Key objective of the program 24 is to enhance air cargo hub in Phnom Penh and if possible to establish a logistics hub in Kampong Chhnang where unused airport infrastructure exists. Key issues identified are: (i) occasional cargo congestion at the Phnom Penh International Airport and limited warehouse capacity; (ii) lack of express service for express goods; (iii) lack of modern logistics services available for businesses (e.g. cold chains). In addition, to link with the lack of online shopping service, Cambodia has the potential to establish a regional dispatch center for the regional online market.

Program 24 is designed to address these points mentioned above.

Projects include the following:

- Kampong Chhnang Logistics Special Zone (P24-S1)
- Phnom Penh Air Cargo Hub Development Project (P24-M1)

There will be large capex requirements – including the construction of new warehouse facilities at the Phnom Penh airport and the rehabilitation of Kampong Chhnang airport. While the majority of operational investment will be incurred by the private sector, the government may want to provide in-kind contribution to attract possible strategic investors to Kampong Chhnang.

(5) Urban Transport Facilitation Program (P25)

Key objective of the program 25 is to facilitate increasing traffic demand in the capital city. Key issues identified are: (i) growing frustration with regards to truck restrictions and associated logistics costs within the Phnom Penh city; and (ii) reducing the congestion in the urban area.

Program 25 is designed to address these points mentioned above.

Projects include the following:

- Phnom Penh 24/7 Truck Transport Project (P25-S1)
- Phnom Penh Ring Road No. 3 (P25-L1)

There will be large capex requirements – including the construction of Ring Road No 3 (likely to be externally financed). There is a need for policy coordination to resolve issues related to the truck restrictions in the urban area and possible deregulation to enable last miles transportation.

(6) Regional Development Support Program (P26)

Key objective of the program 26 is to facilitate increasing cargo demand coming from rural areas

and connecting supply of goods with key international gateways and domestic consumption areas. Key issues identified are: (i) the lack of infrastructure linkages among rural areas and with key international gateways; and (ii) the lack of value added opportunities in rural areas and high logistics costs delivering value added goods to the markets.

Program 26 is designed to address these points mentioned above. There will be large capex requirements – including the construction of regional/local road linkages and establishment of agriculture specialized logistics centers and possibly establishment of agriculture specialized SEZ with logistics functions. There is a need for policy coordination with other ministries and with the private sector. The total cost depends on the project selection (road routes) and extensiveness of the improvements in regional/local linkages. For the Agriculture logistics center (or specialized SEZ), the key concept is yet to be defined and costing is impossible at this stage.

Projects include the following:

- Enhancement of Regional/Local Linkages (P26-L1)
- Specialized Agriculture Logistics Center (P26-M1)
- Battambang Cement Terminal (P26-L2)

The total costs need to be determined by a feasibility study. However, the unit costs can be estimated at about US$ 0.6 million per km for rehabilitation and US$ 2.0 million for new development, based on Asian Development Bank, Meeting Asia's Infrastructure Needs, 2017.

(7) Strategy 2 Objectives and Actions in Each Phase

Table 6.2.1 presents the objectives and actions of the strategy in each phase.

Table 6.2.1 Strategy 2 Objectives and Actions in Each Phase

	Short-Term 2018-2019	Medium-Term 2020-2022	Long-Term 2023-2025 and beyond
Bavet Border Area Improvement (P21)	・ Truck Parking Space and Road Widening Designation of a Complex Zone ・ Optimizing Scanning Processes and Enhancing CIQ Capacity ・ Extension of Service Hours of Border Control Agencies and Alignment of Service Hours between Two Countries	・ Logistics Complex Development ・ Development of CCA and SSI ・ 24-Hour Border Operationalization ・ Development of New Border Point	・ Construction of One Stop Center at Land Border area of Cambodia and Viet Nam of Mekong river Logistics Complex Development ・ 24-Hour Operationalization (coordination with Viet Nam is required)
Poi Pet Border Area Improvement (P22)	・ Construction of the New Border Crossing Route at Stung Bot Border Point [*4] ・ Implement the CCA and SSI System under the CBTA and Operate the Border 24H/7D [*4] ・ A Logistic Complex Zoning Development		
Logistics Complex Development (P23)	・ Designation of a Complex Zone ・ Zoning Plan in Close Coordination with Urban Development Plan of Phnom Penh Capital City ・ Rail ICD (Concession of Royal Railway) extention ・ Public Truck Terminal Development ・ Cold Storage Development ・ Distribution Center (DC) of Private Companies ・ Basic Infrastructure Development in the Complex Zone ・ Incentives to Attract Private Investment into the Complex Zone		

	・ Development of Overall Concept and Zoning Plan ・ Public Truck Terminal ・ DC ・ Supporting Business Zone		・ Designation of Complex zone ・ Zoning Plan in Close Coordination with Urban Development Plan of the Regional Cities ・ Coordination with Future Transport and Urban Transport Plan ・ Facility Plan (Public Truck Terminal Development, Cold Storage Development, Distribution Center (DC) of Private Companies, Other Related Facilities) ・ Basic Infrastructure Development in the Complex Zone ・ Incentives to Attract Private Investment into the Complex Zone
Air Cargo Hub Development (P24)	・ Urgent actions ・ Cargo Terminal Expansion ・ Air Cargo Complex ・ Service Time Improvement		
			・ Marketing Study on potential businesses ・ Rehabilitation/Improvement of existing Kampong Chhnang airport ・ Development of Logistics/Business Special Zone Concept ・ Promotion of Private Investor(s)
Urban Transport Facilitation (P25)	・ Review Current Truck Restrictions Rules in Phnom Penh ・ Identify Alternative Sets of Approaches/Measures to Achieve Objectives ・ Evaluate the Alternative Sets of Measures ・ Set Out an Implementation Plan for the Preferred Approaches / Measures		・ Construction of New Road ・ Revision of Truck Ban (after completion of the ring road)
Regional Development Support (P26)			・ Battambang-Sihanoukville Road Link ・ Siem Reap-Battambang Road Link ・ Kampong Thom-Kampong Chhnang Road Link ・ Improvement of roads connecting northeastern Cambodia and the Northern Subcorridor / Improvement of roads to support minerals development in northern and northeastern Cambodia
		・ Agriculture Specialized Logistics Center in North-West ・ Logistics Center in Phnom Penh (Dry Port, Warehouse(s), Customs) ・ Building Logistics Linkages Between East and West Sides of the Tonle Sap Lake	

			・ Demand Stduy ・ Run Public Consultations ・ Pre-Feasibility Study (with or without PPP Scope) ・ Feasibility Study Including Selection of the Location, Area of Development, Access Infrastructure ・ Detailed Design and Preparation of Bidding Documents ・ Procurement of the Construction Works Including Utility Services ・ Project Management and Construction Supervision

Source: JICA Study Team

6.3 Strategy 3 – Improvement of Cross-Border Management and Trade Procedures

6.3.1 Scope of Strategy 3

Strategy 3 aims to enhance trade and cross-border facilitation by improving cross-border operation and import/export-relate procedures, and by realizing smooth and flexible border crossing for users. Speedy, cost-effectiveness and transparent cross-border and trade procedures are to be realized at at land borders and ports by simplification and electrification measures with good compliance. It is done with implementing the Port EDI system, the Port Management System and the National Single Window System. It also includes to increase the number of highly compliant traders by promoting the Best Traders Incentive mechanism, building institutional capacity within the customs, customs brokers and logistics service providers. At the same time, the government should review the working environment and clearance procedures to reform and modernize customs and CamControl functions.

The Port EDI system will be implemented at the Sihanoukville Port and the Phnom Penh New Port, and the Port Management System at the Sihanoukville port. The development of the Cambodia National Single Window (CNSW) will be proposed and a new system will be implemented. Along with the implementation of ICT systems, the clearance procedures will be reviewed by increasing the number of Best Traders, separating the office and the waiting area by a reception counter, introducing the "original later" policy for attaching the document to declarations and eliminating CamControl examinations. Such measures are expected to improve cross-border management and trade procedures.

To achieve the goals mentioned above, Strategy 3 proposes the following five programs:

- Port Management Enhancement Program (P31)
- Introduction of Cambodia National Single Window (CNSW) (P32)
- Trade Support Program (P33)
- Trade Compliance Improvement Program (P34)
- Optimization of CamControl Functions and Procedures (P35)

6.3.2 Key Issues and Objectives

Currently many trade-related government procedures are either not computerized or partially computerized, and inefficiently or insufficiently operated. The clearance procedures are hectic with

many interruptions by and interactions with government officials.

One of the key objectives of Strategy 3 is to improve cross-border management by introducing full-scale computerization in every step from the arrival of a vessel to the port, clearance of import or export goods, and to the departure of the vessel from the port. For this purpose, the Port EDI system should be implemented, and the Port Management System as well as the Cambodia National Single Window system should be improved.

In addition, unnecessary interruptions by and interactions with government officials should be reduced by promoting the Best Traders Incentive Mechanism and building the clearance knowledge of customs officials, clearing agents, and logistics-related personnel. It also necessary to establish a proper working environment and reasonable treatment on clearance procedures.

Accordingly, Strategy 3 will address the following key issues,

- ***Manual Operations of Port Entry and Departure Procedures:*** Vessel entry and departure procedures are conducted manually by the clearance committee. This takes place for every entry and departure of vessels, even at midnight. Various documents must be submitted through KAMSAB to government agencies such as the Port Authority, the Immigration Police, the Quarantine Department and the General Department of Customs and Excise. Some of the documents for different authorities are the same, and take time to prepare. In addition, the existing documents are not in line with the IMO FAL format which is the internationally accepted standard.
- ***Inefficient and Insufficient Computerized System***: The port management systems of Container Terminal Management System (CTMS) and Single Window System (SWS) are already connected to shipping agencies and a railway company to exchange necessary information. However, there is no connection between trucking companies and dry port operators. By connecting the systems with trucking companies, the Sihanoukville Autonomous Port (PAS) can mitigate port congestion. SWS processes billing information of port usage and generates invoices for fees and charges. However, payments are made manually and not computerized. The current CNSW system is a patchwork of different systems connected to the Automated System for Customs Data (ASYCUDA). Implemented in 2008, ASYCUDA is neither modern nor comprehensive. Moreover, ASYCUDA does not work as a paperless system. Its risk management functions are weak, and it is not associated with customs procedures other than a cargo clearance system.
- ***Selection Criteria of Best Traders Are Demanding and the Benefits are Scarce***: Traders can enjoy easier border procedures by becoming a “Best Trader”. A Best Trader must have a high level of compliance in such aspects as a track record free of customs offences. However, small- and medium-sized companies find it hard to meet other Best Trader criteria such as a registered capital of no less than 1,000 million Riel (US$250,000 at the exchange rate of 4,000Riel/US$1) and a yearly trade volume of no less than US$ 2 million. The Best Trader benefits include exemption of advance verification of customs valuation and rules of origin procedures. However, these measures are not appealing to traders; better benefits such as differed duty payments may encourage more traders to be Best Traders. Moreover, the benefits are valid only for customs and not for other government agencies; thus, traders cannot enjoy fast-track service on their cargo throughout the entire process. It would be more beneficial if the Best Trader status were

recognised in all relevant government agencies.

- ***Low Levels of Knowledge on Clearance Procedures***: The customs clearance offices at the borders often complain that the knowledge level of customs clearing agents is low. It takes much time to clear goods partly because declarations tend to have many mistakes. In addition, the clearing agents are neither industrious nor ethical: they try to evade their duty by classifying goods as low duty rate items intentionally. The General Department of Customs and Exercise (GDCE) has neither a training center nor a specialized trainer; a director or other knowledgeable officer train clearing agents. The GDCE plans to establish a training center, but it is unclear when the center will open. With trainers from relevant authorities and associations, the Cambodia Freight Forwarders Association (CAMFFA) also provides training on trade-related issues. However, the CAMFFA's training is short and unable to meet the needs of trainees. The CAMFFA is requesting customs to train clearing agents and logistics service providers.
- ***Lack of Proper Fees for Out-of-Hours Work***: As the government provides no financial compensation to its officials for overtime work and business trips, they have no choice but work at their own initiative. It is necessary to improve the working conditions in government agencies, set proper fees for overtime work and business trips, and eliminate unofficial payments. A welfare fund system may allow direct payment to officials through a third-party fund management organization. Then, a receipt should be issued to the organization so that the payment can be claimed as business expenditure.
- ***Questionable Interactions with Government Officials***: Government offices tend to have no separation between the working space of officials and the visiting and waiting space of applicants. Therefore, an applicant can go straight to an official's desk and discuss issues directly with the official. To eliminate such culture that is likely to cause corruption, it is recommended to separate the spaces and forbid any applicant from going to any official's desk. It is also recommended to install CCTV cameras in the offices and monitor the movement of people. Such measures help prevent bribery in government offices.
- ***Original Document Policy is Too Strict:*** To process an application, original documents are always required. However, if original documents are not ready for any reason, then all the procedures stop. To avoid such a situation, the "original later" policy can be introduced. An applicant can submit a photocopy of the required document, and then submit the original in, for example, 48 hours. If the original document submission is delayed or the system is abused, a penalty can be imposed. Such policy can reduce the document processing time drastically, and decrease possibilities of corruption.
- ***Excessive Border Control by CamControl***: CamControl aims to inspect all imported and exported goods. It focuses on inspecting high-risk goods such as foods and medicines at the time of import and export clearance procedures. However, the inspections of import and export goods are the tasks of customs. The permits or certificates issued by an exporting country or a concerned government authority of Cambodia would be reliable, and customs can check a declaration based on such documents. If necessary, animal or plant quarantine, and sanitary and phytosanitary examination can be conducted by relevant authorities upon import or export declaration. Therefore, all the necessary examinations can be conducted by customs and other government agencies, and there is no need for duplicated inspections by CamControl.

