Establishing Legal and Institutional Basis for Efficient Dry Ports Development in East Asia

YE ChoongYeol I Naohisa OKAMOTO I Heng Salpiseth I Bounta ONNAONG I Aung Khin Myint

THE KOREA TRANSPORT INSTITUTE

Eastern Asia Society for Transportation Studies 1994 EASTS

2017-2018 KOTI-EASTS Special Research Report

Establishing Legal and Institutional Basis for Efficient Dry Ports Development in East Asia

2018. 07

The Korea Transport Institute (KOTI)
Eastern Asia Society of Transportation Studies (EASTS)

Authors

YE ChoongYeol

Vice President,
The Korea Transport Institute,
Korea

Naohisa OKAMOTO

Professor,
University of Tsukuba,
Japan

Heng Salpiseth

Director,
Department of Logistics,
Ministry of Public Works and Transport,
Cambodia

Bounta ONNAONG

Director General,
Department of Transport,
Ministry of Public Works and Transport,
Lao PDR

Aung Khin Myint

Chairman,
Myanmar International Freight Forwarders' Association,
Myanmar

ISBN 979-11-6384-050-3 (93530)

Please cite this publication as:
The Korea Transport Institute and Eastern Asia Society of Transportation Studies (2018),
Establishing Legal and Institutional Basis for Efficient Dry Ports Development in East Asia

Preface

The economic development of South East Asian regions is expected to be steadily progressed in the future. In this reason, timely development of logistics infrastructure is considered to be essential to support sustainable economic development. It is why importance of the dry port has been recognized in Myanmar, Lao People's Democratic Republic and Cambodia where potential economic growth will be promised. Demand for dry port development is expected to grow with Asian Highway and Trans Asia Railway projects led by the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP).

Since its establishment in 1986, the Korea Transport Institute (KOTI), the nation's prominent think tank in transport and logistics in Korea, has been conducting numerous studies, including national transportation and logistics master plans for both nationwide and metropolitan areas. Recently it has focused on conducting global transportation and logistics research projects in order to contribute its competences to developing countries.

In this context, KOTI suggested collaborative research on legal and institutional framework for dry port development with the Eastern Asia Society for Transportation Studies (EASTS) based on year-long cooperation between two institutes. Utilizing EAST's extensive regional expert network, three countries in South East Asia - Myanmar, Lao People's Democratic Republic and Cambodia were selected for case studies. Due to differentiation in legal and institutional development of each country, it is barely possible to secure detailed legal and institutional contents from each country in South East Asia. Nevertheless, it is regarded to be worthwhile observing the current situations of each country as a meaningful foundation for future cooperation. We hope this report to be used as a basic reference for further studies in the South East Asia region.

Finally, we sincerely appreciate the works of Dr. Naohisa Okamoto, a professor at University of Tsukuba and secretary general of EASTS and Dr. Choongyeol Ye at KOTI for coordinating this cooperative research and contributing in preparing this report.

OH Jae Hak
President, the Korea Transport Institute

YAI Tetsuo
President, Eastern Asia Society for Transportation Studies

Contents

Preface _ 3
Contents _ 4
Table _ 6
Figure _ 6

Chapter 1

Introduction and Overview _ 9

Chapter 2

Status and Plans of Dry Port Development in Cambodia _ 27

2.1 General Information _ 28
2.2 Logistics Infrastructure and Key Issues in the Logistics Sector _ 32
2.3 Government Institutions for Logistics Sector _ 41
2.4 Institutional and Legal Framework _ 44
2.5 Existing Institutional and Legal Framework for Dry Port Development _ 45
2.6 National Plan for Development of a Logistics Hub for Multi-Modal Transport _ 48
2.7 National Strategies and Plans for the Development of Economic Corridors and International Gateways _ 54
2.8 Financing the Development of Logistics Infrastructures _ 55
2.9 Laws and Regulation for the Development of Logistics Infrastructures _ 57
2.10 Diagnosis on Current System for Developing Logistics Infrastructures _ 58
2.11 Conclusion and Suggestions _ 60

Chapter 3

Status and Importance of Dry Port Development in Land-Locked Lao PDR _ 65

3.1 General Information _ 66
3.2 Logistics Status in Lao PDR _ 68
3.3 Government Organization _ 72
3.4 Institutional and Legal Framework _ 73
3.5 Development Plan for Dry Ports _ 77
3.6 Strategies and Plans Regarding the ASEAN Highways and Trans Asia Railway _ 79
3.7 The Development Process of Logistics Infrastructures: Administration and Financing _ 81
3.8 Case Study: Savan Logistics Dry port _ 82
3.9 Laws and Regulations for the Development of Logistics Infrastructure _ 83
3.10 Diagnosis of the Current System for Developing Logistics Infrastructure _ 87

3.11 Legal Loopholes or Subjects of Improvement in Developing Logistics Infrastructures _ 90
3.12 Conclusions and Suggestions _ 91

Chapter 4

Issues and Challenges of Dry Port Development in Myanmar _ 95

4.1 General Information _ 96
4.2 Issues in the Field of Logistics _ 97
4.3 Government Organizations _ 103
4.4 Institutional and Legal Framework _ 104
4.5 Diagnosis on the Current System for Developing Logistics Infrastructures _ 108
4.6 Conclusion and Suggestions _ 111

Chapter 5

Logistics Issues and Regional Dry Port Development in Japan _ 115

5.1 General Information _ 116
5.2 Issues of Logistics in Japan _ 117
5.3 Japanese Government Organizations related to Logistics _ 120
5.4 Legislation and Policy _ 123
5.5 Case Studies _ 129
5.6 Challenges and Conclusions _ 135

Chapter 6

Legal and Institutional Framework of Dry Port Development in Korea _ 137

6.1 Introduction _ 138
6.2 Dry Port Development in Korea _ 140
6.3 The Process of Dry Port Development _ 144
6.4 Case Study: Uiwang ICD _ 145
6.5 Legal and Institutional System for Developing a Dry Port in Korea _ 149
6.6 Conclusion and Suggestions _ 163

Chapter 7

Conclusion and Suggestions _ 165

Reference _ 170

Table List

Table 2.1 Cargo Flow at Borders and Ports (2015) _ 34
Table 2.2 List of Dry Ports in Cambodia _ 39
Table 2.3 Photos of Dry Ports and Inland Container Depots in Phnom Penh _ 40
Table 3.1 Selected ASEAN Statistics _ 67
Table 3.2 Proportion of Import – Export Volume _ 67
Table 3.3 Logistics Performance Index in ASEAN countries(The World Bank, 2016) _ 69
Table 3.4 Related Government Entities in Charge of the Development of Transport and Logistics(Ministry of Public Works and Transports, 2017) _ 72
Table 3.5 Logistics Infrastructure at Different Stages and the Responsibilities of Each Government Agency _ 73
Table 3.6 Roles and Duties of the Three Prioritized Dry Ports _ 78
Table 3.7 Laws and Regulations to Increase the Transparency of Logistics _ 86
Table 4.1 Duration of Import and Export Processes _ 101
Table 4.2 Logistics Performance Index Comparison _ 102
Table 4.3 Logistics Performance Index Comparison _ 105
Table 5.1 Concentration of Container Cargo to Major Cities _ 118
Table 5.2 Distance Between Seaports/Inland Cities _ 119
Table 6.1 Equity Structure of Uiwang ICD Co., Ltd _ 146
Table 6.2 Total Container Throughput of Uiwang ICD _ 148
Table 6.3 Total Container Throughput by Railroad of Uiwang ICD _ 149

Figure List

Figure 2.1 Cambodia's Region Classification and Tonle Sap River Basin _ 28
Figure 2.2 GDP and Population Growth Projections _ 29
Figure 2.3 Urbanization Trend in Cambodia _ 30
Figure 2.4 Cambodia's Population Density in 2015 _ 30
Figure 2.5 Exports and Imports in US$ billions (2005-2025) _ 31
Figure 2.6 Regional Development Potential and Logistics Demand _ 35
Figure 2.7 Logistics Sector Implementation Framework _ 44
Figure 2.8 Logistics Hubs (2025) _ 49
Figure 2.9 Locations of Existing Dry Ports in Phnom Penh Capital City _ 51
Figure 2.10 Economic Corridors and International Gateways (2025) _ 55
Figure 2.11 Logistics Improvement Principles (model analysis) _ 59
Figure 2.12 The 5 Principles and 5 Strategies of SMART Logistics 25 _ 60
Figure 3.1 Map of Laos and its Bordering Countries _ 66
Figure 3.2 Length of the Road _ 70
Figure 3.3 Road Linked to Neighboring Countries _ 70
Figure 3.4 Nine Potential Dry Oorts in Lao PDR _ 71
Figure 3.5 Maps of 9 Dry Ports of International Importance and Railways Connecting Between Ports _ 80
Figure 3.6 Map of ASEAN Highways _ 81
Figure 3.7 Phase 1 Development of the Savan Seno Dry Port _ 82
Figure 3.8 Phase 2 and 3 Development of the Savan Seno Dry Port _ 83

Figure 3.9 Challenges of Logistics Transportation in Lao PDR(JICA Feasibility Study) _ 84
Figure 4.1 GDP Growth by Sector _ 96
Figure 4.2 International Trading Volume in TEU _ 97
Figure 4.3 Situation of Yangon Port _ 98
Figure 4.4 Yangon Container Port _ 99
Figure 4.5 Current Truck Operations in Myanmar _ 100
Figure 4.6 Locations of Proposed Dry Ports _ 106
Figure 4.7 Laws Related to Dry Ports _ 107
Figure 5.1 GDP per Capita _ 116
Figure 5.2 Japan's Major Port Locations _ 118
Figure 5.3 An overview of the Ministry of Land, Infrastructure, Transport, and Tourism _ 122
Figure 5.4 Concept of Container Round Use _ 126
Figure 5.5 Port Development System and Relationship with Hinterland Transportation in Japan _ 128
Figure 5.6 Location of Ota City _ 130
Figure 5.7 OICT (Inland Port Area) _ 131
Figure 5.8 Location of Sano _ 132
Figure 5.9 Sano Inland Port (1st Phase) _ 132
Figure 5.10 Sano Inland Port (Future Plan) _ 133
Figure 5.11 Location of Container Depot _ 134
Figure 5.12 Layout of the Depot _ 135
Figure 6.1 Background of Dry Port Development _ 138
Figure 6.2 Background of Dry Port Development _ 139
Figure 6.3 Definition of a Dry Port _ 139
Figure 6.4 Growth of Per Capita GNI in Korea _ 140
Figure 6.5 History of Transport and Logistics Infrastructure in Korea _ 141
Figure 6.6 SOC Investment Planning Board in Korea _ 142
Figure 6.7 Types of Logistics Facilities in Korea _ 143
Figure 6.8 Five Major Inland Logistics Bases in Korea _ 143
Figure 6.9 Process of Dry Port Development _ 144
Figure 6.10 Location of Uiwang ICD in Korea _ 145
Figure 6.11 Uiwang ICD and Gunpo IFT _ 147
Figure 6.12 Railways of Uiwang ICD Terminal 1 _ 147
Figure 6.13 Structure of Uiwang ICD Operation _ 148
Figure 6.14 Actors and Factors for Dry Port Development in Korea _ 149
Figure 6.15 Major Acts Applied to Dry Port Development in Korea _ 150
Figure 6.16 Collective Authorization for Dry Port Development in Korea _ 153
Figure 6.17 Supports and Incentives for Dry Port Development in Korea _ 154
Figure 6.18 Concessionaire Agreement and Related Laws _ 155
Figure 6.19 Concessionaire Agreement and Right to Manage and Operate _ 157
Figure 6.20 Authorization and Confirmation of Competent Authority to Concessionaire _ 158
Figure 6.21 Infrastructure Credit Guarantee Fund by Government _ 160
Figure 6.22 Process of Land Compensation _ 163
Figure 7.1 Potential expansion of functions at an inland intermodal facility _ 166

Establishing Legal and Institutional Basis for Efficient Dry Ports Development in East Asia

Chapter 1

Introduction and Overview

ChoongYeol Ye
Vice President, the Korea Transport Institute, Korea

Naohisa Okamoto
Professor, University of Tsukuba, Japan

Background and Purpose of Dry Port _ 10
Case Study of Cambodia: Small Scale Private Dry Ports _ 13
Case Study of Lao PDR: Linking Land with Dry Ports _ 16
Case Study of Myanmar: Constructing a Dry Port under PPP _ 18
Experience of Japan: Dry Port Development led by Local Governments _ 20
Experience of Korea: Government-led Hub-Spoke System with PPP _ 22

Background and Purpose of Dry Port

Challenges regarding capacity expansion, environment issues, and community conflicts are raising challenges to global container trade and container ports. Global supply chains have been integrated with freight transport and logistics facilities. The development for hinterland of seaports is considered to mitigate or resolve the challenges for container trade and container shipping. The increased scale of container ships trigger a pressure on seaports which have limited volume capacity for container handling. It becomes critical to setting up enough capability for distributing containers or equivalents to and from hinterland for the smooth operation of seaports and the integrated supply chains.

The levels of service in supply chains are one of the critical elements that decide the efficiency of the whole supply chain. In this sense, many countries attempt to expand seaport capabilities to support their supply chains in international trade, and the concept of the dry port has attracted attention from countries in need of improved supply chains. A dry port is broadly defined as an inland logistics terminal that is directly connected by rail and/or road to a seaport where shippers can leave and/or collect standardized units directly at the seaport. It offers services that are normally available at a seaport, such as customs clearance, storage, forwarding, and other value-added logistics services.

The development of a dry port could resolve the contemporary challenges of the seaport's capability. Therefore, the development of a dry port would be important to developing countries with a weak seaport or logistics infrastructure for their sustainable economic growth. For this reason, dry ports have been developed to improve the logistics capability in many countries, especially in emerging markets like China, India, and Brazil. China developed 18 large inland logistics distribution centers linked with rail as part of its "Go West" strategy. Thailand developed the Lat Krabang ICD in 1996, which is connected with the railway and roads between the ICD and Laem Chabang Port. India has an extensive network of 59 ICDs including 49 ICDs that function for international trade. By the mid-1980s, about 150 ICDs were established in North America, 130 in Europe, and approximately 400 worldwide.[1]

The economic development of South East Asian regions is expected to steadily progress in the future, especially in emerging countries such as Lao PDR, Myanmar, and Cambodia, which would be remarkable. These countries have tried to improve their port capability to improve supply

1 Rikard Bergqvist, Gordon Wilmsmeier, and Kevin Cullinane, Dry Ports–A Global Perspective Challenges and Development in Serving Hinterlands (Transport and Society), 1st ed). New York: Routledge, 2012:111.

chains but faced financial or environmental challenges. They recognize dry ports as important footholds that enable them to build efficient national and international supply chains. Demand for dry port development is expected to grow with the Asian Highway and Trans Asia Railway projects led by the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP).

The UN-ESCAP estimated that an additional 200 dry ports in the Asia-Pacific region are required by 2015.[2] In this regard, the UN-ESCAP led the Intergovernmental Agreement on dry ports in the Asian region that was enforced on 23rd April 2016. The Agreement content consists of 17 articles and two annexes. The total number of countries registered in Annex 1 is 27, which include Thailand, Myanmar, Lao PRD, Cambodia, and others. The Agreement includes 17 signatories and 13 Parties and an established working group. According to the Agreement, broad guidelines for efficient development and smooth operation of dry ports are that:

> "They shall initiate institutional, administrative and regulatory frameworks that are favorable to the development and smooth operation of dry ports, including procedures for regulatory inspection and the execution of applicable customs control and formalities in line with the national laws and regulations of the Party concerned. The Parties shall collaborate with relevant transport service providers, international organizations and institutions to ensure recognition of dry ports. The ownership of dry ports can be public, private or public-private partnerships."[3]

The importance of economic development in institutions has been well-established with relevant research. These are rules, procedures, and patterns of behavior—the rules of a game in a society shaping political, social, or economic interactions. Institutions and legal systems could influence the ability of a country, region, or sector to prosper, setting it apart in the development spectrum. It is apparent that the importance of the legal and institutional framework is to be applied to dry port development. However, most developing countries that intend to develop dry ports do not have an organized legal and institutional framework.

This legal issue is linked to project financing of developing countries because they have tried to attract private investment in their infrastructure projects to make up for their limited budget. In this sense, Public-Private Partnerships (PPP) are regarded as an ideal financing method for developing countries. However, its concept involves investment from private sectors, so the PPP

2 Raghu Dayal, "Dry Port: The India experience and what the future holds–India needs to think out-of-the-box," In Rikard Bergqvist, Gordon Wilmsmeier, and Kevin Cullinane, Dry Ports–A Global Perspective Challenges and Development in Serving Hinterlands (Transport and Society), 1st ed). New York: Routledge, 2012: 111.

3 UN-ESCAP, "Intergovernmental Agreement on Dry Ports, Annex II," 2016.

still needs to be implemented with the relevant legal and institutional framework. In this regard, the authors of this study focus on the current status of institutions and legal frameworks of each country and what should be improved for the successful development of dry ports. This study is comprised of case studies of dry port development in South East Asian countries including Myanmar, Lao PDR, and Cambodia as well as East Asian countries including Korea and Japan with analysis of the institutional and legal framework of each country.

This research has been initiated and commissioned by the Korea Transport Institute as an international cooperative research activity to understand and share the characteristics and issues of dry port development in the South East Asian region by utilizing the extensive network of regional experts of the Eastern Asia Society for Transportation Studies (EASTS). The purpose of this collaborative research is to promote studies on dry port development in the South East Asian region; constant economic development is expected in this region, and with the high demand of advanced logistics infrastructures, understanding the nature and problems of the current status of dry port development and conducting comparative studies with examples of Korea and Japan is important. The five Asian countries were selected for this comparative study by KOTI and EASTS because of their differing stages of logistical development and availability of information on dry port development. The study of each country was encouraged to include the following contents so that we can understand common and different logistics environments and the status of dry port development of each country and compare legal and institutional frameworks related to developing and operating a dry port.

1) Overview of national logistics infrastructure
2) Main stakeholders in developing dry ports
3) Legal and institutional systems for developing dry ports
4) A case study of legal consideration on existing dry ports
5) Conclusion and suggestions

This report consists of six chapters. Chapter 1 introduces the concept and importance of the dry port and presents an overview of other chapters.

Case Study of Cambodia: Small Scale Private Dry Ports

Chapter 2 presents a case study on the efficient development of logistics facilities in the Kingdom of Cambodia. The research begins with general information on the country and explains the current situation of logistics infrastructure and key issues in the logistics sector. The capital Phnom Penh, with a population of 1,573,544[4], is situated inland around 227km away from the Sihanoukville Port, which is the gateway of Cambodia (World Population Review, 2018). The main industries of Phnom Penh and Sihanoukville are centered on light industries that produce shoes and clothing that are exported through the Sihanoukville Port. The dominant type of industry in and around the Phnom Penh Capital is the light manufacturing industry, including the production of garments and footwear products that target overseas markets in the U.S. and EU. The throughput of the Sihanoukville Port has continuously increased in line with the economic and population growth of Cambodia. Therefore, it will be necessary to enhance the capacity of the port and its flexibility further to serve user demands.

In Cambodia, the warehouse business remains underdeveloped. The dry ports in Cambodia mainly function as a customs clearance center for international freight. The dry port development and management are under the General Department of Custom and Exercise, Ministry of Economy and Finance. However, there are a number of dry ports that are mainly owned by trucking companies (mostly members of the Cambodia Trucking Association). There are more than ten dry ports in and around Phnom Penh, and almost all of them are located at the southwest part of the city around the Phnom Penh International Airport. Moreover, there are a few dry ports in Sihanoukville, Bavet, and Poipet, including one under construction.

A few of them provide LCL services. However, each dry port has its niche market and trading partners, and the competition among dry ports is not so intense. In all dry ports, the Automated System for Customs Data (ASYUCUDA) system is installed, and all customs and Cam Control (Cambodia Import-Export Inspection and Fraud Repression Directorate General) functions are available. Containers could be sealed in all dry ports.

While logistics volumes are expected to increase drastically, there will be a significant need to make urban logistics more time and cost efficient. Regarding Phnom Penh, the holistic approach in line with the 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

4 Worldpopulationreview.com. (2018). [online] Available at: http://worldpopulationreview.com/countries/cambodia-population/ [Accessed 14 Feb. 2019]

No.3. Good access between dry ports/logistic complexes and PAS/PPAP is essential for smooth and efficient multimodal transport.

In summary, key issues related to dry ports in Cambodia are: (a) limited competition between dry ports with specific niche routes or markets that are directly linked with trucking companies or services; (b) expensive dry port services for warehouse operations, CFS services, and container storage are expensive compared to neighboring countries; (c) available services are either limited or fragmented services including availability of LCL services only for certain destinations (e.g., China and USA) and certain customers (e.g., trucking companies' customers); (d) poor linkages between logistics hubs (e.g., PAS, PPAP, current and future railway ICD) for multi-modal transport and no truck terminals or limited and distribution functions towards last-miles delivery.

Cambodia's logistics and transport services currently operate under numerous decrees, sub-decrees and regulations, orders, and guidelines. However, upon evaluation, such laws do not sufficiently regulate or support business activities in the sector. Cambodia needs to modernize its legal and regulatory framework for logistics. A modern framework should clarify what needs to be regulated or deregulated in support of dynamic and innovative transport and logistics activities.

Currently, the country's applicable laws and regulations are insufficient to govern the transport and logistics service sector. General road transport issues are regulated in the existing road law and land traffic law. However, access to the road transport business and professional license for driving a truck or a bus is hardly regulated. Railway transport operates with a regulatory regime consisting of some secondary legal instruments but lacks primary-level laws. In the field of maritime transport, inland water transport, and ports, three draft laws were developed and are being enacted. There is no national legal framework in Cambodia for multi-modal transport relating to the carriage of goods by national and international multimodal transport contracts, which also include provisions concerning the liability of multimodal transport operators.

However, on 17 November 2005, the ASEAN Framework Agreement on Multimodal Transport was signed by its 10 Member States.[5] It is, therefore, necessary to develop a Law on Multimodal Transport that will provide legal liability protection to multimodal transport operators, in particular in situations when juridical enforcement of irregularities in business and trade is still a challenge. There is a need to transpose the ASEAN Framework Agreement into national legislation.

5 The 10 ASEAN member states include: Brunei Darussalam, Republic of Indonesia, Kingdom of Cambodia (signed by MPWT), Lao People's Democratic Republic, Malaysia, Union of Myanmar, Republic of the Philippines, Republic of Singapore, Kingdom of Thailand, and Socialist Republic of Viet Nam.

The Government of Cambodia formed the "Cambodian Industrial Development Policy 2015-2025 (IDP)," which aims to shift the industrial structure from light manufacturing industries to higher value-added and technical-based industry. The low value-added light manufacturing industry prevails in Cambodia, and many companies import materials, produce products with lower wages, and export under the GSP based on the advantages of production costs and the GSP against the surrounding countries.