CamControl takes a risk management approach and does not examine all the goods. Its policy is to examine physically 10% to 15% of the imported goods and 5% of the exported goods. However, the inspection fee is collected from all the declarations even if no examination is conducted. Such practice constitutes a nontariff barrier to trade and cannot be justified. It is against Article 8 (Fees and Formalities connected with Importation and Exportation) of the WTO GATT agreement and increases the clearance costs without a good reason. Removing CamControl from border clearance procedures will realize seamless border management, be a significant cost reduction for traders, and afford them a more competitive environment with other countries. CamControl can keep conducting local market monitoring and inspection. In addition, CamControl fees can be incorporated into customs clearance fees in a reasonable fashion.

6.3.3 Programs and Projects

(1) Port Management Enhancement Program (P31)

Program 31 aims to enhance the capacity of vessel entry and departure procedures and the port management by implementing the Port EDI system and the Port Management System. The key issues are as follows: (i) port entry and departure procedures are manually conducted at every entry and departure of vessels. Moreover, many documents must be submitted though KAMSAB to several government agencies such as the Port Authority, Immigration Police, Human Health Quarantine, and GDCE, and it takes time to prepare and submit them; (ii) the formats are not in line with the internationally accepted FAL format; (iii) advance information for efficient management of port congestion is limited because the current Port Management System (CTMS and SWS) is not directly connected to truck operating companies and dry port operators; and (vi) various port user fee payments are not computerized and thus inefficient.

- Program 31 is designed to address the issues above. The program's estimated total cost is US$ 14 million.
- The following are the proposed projects under the program.
- Port EDI Implementation Project (Phase 1) (P31-S1)
- Port EDI Implementation Project (Phase 2) (P31-M1)
- Port Management System Enhancement Project (Phase 1) (P31-S2)
- Port Management System Enhancement Project (Phase 2) (P31-M2)

(2) Introduction of Cambodia National Single Window (CNSW) Program (P32)

Program 32 aims to computerize all cargo clearance procedures with CNSW, replacing the ASYCUDA main platform with the NACCS based system. The key issues are as follows: (i) ASYCUDA was implemented in Cambodia in 2008. The system has not been revised, and is old and not comprehensive; (ii) ASYCUDA is already connected with many internal systems and it will be technically difficult, if not impossible, to connect it with other government agencies' systems; and (iii) ASYCUDA does not work as a paperless system. It is not associated with customs procedures other than cargo clearance, and its risk management system is weak.

Program 32 is designed to address the issues above. JICA is developing the initial approach to the CNSW committee, which is considering the program.

The following are the proposed projects under the program.

- Border Clearance Procedures Improvement Project (Phase 1) (P32-S1)

- Border Clearance Procedures Improvement Project (Phase 2) (P32-M)
- Border Clearance Procedures Improvement Project (Phase 3) (P32-L1)

The estimated total cost of the program is around US$ 35 million.

(3) Trade Support Program (P33)

Program 33 aims to increase the number of "Best Traders" who are highly compliant traders recognized by the GDCE. The goal can be achieved by building the institutional capacity through training on customs procedures, customs valuation, HS classification, and rules of origin. The key issues are as follows: (i) the selection criteria of Best Traders are so difficult that only traders with large trade volumes can satisfy; (ii) the Best Traders system is effective only for customs clearance purposes and not recognized by other government agencies; (iii) the GDCE planning to introduce Authorized Economic Operator (AEO) system of World Customs Organization (WCO) by upgrading the Best Traders system; (iv) the knowledge level of customs clearing agents is low. It is time-consuming to clear goods partly because declarations contain many mistakes; (v) training on clearance for clearing agents is neither long enough nor comprehensive. There is no full-time specialized trainer and most trainers are directors and chiefs of relevant sections; and (vi) lack of training materials and textbooks for trainees.

Program 33 is meant to address the issues above. It is designed as a five-year program because it takes time to raise trainers on various subjects and develop a textbook.

The proposed projects under the program are as follows.

- Best Traders Incentive Mechanism Promotion Project (Phase 1) (P33-S1)
- Best Traders Incentive Mechanism Promotion Project (AEO Implementation) (Phase 2) (P33-M1)
- Institutional and Capacity Building for Customs and Customs Brokers (P33-S2)

The estimated total cost of the program is US$ 2.1 million.

(4) Trade Compliance Improvement Program (P34)

The key objective of Program 34 is to improve trade-related compliance by eliminating unofficial payments. The key issues are as follows: (i) payments for overtime work and business trips by government officials are undefined. As there is no compensation from the government, the private sector must make a direct contribution without a receipt; (ii) in government offices, there is no physical separation between the waiting space for applicants and the desks of officials. An applicant can go to an official's desk directly and discuss issues unhindered; (iii) there is no CCTV camera to monitor office work; and (vi) an original document is always required for application. If an original document is not submitted, the application document is not accepted, and the entire process stops.

Program 34 is designed to address the issues above.

The proposed projects under the program are as follows.

- Working Environment Improvement Project (P34-S1)
- Compliance Improvement Project (P34-M1)

The estimated total cost is US$ 1.8 million.

(5) Optimization of CamControl Functions and Procedures Program (P35)

The key objective of Program 35 is to reform and modernize the CamControl functions. The key issues are as follows: (i) inspections of import and export goods are the tasks of customs. If necessary, other relevant authorities can conduct animal or plant quarantine, and sanitary and phytosanitary examinations; (ii) CamControl conducts examinations on a limited percentage of goods but collects the inspection fee from all declarations; (iii) the issue (ii) is a nontariff barrier to trade and violates Article 8 of the WTO GATT agreement; (vi) the functions of CamControl are important as it secures the safety and security of foodstuffs and chemical and medical items, but this objective can be achieved by monitoring local markets or goods after import examinations.

Program 35 is designed to address the issues above. It may take long to reform CamControl and transfer some of its functions to other government agencies.

- Reform and Modernization of CamControl Functions (P35-S1)

The estimated total cost of the program is US$ 2 million.

(6) Strategy 3 Objectives and Actions in Each Phase

Table 6.3.1 presents the objectives and actions of the strategy in each phase.

Table 6.3.1 Strategy 3 Objectives and Actions in Each Phase

	Short-Term 2018-2019	Medium-Term 2020-2022	Long-Term 2023-2025 and beyond
Port Management Enhancement (P31)	・ Development of declaration formality in line with FAL Form and review of relevant regulations of concerned government agencies ・ Development of PORT EDI system and user manuals (scope to be determined) and Install the Systems to Respective Government Agencies ・ Training to Users of the Port EDI System at KAMSAB	・ Full Connection of the System as Part of the CNSW ・ Rollout to Other International Ports in Cambodia (including Kaorm Sormnor, Kampot and Koh Kong)	
	・ Connect the CTMS to Truck Company ・ Connect the CTMS to the Pre-gate System of the Inland Depot ・ Computerized Payment System	・ Connect the CTMS to Truck Company	
Introduction of Cambodia National Single Window (CNSW) (P32)	・ E-License Module and E-Certificate Module Implementation ・ Consider to Revise the Main Platform of CNSW ・ Develop the CNSW with New Platform	・ Develop the all Government Agency Computerized Systems with the Forthcoming CNSW System	・ Introduction of the CNSW and Associated Capacity Building
Trade Support (P33)	・ Review of the best practices of the Authorized Economic Operator (AEO) ・ Review the Criteria of Selecting Best Traders ・ Select the candidates for Best Traders and Accept application.	・ Development and Implementation of an AEO System under WCO Rules ・ Clarification of the Benefits of an AEO System and Standardization of Benefits among Member Countries in the Region ・ Mutual Recognition of AEO-certified Traders among Countries in the Region	
	・ Train the Trainer course on Customs Related Subjects ・ Develop the Training Material and Textbook on the Subject Matter. ・ Conduct Series of Training to Customs Officers and Customs Clearing Agents and Logistics Service Providers		
Trade Compliance Improvement (P34)	・ Welfare Fund System; ・ Implement Document Acceptance Counter and Separate the Office and Waiting Area, and Install the CCTV Camera; ・ Implement “Original Later” Policy;	・ Develop Yearly Salary Review System of National Public Officials and Secure Budget for Overtime Work ・ Implement Life Style Check System to National Public Officials and Implement More Strict Monitoring System of Asset Income and Expenditure (Support Anti-Corruption Unit) ・ Compliance improvement training to both public and private sector	

Optimization of CamControl Functions and Procedures (P35)	・ Review of the Existing Laws and Regulations for Consistency with International Best Practices; ・ Identification of Institutions to Transfer the Responsibility of the Duties of CamControl ・ Review of the Fees of CamControl in line with Best Practices (e.g., examination and fee policies)	

Source: JICA Study Team

6.4 Strategy 4 – Enhancement of Private Logistics Services

6.4.1 Scope of Strategy 4

The public sector provides infrastructure and institutions for effective and efficient logistics activities done by the private sector. The private sector, especially the provision of logistics service should be improved to provide better and modern logistics services. In this regard, Strategy 4 focuses on the private logistics service providers and aims to improve the diversity and quality of logistics services by enhancing the capacity private logistics providers. The capacity of private logistics service providers should be enhanced so that they can offer their customers a variety of logistics services responding to diversified requests and can participate in the actions toward green and eco logistics. In addition, market activation is necessary to realize new logistics services through deregulation and fair competition market to encourage private logistics providers. For this purpose, the following five action programs have bene identified under this strategy:

- Establishment of a Logistics Technical Training Center (P41)
- Public Private Dialogue (P42)
- Logistics Business Modernization and Green Logistics Promotion (P43)
- Introduction of Modern Logistics Business Models (P44)
- Market Mechanism Enhancement (P45)

6.4.2 Key Issues and Objectives

Currently logistics services in Cambodia are not diversified and the competitiveness is considered low compared to neighboring countries, such as Thailand and Vietnam in terms of the quantity of logistics services. Therefore, the key objectives of Strategy 4 are to provide diversified and modernized logistics services, and to introduce competition in the logistics sector to achieve international standards and increase the competitiveness in the regional market.

Key issues identified and addressed under Strategy 4 as follows:

- ***Limited Opportunities to Capacity Enhancement of Stakeholders in the Logistics Industry:*** In accordance with the rapid economic growth and population increases in Cambodia, logistics services should become more efficient in the future. In this regard, cooperation between the public and private sectors is considered vital for creating a better business environment, however opportunities for discussions and collaborative activities are limited at this time. LSPs' skills, in particular for truck drivers, are reported as low, and training and learning opportunities for logistics providers should be enhanced for safety freight transport and efficient logistics system.
- ***Immature Business Environment for Introducing Modern Logistics Services:*** Existing laws and regulations are not consistent with the actual situation of logistics activities. For example, logistics vehicle length limitations under the Traffic Law do not match the trucks and trailers that

are widely used. International VMI is difficult to be introduced, partly due to unclear customs and warehouse regulations. All in all, logistics users suffer from low quality and low reliability of logistics services caused by a small number of vicious logistics providers and due to limited information. In accordance with growing demands for modernized services including LCL service, cold chains and last miles delivery, improvements in the business environment, including tracking system, revising laws and regulations, are urgently needed.

- ***Green Logistics Practices are not widespread:*** Despite the international trends and awareness in green logistics, business practices in Cambodia are in old practices, and emissions are not measured or controlled. There is a need to develop the baseline and implement policy measures towards green logistics.
- ***Lack of Competition in the Logistics Sub-Sector***: Private sector participation (PSP) and competition are limited in public transportation services in Cambodia. For example, all roads are owned and operated by the government. Railways are owned by the government and operated by a non-strategic private operator under a concession agreement with no competition. The Sihanoukville ports are owned by public entities and competition is limited. The aviation sector is slightly better as three large airports are owned and operated by a foreign/strategic investor, but competition is limited. Under such circumstances, the quality and competitiveness of logistics services are unlikely to improve in the absence of competition. The government is encouraged to increase the number of market players to strengthen the logistics sector.

6.4.3 Programs and Projects

(1) Establishment of a Logistics Technical Training Center (P41)

Program 41 aims to enhance the capacity of private logistics providers, especially for vehicle drivers including truck, trailer and specialized vehicles. Key issues identified are: (i) there are a high number of traffic accidents and violations of traffic rules due to the low driving skills of truck drivers and a lack of awareness about road safety. These troubles cause unexpected delays and unsafe freight transport; (ii) Cambodia has no institutionalized training for heavy truck drivers, and truck drivers have insufficient driving skills and an inadequate knowledge about road safety; (iii) truck drivers tend to be employed and paid on a daily basis without any opportunities for improving their driving skills in the form of OJT or in-house training; and (iv) driving licenses for heavy vehicles were reported to be acquired without a high-skilled practical test in the past. Under these circumstances, truck drivers have had little chance to improve their driving skills. Improvements in driving skills are a prerequisite for improvements in logistics services.

Program 41 is designed to address these points mentioned above. The program consists of two projects:

- Logistics Technical Training Center Development Project (Phase 1) (P41-S1)
- Logistics Technical Training Center Development Project (Phase 2) (P41-M1)
- MPWT Research Institute Development Project (P41-S2)

The phase 1 project focuses on capacity development of truck drivers. Meanwhile, a subsequent project is planned to provide a wider variety of training for logistics relevant vehicles. The total

cost is difficult to estimate at this time. However, in the area of soft components such as needs assessment, trainers training, and textbook & curriculum development, the cost could be around US$ 0.2 million.

(2) Public-Private Dialogue (P42)

Program 42 aims to create regular opportunities to discuss the logistics industry between the private and public sectors in order to modernize logistics services to meet increasing logistics demands in future. The key issues identified are: (i) there is no working group involving the public and private sectors focused on the logistics industry in Cambodia; (ii) the private sector cannot easily discuss with the public sector and concerned ministries about issues and system improvements; and (iii) since logistics stakeholders have limited opportunities to update their knowledge, it is difficult to obtain new ideas from foreign examples and international standards.

Program 42 is designed to address these points mentioned above, and is composed of one program.

- Establishment and Operations of Technical Working Group on Logistics Development (P42-S1).

The total cost is difficult to estimate at this time. However, it can be around US$ 16, 000 per year including the costs for operations and management of the working group, workshop, and study visits.

(3) Logistics Business Modernization and Green Logistics Promotion (P43)

Program 43 aims at the modernization of the logistics industry and the promotion of green logistics in Cambodia. Key issues are identified as follows: (i) fundamental data is missing, including the number of trucks, employment, and type/ quality of services, but these data are a prerequisite for the preparation of the following logistics projects; (ii) since there are discrepancies in the vehicle length limitations between the Traffic Law and widely used truck/trailers, the freight transport services tend to suffer from this situation; (iii) there is limited awareness in green logistics and international best practices have not yet been implemented in this area; and (iv) due to the lack of information about the quality of the logistics services, some customers are hampered by the small number of vicious service providers.

Program 43 is designed to address these points mentioned above. The projects are mainly to improve regulations and required studies. Projects include the following:

- Truck Modernization Project (Phase 1) (P43-S1)
- Truck Modernization Project (Phase 2) (P43-L1)
- Green Logistics Baseline Study (P43-S2)
- Green Logistics Promotion Policy (P43-M1)
- Introduction of Grading System(s) (Phase 1) (P43-M2)
- Introduction of Grading System(s) (Phase 2) (P43-L2)

The total cost is difficult to estimate at this time. However, it could be around US$ 60,000, with the exception of the incentive system cost to increase brand-new and eco logistics vehicles (P43-L1).

(4) Introduction of Modern Logistics Business Model (P44)

Program 44 is similar to Program 43; however, this program aims to encourage the introduction of modern logistics business models, partly using new technologies. Key issues are: (i) since LCL has

not been widely used in the logistics industry, efficiency has not been fully achieved, causing low competitiveness and high prices; (ii) cold chains logistics services are rarely provided in Cambodia, although the demand has been increasing because of the need for fresh and frozen foods and development of the agroindustry; (iii) last miles transport market remains limited even though the demands for delivering domestic/international parcels and online shopping are growing; (iv) the insufficient and ineffective use of GPS cargo tracking system among the logistics service providers deteriorates logistics security and reliability and (v) introduction of international VMI services and regulatory reform/development help to improve competitiveness. However, it is unclear if current regulations in customs, warehouse and tax treaties impede implementation.

Program 44 is designed to address these points mentioned above. Projects include the following:

- LCL Enhancement Project (P44-S1)
- Cold Chain Development Project (P44-S2)
- Last Miles Logistics Development Project (P44-S3)
- Tracking and Tracing System Promotion Support (P44-S4)
- VMI Introduction (P44-S5)

The projects mainly encourage the introduction of new technologies and services. These are mainly private initiatives and investment is expected to be made by the private sector. The total cost is difficult to estimate at this time, and depends on the demand.

(5) Market Mechanism Enhancement (P45)

Program 45 aims at enhancing competition in the area of public monopolies and increasing efficiency and levels of logistics services by increasing private players. Key issues identified are: (i) private sector participation (PSP) and competition are limited in public transportation services such as roads, railways, ports and airports; and (ii) what the efficiency of logistics services is anticipated to be worth and international competitiveness could become weak without sound competition.

Program 45 is designed to address these points mentioned above. The projects are mainly concerned with analyses, preparation plans and implementation.

Projects include the following:

- Public Logistics Service Improvement Project (P45-S1)
- Market Environment Improvement Project (P45-L1)

The total cost is difficult to estimate at this time. However, it could be around US$ 1.0 million.

(6) Strategy 4 Objectives and Actions in Each Phase

Table 6.4.1 presents the objectives and actions of the strategy in each phase.

Table 6.4.1 Strategy 4 Objectives and Actions in Each Phase

	Short Term 2018-2019	Medium Term 2020-22	Long Term 2023-25 and beyond
Establishment of a Logistics Technical Training Center (P41)	・ Assess and Analyze the Current Situation ・ Formulate Truck Driving School Development Plan (Soft Component) ・ Formulate Truck Driving School Development Plan (Hard Component) ・ Implement Truck Driving School Plan	・ Expansion (Soft & hard components)	
	・ Institute Development Plan ・ Logistics Center Development ・ Research Activities		
Public-Private Dialogue (P42)	・ Establish the Working Group ・ Operating and Management of TWG-LD ・ Workshop and Study Visits		
Logistics Business Modernization and Green Logistics Promotion (P43)	・ Data Collection ・ Revision of Traffic Law		・ Study of the Market for Trucks and Heavy Vehicles ・ Introduction of an Incentive System to Increase Eco Trucks and New Logistics Vehicles
	・ Identification Source of Emissions ・ Study International/Regional Best Practices Green Logistics ・ Develop Concrete Measures to Reduce Emissions in the Logistics Industry	・ Set Up Task Force Team and Develop Sector-wide Green Logistics Promotion Action Plan ・ Promotion of Green Logistics in the Truck Industry ・ Promotion of Use of Railway and Inland Waterway ・ Enhance Public Awareness of Green Logistics	
		・ Establishment of logistic regulator and Responsible Organization for Grading System ・ Introducing the Grading System for Truck Companies ・ Introducing Grading System for Customs Brokers	・ Introducing the Grading System for other Logistics Companies
Introduction of Modern Logistics Business Technologies (P44)	・ Milk-Run Model ・ Establishment of One-Stop Service for LCL		
	・ Cold Chain Development and Basic Infrastructure Development in the Complex Zone		
	・ Standardization of Addresses and the Improvements in the Postal Code System		

	・ Liberalization of the Domestic Parcel Delivery Market and Enhancement of Domestic Postal Services ・ Improvements of the Financial Settlement and Clearing House		
	・ Identification of Issues on Cargo Transport and Demands on GPS Cargo Trucking and Tracing System ・ Formulate Tracing and Tracking Promotion Support Plan and Coordinate Implementation		
	・ Data Collection and Analysis ・ Revision of Customs Law and Relevant Regulations ・ Promotion Policy to Invite VMI Service Provider		
Market Mechanism Enhancement (P45)	・ Preliminary Analysis ・ Scope of Work on a Sub-Project Basis		・ Review of Current System ・ Data Collection ・ Revision of Traffic Law

Source: JICA Study Team.

6.5 Strategy 5 – Strengthening of Legal and Institutional Framework

6.5.1 Scope of Strategy 5

Strategy 5 aims to secure implementation of all the above projects through strengthening the legal framework for the logistics system and developing a self-sustaining mechanism for implementation of the logistics master plan and future logistics improvements. In response to more international trade and transport volume, global agreements as well as domestic institution regarding transport and logistics should be more functional. In addition, it is also necessary to enhance capacity to sufficiently and properly implement programs and projects under this master plan. For this purpose, the following four action programs have been identified under this strategy:

- Capacity Development of the General Department of Logistics (P51)
- Development of Logistics Regulatory Framework (P52)
- Facilitation of Trade Agreements and Borderless Transportation (P53)
- Optimization of Logistics Costs (P54)

6.5.2 Key Issues and Objectives

With the recent establishment of the National Logistics Council and National Logistics Steering Committee, the Royal Government has taken the first step to accelerate the development of the logistics sector. Going forward, it will be key for the General Department of Logistics, as the Secretariat of NLC and NLSC, to be able to manage, administer, coordinate and monitor the implementation of the Logistics Master Plan.

Furthermore, acceleration of the trade and cross border agreements and strengthening of the related

regulatory framework are necessary to enhance Cambodia's presence within the ASEAN and GMS countries.

Under these circumstances, key issues identified and addressed under Strategy 5 follow:

- ***Institutional Capacity is Limited***: With GDL recently established and the staff appointed from different backgrounds and experiences, capacity building is necessary to develop a self-sustained mechanism for managing and coordinating the implementation of the Logistics Master Plan. Moreover, capacity building from the perspective of effective inter-ministerial and private sector coordination as well as development of a logistics data base have been identified as necessary.
- ***Logistics Regulatory Framework requires Strengthening***: Currently, laws, regulations and in some cases, the technical standards are not in place for certain logistics sectors such as railways, ports and inland waterways. With the preparation of regional connectivity with Thailand for railways advancing and increasing private sector presence is seen, rules and standards should be set.
- ***Further Negotiations for Trade and Cross Border Agreements are Necessary***: Tariff and non-tariff barriers across Cambodian borders remain significant and are disadvantageous to export industries and increases the import prices. Furthermore, with Cambodia being a member of WTO, GMS, and ASEAN, it is expected for the country to meet its obligations under the agreements. Coordination on regulatory issues such as unification of standards still need to be discussed with neighboring countries in order to accelerate the implementation of the Agreements.
- ***Borderless Transportation is Limited:*** Currently, the vehicle permits for cross-border land transportation are provided to applicants in a First Come First Serve basis and through a manual application procedure. Furthermore, an effective insurance system is not in place in Cambodia, which makes it even more difficult for vehicles to cross borders. Due to such situation, the number of trucks that cross borders without change of vehicles are still limited.
- ***Logistics Costs are Not Optimized***: The logistics fees/tariffs including port dues, customs handling fees, KAMSAB fees and others in Cambodia are widely considered as expensive, with multiple cost items under each cost criteria making the cost structure complex. Furthermore, the fees/tariffs are decided by various ministries and agencies without coordination and are not implemented upon a clear, streamline rules and calculation methodologies.

6.5.3 Programs and Projects

(1) Capacity Development of GDL (P51)

Program 51 aims to develop the institutional capacity in the logistics sector. Key issues identified for capacity development are: (i) limited operationalization capacity for the NLC, NLSC and GDL as the secretariat; (ii) lack of effective consultation capacity with the private sector; (iii) lack of a logistics database, where currently, various data are managed by different departments and ministries; and (iv) limited monitoring and coordinating capacity for the Logistics Master Plan.

Program 51 is designed to address these points mentioned above. Major components for this program are soft components, involving training of GDL staff as well as development of a database system to be managed by GDL and publication of an annual report with the status of each program

in the Logistics Master Plan. The annual consultancy cost for the capacity building is estimated at 20-40MM and costs for the implementation of the database system and publication of annual reports are expected to be necessary.

Projects include the following:

- Logistics Institutional Capacity Building Project (Phase 1) (P51-S1)
- Logistics Institutional Capacity Building Project (Phase 2) (P51-M2)
- Logistics Institutional Capacity Building Project (Phase 3) (P51-L3)

(2) Development of Logistics Regulatory Framework (P52)

Program 52 aims to strengthen the logistics regulatory framework, namely in the railway, ports and inland waterway sectors. Key issues identified are: (i) lack of technical standards or operation manuals for safe and efficient railway operation; and (ii) slow progress in the discussions and enactment of the laws and regulations, although the port act and inland waterway law have been drafted.

Program 52 is designed to address these points mentioned above. Major components for this program are soft components, to support the drafting of technical standards/manuals whenever necessary as well as capacity building and training.

Projects include the following:

- Development of Railway Regulatory Framework (P52- S1)
- Development of Port and Inland Waterway Regulatory Framework (P52-S2)

(3) Facilitation of Trade Agreements and Borderless Transportation (P53)

Program 53 aims to facilitate the various agreements related to the logistics sector and to enhance the borderless transportation with neighboring countries. Key issues identified are: (i) slow implementation of zero tariffs within the ASEAN countries, making the export industries disadvantageous and increasing import prices; (ii) slow progress in the negotiations on various agreements including the WTO agreements, GMS Cross-Border Transport Agreement (CBTA), Bilateral Agreements, and ASEAN Framework Agreement on the Facilitation of Goods in Transit (AFAFGIT); (iii) lack of strategy in providing the vehicle permits for cross-border land transportation – i.e., permits provided on a First Come First Serve basis; (iv) lack of transparency in the application system – i.e., current application is paper-based and methodology of application is not widely understood by the public; and (v) limited insurance system for cross-border vehicles.

Program 52 is designed to address these points mentioned above. Major components for this program are soft components, mainly focused on negotiations with other countries as well as traffic and OD surveys to identify the demand for borderless transportation and designing the scheme that best optimizes the usage of the permit and insurance system. It is believed that staff training is necessary for effective monitoring as well as improvement of policy making and negotiation skills. The annual consultancy cost for the capacity building is estimated at 6MM and costs for the implementation of the IT system will also be necessary, which shall be connected to the current license systems within the Ministry of Public Works and Transport.

Projects include the following:

- Trade and Cross-Border Agreements Acceleration Project (P53-S1)
- Cross-Border Transport Permit Facilitation Project (P53-S2)
- Cross-Border Insurance System Development Project (P53-M1)

(4) Optimization of Logistics Costs (P54)

Program 54 aims to develop effective calculation methodologies for various logistics fees/tariffs imposed by the government, in order to increase the cost competitiveness. Key issues identified are: (i) the logistics fees/tariffs in Cambodia are widely considered as expensive, and there are multiple cost items under each cost criteria - i.e., transportation costs, connectivity costs and agency costs); and (ii) specific costs are not decided under a proper or effective calculation methodology and the fees/tariffs are decided by various ministries and agencies with lack of coordination and consultations with the private sector.

Program 54 is designed to address these points mentioned above. All components for this program are soft components. The annual consultancy cost for the formulation of the new fee/tariff structure, legal advice, and capacity building and training is estimated at 12MM annually.

Projects include the following:

- Logistics Cost Optimization Project (Phase 1) (P54-S1)
- Logistics Cost Optimization Project (Phase 2) (P54-M2)

(5) Strategy 5 Objectives and Actions in Each Phase

Table 6.5.1 presents the objectives and actions of the strategy in each phase.