Higher value-added industries like machinery, electric parts, and assembling manufacturing, as well as the sophistication of current light manufacturing industries, would be strategically attracted by the relocation of factories from Thailand, Vietnam, and China under "Thai+1," "Vietnam+1," and "China+1." Based on the accumulation of these industries, manufacturing and logistics businesses that target markets in the Mekong Region and ASEAN will be attracted to Cambodia by enhancing vendor managed inventory and other modern logistics services.

In this regard, the lower production costs should be maintained as the advantage in Cambodia. To keep this advantage, logistics should be improved in Cambodia to help realize lower costs, reliable and less-stressed logistics documentation, inspection procedures, and practices. In this current information society, people not only in the advanced countries but also countries in the Mekong Region and Cambodia simultaneously share information through the internet including cutting-edge information like music, fashion, new equipment, food and beverages, and so on. The middle-income urban population strongly demands cutting-edge information and goods, so it is necessary to respond to modern logistics like last mail logistics for e-commerce and internet shopping.

As previously discussed, there is a real need to develop logistics complexes that cater to the future needs of the logistics sector. There is an incremental demand due to the growth of container traffic. Rapid urbanization requires a shift from existing logistics facilities with limited services to modern facilities such as dry ports. Such complexes should be set up to cater to the incremental demand for facilities with multimodal transportation and consolidation of operators shifting from existing operations and bringing efficiencies in the sector.

The Ministry of Public Works and Transport (MPWT) will need to set up a project steering committee with key industry participants to shape the policy reforms and project development options for the complex. The MPWT will also need to conduct continued consultations to fine tune the plan and ensure participation of industry players. There is a need for further scoping of the project in terms of soft and hard infrastructure. The project scoping is dependent on many variables that are not under the control of a single agency. With support of the highest levels of

government, industry players will need to have extensive discussions to arrive at a reasonable scope for the project.

Improving public-private dialogue is also important to deepen collaboration and cooperation for logistics improvements among the public and private sector. Mutual understanding and cooperation between the public and private sectors may effectively and flexibly function to solve further problems. Such dialogue among relevant stakeholders could be carried out through the technical working group meetings coordinated by General Department of Logistics under the MPWT, who plays a role as the secretariat to the National Logistics Council (NLC) and National Logistics Steering Committee (NLSC).

Case Study of Lao PDR: Linking Land with Dry Ports

Chapter 3 presents a case study on dry port development in Lao PDR with its government organization. The research begins with general information of the country and explains their current logistics status with its legal framework. Lao PDR is a landlocked country yet is one of the fastest growing economies in East Asia and the Pacific. The Lao PDR's GDP was USD 16,853 billion, and its population was up to 6.85 million in 2017.[6] In 2007/08, Lao PDR exported 1,430 million tons (900 million U.S. dollars) of goods through main border checkpoints such as Bokeo (30%), Khammaune (17%), Savannakhet (15%), and Vientiane Capital (14%). Major goods exported from Lao PDR are as follows: minerals (29%), fuel (28%), rice and corn products (19%), timber, and furniture made from wood (15%).

The largest volume of goods is transported through the Lao–Thai Friendship Bridge of Vientiane Capital, which accounts for 48% of the total imports-exports value. The volume of goods imported-exported through other borders include: Khammaune Province (17%), Savannakhet Province (13%), Champasak Province (9%), and Borikhamxay Province (4%). Goods imported-exported through the Lao–Thai Border covers 80% of the total trade volume. The major goods imported to Lao PDR are fuel (26%), minerals (21%), industry materials (15%), industry goods (12%), and general goods (16%). Laos is currently rated 152th on the Logistics Performance Index in 2016 by the World Bank with an average score of 2.07 out of 5.0, which brings the country to the lowest rank in the ASEAN region.

6 World Development Indicators, World Bank, 2019.

To realize the vision of becoming a land-linked country, road transportation in Lao PDR is growing rapidly. The length of the highways has increased from 23,000 kilometers in 2001 to 50,331 km in 2017. The volume of goods transportation increased from 1.5 million tons in 2001 to 4.2 million tons in 2013, while transportation vehicles have increased from 11,841 in 2001 to 38,454 in 2013. Transportation companies increased from 28 in 2001 to 68 in 2013. The number of international border checkpoints with other countries in 2001 was 8, but there are 24 in 2017; these include 4 by air and 20 by land including 8 cross-border points between Laos-Thailand, 9 points between Laos-Vietnam, 1 with Cambodia, and 2 with China.[7]

There are 12 national highways that connect with neighboring countries and the region such as National Highway No. 2, 3, 4, 6, 7, 8, 9, 12, 13 that are north to south and No. 15, 16, and 18. Of these 12 routes, six have been assigned as ASEAN Highways including Route No. NR3; NR13 North; Route No. NR13 South; Route No. NR8, and NR9. Lao PDR has a railway route of 3.5 km connected from Nongkhai, Thailand to Thanaleng, Lao PDR.

The Public Works and Transportation sector has completed the long-term plan for railway construction as a priority to connect with neighboring countries such as China, Vietnam, Cambodia, and Thailand. Most importantly, there are also nine dry ports nominated under the Intergovernmental Agreement on Dry Ports. Six of the nine ports serve national logistics and transport functions while the other three ports serve as regional and international linkages. The operation of logistics and dry ports in Laos is still a new concept, and facilities are currently being constructed. The discussions and agreements surrounding responsibility allocations between ministries are still ongoing. Listed below are the current practices and responsibilities of divisions between the ministries.

In summary, there are still a significant number of issues and challenges for the Lao Government to successfully establish and operate dry ports. This includes: 1) the lack of infrastructure to link between different intermodals, 2) low capacities among the local companies to provide logistics services, 3) lack of regulations and clarity of the existing policies on the PPP approach, 4) lack of competitive human resources, 5) lack of a genuine single window system for processing trade consignments, and 6) lack of overall budget which is the last and most important bottleneck. To overcome these challenges, the following issues need to be addressed:

7 Ministry of Public Works and Transports, Lao PDR, 2015.

- The top priority is to source financial support. This can be done through the PPP approach, the government's own funding, or funding from donors.
- Establishing infrastructure for the most efficient mode of transportation and connecting intermodal hubs should also be one of the priorities. The government and its relevant organizations need to develop a clear action plan and secure resources for improving intermodal links and its supporting infrastructures.
- Equally important to the infrastructure would be the implementing regulations and agreements to guide logistics facilities in their development and integration plan.
- Policy interventions are necessary to ensure least-cost intermodal solutions to container and cargo haulage between trade sources and seaports (ESCAP, 2015). In particular, plans for terminal development, regulation of road vehicle dimensions and weights, and more rail-friendly port layout plans should aim to optimize the use of roads for local delivery and use of rails for line-haul transport of containers and cargo. This will be necessary to ensure that terminal and transport operations are both financially and environmentally sustainable.
- The government should also create and improve legislation to expand the laws on transportation, logistics management, and dry ports.
- Feasibility studies and research should continue to gain deeper insights of transportation and logistics operations in Laos on the micro level to understand the needs of service providers' capacity to thrive and be sustainable in the industry.

Case Study of Myanmar: Constructing a Dry Port under PPP

Chapter 4 presents a case study of developing dry ports in Myanmar with its dry port development status and related government organization. Myanmar was ranked the world's fastest growing economy with GDP growth of 8.6% per annum due to the country's strong economy, increasing purchasing power, and relatively young population compared with neighboring countries like China, Thailand, India, Lao PDR, and Bangladesh[8].

Myanmar has experienced tremendous growth in terms of trade that was initiated by several economic and political reforms and opening up of the domestic market. In order to provide services for the growing demand, the Government of Myanmar implemented infrastructural

8 IMF's World Economic Outlook, 2016.

developments including new airports, special economic zones, deep-sea ports, and dry ports in the form of joint investments between local and foreign partners. Among them, dry ports are key infrastructure developments that would enable Myanmar to extend access to international markets and position Myanmar as another potential logistics hub in the region.

Myanmar does not have a policy or regulation exclusively designated for dry ports. The Multimodal Transport Law and other various rules and regulations govern development and operations of dry ports. A series of notifications have been issued and announced by the relevant government departments and organizations. As a member of the United Nations ESCAP, Myanmar's government policy must be in line with the UN-ESCAP's intentions. Myanmar has already proposed eight potential dry port sites that are important for international trade in accordance with the liberalized economic policy of the newly elected government.

The proposed places for the development of dry ports in Myanmar are Yangon, Mandalay, Tamu, Muse, Mawlamyine, Bago, Monywa, and Pyay. Of the planned dry port projects, two projects in Ywa Tha Gyi, Yangon and Myit-Nge, Mandalay have been tendered out. Kerry Logistics Network and Resource Group Logistics won the tender.

The Government of Myanmar is committed to economic development and has initiated the ongoing economic reforms that have resulted in tremendous trade growth. In order to provide services for the growing demand, the Government of Myanmar has implemented infrastructural developments including new airports, special economic zones, deep-sea ports, and dry ports in the form of joint investments between local and foreign partners. Among them, dry ports are key infrastructure developments that would enable Myanmar to extend access to international markets and position Myanmar as a logistics hub in the region.

The Myanmar Transport and Logistics Federation (MTLF) will act as the liaison for these implementations. Members of the MTLF will take the initiative to implement the projects and start policy dialogue with the government. Myanmar cannot keep up in the maritime international seaborne trade. However, Myanmar can provide door-to-door logistics services in land and rail transport in the region. In order to be competitive, Myanmar needs to focus on intermodal and multi-modal transport and implement dry port/truck terminals to provide efficient and unique logistic services.

Experience of Japan: Dry Port Development led by Local Governments

Chapter 5 presents a case study of dry port development in Japan and focuses on its economic development and states the potential problem in the logistics industry with its aging society. Historically, Japan's economic development focused on heavy industries in coastal areas. Moreover, with large-scale ports such as Keihin Port and Hanshin Port, the four major metropolitan areas (Tokyo, Osaka, Nagoya, and Kitakyushu) are the main locations for the origination and consumption of container cargo, making hinterland transportation distances short. The origin/destination of container cargo is concentrated on the four areas; approximately 70% of container cargo is to/from the four major areas.

Also, with the short transport distances for hinterland transportation in Japan, there has not been any specific legislation for the development of a dry port system for international container cargo. There have been limited examples of inland international container terminals established inland with container depot functions (Ota City in Gunma; Sano City in Tochigi), but these have been established under the leadership of local municipalities looking to improve local logistics functions and to attract firms. However, in recent years, a sluggish economic growth rate has been an issue, and a rapidly aging society has also become a social problem in Japan. In terms of the latter, this shows that the population share of the total labor force is declining. In some industries, labor shortages have become obvious. Thus, maintaining the function of hinterland access is becoming a challenge.

For this reason, focus is now gradually being placed on policies for good connections in hinterland access as well as the development of dry ports. For instance, dry ports are expected to function as a center for "round-use" of empty containers. Moreover, there has been a significant shift in the recent logistics policy in Japan. So far, efficiency has been mainly focused on the policy to support business operations. However, more social aspects such as labor shortage, working conditions, and preparedness, have been emphasized in the policy; logistics has been regarded as one significant function to sustain the Japanese economy.

While these outlines are determined by the Cabinet's decision, the formulation of execution plans and specific measures is currently left to stakeholders such as government- related entities and local governments responsible for various infrastructure and private enterprises. In other words, support for the execution of these objectives is important. The authors have provided the following case studies of dry ports in Japan.

First, the case of Ota city is introduced. The history of this case goes back to the 1990s. Some big manufacturers were located in the area, such local firms recognized a need to introduce a customs function in these areas, and they submitted a request to the local government for negotiation with the customs office. Backed up by such efforts of local firms, the Ota city and Gunma prefectural government decided to become involved in the development of inland logistics facilities.