Table 6.5.1 Strategy 5 Objectives and Actions in Each Phase

<table>
<tr><th></th><th>Short Term
2018-2019</th><th>Medium Term
2020-22</th><th>Long Term
2023-25 and beyond</th></tr>
<tr><td>Capacity Development of GDL (P51)</td><td>・ Operationalization of NLC & NLSC, and GDL as the Secretariat
・ Enhancement of the Consultation Capacity with the Private Sector
・ Development of a Logistics Database
・ Enhancement of the MP Monitoring Capacity</td><td>・ Facilitation of TWG, NLSC and NLC
・ Promotion of Public-Private Consultation
・ Publicization of Logistics Master Plan
・ Promotion of Implementation of Logistics Master Plan Projects
・ Enhancement of Monitoring and Evaluation and Data Collection Capacity</td><td>・ Facilitation of TWG, NLSC and NLC
・ Promotion of Public-Private Consultation
・ Publicization of Logistics Master Plan
・ Promotion of Implementation of Logistics Master Plan Projects and Preparation for Next Action
・ Monitoring and Evaluation and Preparation for Final Evaluation</td></tr>
<tr><td>Development of Logistics Regulatory Framework (P52)</td><td colspan="2">・ Review of the Railway Concession Agreement (including activation of the existing committee)
・ Updating and Enactment of a Railway Law
・ Development of Railway Regulations, Technical Standards and Operation Manuals
・ Implementation of Cross-Border Railway Agreements</td><td></td></tr>
<tr><td rowspan="2">Facilitation of Trade Agreements and Borderless Transportation (P53)</td><td colspan="2">・ Implementation of Zero Tariffs within ASEAN
・ Implementation of all WTO Agreements
・ Further Negotiations of CBTA, Bilateral Agreements and AFAFGIT</td><td></td></tr>
<tr><td>・ Assessment and Development of a Strategic Cross-Border Transport Permit Application System</td><td colspan="2">・ Development of the Regulatory Framework and Procedures for Implementation of Cross-Border Insurances
・ Improvement of the Inter-Ministerial and Private Sector Consultations</td></tr>
</table>

	・ Implementation of the Online Permit Application System		
Optimization of Logistics Costs (P54)	・ Review and Assessment of Logistics Fees/Tariffs Structure and Existing Regulations ・ Development of Optimized Fees/Tariffs Calculation Methodologies	・ Revision of the Regulatory Framework ・ Implementation of the New and Optimized Prices/Tariffs	

Source: JICA Study Team

Chapter 7 Implementation Framework and Monitoring

7.1 Implementation Framework and Governance of Logistics Master Plan

The ***National Logistics Council (NLC)*** will act as the national coordinating body and is responsible for final review of the Logistics Master Plan prior to submission to the Government for approval. The NLC is composed of the representatives of Ministry of Public Works and Transport (MPWT), Ministry of Economy and Finance (MEF), Ministry of Planning (MoP), Ministry of Commerce (MoC), Council for Development of Cambodia (CDC), Supreme National Economic Council (SNEC) and chaired by the deputy Prime Minister. NLC meetings will be held at least once a year. Progress made in each strategy and program will be reported to the NLC. It is aimed that annual progress report will be approved by the NLC.

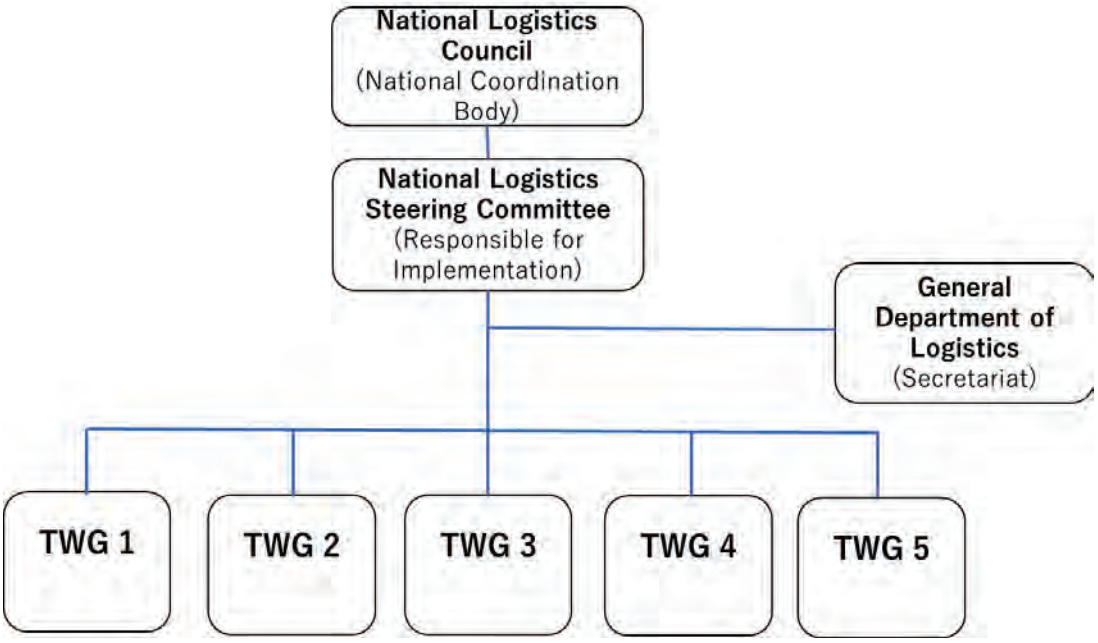
The ***National Logistics Steering Committee (NLSC)*** will be responsible for the actual implementation and monitoring of the MP. NLSC is composed of 36 agencies including line ministries, private sector and academia; and will report directly to the NLC. The private sector also participates in the NLSC as a member. Under the NLSC, there will be a number of technical working groups in specialized areas. NLSC will be responsible for the followings:

- NLSC members are responsible for the timely implementation of the Logistics MP
- NLSC members will have to provide relevant data and information on a timely manner to the secretariat
- NLSC will have to produce progress report at least twice a year for the NLC after its meeting to approve and publish it to the public
- NLSC members will have to consult with the private sector on a regular basis.

GDL/MPWT will play a role not only as a secretariat of NLC and NLSC, but also as the lead agency and focal point for the logistics sector, including planning and development of the logistics-related projects. GDL/MPWT will drive and coordinate various policies and initiatives in the logistics sector effectively through closer inter-agency coordination as well as public-private collaborations. Therefore, the GDL's responsibilities should include, but not limited to, the followings:

- GDL will maintain logistics database on a regular basis with inputs from NLSC members and independent sources
- GDL will act as a day-to-day focal point for the public-private sector partnership
- GDL will have to update progress of each project based on the information from relevant agencies
- GDL will have to prepare draft progress reports at least three times a year with inputs from NLSC members (each report for NLSC and NLC meetings)
- GDL will have to coordinate between relevant stakeholders including line Ministries, private sector (logistics service providers, freight forwarding associations, and business associations) and

development partners.



Source: GDL.

Figure 7.1.1 Logistics MP Implementation Framework

The Technical Working Groups (TWGs) comprise representatives of different stakeholders such as government agencies, associations, NGOs, and academicians, and conduct regular meetings to provide progress updates and address implementation challenges. Recommendations made by each TWG will be presented to and approved by the NLSC.

7.2 Resources required to implement the Logistics Master Plan

The Logistics Master Plan is designed to maximize the benefits for the Cambodia's logistics system with minimum costs. Phase I focuses on "low hanging fruit" that either does not need capital cost requirements (or with marginal capex cost requirements) or capital costs are largely covered by donors. Most of these projects under Phase I do not have large financial needs, but require: (i) strong government will; (ii) government efforts supported by dedicated government officials' time and (iii) consultancy support. The majority of consultancy support, if international consultants are required, is supposed to be provided by international donors if the government acts quickly to obtain donors' support.

There will be a moderate degree of capex requirements under Phase I. These are related to the road construction/rehabilitation, port expansion and service improvements, railway rehabilitation and extension, border facilities, IT infrastructure related to customs and other government procures, and training centers and facilities. Again, there seems to be strong willingness to support from international donors. But it seems that the government occasionally needs to provide capex expenditure from its own funds (e.g. railway extensions).

Table 7.2.1 Expected Financial Resources Required to Implement the Logistics Master Plan

（very rough and preliminary estimate）

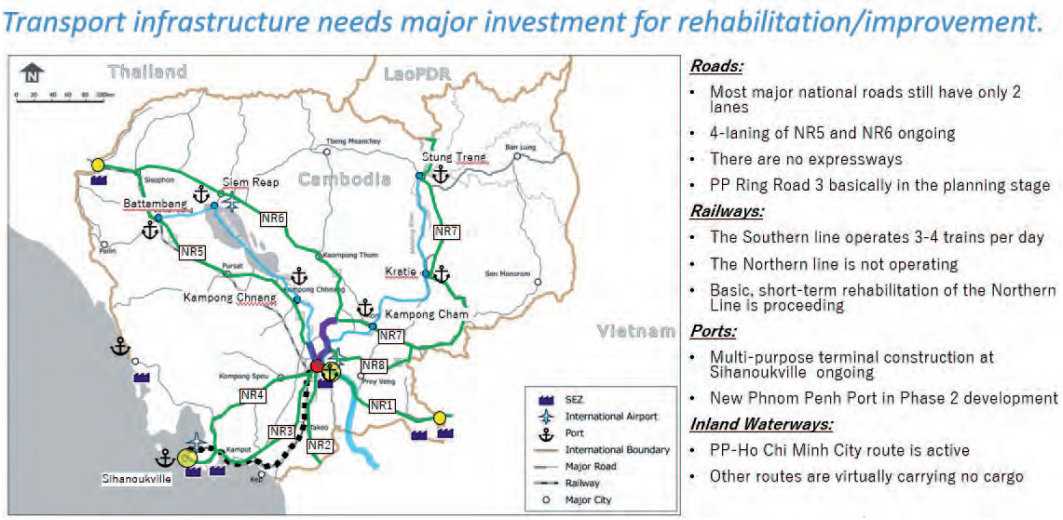
US$ million

	Short Term	Mid Term	Long Term	Total
Strategy1	1,892	1,622	12,197	15,711
Strategy2	77	409	2,364	2,851
Strategy3	69	50	4	123
Strategy4	42	1	14	57
Strategy5	47	3	4	54
Total	2,127	2,086	14,583	18,795

Notes: 1/ These are very rough estimates of capex requirements only (i.e. Opex costs are not included). Some of the projects under medium to long terms are based on master plan studies, but more precise feasibility studies need to be conducted to identify the more precise costs. 2/ The costs of large projects (e.g. expressways and logistics complexes) are not included in this table before proper feasibility studies are conducted. 3/ (e) refers to expected "external financing" (either from international donors or private sector).
Source: JICA Study Team based on project profiles.

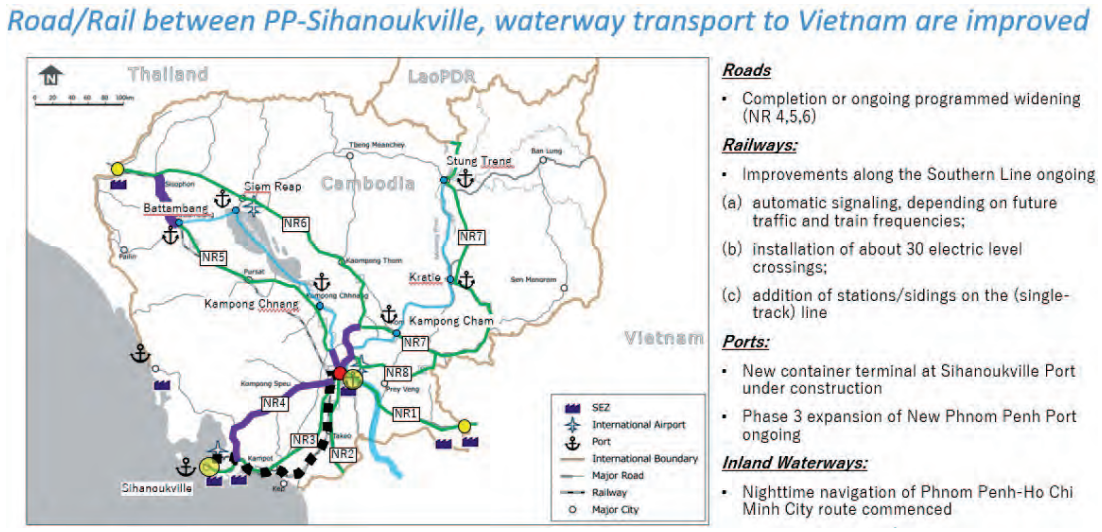
7.3 Expected Outcomes

Chapter 3 set out existing infrastructure development master plans for roads, railways, ports, inland water transport, and multimodal transport facilities. There are already ongoing projects. If all these projects are to be implemented on a timely manner, Cambodia's logistics network will be developed as follows.



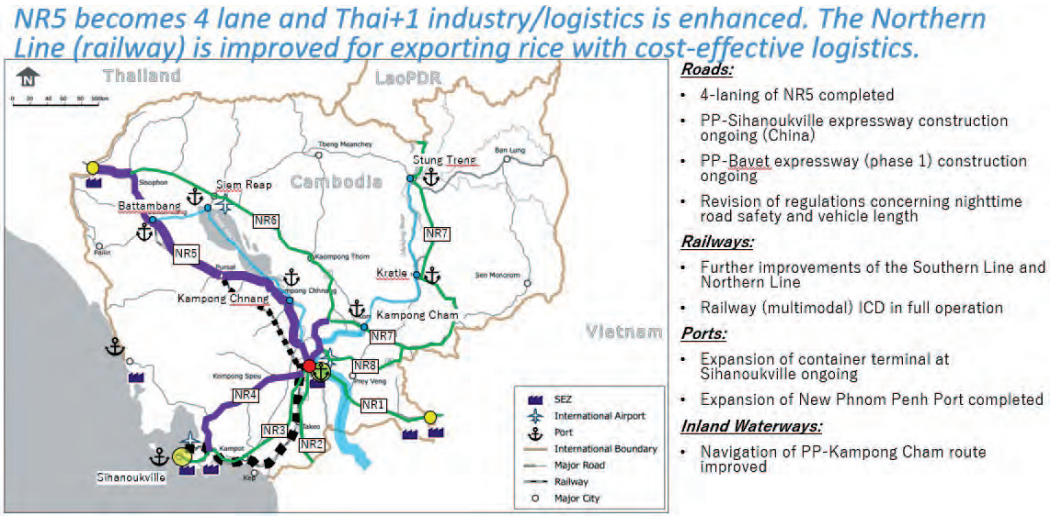
Source: JICA Study Team.

Figure 7.3.1 Transport Infrastructure – 2017



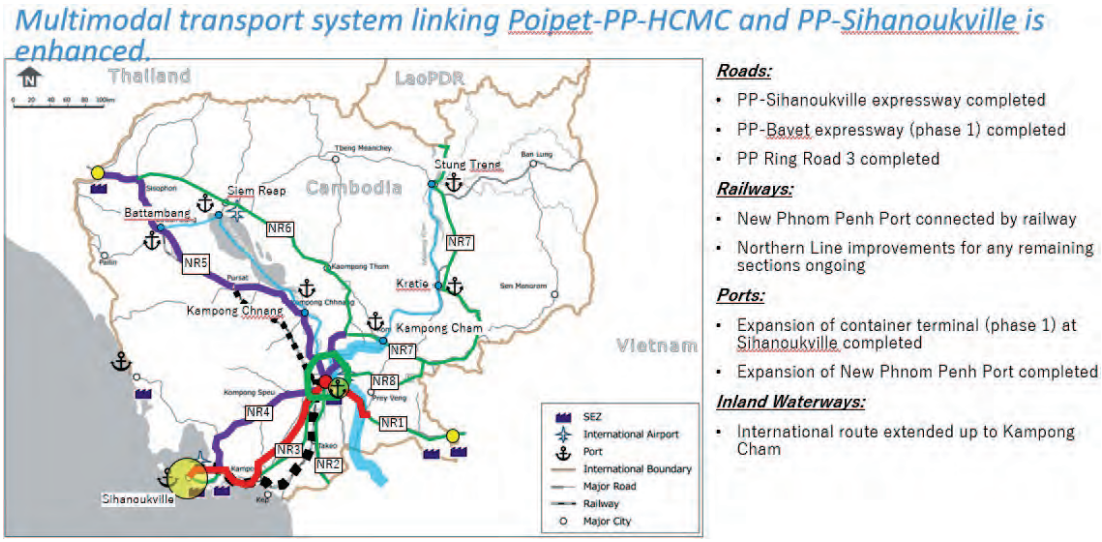
Source: JICA Study Team.

Figure 7.3.2 Transport Infrastructure – 2019



Source: JICA Study Team.

Figure 7.3.3 Transport Infrastructure – 2022



Source: JICA Study Team.

Figure 7.3.4 Transport Infrastructure – 2025

It may be noted that:

(i) For consideration of road infrastructure, the focus has been on improvements to main national highways (i.e., single-digit roads, as opposed to provincial and rural roads), e.g., as indicated in the respective expressway master plans, although funding constraints will necessarily affect implementation, the use of innovation approaches (e.g., involving PPPs) notwithstanding.

(ii) Realistically, the railway infrastructure development up to 2025 will focus on the core network, i.e., the Southern and Northern Lines. As noted, implementation dates for proposed new railway lines will depend on funding availability; at least some of the projects, especially the link with Vietnam, have been discussed for decades.

(iii) For ports and inland water transport from the border with Vietnam to Tonle Bet (Kampong Cham), reference was made to materials provided by Phnom Penh Autonomous Port and Sihanoukville Autonomous Port.

(iv) Regarding inland water transport other than mentioned in (iii) above, there is virtually no cargo transport nowadays according to the Department of Public Works and Transport of the relevant provinces; the development of NR/NH 7 along the Mekong River replaced conventional inland water transport with truck transport and the development of NR/NH 5 and NR/NH 6 eliminated the inland water transport along the Tonle Sap River.

The key in the Strategy 3 is the construction of the National Single Window. General Department of Customs and Exercise and many other government agencies will be concerned within the single electric system This is scheduled to be completed by 2022. The logistics master plan should support their efforts.

Table 7.3.1 Future Border Control Procedures toward NSW

Name of Authority	Current status	Short Term 2018-2019	Middle Term 2020-2022	Long Term 2023-2025
GDCE Customs	ASYCUDA platform	Consider renewal of platform and develop a new system	Integration as CNSW	Integration to CNSW
	ASYCUDA sub-systems E-Customs system	Integration to ASYCUDA		
MPWT KAMSAB Port EDI	No system	Develop Port EDI System		
MPWT Sihanoukville PA Port Management System	Container Terminal Management System	Merge two systems into one		
	Single Window System			
MOC Export-Import Department	e-Country of Origin	Integration to ASYCUDA		
Council Development of Cambodia	No system	Develop the necessary system		
MAFF GD of Agriculture (Plant Quarantine)	No system	Develop the necessary export license system and e-Phytosanitary Certificate system		
MAFF Department of Animal Health and Production	No system	Develop the necessary export license system and the Animal Health Certificate system		
MAFF Fisheries Administration	No system	Develop the necessary export license system and the Aquatic Product Certificate system		
MOH Food Safety Bureau	No system	Develop the necessary system		
MIH The Institute of Standard of Cambodia	No system	Develop the necessary system		
Other Government Agencies	No system		Develop the Necessary System	

Source: JICA Study Team.

7.4 Monitoring and Evaluation Framework

Cambodia currently does not have a monitoring and evaluation (M&E) framework to keep track of its logistics performance and relevant projects. For the successful implementation of the Logistics Master Plan, it is essential to establish the solid and sustainable M&E framework. For M&E activities, GDL (MPWT) is primary point of responsibility but without cooperation from other ministries and other

departments in MPWT, it is not possible for GDL to conduct this task. Therefore, this is also a responsibility for NLSC as a whole.

7.4.1 M&E Definition and Objectives

Definition

For GDL at the MPWT, monitoring and evaluation may be defined as follows:

- ***Monitoring:*** to review on a continuous basis the degree to which the logistics action plan is completed and if targets are being met. This allows corrective actions to be taken.
- ***Evaluation:*** to analyze progress towards meeting established objectives and goals. It can be done on an ad hoc or yearly basis. Evaluation provides feedback on whether strategies have been met and the reasons for success or failure. It should also provide direction for future strategies.

M&E Objectives

Monitoring and evaluation has several important objectives. Key objectives are as follows:

- to monitor progress of the Logistics Master Plan and report to the NLC/NLSC;
- to identify potential problems in the projects under the Logistics Master Plan and resolve issues without delays;
- to provide relevant information to policy makers on the logistics capability of Cambodia for them to make balanced/reasonable decision makings;
- to evaluate the development and impact on each sector (e.g. roads and ports) of the logistics sector;
- to identify problems/ proposed solutions in the logistics system based on the voices of logistics players (i.e. logistics service providers and shippers) and take measures for improvements in the logistics system. This can be used as a tool to communicate with the private sector;
- to make an objective evaluation of logistics services/activities/performance;
- to evaluate the impact on macroeconomy and assess contributions of the Logistics Master Plan in economic development;
- to compare Cambodia with other countries and compete with other countries in rankings.

7.4.2 Key Audience and Use of Data

In terms of reporting, there are several key audiences, and their key concerns are slightly different. Therefore, GDL needs to collect logistics data to meet all of key audiences' interests and needs. Primary audiences are as follows:

- **NLC/ NLSC**: Among all, NLC/NLSC are the prime audience. NLSC takes place twice a year and the key concern is to understand if Logistics Master Plan is in good progress or not and if any remedy is required. Once a year, NLC will be held. In addition to the information regarding progress of the Logistics Master Plan, NLC would be informed about sector development, public-private dialogues and key outcomes, LPI/WEF scores and ranking changes, macroeconomic movements and so on. Therefore, more comprehensive data collection is required to meet NLC's demand;
- **Private Sector**: The private sector's key concern relates to the improvement in the business environment. Many concerns have been raised and possible solutions were proposed, the business community needs to understand the progress of discussed issues and evaluate if the business

environment has improved or not. They would like to understand the forthcoming project development and would like to reflect their voices in the design of project development. Therefore, GDL needs to collect relevant information and data;

- **International Community/ General Public**: The international community is interested in the improvements or deterioration of the logistics environment in Cambodia. They often compare Cambodia with other countries they monitor and rank them. General public may want to know if the Cambodia's logistics sector is helping economic growth, job creation, and poverty reduction. Annual reports will be produced and distributed to the general public once a year (after one year anniversary).

GDL will have to collect the relevant data on a timely manner to satisfy the above-mentioned audiences. There would be the optimal "frequency" of reporting depending on: (i) needs of the key audience; (ii) data availability; and (iii) capacity constraints of the secretariat. Projects need to be monitored more frequently to avoid delays and in case of delays, early remedies are required. Survey data or externally produced data (e.g. WEF and LPI) can only be reported upon the publication of external reports.

7.4.3 Data Collection

Monitoring and evaluation are integral parts of policy deployment and provide a link between planning and implementation. While monitoring focuses on the activities and outputs, evaluation focuses on the outcome and goals. Monitoring needs to be initiated during the conceptual phase of Cambodia's Logistics Master Plan and needs to be built into the design, of the assessment and planning phases of each logistics development strategies. It focuses on inputs, outputs and outcomes. It tracks and assesses implementation of the five logistics strategies. It is the continuous process of gathering logistics and strategy deployment information to measure against pre-set key performance indicators (KPIs), benchmarks or previously base-lined indicators that are aligned to the goals and objectives of Cambodia's Logistics Master Plan.

In terms of data/information gathering, there are four key dimensions.

Four Dimensions	
(1) Project Dimension Monitoring Project Progress (project inputs, outputs and outcomes) *(Factual Data)*	**(2) Sector/Strategy Dimension** Monitoring Sector Specific Data (e.g. Roads, Ports, Railways) *(Mainly Factual Data)*
(3) Firm Level Dimension Monitoring Perceptions of Enterprises, Logistics Performances, Logistics Issues/Proposed Solutions *(Both Factual and Perceptions)*	**(4) Macroeconomic Dimension** Macroeconomic Statistics, International Indexes (e.g. LPI, WEF, Doing Business) *(Both Factual and Perceptions)*

(1) Project Level Monitoring and Evaluation

In terms of data/information gathering, the prime importance is to gather project level information. The prime objective is to monitor each of the projects under the Logistics Master Plan and report to NLC and NLSC. Public sector projects are very often delayed. While delays are permitted, the government needs to take quick actions to fix the problems and make the project back on track. To take track where

issues are originated, following three dimensions need to be monitored. This is in line with the Log Frame concept (i.e. widespread M&E international best practice), but is simplified for the purpose of the Logistics Master Plan.

- **Inputs/Activities**: Project inputs are often financial resources and human resources. Inputs could be raw materials, but it is hard to monitor. For the purpose of monitoring the Logistics Master Plan, the prime focus is to check project activities are completed as originally planned or delayed. Therefore, in addition to inputs, project activities can be monitored. For example, GDL may want to monitor if a feasibility study was completed in time or delayed; and if the procurement was successfully completed or delayed. If external donors are involved, the amount of disbursements could be monitored as it is a very good indication whether or not the project is on track or not.
- **Outputs:** Outputs are often physical infrastructure, such as km of roads constructed, port terminal constructed or any other physical facilities to be built with Master Plan projects. It can be new laws or changes of the government's procedures if the project objective is to establish soft infrastructure in the government. In line with procurement plans, the approximate completion date can be targeted (i.e. baseline) and the success/failure can be measured against the pre-set target/baseline.
- **Outcomes:** Outcomes are often the level of traffic, volumes of cargo, time and cost reductions, customer satisfaction, and so on. These outcome targets are slightly remote from the specific project. Sometimes outcome targets can be achieved without building the infrastructure or vice-versa (i.e. outcome targets can be missed despite the project is completed in time). This is often because macroeconomic conditions have changed, or the level of the private sector demand was not in line with what was assumed in the feasibility study.

By tracking these three dimensions, GDL will be able to summarize the fair status quo of each project and report the progress of the Logistics Master Plan to NLC/NLSC in a timely manner. Progress of projects could be aggregated as the progress of the program, progress of the strategy and eventually progress of the Logistics Master Plan.

Please note there are often significant linkages between project level outcomes (e.g. container terminal capacity increase of one port) and sector level data (e.g. container handling capacity of the country or container throughputs TEU). Sector level data will be monitored in the next pillar.

(2) Sector and Strategy Level Monitoring and Evaluation

The detailed list of actions under each strategy needs to be monitored under the M&E system. In total, there are five strategies that will need to be implemented. Under each strategy, there will be a number of programs and actions that will need to be implemented. It is noted that some of the strategy correspond to one sector (e.g. Strategy 3 correspond to the CIQ sector) and others correspond to more than one sectors (e.g. Strategy 1 includes roads, railways and ports).

Sector and strategy level monitoring and evaluation has two key aspects:

- One key aspect is to monitor and evaluate the "Overall Success" of each strategy. This is in theory the sum of all projects in the strategy. Therefore, the sum of input and output indicators can be assessed;
- Another dimension is to monitor and evaluate sector development. Not all projects are included in the Logistics Master Plan, but overall sector development is broader definition and could be monitored by international indexes and sector wide statistics. These statistics can be compared against the pre-set benchmarks (i.e., baseline data).

After obtaining the baseline data for logistics performance of users of logistics services and logistics service providers, the obtained KPIs are to align with the proposed five strategies developed for the Logistics Master Plan. By doing this, both quantitative and qualitative measures can be monitored for

the national logistics system.

Table 7.4.1 highlights key monitoring indicators for each strategy/sector. As a matter of principle, same indicators can be used during the life of the Logistics Master Plan. However, expected inputs, outputs and outcomes are different by phase. Therefore, depending on the project profiles in each phase, different expectations can be pre-set.