In order to accommodate the customs function, they needed to build some facilities, and this was the start of the inland logistics facility in Ota city. For this purpose, an organization called OICT (Ota International Container Terminal) was established. However, various logistics functions were gradually added, such as cargo handling spaces, temporary stocking spaces, or facilities for value-added functions. The area is about 3.7 ha wide. Even hinterland transport can be arranged, but trucks are the only transport mode.

Second, the case of Sano is outlined as the most recent development of a dry port. The development of this case is under a strong initiative by the Sano city government. The introduction of such logistics function to the city was a political agenda. One of the striking features of the development was a focus on the round use function of containers. Also, the city expects that the newly introduced logistics facility will create a significant number of jobs. Therefore, the city government strong supports the new logistics facility. The facility (1st Phase) was developed by the city as a public inland terminal. A subsidy from MLIT was partially granted because the facility forms a part of a container facility that contributes to the efficiency of maritime logistics.

The Tochigi Prefectural government also granted some subsidies. A private company selected by the city operates the facility. If demand for the facility is stable for the first few years, the city will consider the financial condition of the operator; the fee from the private company to the city can be reduced if the company cannot gain profits. The Hanshin-Osaka International Port Corporation (HIPC) was established in 2014 to gain competitiveness of container and other terminals at the Hanshin Port. HIPC has secured container depots, for mainly round-use functions, in order to gain efficiency of container transport as well as to attract cargo. In 2017, the organization opened a container depot in the Shiga prefecture, about 130 km away from the Kobe Port. This is a unique case where a seaport organization has tackled with an inland terminal.

In order to solve the problem of labor shortages, as well as to secure efficiency of logistics, hinterland transport and dry ports in Japan are advised to be much more focused. The following actions are expected by the government. Firstly, the development system needs to be examined in each case. A more systematic approach is also worth examining. In the case of seaport

development, a system based on Port Law is well established. Secondly, cooperation with seaports needs to be indicated. In Japan, the hinterland is accessed only by road transport. In the case of rail connections, coordination, and cooperation between seaports and dry ports is essential. Although various forms of cooperation can be possible, dry ports are not well recognized in Japan.

Dry port operators intend to develop cooperative relations with seaports, but the authorities do not necessarily show the same interest; coordinating them is a significant challenge. Hinterland access/dry ports were not well recognized in the past, but the issue is gaining social attention. Coordination in the hinterland transport chain is not necessarily sufficient. In order to make the logistics system in Japan sustainable, related research on the said subjects needs to be strengthened toward future policy.

Experience of Korea: Government-led Hub-Spoke System with PPP

Chapter 6 presents a case study of dry port development in Korea with its legal framework for the development of logistics facilities. The procedures and methods used to develop dry ports in Korea are based on a legislative system that is based on three major Acts: 1) the Act on the Development and Management of Logistics Facilities, 2) the Act on Private Participation in Infrastructure, and 3) the Act on Acquisition of and Compensation for Land for Public Works Projects. The Act on the Development and Management of Logistics Facilities was revised in 2007 to reflect changes from the previous legislation under the Promotion of Distribution Complex Development Act from 1995. The Act on Private Participation in Infrastructure was drafted in 1998 to reflect changes to the Promotion of Private Capital into Social Overhead Capital Investment Act that was established in 1994. The Act on Acquisition of and Compensation for Land for Public Works Projects was established in 2003 and has been revised.

The general process for dry port development includes planning, authorization, construction, operation, and financing. The three Acts are applied to the logistics facility development process in Korea according to each role and need. The Act on the Development and Management of Logistics Facilities is applied to the process for project planning, government authorization, facility construction, and operation. The Act on Private Participation in Infrastructure is applied to concessionaire agreements and project financing. The Act on Acquisition of and Compensation for Land for Public Works Projects is applied to securing land space and resolving legal conflict for land compensation. This chapter explains details of each Act and their major articles for logistics facility development, including dry ports.

Korea has been one of the world's most rapidly developing countries for the last 60 years. Korea's per capita gross national income has increased from USD 120 in 1961 to USD 28,380 in 2017 and has grown to become the 10th largest economic power.[9] Korea began to grow rapidly since the 1960s, so it pursued the construction of a national transportation network as the major national policy for economic development. The amount of domestic and international freight transports in Korea increased dramatically. This increase led to huge urban logistics problems in the Seoul metropolitan areas, where more than 40% of Korea's population had concentrated. Uiwang ICD was constructed to alleviate the logistics problem and to handle the import and export of freight more efficiently from the Busan Port to Seoul metropolitan areas or vice versa.

Uiwang ICD was the first dry port in Korea; therefore, the way it was developed was a little bit different from those that were recently developed. The final decision of Uiwang ICD development was confirmed by the Social Overhead Capital Committee under the presidential office in 1991. The concept of public and private partnerships was not constructed in Korea at that time, so the Special Purpose Company (hereinafter SPC) named as Uiwang ICD Co., Ltd was established for Uiwang ICD construction. Stakeholders of the SPC consist of public and private sectors. One stakeholder from the public sector is Korea Railway, which is a government-owned public company with 25% of equity. Stakeholders from the private sector include 15 private logistics companies.[10]

The government provided land owned by Korea Railway to SPC for the ICD development. Korea Railway, which is a stakeholder from the public sector, was in charge of financing base facilities including the roads and railway, and stakeholders from the private sector were in charge of financing building and logistics facilities in ICD with their construction costs paid proportionally according to their ratio of shares. The government permitted the SPC to use the developed ICD for 30 years, and the ICD shall be returned to the landowner, Korea Railway. In this way, 15 private logistics companies received their right to operate their logistics business in Uiwang ICD, and land spaces for their business were allotted according to their ratio of shares. In this regard, the type of investment for the Uiwang ICD development can be concluded as build-operate-transfer (BOT).

The Korean Government acknowledged the importance of the dry port and has developed inland logistics facilities based on a 5-region hub and spoke network connected with seaports and airports in Korea. The government needs to establish a relevant master plan with referencing

9 https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=KR&view=chart

10 Interview with a Manager of Uiwang ICD (2017.04.18.)

national supply chains and international trade. The relevant legal system shall be supported to resolve legal conflict with the proper authorization process. The Korean Government went through trials and errors to come up with the current legal framework for dry port development. The Act on Public-Private Partnerships in Infrastructure was enacted in 1994. The Act on the Development and Management of Logistics Facilities was enacted in 1995.

The Act on Acquisition of and Compensation for Land for Public Works Projects was enacted in 2002. These three major Acts were enacted to meet social and economic demands on social overhead capital infrastructure, including dry ports or logistics facilities. The PPP is a phenomenon in infrastructure development worldwide. Adequate financial and administration supports from the government with the appropriate legal framework are essential to developing dry ports by PPP schemes.

Myanmar, Cambodia, and Lao PDR have achieved remarkable economic development, but the situations in which they have experienced it are different. Particularly, from the viewpoint of topographics, Lao PDR is a landlocked country, and its international trades are dependent on land transportation. It means that dry ports take an important role for supply chains of Lao PDR. From the viewpoint of geographical conditions, Myanmar and Cambodia have coastlines, so the situation seems to be similar. Although each policy differs somewhat from the viewpoint of the administrative system and policy, attempts to strategically introduce dry ports are expected to be intensely developed in the future.

At present, both Korea and Japan are situated in Eastern Asia, and there are no land ways in international trade. This means that seaports and airports are gateways of international trade. Efficient inland logistics flow which is connected to main seaports like the Busan Port, has been critical to Korea with its export-driven economic development strategy. It is why the development of dry ports in Korea was successfully initiated, and Uiwang ICD has been successfully operated. On the other hand, the economy is stagnating in Japan; the background of dry port development is different from that of Korea. It is desirable to promote exports as a measure against the trade structure of excess imports, and economy of scale is more emphasized. Also, many local governments expect dry ports to promote industries under the circumstances of aging and population declines.

As explained from the overview of five countries, it can be said that the functions and effects required by the dry port are different for each country. Direct comparison is regarded to be difficult due to the different stages of economic development and diverse logistics environment of the countries even though this research has collected all of the available data and has strived

to use a standardized format in order to offer a consistent cross-country comparison. However, generally:

- It is critical to establish an efficient national logistics system for rapid economic development in the Eastern Asian region.
- It is demanded that logistics networks mainly focusing on dry ports shall be established to connect metropolitan areas, and industrial areas and major logistics facilities like seaports, and airports.
- Each country needs to establish a sound legal and institutional framework for developing national logistics infrastructure, including dry ports. Such a framework may include establishing a national logistics facility master plan, promoting private capital investment on social overhead capital, and public supports to dry ports.

Establishing Legal and Institutional Basis for Efficient Dry Ports Development in East Asia

Chapter 2

Status and Plans of Dry Port Development in Cambodia

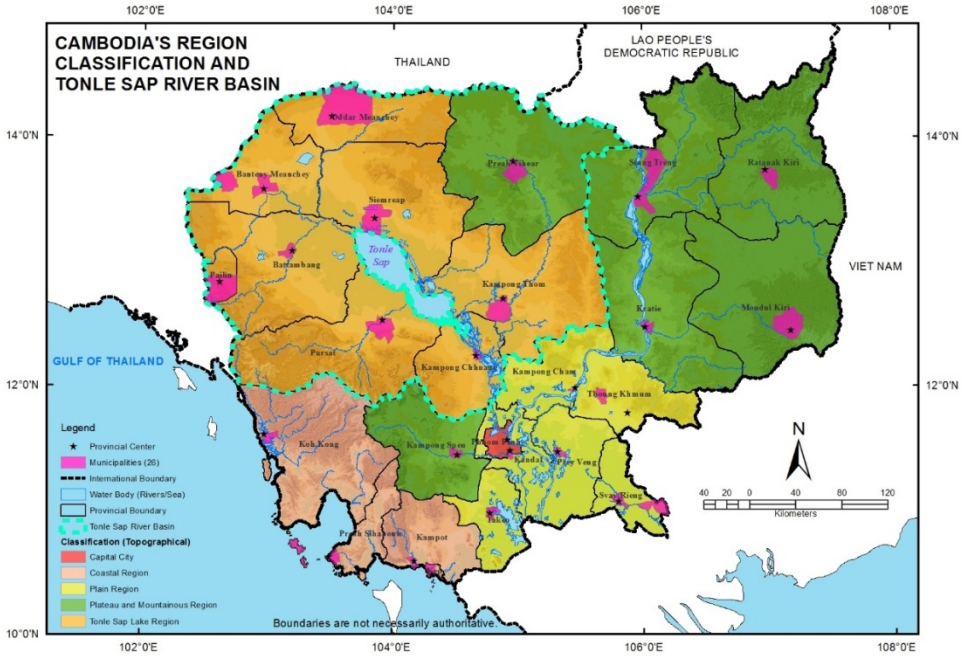
Heng Salpiseth
General Department of Logistics, Ministry of Public Works and Transport, Cambodia

2.1 General Information _ 28
2.2 Logistics Infrastructure and Key Issues in the Logistics Sector _ 32
2.3 Government Institutions for the Logistics Sector _ 41
2.4 Institutional and Legal Framework _ 44
2.5 Existing Institutional and Legal Framework for Dry Port Development _ 45
2.6 National Plan for Development of a Logistics Hub for Multi- Modal Transport _ 48
2.7 National Strategies and Plans for the Development of Economic Corridors and International Gateways _ 54
2.8 Financing the Development of Logistics Infrastructures _ 55
2.9 Laws and Regulation for the Development of Logistics Infrastructures _ 57
2.10 Diagnosis on Current System for Developing Logistics Infrastructures _ 58
2.11 Conclusion and Suggestions _ 60

2.1. General Information

Cambodia, bordered by Thailand to the northwest, Laos PDR to the northeast, Vietnam to the east, and the Gulf of Thailand to the southwest, is located in the southern portion of the Indochina Peninsula in Southeast Asia. As shown in Figure 2.1 below, Cambodia is roughly divided into four geographical and meteorological regions: (i) the Plain Region, with low plains and sufficient water from rainfall and rivers; (ii) the Coastal Region, with coastal and mountainous areas and sufficient rainfall; (iii) the Tonle Sap Lake Region, with low plains and limited rainfall; and (iv) the Plateau and Mountainous Region, with mountainous areas and sufficient rainfall.