Table 7.4.1: Key Monitoring Indicators

	Phase I (to be monitored in 2020)	Phase II (to be monitored in 2023)	Phase III (to be monitored in 2026)	Key Monitoring Indicators
Strategy 1	***Outputs:*** • Central subcorridor upgrading (roads) completed • Intercorridor link and southern coastal corridor (roads) upgrading completed • Northern line (rail) completed • Mekong River basic improvements are made with the sound regulatory framework ***Outcomes***: • Road traffic increased • Reduction of travel time • Railway cargo traffic increased • Inland water transportation traffic increased		***Outputs:*** • Completion of central sub-corridor and Intercorridor link and local linkages • Additional railway lines to be constructed ***Outcomes***: • Further increase of road traffic volumes • Further reductions of travel time • Trade volumes of rural areas/provinces • Increased agricultural exports	**Key Logistics Data** • Reduced time of travel (by corridor) • Improved road safety standards (by corridor) • Railway cargo volumes (by line) • Inland water cargo volumes • Reductions of unit costs of logistics **2nd Pillar GCR-WEF** • Quality of roads: 3.2 out of 7 • Quality of railroad infrastructure: 1.6 out of 7 • Quality of port infrastructure: 3.7 out of 7
Strategy 2	***Outputs:*** • Port Investment Implementation without delays • New policy on PP truck restrictions • New LCL pilot implemented • Water taxi starts operations ***Outcomes***: • Port handling volumes • Port safety records • Border crossing time	***Outputs:*** • Port Investment Implementation without delays • Expansion of air cargo warehouse ***Outcomes***: • Border crossing time • Border crossing time	***Outputs:*** • PP logistics complex completed • Agricultural support logistics center completed ***Outcomes***: • PP local transportation costs to be reduced • PP transit time to be reduced	**Key Logistics Data** • Port handling volumes • Modal shift policy (%) • Land border handling volumes • Border Crossing time • Average border crossing costs • Transit time in PP • Transit volumes through Cambodia • Time to access main ports/land borders • Cost to access main ports/land borders **2nd Pillar GCR-WEF** • Quality of Overall infrastructure: 3.4 out of 7 • Quality of Air Transport Infrastructure: 3.7 out of 7
Strategy 3	***Outputs:*** • EDI and port management system (phase I) completed • Best trader initiative improved ***Outcomes***: • Reduced time of obtaining approvals • Reductions of errors in customs systems	***Outputs:*** • CNSW (phase II) completed • AEO fully implemented • ***Outcomes***: • Reductions of time and costs of crossing borders through CNSW • Increased number of exemptions for AEO	***Outputs:*** • Port EDI fully implemented • CNSW fully implemented ***Outcomes***: • Significant reductions of total logistics costs related to border control agencies (official and unofficial)	**Key Logistics Data** • Number of documents needed for exports • Number of documents needed for imports • Reduced time to obtain government approvals • Reduced border crossing costs • Improved efficiency of border control agencies • Reductions of waiting time at the borders • Ratio of official vs un-official **1st Pillar GCR-WEF** • Irregular payments and bribes: 3 out of 7 • Burden of government regulation: 3.4 out of 7

	• Improved efficiency of border control agencies • Reductions of waiting time at the borders	traders		• Efficiency of legal framework in settling disputes: 2.9 out of 7 • Efficiency of legal framework in challenging regulations: 2.8 out of 7 • Transparency of government policymaking: 3.2 out of 7 • The efficiency of customs and border clearance: 2.62 out of 5 (LPI)
Strategy 4	***Outputs:*** • Basic education programs established • TWG (with the private sector) established • ***Outcomes***: • Increased skills of truck drivers • Modernization of trucks	***Outputs:*** • Sustainable education system to be established • Grading system established ***Outcomes***: • Quality of LSPs to be improved • Increased competition (and reduced costs) among LSPs	***Outputs:*** • Grading system is established ***Outcomes***: • Quality of LSPs to be improved significantly	**Key Logistics Data** • Increased skills of truck drivers and other LSPs • Modernization of trucks • Increased competition as evidenced by lower prices • Increased policy initiatives between public and private partners **11th Pillar GCR-WEF** • Local supplier quality: 3.6 out of 7 • State of cluster development: 4 out of 7 • Nature of competitive advantage: 3.2 out of 7 • Value chain breadth: 3.6 out of 7 • Control of international distribution: 3 out of 7 • Production process sophistication: 3.1 out of 7 **LPI** • The competence and quality of • logistics services: 2.6 out of 5 • Timeliness: 3.3 out of 5 • The ability to track and trace consignments: 2.7 out of 5 **LSP/User Survey** • Average Order Cycle Time: 6.48 days • Transportation Lead Time: 4.16 days • Cash Conversion Cycle: 6.03 days • Delivery in Full On Time: 84.84% • Damage rate: 2.86% • Outsourcing ratio: 68% • Service level agreements: 26% • Delivery in Full & On Time: 82.32% • Damage rate: 3.46% • Customer complain rate: 5.8% • Ratio of returns: 3.68% • Forecast accuracy: 81.25% • Cash conversion cycle: 9.49 days
Strategy 5	***Outputs:*** • Institutional framework	***Outputs:*** • Institutional framework		**Key Logistics Data** • Number of consultations held

	for MP implementation established • Trade agreements all signed ***Outcomes***: • Increased number of cross-border transport permits • Reductions of state-controlled logistics costs	for MP implementation fully functional • Trade agreements all enforced ***Outcomes***: • Increased number of cross-border transport permits and vehicles • Reductions of state-controlled logistics costs significantly		• Implementation status of laws and regulations • Implementation status of international agreements (i.e. IWT with Vietnam) • Trade volumes (bilateral and nationwide) • Increased number of cross-border transport permits • Reductions of state-controlled logistics costs **6th Pillar GCR-WEF** • Prevalence of trade barriers: 4.1 out of 7 • Trade tariffs (% duty): 9.3% • Prevalence of foreign ownership: 4.5 out of 7 • Business impact of rules on FDI: 4.4. out of 7 • Burden of customs procedures: 3.2 out of 7 **Trade across borders/ Doing business** • Time to Export)Border Compliance(: 48 hours • Cost to Export)Border Compliance(: 375 USD • Time to Export)Documentary Compliance(: 132 hours • Cost to Export)Documentary Compliance(: 100 USD • Time to Import)Border Compliance(: 8 hours • Cost to Import)Border Compliance(: 240 USD • Time to Import)Documentary Compliance(: 132 hours • Cost to Import)Documentary Compliance(: 120 USD **LPI** • The ease of arranging competitively priced shipments: 3.11 out of 5 • Logistics Cost/Sales: 20.52%

(3) Firm Level Monitoring and Evaluation

As the logistics sector is dominated by the private sector, it is always a good idea to communicate with the private sector. Normally public-private dialogue focuses on the key logistics issues raised by the private sector and possible solutions that both parties agree upon. Apart from formalized public-private dialogue, it is often useful to conduct surveys because surveys are conducted on a confidential basis and interviewees tend to be honest. The number of samples is statistically robust rather than one voice represented by one business community. It is also possible to monitor "periodical changes" of perceptions and satisfaction levels.

There are three types of surveys as listed below.

- **Take stock of current logistics problems and proposed solutions**: this type of survey would ask the private sector (both shippers and LSPs) key logistics problems and proposed solutions.
- **Measurements of logistics performance/ satisfaction**: As a result of the implementation of the Logistics Master Plan, the logistics environment should be improved – reflected by lower logistics costs, reductions of travel time and increased reliability. This type of survey can directly measure logistics performances and their direct impact on businesses (e.g. corporate profitability and increased market share).
- **Understand market demand (pre-FS type purposes)**: The last type of the enterprise survey asks questions about the needs for building new logistics infrastructure or other soft logistics infrastructure (e.g. changes of regulations). For example, there is an idea to establish a Logistics Complex in various cities, but the government may not know the best location, key components/services in the Logistics Complex and the size of the complex (or size of the investment). Before conducting an expensive and time-consuming feasibility study, it is always a good idea to conduct a short survey to understand the private sector demand. Then the terms of reference of a feasibility study can be designed reasonably without wasting resources.

In terms of surveys, the World Bank conducts the Logistics Performance Survey every two years. The government may want to consider conducting its own survey in between these two years. Pre-FS type survey could be conducted anytime when there is a need to know the potential demand.

In addition to the above-mentioned enterprise surveys, GDL may want to conduct the following research from time to time.

- **Logistics Cost Survey:** GDL may want to monitor the periodical changes of key logistics costs – such as trucking costs, shipping costs, port-related pricing, and border-crossing costs.
- **Logistics Time Survey:** GDL may want to monitor the average time of travelling key routes (e.g. Poi Pet – Phnom Penh, Sihanoukville – Phnom Penh, Bavet – Phnom Penh, etc.) by roads, railways and vessels. This is primarily to measure the improvements of logistics system due to the implementation of projects but also to identify additional problems. Border crossing time should be monitored separately.

(4) Macro Level Monitoring and Evaluation

Finally, policy makers would like to see the impact of logistics improvements at the macro level. Impacts could emerge at two different levels.

- **Macroeconomic Indicators:** Perhaps the most important is to monitor economic activities. More directly, improvements in the logistics system are expected to invite more foreign investors – that

would lead to more manufacturing production in Cambodia – and indirectly leading to higher economic growth. Improvements in the logistics system would also result in more trade activities – i.e. more imports and exports. Such macroeconomic statistics can be measured by industry (e.g. agriculture, industry, etc.) and by location (exports from Poi Pet and Bavet separately).

- **International Indexes:** Second measurement is international logistics indexes. They are often perception indicators by foreign logistics professionals – therefore, it does not have to reflect the improvements on the ground but it is still very useful to monitor the changes in scores and rankings. These indicators are defined to cover all four dimensions of the national logistics system**.** There are indicators defined to measure:

  (i) quality of transport and communication infrastructure;

  (ii) efficiency and effectiveness of public institutions and policy framework for trade and logistics;

  (iii) quality and reliability of logistics services; and

  (iv) performance and competitive advantages of industry actors: shippers and consignees.

Through the literature, these indicators are commonly used and reported from the four most common sources in assessing the quality and performance of a national logistics system from a competitiveness perspective: The Global Competitiveness Report by the World Economic Forum[1]; The IMD World Competitiveness Yearbook[2]; Trading Across Border in the Doing Business[3] database and the Logistics Performance Index.[4]

Key indicators of the four dimensions can be defined to rely on some existing sources to update and analyze the quality and performance of a national logistics system. Table 7.4.2 defined key indicators and data to update them is annually available except for the LPI data which is published on a biennial basis. This data can be compiled and used for benchmarking purposes. provides some baseline data of Cambodia within the proposed M&E framework. The only source of data that is missing is IMD's World Competitiveness report as it does not have data on Cambodia for now. Nonetheless the framework is valid and would be useful for the Royal Government of Cambodia to request IMD to include the country.

Table 7.4.1 Scope of High Level Indicators for M&E system

Dimension	Data	Source
Infrastructure	Quality of roads Quality of railroad infrastructure Quality of port infrastructure Quality of air transport infrastructure Quality of electricity supply	2nd Pillar: Infrastructure Global Competitiveness Report World Economic Forum
	Roads Density of the network Railroads Density of the network Quality of air transportation Distribution infrastructure Logistics management Water transportation Maintenance and development Energy infrastructure	Basic Infrastructure IMD World Competitiveness Yearbook

[1] https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1

[2] https://www.imd.org/wcc/world-competitiveness-center-rankings/competitiveness-2017-rankings-results/ Currently, Cambodia is not included in the world competitiveness ranking as the ranking only includes 63 economies.

[3] http://www.doingbusiness.org/data/exploretopics/trading-across-borders

[4] https://lpi.worldbank.org/

	The quality of trade and transport infrastructure	Logistics Performance Index
Institutional	Irregular payments and bribes Burden of government regulation Efficiency of legal framework in settling disputes Efficiency of legal framework in challenging regulations Transparency of government policymaking	1st Pillar: Institutions Global Competitiveness Report World Economic Forum
	Tariff barriers: Tariffs on imports: Most favored nation simple average rate Customs' authorities: Customs' authorities do facilitate the efficient transit of goods	Government Efficiency IMD World Competitiveness Yearbook
	Prevalence of trade barriers Trade tariffs Prevalence of foreign ownership Business impact of rules on FDI Burden of customs procedures	6th Pillar: Goods Market Efficiency Global Competitiveness Report World Economic Forum
	Time to Export (Border Compliance) Cost to Export (Border Compliance) Time to Export (Documentary Compliance) Cost to Export (Documentary Compliance) Time to Import (Border Compliance) Cost to Import (Border Compliance) Time to Import (Documentary Compliance) Cost to Import (Documentary Compliance)	Trading Across Borders Doing Business
	The efficiency of customs and border clearance	Logistics Performance Index
Logistics service providers	The competence and quality of logistics services	Logistics Performance Index
	Timeliness	Logistics Performance Index
Shippers/ Consignees	Local supplier quality State of cluster development Nature of competitive advantage Value chain breadth Control of international distribution Production process sophistication	11th Pillar: Business Sophistication Global Competitiveness Report World Economic Forum
	The ease of arranging competitively priced shipments	Logistics Performance Index
	The ability to track and trace consignments	Logistics Performance Index

7.5 Performance Targets

As discussed above, outcome targets are not fully controllable and market movements cannot be fully predicted. In particular, economic growth and market demand could be stronger than anticipated – that could impact on the congestion, pricing and other key performance targets. Anyway, if all is taken as granted and development efforts are undertaken as planned in the Logistics Master Plan, the following performance objectives can be targeted.

The proposed improvement targets for Cambodia are based on the requirements that by 2020, the country would need to achieve at least the mean score for each indicator that is under the mean. For those indicators that are over the mean, it is important that their score increase by at least one unit. The 2025 targets should be based on at least another unit increase for each of the indicators. For the trading across border indicators it is necessary to reduce the time and cost by at least 10% for the year 2020 and a further 10% by the year 2025.