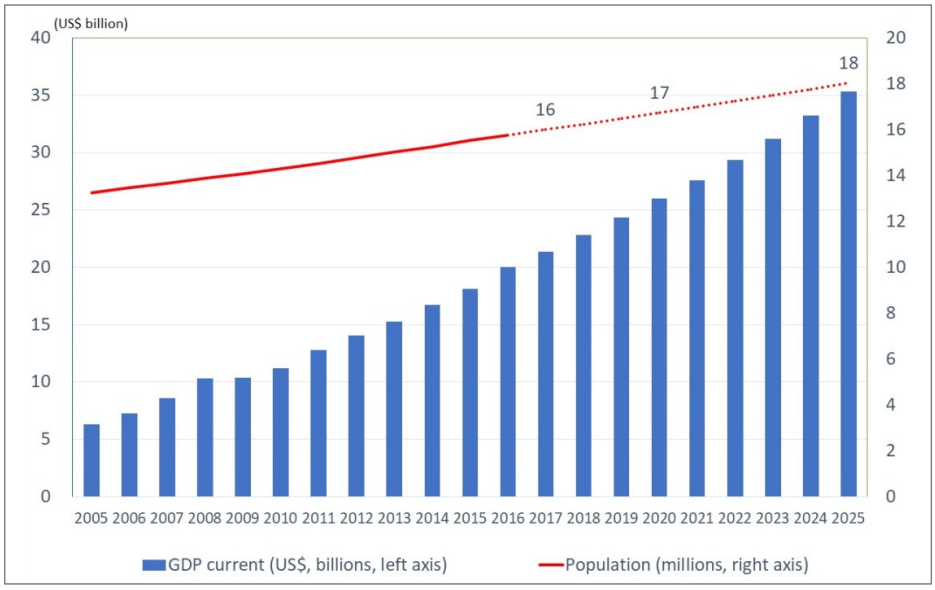
Figure 2.1: Cambodia's Region Classification and Tonle Sap River Basin



Source: Author

Cambodia experienced a stable economic increase over the past two decades and attained lower-middle-income status in 2015. The gross domestic product (GDP) tripled during the last 10 years, with GDP per capita reaching USD $1,227 in 2016. Driven by garment exports and services sector growth, Cambodia has sustained an average economic growth rate of 7.6% from 1994–2015; this is one of the highest growth rates in Asia. It is notable that high economic growth was achieved in a 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 institutions (see Figure 2.2).

Figure 2.2: GDP and Population Growth Projections



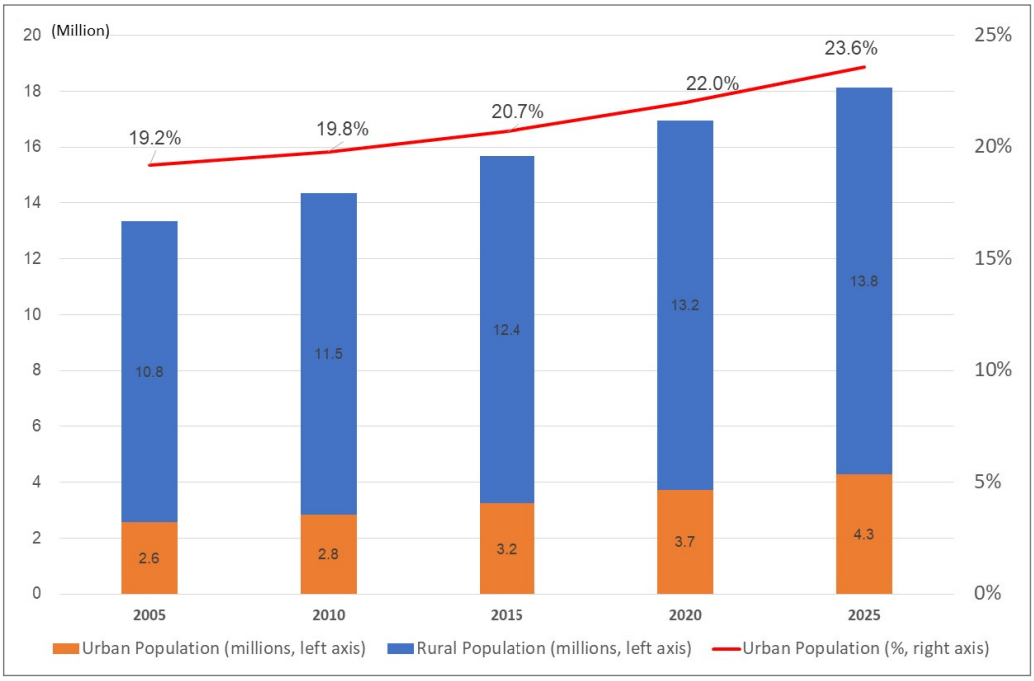
Sources: Draft Cambodia Logistics Master Plan

During the same period, the population gradually grew and approached 16 million by 2016. These trends are expected to continue to 2025 and beyond. Economic growth is projected to navigate between 6-7% depending on the expansion of future exports and FDI; and the size of the economy is supposed to expand by 88% by 2025, while the population is expected to grow by 14%. Meanwhile, income levels are expected to increase by 78% from 2016 to 2025. The size of the economy can be considered a proxy for domestic logistics demand. Therefore, domestic logistics demand is expected to increase in a similar manner, and associated infrastructure and logistics capacities need to be established without delays.

Cambodia is still a predominantly rural society, but the urbanization seems to be progressing fast (see Figure 2.3). In 2015, approximately 20% of the population was defined as urban population. Phnom Penh is substantially urbanized with a population of 1.73 million, comprising 11.1% of the country's population. According to the United Nations projections, the urban population rate will further increase to 23.6% (or 4.3 million) by 2025. The map displayed in Figure 2.4 demonstrates the spatial distribution of Cambodia's population density in 2015.

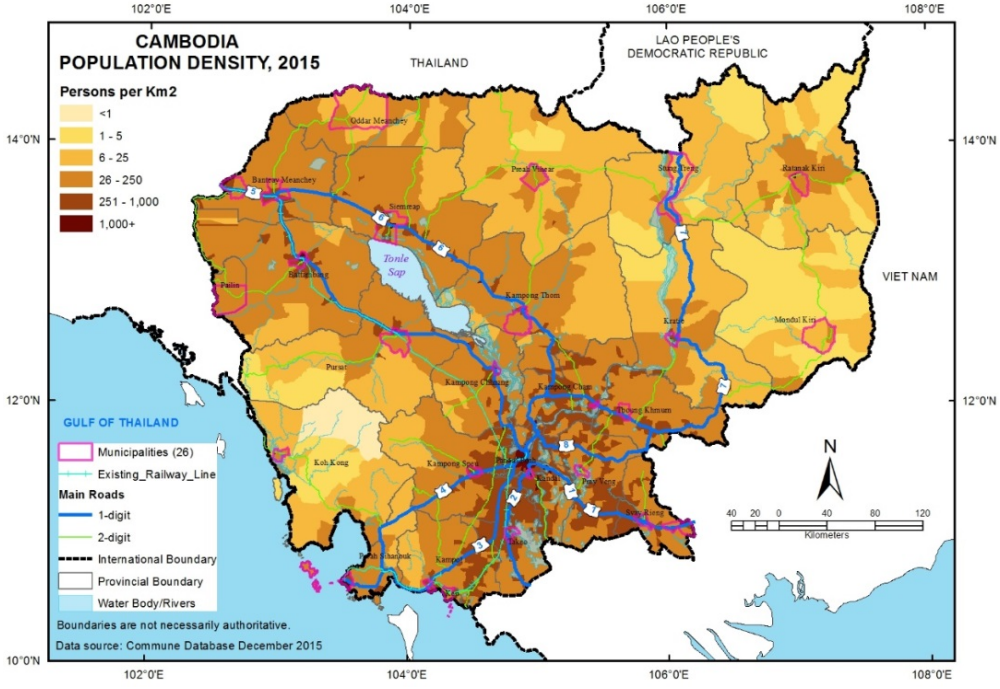
The significant income growth, particularly in the urban areas such as Phnom Penh capital, makes the middle-class emerging, who will continuously support the large and growing consumption of goods. Consumption patterns will change significantly from those of today, and accordingly, urban logistics should be developed to meet the fast-changing business and consumer demands.

Figure 2.3: Urbanization Trend in Cambodia



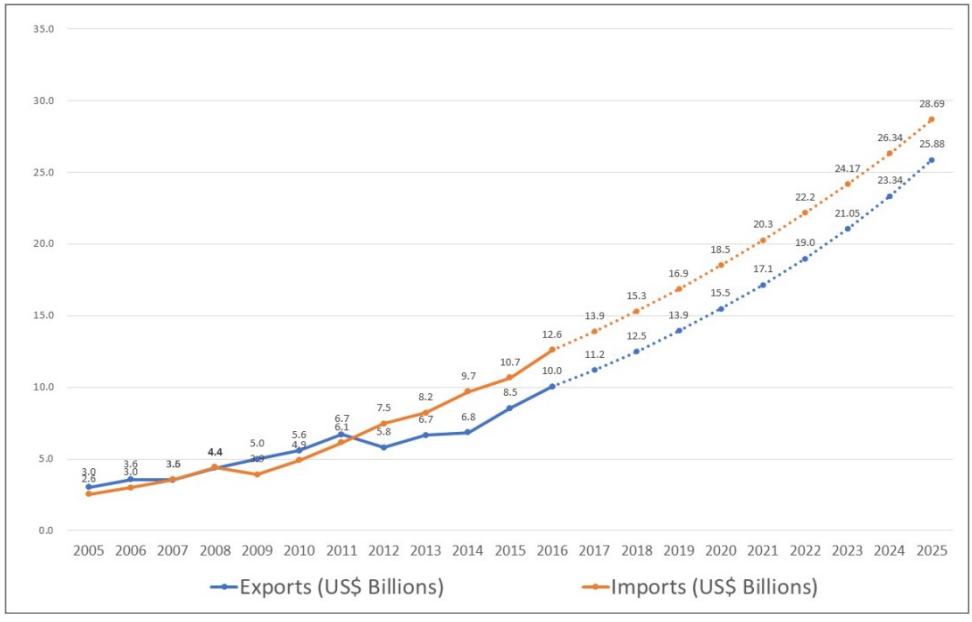
Sources: Draft Cambodia Logistics Master Plan

Figure 2.4: Cambodia's Population Density in 2015



Trade volumes will continue to increase, with both exports and imports forecast to be 2.5 times the current totals by 2025 (see Figure 2.5). According to the World Bank, export volumes are expected to rise by 4.1 times by 2030. With an annual economic growth rate of 6–7% as forecast by the International Monetary Fund, the value of the domestic cargo is expected to double, and the volume of international cargo will more than double by 2025. Regarding exports, Cambodia has benefitted from preferential tax treatment, which contributed to a substantial rise in the export of garments, footwear, and agricultural products in recent years. Exports of textiles and clothing have been dominant since 2005, accounting for 71% of total exports in 2015. Also, the export share of manufacturing products (i.e., machines and electronics) increased steadily to 4.4% by 2015 due to an increase in the number of new factories established, especially in special economic zones (SEZs). The share of agricultural products also increased to 4% by 2015; major export destinations included Europe (43%) and the United States (25%) in 2015. Regarding imports, the main growth contributors have been textiles and consumer goods. Imports of textiles and clothing from China have increased significantly to account for 23% of all imports and 37% of total import weight in 2015. Following China, imports from Thailand and Vietnam have increased, accounting for 15% and 9% of the total, respectively (2015).

Figure 2.5: Exports and Imports in US$ billions (2005–2025)



Sources: Draft Cambodia Logistics Master Plan

The continuous economic growth in recent years is based on the favorable development of the manufacturing and agriculture sectors, as well as the service sector, which has grown rapidly in line with urbanization and the growth of income levels in urban areas. The Royal Government

of Cambodia (RGC) formulated an Industrial Development Policy (IDP) 2015–2025 to sustain this economic growth by transforming the industrial structure from simple labor-intensive industries to high-value-added, technology-driven industries.

In this regard, the IDP called for the necessity to develop and implement a master plan for the transport and logistics system. The goal of the plan is to create 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. These corridors are to become key national economic corridors through the construction of internationally standard highways and the setup of an effective logistics system.

Moreover, in recent years, regional value chains in ASEAN have transformed through the relocation of factories by multinational manufacturing companies from established bases in Thailand, Vietnam, and China to emerging industrial locations in various ASEAN countries. For Cambodia, the trend has involved relocating factories from Thailand because of changes in the business environment there; this has been termed the "Thailand-+-1" strategy. Similarly, "China + 1" and "Vietnam + 1" strategies have been pursued in Cambodia. The concept is that companies established in China or Vietnam establish production facilities in emerging industrial locations, such as Cambodia, and connect them with their mother factories in China and Vietnam to minimize total production costs. These factories typically use many parts and materials and produce higher-value products that are often small and lightweight. The eventual emergence of such industries will lead to various new logistics requirements.

Improving the logistics system is, therefore, necessary for such a transformation of the economic structure to occur. To realize sustainable economic growth, the following are required: an increase in the development potential of the Cambodian parts of the Greater Mekong Subregion (GMS) Southern Economic Corridor, the promotion of investments in the country, and the revitalization of industrial locations along the corridor and its sub-corridors. In this regard, the RGC prioritized the formulation of a Logistics Master Plan to improve the logistics system and implement priority projects identified in the Master Plan.

2.2. Logistics Infrastructure and Key Issues in the Logistics Sector

With joint technical support from the Japan International Cooperation Agency (JICA) and the World Bank, the General Department of Logistics under the Ministry of Public Works and Transport conducted a study on the "Logistics System Improvement Master Plan" in the Kingdom

of Cambodia. At the time of writing this paper, the study on the development of the Logistics Master Plan was completed, and the draft study report of the Logistics Master Plan was made available to stakeholders for review and subjected to be finally submitted to the Royal Government of Cambodia for approval.

As aforementioned, the economic growth of Cambodia is expected to continue in the medium to long terms, and logistics volumes are expected to increase accordingly. According to the report of the Logistics Master Plan, between 2016 and 2025, total domestic logistics volumes are expected to increase by 88% while international logistics volumes will increase by a higher percentage of 158%. In particular, the Bavet and Poipet border crossings—which have recorded more rapid increases in trade volumes than the national average (e.g., annual average increases in exports of more than 20% compared to the national total of 12%)—are forecast in 2025 to have cargo volumes more than four times the current totals.

The map displayed in Figure 2.6 below shows the locations of regional development potential and their logistics demands. As stated above, Bavet and Poipet are the country's two most important land border crossings, and both are located along the Central Sub-corridor of the GMS Southern Economic Corridor. The cargo passing through these two border crossings can be divided into two main types: (i) parts/materials from mother factories in Thailand/Vietnam, and (ii) transit cargo from Thailand/Vietnam to Phnom Penh. The relocation of manufacturing from Thailand and Vietnam will increase gradually, with cargo volumes and types expected to continue correspondingly.

The light industry is the major type of industry in and around Phnom Penh Capital and includes the production of garments and footwear products, targeting overseas markets in the U.S. and EU. Although increased production costs, especially increased labor costs, will adversely affect these light industries over time, new developments shaping industrial locations in Phnom Penh are likely to include: (i) an increased sophistication of the existing light industry that enables it to better respond to various demands, (ii) diversification of manufacturing toward industries requiring various new parts and materials for production, and (iii) import-substitution manufacturing targeting the domestic market, especially urban residents. Continuing economic growth is expected to increase incomes in Phnom Penh, which in turn will increase the volume and varieties of trade commodities (for both business and consumer use). In general, the urban population, like in Phnom Penh, will be wealthier and therefore more likely to consume more diversified and higher value-added products, which will require more value-added and diversified logistics (e.g., cold chains, e-commerce, internet shopping, etc.) in line with the increased complexity and sophistication of industry. The logistics sector will be required to

provide a variety of services that respond to an increased variety of demands in terms of volume, cost, speed, frequency, and punctuality.

Most factories in Sihanoukville are light industrial enterprises that target the EU and U.S. markets under the Generalized System of Preferences (GSP). These factories use the Sihanoukville Port. There are two SEZs in Sihanoukville, the Sihanoukville Port SEZ, and the Sihanoukville SEZ, which host new types of manufacturing that produce small, light, and higher-value products. The throughput of Sihanoukville Port has continuously increased in line with the economic and population growth of Cambodia. It will be necessary to increase the capacity of the port and its flexibility further to serve user demands. Nearby Kampot produces cement products that utilize limestone from the surrounding area. The demand for cement products has increased rapidly and will continue to grow, which will provide a good source of cargo for the Southern Railway Line. The Ministry of Tourism (MOT) has sought to diversify tourism destinations (e.g., Sihanoukville has been designated and promoted as a major destination for tourists). Distribution centers (e.g., logistics complexes) may serve tourism demands by providing sufficient quantities of necessary goods.

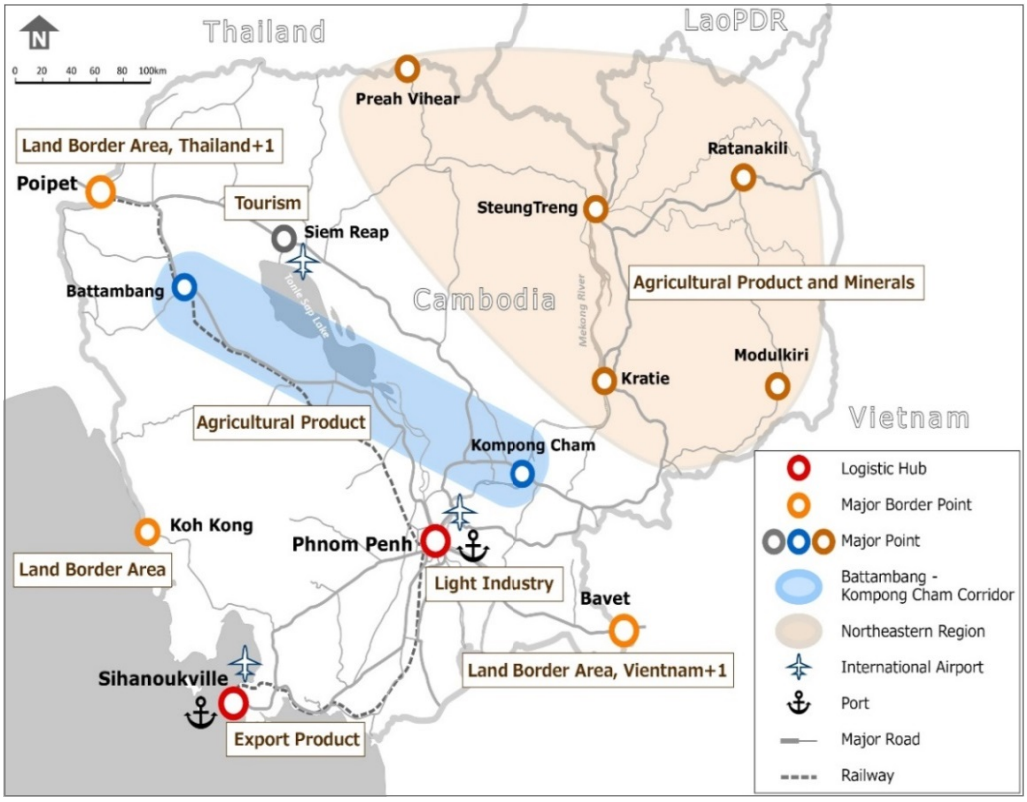
Table 2.1 shows cargo flows of the ports at Sihanoukville and Phnom Penh and the border points at Poipet and Bavet. Sihanoukville and Phnom Penh are the main gateways of freight movement, and Bavet and Poipet have more industrial goods. In terms of exports, 70.9% of the total weight comes from the Sihanoukville Port, whereas the value is 62.9%. The Phnom Penh Port shows similar trends: the 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, the percentage in value is higher than that of weight in Poipet and Bavet. At the Poipet border, weight accounts for only 1.4% of total weight, whereas the value reaches 15.7%. Similarly, the 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 that are exported from these two borders.

Table 2.1 Cargo Flow at Borders and Ports (2015)

Location of Cargo Flow	Export (%)		Import (%)	
	Weight	Value	Weight	Value
Bavet border checkpoint with Vietnam	1.1	5.3	6.2	11.1
Phnom Penh Port	26.6	16.1	18	9.3
Poipet border checkpoint with Thailand	1.4	15.7	41.3	13.4
Sihanoukville Port	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).

Figure 2.6: Regional Development Potential and Logistics Demand



Sources: Draft Cambodia Logistics Master Plan

The next section discusses the status of logistics infrastructure and its constraints to the logistics system in the country.

A. Logistics Axis

Road Transport Infrastructure/Expressway

Cambodia's road network has been developed over time at a significant cost. The major arterial road network includes the Greater Mekong Subregion (GMS) Southern Corridor, the GMS Interlink Sub-corridor (including Phnom Penh-Sihanoukville), and the GMS Southern Coastal Sub-corridor; the road network now functions well in parts and is being improved in other parts. Road master plans were prepared (in 2006 with revisions made in 2009 by JICA support, and in 2017 by Chinese support), as have expressway development master plans (in 2013 with JICA support and 2014 with Chinese support), but budget constraints need to be carefully assessed before implementation.

Railways

The Cambodian railway network includes a Southern Line and Northern Line. Basic rehabilitation of the Southern Line was completed, and it is currently in operation; however, it is not operating at an efficient level, e.g., due to the need for automatic signaling, electric level crossings, automatic signaling, and additional sidings/stations. On the other hand, the Northern Line is still undergoing basic rehabilitation. A study on the Railways Development Master Plan was conducted in 2013 with support from the Korea International Cooperation Agency (KOICA).

Inland Waterways

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 operating hours to provide for more efficient and more flexible operations. A study on the Master Plan for Waterborne Transport on the Mekong River System in Cambodia was made in 2006 with Belgian technical cooperation. Later in December 2015, the Mekong River Committee designed a Master Plan for Regional Waterborne Transport in the Mekong River Basin. In 2017, the KOICA implemented a feasibility study on the waterway improvement for port logistics development in Cambodia.