Table 7.5.1 offers a comprehensive breakdown of the key scores that will need to be improved. The advantage of using this reference table is that data is available on a yearly basis from the World

Economic Forum World Competitiveness Report as well as from the Doing Business database. The ranking data from the Logistics Performance Index will only be available every 2 years and the overall objective for Cambodia is to become a country with ***"consistent"*** logistics as a short to medium term goal instead of being just a partial performer as identified by the current version of the LPI. Improvement in the obtained score will be derived from the successful implementation of the 5 logistics development strategies devised for the Cambodian Logistics Master Plan.

Table 7.5.1 Improvement Target Scores for Cambodia

Dimension	Indicators	Baseline in 2017	2020	2025
Infrastructure	WEF (out of 7)			
	Quality of Overall Infrastructure	3.4	3.5	4
	Quality of roads	3.2	3.5	4
	Quality of railroad infrastructure	1.6	3.5	4
	Quality of port infrastructure	3.7	4	5
	Quality of air transport infrastructure	3.7	4	5
	Quality of electricity	3.5	4	5
	LPI (out of 5)			
	The quality of trade & transport infrastructure	2.36	2.5	3
Institutional	WEF (out of 7)			
	Irregular payments & bribes	3	3.5	4
	Burden of government regulations	3.4	3.5	4
	Efficiency of legal framework in settling disputes	2.9	3.5	4
	Efficiency of legal framework in challenging regulations	2.8	3.5	4
	Transparency of government policy making	3.2	3.5	4
	Prevalence of trade barriers	4.1	5	6
	Trade Tariffs *(% duty)*	9.3%	8%	7%
	Prevalence of foreign ownership	4.5	5	6
	Business impact of rules on FDI	4.4	5	6
	Burden of Customs procedures	3.2	3.5	4
	Trading Across Borders			
	Time to Export (Border Compliance-Hours)	48	43	38
	Cost to Export)Border Compliance-USD(	375	338	304
	Time to Export (Documentary Compliance-Hours)	132	118	106
	Cost to Export)Documentary Compliance-USD(	100	90	81
	Time to Import)Border Compliance-Hours(	8	7	6
	Cost to Import)Border Compliance-USD(	240	216	194
	Time to Import (Documentary Compliance-Hours)	132	118	106
	Cost to Import (Documentary Compliance-USD)	120	108	97
	LPI (out of 5)			
	The efficiency of customs and border clearance	2.62	3	4
LSPs	LPI (out of 5)			
	The competence and quality of logistics services	2.6	3	4
	Timeliness	3.3	4	5
Shippers/ Consignees	WEF (out of 7)			
	Local supplier quality	3.6	4	5
	State of cluster development	4	5	6
	Nature of competitive advantage	3.2	3.5	4
	Value chain breadth	3.6	4	5
	Control of international distribution	3	3.5	4
	Production process sophistication	3.1	3.5	4
	LPI (out of 5)			

	The ease of arranging competitively priced shipments	3.11	3.5	4
	The ability to track and trace consignments	2.7	3.5	4

These improvement targets have been based on the current logistics performance of key ASEAN countries with the best in class being used as a target. However, for certain KPIs it might not be possible to improve their score due to the nature of the sector or the economy. The empirical KPI data will also need to be collected on a regular basis. The proposed time period between surveys should be every 2 years and achievable targets should be devised in order to render logistics in Cambodia more competitive. Both surveys should be conducted by GDL with assistance and cooperation from the key private sector stakeholders.

Table 7.5.2 Improvement Targets for Actual Logistics Performance

Survey	KPIs	Baseline in 2017	2020	2025	Unit
Users of Logistics Services	Logistics Cost/Sales	20.52	16	11	%
	Delivery in Full & On Time (DIFOT)	82.32	85	90	%
	Damage rate	3.46	2	2	%
	Customer complain rate	5.80	2	2	%
	Ratio of returns	3.68	2	2	%
	Forecast Accuracy	81.25	85	90	%
	Cash Conversion Cycle	9.49	10	10	Days
	Outsourcing ratio	68	75	80	%
	Service Level Agreements	26	50	80	%
LSPs	Average Order Cycle Time	6.48	6	6	Days
	Transportation Lead time	4.16	4	4	Days
	Delivery in Full & On Time (DIFOT)	85.84	90	95	%
	Damage rate	2.86	2	2	%
	Cash Conversion Cycle	6.03	6	6	Days

Table 7.5.3 is the M&E framework for Cambodia based on the five logistics strategies of the Cambodian Logistics Master Plan with targets to be achieved in order to achieve Cambodia's SMART Logistics Vision 2025.

Table 7.5.3 Cambodia's M&E Framework with Targets

		Indicator	2017	2020	2025
Strategy 1 Programs	Development of Economic Corridors & International Gateways				
	Road Transport Capacity Enhancement	WEF: Quality of roads	3.2	3.5	4
	Promotion of Rail Freight Transport	WEF: Quality of railroad infrastructure	1.6	3.5	4
	Inland Water Transport improvement	WEF: Quality of port infrastructure	3.7	4	5
	Sihanoukville & Phnom Penh Port Development				
Strategy 2 Programs	Development of logistics Hubs for Multimodal transport				
	Bavet Border Area improvement	LPI: The quality of trade & transport infrastructure	2.36	2.5	3
	Poi Pet Border Area improvement	LPI: The quality of trade & transport infrastructure	2.36	2.5	3
	Logistics complex development	LPI: The quality of trade & transport infrastructure	2.36	2.5	3
	Air cargo hub development	WEF: Quality of Air Transport Infrastructure	3.7	4	5
	Urban transport facilitation	LPI: The quality of trade & transport infrastructure	2.36	2.5	3
	Regional development	WEF: Quality of electricity supply	3.5	4	5

	support				
Strategy 3 Programs	Improvement of Cross-Border Management and Trade Procedures				
	Port Management Enhancement	WEF: Irregular payments and bribes:	3	3.5	4
	Introduction of Cambodia NSW	WEF: Burden of government regulation	3.4	3.5	4
	Trade Support	WEF: Efficiency of legal framework in settling disputes	2.9	3.5	4
	Trade compliance improvement	WEF: Efficiency of legal framework in challenging regulations	2.8	3.5	4
	Optimization of CamControl and Procedures	WEF: Transparency of government policymaking	3.2	3.5	4
		LPI: The efficiency of customs and border clearance	2.62	3	4
Strategy 4 Programs	Enhancement of Private Logistics Services				
	Establishment of Logistics Technical Training Center	LPI: The competence and quality of logistics services	2.6	3	4
		LSP: Average Order Cycle Time (days)	6.48	6	6
		LSP: Transportation Lead Time (days)	4.16	4	4
		LSP: Cash Conversion Cycle (days)	6.03	6	6
		LSP: Delivery in Full On Time (%)	84.84	90	95
		LSP: Damage rate (%)	2.86	2	2
	Public private Dialogue	WEF: Efficiency of legal framework in challenging regulations	2.8	3.5	4
		WEF: Transparency of government policymaking	3.2	3.5	4
	Logistics Business Modernization and Green Logistics Promotion	User: Outsourcing ratio (%)	68	75	80
		User: Service level agreements (%)	26	50	80
		Delivery in Full & On Time (%)	82.32	85	90
		Damage rate (%)	3.46	2	2
		Customer complain rate (%)	5.8	2	2
		Ratio of returns (%)	3.68	2	2
		Forecast accuracy (%)	81.25	85	90
		Cash conversion cycle (days)	9.49	10	10
	Introduction of Modern Logistics Business Models	LPI: The ability to track and trace consignments	2.7	3.5	4
	Market Mechanism Enhancement	WEF: Local supplier quality	3.6	4	5
		WEF: State of cluster development	4	5	6
		WEF: Nature of Competitive Advantage	3.2	3.5	4
		WEF: Value chain breadth	3.6	4	5
		WEF: Control of international distribution	3	3.5	5
		WEF: Production process sophistication	3.1	3.5	5
Strategy 5 Programs	Strengthening of Legal and Institutional Framework				
	Capacity Development of GDL				
	Development of Logistics Regulatory Framework				
	Facilitation of Trade	TAB: Time to Export (Border Compliance) (Hours)	48	43	38
		TAB: Cost to Export (Border Compliance) (USD)	375	338	304

	Agreements and Borderless Transportation	TAB: Time to Export (Documentary Compliance) (Hours)	132	118	106
		TAB: Cost to Export (Documentary Compliance) (USD)	100	90	81
		TAB: Time to Import (Border Compliance) (Hours)	8	7	6
		TAB: Cost to Import (Border Compliance) (USD)	240	216	194
		TAB: Time to Import (Documentary Compliance) (Hours)	132	118	106
		TAB: Cost to Import (Documentary Compliance) (USD)	120	108	97
		WEF: Prevalence of trade barriers	4.1	5	6
		WEF: Trade tariffs *(% duty)*	9.3	8	7
		WEF: Prevalence of foreign ownership	4.5	5	6
		WEF: Business impact of rules on FDI	4.4	5	6
		WEF: Burden of customs procedures	3.2	3.5	4
		LPI: The ease of arranging competitively priced shipments	3.11	3.5	4
	Optimization of Logistics Costs	User: Logistics cost/sales (%)	20.52	16	11

Chapter 8 Conclusions and Recommendations

8.1 Conclusions

Cambodia experiences continuous economic growth in this decade, which drastically increases import and export volume. On the other hand, population increases in Cambodia, especially urban population in major cities. The peoples in urban area rapidly improve income level depending on increase better job opportunities under the favorable economic growth. It accelerates to expand goods demand in volume and to diversity type of goods demanded.

Accordingly, volume of goods transported increases and types of goods are diversified. Many types of goods like goods with lower price, light weight but big capacity, goods with lower price, heavy weight, the goods with higher price with lower weight and small capacity.

The Government of Cambodia formulates "Cambodian Industrial Development Policy 2015-20125 (IDP)", which aims to shift the industrial structure to higher value-added and technical based industry from light industry. The current major industry in Cambodia is a lower value-added light industry which imports materials, produces with lower wage and exports under the GSP based on the advantages of production cost and the GSP against the surrounding countries. Higher value-added industries like machinery, electric parts, assembling manufacturing as well as sophistication of current light industry would be strategically attracted relocation of factories from Thailand and Vietnam and China under "Thai+1", "Vietnam+1" and "China+1". Based on the accumulation of these industries, manufacturing and logistics businesses targeting market at the Mekong Region and ASEAN shall be attracted to Cambodia by enhancing VMI (vender management inventory) and other modern logistics services

In this regard, the lower production cost should be maintained as the advantage of Cambodia. The logistics should be improved to effectively keep the advantage of Cambodia by realizing lower cost, reliable and less-stressed logistics in terms of documentation, inspection procedure and practice.

On the other hand, current society is information society in general. Peoples not only the advanced country but also country in Mekong Region and Cambodia simultaneously share information through internet including the cutting-edge information like music, fashion, new equipment and foods and beverage and so on. The middle income urban peoples strongly demand these cutting-edge information and goods, so that it is necessary to respond modern logistics like last mail logistics for eCommerce and internet shopping.

Accordingly, SMART LOGISTICS 25 (Sufficient capacity and variety, Multi-modal, advanced Technology, and Reliable Transport) is proposed to strengthen basement for further economic growth and urbanization in Cambodia with emphasizing the following 4 principle directions:

- To sufficiently respond increased volume of cargo

- To sufficiently respond diversified types of cargo
- Efficient logistics (lower cost, reliable and less-stress) to enhance "Thai+1", "Vietnam+1" and "China+1"
- Modern logistics under ICT technology

To satisfy the 4 principles directions above, the following 5 strategic actions should be focused on to improve the logistics in Cambodia:

Strategy 1: Transport network should be improved, especially in terms of capacity and efficiency in the reginal corridors.

Strategy 2: Logistics hubs should be strengthened to realize efficient cargo transport (with reasonable logistics cost), especially at international gateways (Sihanoukville, Phnom Penh, Bavet, Poipet, Phnom Penh International Airport)

Strategy 3: Seamless border-crossing should be institutionally enhanced through the Port EDI, CNSW and other trade facilitation supports.

Strategy 4: Private logistics service providers should substantially enhanced to offer the customers variety of logistics services responding diversified requests.

Strategy 5: Institutional and organization frameworks should be enhanced to support realizing the above strategies.

Along the 5 strategies, 25 programs are proposed consisting of the short, mid and long term projects.

8.2 Recommendations

It is of importance to realize the logistics master plan, which will be developed based on this study, to accelerate economic development, especially industrialization and urban economy. For this purpose, it is indispensable to officially formalize the logistics master plan in the Government of Cambodia though the NSL and NLSC as the initial attempt. Then, the GDL shall be the authorized secretariat to coordinate and monitor the implementation of the master plan. The GDL also a part of implementation body for certain logistics projects as well.

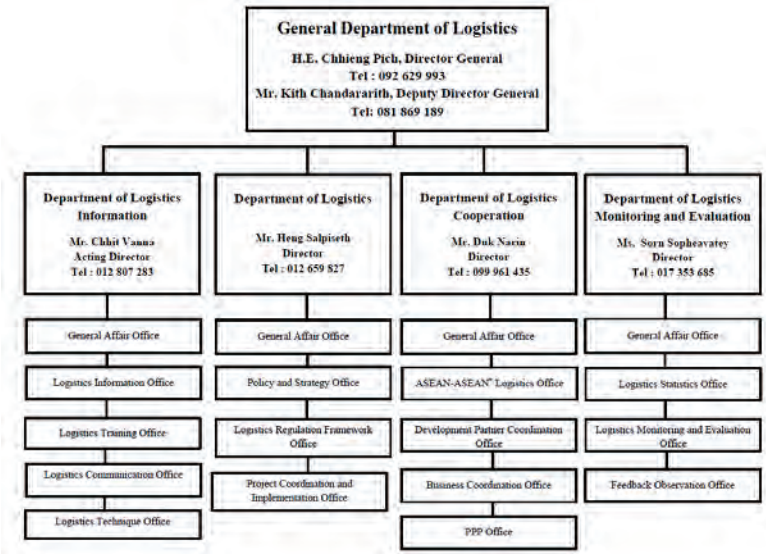
In this regard, it is recommended to carry out the capacity development of the GDL as the highest and most prioritized action to realize the logistics master plan. In addition, improvement of public-private dialogue is also important action to deepen collaboration and cooperation logistics improvements among the public and private. The mutual understandings and cooperation between public and private may effectively and flexibly function to solve the further problems.