B. Logistics Hubs

Sihanoukville Port

The Sihanoukville Port handled 400,187 TEUs in 2016 and is expected to increase its share of Cambodia's international trade in the future. It is carrying out a Multi-Purpose Terminal Project that will be operational in 2018 and will serve the needs of agriculture, the agro-industry, and trade cargo, especially for the export of Cambodian agricultural products, such as dried tapioca. The Multi-Purpose Terminal has two berths: one 330 m with a depth of 13.5 m, and the other 200 m with a depth of 7.5 m. The Sihanoukville Autonomous Port or Port Autonomous de Sihanoukville (PAS) is also planning a New Container Terminal Development Project (2020–2023) to accommodate one over-Panamax vessel or two container vessels smaller than the Panamax size. The berth will be 350 m in length and 14.5 m in depth. The new container terminal is expected to start operations in 2022 and to handle 200,000 TEUs in 2024 and 450,000 TEUs in 2027. In 2027, the PAS's total annual container handling capacity is expected to reach 900,000 TEUs, including the existing annual capacity of about 450,000 TEUs.

Phnom Penh Port

The Phnom Penh Port consists of the (old) Phnom Penh Port and New Phnom Penh Port. The New Phnom Penh Port is only 30 km from the city while the old port facilities are located in the city

on the Tonle Sap River about 3–4 km from its confluence with the Mekong River. The New Phnom Penh Port will connect with the suburbs of Phnom Penh by Ring Road 3 in the near future. The Phnom Penh Autonomous Port (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. Accordingly, the New Phnom Penh Port, currently handling 151,781 TEUs in 2016, is being expanded to 300,000 TEUs in Phase II (2016–2018) and Phase III (2019–2028) development plans. The PPAP also plans to expand river transport capacity in its commercial port zone along the Mekong and Tonle Sap Rivers with a belt conveyor system in the short term and a logistics center around the new Phnom Penh port in the longer term (2019–2028).

Air Cargo Hubs

There are three international airports in Cambodia—at Phnom Penh, Siem Reap, and Kampong Chhnang—with Phnom Penh Airport dominating air cargo traffic demand. Cargo traffic increased by 73%, from 27,568 tons in 2006 to 45,545 tons in 2016, and is projected to reach 87,000 tons by 2025. Key destinations are expected to remain broadly the same (the U.S. and Europe), but the share of cargo movement to China is expected to grow. Broadly speaking, the load factor is high (between 70–100%), and some airlines plan to increase cargo capacity in the near future. In response to the rapid increase of air cargo, the Phnom Penh Airport is currently expanding its cargo terminal and formulating a new cargo logistics complex development plan.

Multimodal Transport Facilities

Inland Container Depot (ICD)

The development of multimodal (or intermodal) transport facilities in Cambodia is still at a nascent stage. The connectivity between modes is insufficient; while there is a dry rail port in Phnom Penh, its performance seems to be not effective. The landowner of the planned railway ICD is the Sihanoukville Port Authority (PAS), while the facility operator would be Royal Railways, the railway concessionaire. The ICD facility is located along the Southern Line railway at the 13 to 15 km post from the Phnom Penh Central Station along the northeastern corner of the junction with NR 4 to Sihanoukville. If sufficient land is available, the scope of the facility could be enhanced, e.g., by adding container freight station (CFS) functions for less than container load (LCL) shipments This would create a focal point for the gathering of rice from many different directions, sealing containers before shipping to Sihanoukville or Vietnam, and adding a cold storage/freezer warehouse. Full operation of this rail-based ICD may be expected by 2025, if not earlier. Development of the proposed ICD—and other ICDs in Cambodia—will require the development of an associated institutional framework.

Dry Ports

A dry port is an inland intermodal terminal that is directly connected by road or rail to sea/inland waterway ports and operates as a center for the trans-shipment 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 trans-shipment, 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. The dry ports in Cambodia have main functions of custom clearance for international freight. The dry port development and management are under the General Department of Custom and Exercise, Ministry of Economy and Finance. However, there are several dry ports that are primarily owned by trucking companies (mostly members of the Cambodia Trucking Association).

There are more than 10 dry ports in Phnom Penh, and almost all of them are located in the southwest part of the city around the Phnom Penh International Airport. Moreover, there are a few dry ports in Sihanoukville, Bavet, and Poipe, including the one that is under construction (Table 2.2). 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 intense. Some shippers consider the dry ports services in Cambodia to be expensive. In all dry ports, the Automated System for Customs Data (ASYUCUDA) is installed, and all customs and CamControl (Cambodia Import-Export Inspection and Fraud Repression Directorate General) functions are available. Containers could be sealed in all dry ports.

Table 2.2 List of Dry Ports in Cambodia

No.	Name of Dry Port	Year	Location
1	So Nguon	1999	Phnom Penh
2	Tech Srun	2006	Phnom Penh
3	Chhay Chhay Investment	2006	Banteay Meanchey
4	So Nguon	2008	Svay Rieng
5	Teng Lay	2008	Phnom Penh
6	Olair Dry Port Worldwide Logistics	2008	Phnom Penh
7	Bok Seng PPSEZ	2008	Phnom Penh
8	Teng Lay	2008	Phnom Penh
9	Damco	2009	Phnom Penh
10	Sokan Transport	2011	Phnom Penh
11	Union	2011	Phnom Penh
12	Hong Leng Huor	2013	Phnom Penh
13	Royal Railway	2013	Phnom Penh
14	Try Pheap	2014	Phnom Penh
15	Chhay Da	2016	Phnom Penh
16	Sovannaphum	2017	Phnom Penh
17	Koh Kong SEZ		Koh Kong
18	Chea Heang		Pailin
19	Chhun Lim		Banteay Meanchey
20	Cambodia Diamond		Banteay Meanchey
21	Real Deal Interrich		Banteay Meanchey
22	Lim Bunna		Tbong Khmum

Sources: GDCE and the Author

However, a list of dry ports of international importance stated in Annex 1 of the Intergovernmental Agreement on dry ports, developed under the UNESCAP on 7 November 2013, comprise:

1. Olair Worldwide Dry Port (Phnom Penh)
2. CWT Dry Port (Phnom Penh)
3. Phnom Penh International Airport (Phnom Penh)
4. Phnom Penh SEZ (Phnom Penh)
5. So Nguon Dry Port (Bavet)
6. Tech Srun Dry Port (Phnom Penh)
7. Teng Lay Dry Port (Phnom Penh)

At the Phnom Penh Autonomous Port (PPAP), there is a new dry port development plan for future expansion of the terminal. Also, a new railway line is planned in Phnom Penh that will connect the PPAP and a railway ICD. At Sihanoukville, a JICA-funded Sihanoukville Port SEZ is under operation by PAS since 2012. The SEZ is located next to the seaport 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 investments, a plan to develop facilities such as warehouses and cold storage is under consideration.

Table 2.3 Photos of Dry Ports and Inland Container Depots in Phnom Penh

Railway Dry Port in Phnom Penh	
	
Phnom Penh Autonomous Port - Terminal LM17	
	
Nippon Express Warehouse and Bok Seng Dry Port in the Phnom Penh Economic Zone	
	

Source: Site Visits by General Department of Logistics at Dry Ports and Phnom Penh in March 2018

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. The LOLO rate is estimated to be around USD $1.5 per ton or USD $35 per full 20 ft. container.

While logistics volumes are expected to increase drastically, there will be a significant need to make urban logistics more time and cost efficient. The Korean study in 2014 recommended establishing a logistics complex in Phnom Penh and regional cities. Regarding Phnom Penh, a holistic approach in line with the 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. Good access between the dry ports/logistic complex and the PAS/PPAP is essential for smooth and efficient multimodal 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 are 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 multimodal transport are still weak. Moreover, there are no truck terminals, and distribution functions towards last-miles delivery are limited.

2.3 Government Institutions for the Logistics Sector

As explained previously, logistics plays a key role in the national economy in two ways. First, it is one of the major expenditures for businesses, thereby affecting and being affected by other economic activities. Second, it carries out national economic transactions with fostering the sale of all goods and services. Logistics refers to a wide range of issues and activities in connection with the effective and efficient flow and storage of goods, services, information, and people within and between countries. Logistics requires a high degree of cooperation among public and private stakeholders, all of whom have a responsibility to contribute to its improvement.

> "From a policy perspective, logistics is much more than just transport infrastructure development. A holistic approach that addresses the requirements of traders' needs,

> service providers' expertise, infrastructure capacity, and institutional framework is needed to develop a national logistics policy. A logistics policy involves planning, facilitating, implementing, integrating, and controlling the efficient, effective flow and storage of freight, people, and information within and between logistics systems for the purpose of enhancing traders' competitiveness in order to increase national competitive advantage."[11]

Multiple Stakeholders in the Development of a Logistics Infrastructure

In Cambodia, the Ministry of Public Works and Transport (MPWT) is responsible for the development of ASEAN highways, national and provincial roads, expressways, railways, river ports, seaports, and waterways/ferries. The airport is under the management of the State Secretariat of Civil Aviation (SSCA). The development of the Special Economic Zone is managed by the Council for the Development of Cambodia (CDC), and dry ports are managed by the General Department of Custom and Exercise (under the Ministry of Economy and Finance).

Establishment of a New Institution For Developing the Logistics Sector

Under Sub-decree No. 216 dated 13 October 2016, the Royal Government of Cambodia recently established the General Department of Logistics (GDL) within the Ministry of Public Works and Transport (MPWT) for formulating and implementing the Logistics Master Plan in order to improve the logistics sector that involves many stakeholders including several line ministries. Under the Royal Decree dated 24 November 2017, 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 is assigned as the secretariat of the NLC and the NLSC.

The National Logistics Council (NLC) will act as the national coordinating body and is responsible for the final review of the Logistics Master Plan prior to submission to the Government for approval. The NLC is composed of the representatives of the Ministry of Public Works and Transport (MPWT), the Ministry of Economy and Finance (MEF), the Ministry of Planning (MoP), the Ministry of Commerce (MoC), the Council for Development of Cambodia (CDC), the Supreme National Economic Council (SNEC), and is chaired by a deputy Prime Minister. The NLC meetings will be held at least once a year. Progress made in each strategy and program will be reported to the NLC with the goal that the annual progress report will be approved by the NLC.

---

11 Ruth Banomyong, *Logistics Development Study of the Indonesia-Malaysia-Thailand Growth Triangle*, p.11, Thammasat University.

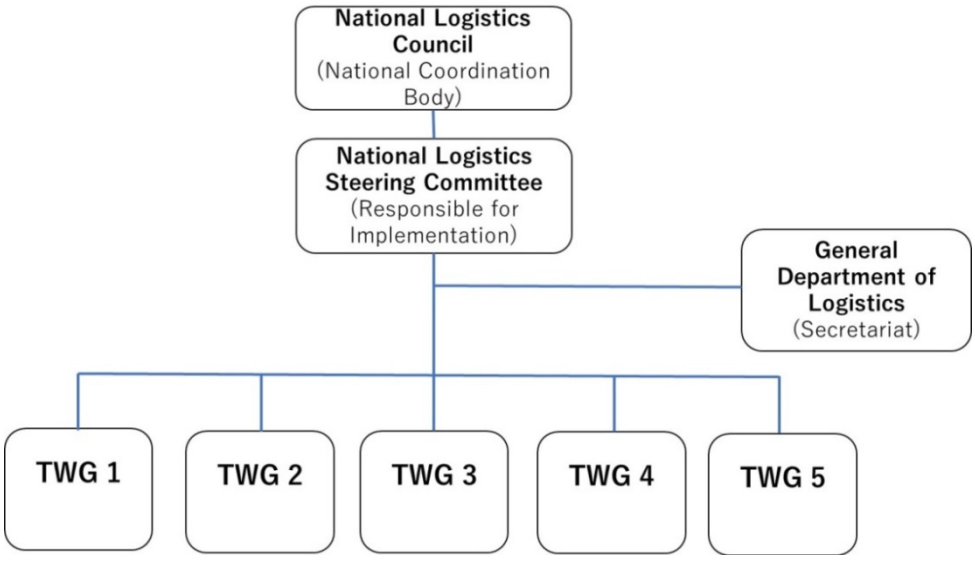
The National Logistics Steering Committee (NLSC), chaired by MPWT, will be responsible for the actual implementation and monitoring of the Master Plan. The NLSC is composed of 36 agencies, including line ministries, private sector, and academia and will report directly to the NLC. The private sector also participates in the NLSC as a member. Under the NLSC, there will be technical working groups in specialized areas. The NLSC will be responsible for the following:

- NLSC members are responsible for the timely implementation of the Logistics Master Plan.
- NLSC members will have to provide relevant data and information in a timely manner to the secretariat.
- NLSC will have to produce progress reports 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.