8.3 Capacity Building Plan for GDL

As GDL is the newly established organization in the MPWT, the institutional capacity building of GDL is required in parallel to the preparation and launch of the logistics master plan.

8.3.1 Organization of GDL and Initial Needs Assessment

Figure 8.3.1 shows the organization of the GDL, each departments and offices (unofficial translation from Khmer to English as of December 2017). The duty and responsibilities of each department and office are defined in Prakas No. 246 – 249 MPWT, dated 12 July 2017, on the organization and functions of each department. There are some overlapping duties and responsibilities in different offices and departments. The clarification and proper division of assignment of the responsibilities of each office and department are necessary in the process to implement of the work of GDL.



Source: JICA Study Team

Figure 8.3.1 Organisation Chart of GDL

JICA Study Team ("JST") conducted interviews to directors and general director of GDL to understand the required capacity of GDL and analyze the current status and the urgent needs of capacity building. The required capacity, current status, and possible support from JST are shown in the below tables for each function of GDL and the relevant department in GDL.

Table 8.3.1 Capacity Building Needs of GDL

Function of GDL	Coordination for NLSC and NLC	
Relevant Department in GDL	Department of Logistics	
Capacity required to GDL	Current Capacity of GDL	Possible Support from JST
- Set agenda - Provide data - Report progress - Raise issues for discussion - Develop analytical paper - Take the minutes and agree on Next steps (action plan) - At the next meeting, report progress and agree on the next	- The responsible department/office is defined - Not enough experienced staff for analytical work or reporting - General administration skill such as coordination to hold the meeting, taking the minutes is equipped	- Support GDL - Support GDL and teach how to present data - Support GDL to formulate progress data gathered from relevant agencies - Support GDL how to select issues for discussion - Prepare analytical paper

steps		together with GDL (possibly using a local research firm) - Support the GDL to develop the system to chase progress/report/ next steps procedures

Function of GDL	Private-Public Consultation	
Relevant Department in GDL	Department of Logistics, Department of Logistics Cooperation	
Capacity required to GDL	Current Capacity of GDL	Possible Support from JST
- Develop measures to consolidate the private sector views - Develop measures to consolidate the public-sector views - Set agenda - Develop an analytical paper to kick start the consultation meeting(s) - Take the minutes and agree on next steps (Action Plan) - At the next meeting, report progress and agree on the next steps	- The responsible department/office is defined but overlapped among the different departments - Not enough experienced staff for facilitation - The current system of public-private consultation is not functioning well	- Propose the options - Support to organize joint meetings among the private sector - Support to decide on the organizational structure - Support to set agenda - Prepare analytical paper together with GDL (possibly using a local research firm) - Support the GDL to develop the system to chase progress/report/next steps procedures

Function of GDL	Logistics Managemet and Basic Understanding of General Logistics Knowledge	
Relevant Department in GDL	All departments	
Capacity required to GDL	Current Capacity of GDL	Possible Support from JST
- General Logistics Knowledge - Public administration on Logistics and master plan Management	- Not many staffs majored in Logistics - Not yet experienced master plan management tasks	- Conduct Lecture / plan study visit - Conduct On-the-Job Training regarding the master plan management

Function of GDL	Policy Development	
Relevant Department in GDL	Department of Logistics Department of Logistics Cooperation (PPP project)	
Capacity required to GDL	Current Capacity of GDL	Possible Support from JST
- Project Initiation - Run pre-feasibility study or coordination to run pre-feasibility study - Preparation of PPP project - Run periodical surveys to measure logistics performance - Run occasional survey to understand the market demand	- The responsible department/office is defined but overlapped among the different departments - No experience in project development or PPP project	- Develop a checklist for viability check/ initial assessment - Run one pre-feasibility study together with GDL (sub-contracting can be included in the contract) - Run one occasional survey together with GDL (on the job

		training basis) (sub-contracting can be included in the contract)

Function of GDL	Data Collection (Project / Sector / Macro level)	
Relevant Department in GDL	Department of Logistics Monitoring and Evaluation Department of Logistics Information (except M&E)	
Capacity required to GDL	Current Capacity of GDL	Possible Support from JST
- Support a set of data requirements - Set the baseline - Develop the data gathering methodology - Develop Database (including format and template) - Processing data and reporting to NLSC - Performance evaluation - Updating and backup database	- The responsible department/office for M&E is defined, but partly overlapped such as data collection - The format and methodology of M&E and reporting are not determined - Not enough experienced staff for making overall monitoring and evaluation plan including design of web-based data gathering system	- Support GDL - Support GDL to set the baseline data - Support GDL to define the methodology - Support GDL on the database design (excel base) - Support GDL to process data

Function of GDL	Development of Web-Based Data Gathering System	
Relevant Department in GDL	Department of Logistics Monitoring and Evaluation Department of Logistics Information (except M&E)	
Capacity required to GDL	Current Capacity of GDL	Possible Support from JST
- Development of Web based data gathering system - Develop contents - Web launch and maintenance	- The design of Web-based data system is not determined (World Bank has proposed the data system, but GDL is not planning to take loan) - Not enough experienced staff for making overall monitoring and evaluation plan including design of web-based data gathering system	- Support GDL to design contents (possibly outsourcing web design to a local company)

Source: JICA Study Team

8.4 Proposal of Capacity Building Activities and Technical Cooperation Project

After the discussion and interviews, JST found that the urgent capacity building needs would have to focus on training of the basic knowledge of logistics and on-the-job training for the launch and initial implementation of the Logistics Master Plan. This is because the completion and administration of the Logistics Master Plan is the most important responsibility of GDL. To support GDL to be equipped the required capacity, JST may conduct a series of the capacity building activities such as the training course and on-the-job training regarding the logistics issues and master plan from January to June 2018. Successively, the technical cooperation project (TCP) is expected to be conducted from around April 2018 for five years.

JST has proposed the framework of capacity building activities by the output 1 – 3 for three phases;

MP study (August 2017 to March 2018), Transition Period (from Middle/end of January 2018 until June 2018) and TCP (expected to start after April 2018 for five years), as described Table 8.4.1 below. The detailed task, possible support from JST and actions of GDL in the transition period are described in Table 8.4.2. The implementation plan of the capacity building activities should be discussed and determined according to the priority of GDL.

Table 8.4.1 Capacity Building Activities Framework

Output	Activities		Actions by Phase			Relevant Strategy and Program in the Master Plan
			MP Study (Current- Mar 2018)	Transition Period (Mid/End Jan 2018 – Jun 2018)	Technical Cooperation Project (After April 2018 (tentative))	
Output 1 (Foundation Layer)	(1-a) Masterplan Facilitation and Formulation (as a Part of MP Study)					
	1-1	Formulation of Master plan	- Data collection - Survey, interview - Planning - Drafting	(None)	(None)	- Strategy 5 - P51
	1-2	NLSC, NLC facilitation (for MP approval)	- Setting agenda - Preparing materials - Facilitation - Administration	(None)	(None)	- Strategy 5 - P51
	1-3	Dissemination Seminar	(None)	- Administration - Facilitation - Presentation	(None)	- Strategy 5 - P51
	(1-b) Master Plan Implementation					
	1-4	Public-Private Consultation	(None)	- Hold the stakeholder consultation meeting to consolidate opinions from stakeholders	- Continue the Public-Private Consultation mechanism	- Strategy 4 - P42 - Strategy 5 - P51
	1-5	NLSC, NLC facilitation (for MP monitoring and implementation)	(None)	(M&E and Regular reporting)	- Facilitate the second and successive NLSC and NLC - Making report to NLSC and NLC	- Strategy 5 - P51
	1-6	Public Communication	(None)	- Hold a dissemination seminar (1-3)	- Implement and maintain the MP publication	- Strategy 5 - P51
Output 2 (Action Layer)	(2-a) Logistics Management and Planning					
	2-1	Logistics Planning	(None)	- Lectures on the logistics masterplan programs, logistics planning	- Continue logistics management and planning, and capacity building of GDL	- Strategy 5 - P51
	2-2	Logistics Basic Knowledge	(None)	- General Logistics Course, eCommerce, Customs, logistics business and	- Continue training - Implement Study Visit	- Strategy 5 - P51

				facilities (including site visit in Cambodia)		
	2-3	Training Needs Assessment of Private Logistics Sector and Training Planning	(None)	(None)	- Study and develop the training plan to other ministries and private sector (such as information and follow-up workshop of the logistics master plan for other ministries, logistics technical training center project (P41) for the private sector) (if necessary)	- Strategy 5 - P51 - Strategy 4 - P41
	(2-b) Logistics Project Formulation					
	2-4	Pre-FS	(None)	- Initiation of "Bavet Border Area Improvement Project (P21)"	- Continue the management and implementation of P21 - Conduct other projects	- Strategy 1 - Strategy 2 - P21 - Strategy 3
	2-5	Survey	(None)	- Conduct logistics company survey as a pilot - Analyse the result of survey	- Continue survey regularly - Publish the survey result and analysis - Reflect in the Public-Private dialogue	- Strategy 4 - P42 - P43 - P44
Output 3 (M&E Layer)	(3-a) Master Plan Monitoring and Evaluation					
	3-1	Setting Baseline	(None)	- Lectures on monitoring and data collection methodology - Specify and select the necessary data and information for M&E - Specify and select the monitoring items - Set the baseline of the monitoring items	- Review and update as needed	- Strategy 5 - P51
	3-2	Data Collection	(None)	- Collect the necessary data	- Continue data collection	- Strategy 5 - P51
	3-3	Data Maintenance	(None)	- Develop data management	- Continue data maintenance	- Strategy 5 - P51

				method such as excel-based management - Update and store collected data		
	3-4	Reporting	(None)	- Draft regular report	- Continue drafting regular report	- Strategy 5 - P51
	3-5	IT system to Data Management	(None)	(None)	- Develop analytical and design plan of IT system to Data Management (If it is decided as necessary)	- Strategy 5 - P51

Source: JICA Study Team

Table 8.4.2 Tasks of Capacity Building Activities in Transition Period

Tasks of GDL			Actions by JST	Actions by GDL
Output 1 (Foundation Layor): (1-a) Master Plan Facilitation and Formulation (as a Part of MP Study)				
1-1	Formulation or Master plan	- Data collection - Survey, interview - Planning - Drafting	- Draft by JST	- Attend the interview - Review draft and make comments - Proofread Khmer version (ex, summary)
1-2	NLSC, NLC facilitation (for MP approval)	- Set agenda - Facilitation - Administration	- Support in setting the agenda - Support in preparing presentation	- Review and finalize agenda and presentation - Administration and Facilitation Take minutes
1-3	Dissemination Seminar	- Set agenda - Administration - Facilitation - Presentation	- Support in setting the agenda - Support in preparing presentation	- Review and finalize agenda and presentation - Administration and Facilitation Take minutes
(1-b) Master Plan Implementation				
1-4	Public-Private Consultation	- Hold the public-private consultation meeting - Take issues from private sector and consider solution	- Advise the mechanism of regular public-private consultation	- Review and make decision - Administration and facilitation to hold stakeholders consultation meeting (manage member selection, invitation) - Work as the secretariat - Work together with JST as OJT
1-5	NLSC, NLC facilitation (for MP monitoring and implementation)	- Report regularly - Conduct monitoring and evaluation	(Support M&E and regular report)	- Conduct M&E - Draft regular reporting
1-6	Public Communication	- Publish the logistics master plan	- Support organizing the dissemination seminar	- Administration and facilitation take minutes
Output 2 (Action Layor) : (2-a) Logistics Management				
2-1	General Logistics Knowledge	- Obtain general logistics knowledge	- Lectures on General Logistics Course, eCommerce, Customs, logistics business and facilities (including site visit in	- Participate in lectures

			Cambodia)	
2-2	Logistics Management	- Obtain knowledge about logistics management	- Planning of Study Visit to study the logistics management and implementation of master plan in other countries	- Select members to participate in Study Visit
2-3	Training Needs Assessment of Private Logistics Sector and Training Planning	N/A（In TCP phase, study and develop the training plan to other ministries and private sector (such as information and follow-up workshop of the logistics master plan for other ministries, logistics technical training center project (P41) for the private sector)		
(2-b) Policy Development/Project Development				
2-4	Project Initiation/Development	- Planning and project development Coordination among the stakeholders	- Prepare the preliminary planning of pre-feasibility study of one pilot project (Bavet Border Area Improvement Project)	- Work together with JST as OJT - Coordination with other ministries/private sector - Examine future budget allocation
2-5	Survey Implementation	- Design and conduct logistics company survey	- Prepare and examine the design of periodical/occasional survey to understand the logistics performance and market demand - Conduct logistics company survey as a pilot - Analyze the result of survey	- Work together with JST as OJT
Output 3 (M&E Layor): (3-a) Master Plan Monitoring and Evaluation				
3-1	Setting Baseline	- Set the baseline data for monitoring of logistics master plan	- Lectures on monitoring and data collection methodology - Specify and select the necessary data and information for M&E - Specify and select the monitoring items - Set the baseline of the monitoring items	- Participate in lecture - Work together with JST as OJT
3-2	Data Collection	- Collect the necessary data	- Collect the necessary data	- Work together with JST as OJT - Conduct data collection
3-3	Data Maintenance	- Maintain the collected data and update regularly	- Develop data management method such as excel-based management - Update and store collected data	- Work together with JST as OJT
3-4	Reporting	- Make a regular report to NLSC and NLC	- Support in draft regular report	- Draft regular report
3-5	IT System/Data Management	N/A (In TCSP phase, develop analytical and design plan of IT system to Data Management (If it is decided as necessary))		

Source: JICA Study Team