The GDL/MPWT 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. The GDL/MPWT will effectively drive and coordinate various policies and initiatives in the logistics sector through closer inter-agency coordination as well as public-private collaborations. Therefore, the GDL's responsibilities should include, but are not limited to, the following:

- GDL will maintain a logistics database on a regular basis with input 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 the progress of each project based on the information received from relevant agencies.
- GDL will have to prepare draft progress reports at least three times a year with input from NLSC members (each report for the 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.

Figure 2.7: Logistics Sector Implementation Framework



Source: General Department of Logistics (GDL), Ministry of Public Works and Transport (MPWT)

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.

2.4. Institutional and Legal Framework

Institutional and Legal Framework for a Logistics Infrastructure

The study of the Logistics Master Plan also assesses the legal and regulatory framework for the logistics sector in Cambodia and makes some recommendations for improvement. In line with various studies, the Logistics Master Plan study concludes that Cambodia's regulatory regime for logistics services needs to be modernized and to close large and inconsistent gaps in laws and regulations by adopting international good practices and standards.

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. 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.

Currently, the country's applicable laws and regulations are insufficient to govern the transport and logistics service sector. General road transport issues are regulated in the existing road law and land traffic law. However, access to the road transport market and access to the profession of road transport operator and truck or bus driver is hardly regulated at all. Railway transport operates with a regulatory regime consisting of some secondary legal instruments but lacks primary-level laws. In the field of maritime transport, inland water transport, and ports, three draft laws have been developed, but they have not yet been enacted. There is no national legal framework in Cambodia for multimodal transport relating to the carriage of goods by national and international multimodal transport contracts, which also include provisions concerning the liability of multimodal transport operators. However, on 17 November 2005, the ASEAN Framework Agreement on Multimodal Transport was signed by its Member States—Brunei Darussalam, Republic of Indonesia, Kingdom of Cambodia (signed by MPWT), Lao People's Democratic Republic, Malaysia, Union of Myanmar, Republic of the Philippines, Republic of Singapore, Kingdom of Thailand, and Socialist Republic of Vietnam. It is, therefore, necessary to develop a Law on Multimodal Transport that will provide legal protection to the multimodal transport operator in terms of liability, particularly in situations when juridical enforcement of irregularities in business and trade is still a challenge. There is a need to transpose the ASEAN Framework Agreement on Multimodal Transport from 2005 into national legislation.

2.5. Existing Institutional and Legal Framework for Dry Port Development

The Intergovernmental Agreement on dry ports has been developed under the UNESCAP to promote international recognition of dry ports, facilitate investment in dry port infrastructure, improve operational efficiency, and enhance the environmental sustainability of transport.[12] It has been signed by Cambodia and other member countries including Thailand, Vietnam, Laos, Myanmar, China, and others on November 2013 and is currently undergoing the procedure for ratification in each country. The agreement specifies the functions of the dry ports as listed below:

- Receipt and dispatch
- Consolidation and distribution
- Warehousing
- Trans-shipment

12 Intergovernmental Agreement on Dry Ports comes into force, United Nations ESCAP, Retrieved 2018-04-04.

The agreement also recommends that the dry ports provide facilities and services as below.

(a) 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.[13]
(b) Warehousing facilities; customs supervision, control, inspection, and storage facilities,[14]
(c) Vehicle holding areas with adequate parking space for freight vehicles; administrative building for customs, freight forwarders, shippers, customs brokers, banks, and other related agencies.[15]

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

As aforementioned, dry ports development and management are currently under the General Department of Custom and Exercise, Ministry of Economy and Finance (MEF). According to the "Law on Customs" promulgated on 20 July 2007, customs may authorize the removal of the goods referred to in Article 10 from the customs clearance area prior to the payment of duties and taxes and fees, under customs control[16] and after the fulfillment of customs formalities, for the purposes of:

13 Intergovernmental Agreement on Dry Ports, United Nations ESCAP, p.15.
14 Intergovernmental Agreement on Dry Ports, United Nations ESCAP, p.16.
15 Intergovernmental Agreement on Dry Ports, United Nations ESCAP, p.16.
16 Cambodia Investment Guidebook, Council for the Development of Cambodia, III-21.

- placing in customs temporary storage
- placing in customs bonded warehouse
- further transportation within or through the Customs Territory to a destination (Article 13)

In accordance with Article 43 of the Law, the Customs Temporary Storage of imported and exported goods under customs supervision is established under Prakas No.106 MEF dated 15 February 2008 in approved premises pending completion of customs formalities. Customs Temporary Storage Facilities (CTSF) includes customs warehouses (at International Ports and Airports) and customs clearance (Dry Port) areas under the management and control of customs authority. The operation license of the facilities is to be approved by the MEF. Under the customs temporary storage procedure, the time limits for the storage of goods are 30 days for customs temporary storage of goods at airports and 45 days from the date the summary declaration is registered for the customs temporary storage at other places.

Also, in accordance with the provision of Article 44, 45, 46, and 49 of the law on Customs, the establishment, licensing, and operation of Customs Bonded Warehouses is made by Prakas 116 MEF dated 15 February 2008. A customs bonded warehouse is a building, place, or an area that is authorized to store goods for a specified period of time under customs control. Imported goods and domestic goods destined for export may be placed in a custom bonded warehouse. While goods are stored in a customs bonded warehouse, duties and taxes are suspended. Any restrictions and prohibitions on the goods may be waived up to the time the goods are released for Cambodian domestic consumption or are exported. There are three categories of customs bonded warehouses:

a) Public warehouses, which are licensed by the Minister of Economy and Finance, may be operated by any agency of the Royal Government, or by any person. Public warehouses are open to any person who has the right to store the goods in the warehouse.[17]
b) Private warehouses, which are licensed by the Director of Customs, are to be used solely by specified persons to store goods for their own specific uses, including operators of duty free shops.[18]
c) Special warehouses, which are licensed by the Director of Customs, are a type of warehouse for goods which may present a hazard, or could affect the quality of other goods, or could require special storage facilities.[19]

17 Cambodia Investment Guidebook, Council for the Development of Cambodia, III-23.

18 Cambodia Investment Guidebook, Council for the Development of Cambodia, III-23.

19 Cambodia Investment Guidebook, Council for the Development of Cambodia, III-23.

Licenses for customs bonded warehouses will determine conditions for owners and operators including location, construction, and layout of premises, and procedures for the control and handling of goods (Article 44). Goods may remain in customs bonded warehouses for up to two (2) years from the date of registration (Article 46).

In certain circumstances, the Minister of Economy and Finance may authorize the establishment of customs manufacturing bonded warehouses for the purpose of processing or manufacturing of goods.[20] Goods accepted in customs manufacturing bonded warehouses are exempt from import duties and taxes (Article 49). Operations that carry out the processing or refining of crude petroleum or bituminous minerals to obtain petroleum products must be placed under the customs manufacturing bonded warehouse regime (Article 50).

2.6. National Plan for Development of a Logistics Hub for Multi-Modal Transport

The Ministry of Public Works and Transport (MPWT) has been mandated by the Rectangular Strategy Phase III to develop a vibrant logistics system through the development of a multimodal transport network system to ensure connectivity within the country and with other countries in the region and rest of the world.[21] In line with this mandate, the MPWT assisted with studies conducted by the Korean Research Institute of Human Resettlements (KRIHS) and JICA, and identified a suite of measures to achieve logistics efficiency in Cambodia. The measures included soft initiatives across the logistics chain and setting up regional logistics facilities along with the strengthening of key transportation networks.

As discussed above, it is acknowledged that logistics hubs in Cambodia are currently 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. The draft of the Cambodia Logistics Master Plan highlights the limitations of the efficiency of dry ports under the existing legal and institutional structure in the country. In order to secure safe and reliable logistics services, a new comprehensive law for logistics service companies including warehouse and dry port businesses is therefore strongly recommended. There is a lack of modern logistics in major economic centers in the country. The movement of goods in the Phnom Penh Capital are slow and costly due to numerous truck regulations in the

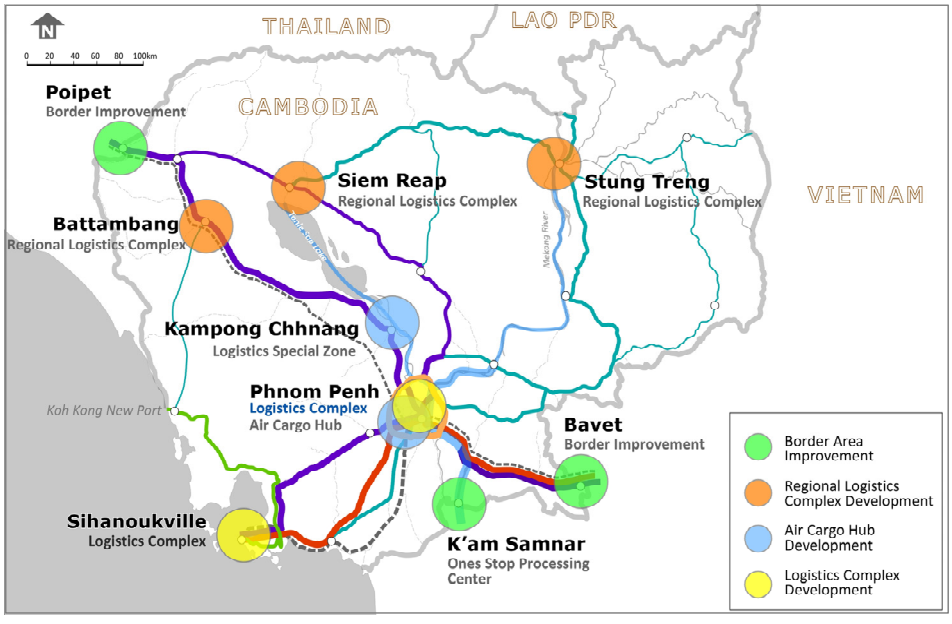
20 Cambodia Investment Guidebook, Council for the Development of Cambodia, III-23.

21 Rectangular Strategy Phase III, p. 7.

urban areas; trucks are often waiting outside the city during the daytime 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, Less than Container Load (LCL), Vendor Managed Inventory (VMI), and last miles transportation, are often not available. In this regard, key logistics centers/complexes, which are the designated areas to integrate logistics activities such as dry ports, Inland Container Depot (ICD), truck terminals, supporting services including financing service, accommodation, and shopping areas, are proposed to establish in major cities to optimize transport efficiency and costs.

Strategy 2 of the Draft Cambodia Logistics Master Plan has been proposed to enhance the functioning and efficiency of transport through seamless cross-border movement along the GMS Southern Economic Corridor and the development of hubs to enhance logistics capacity and efficiency in urban areas and potential regional development areas (Figure 2.8). A "hub and spoke" transport network concept will be applied, especially at the international gateways (i.e., Sihanoukville, Phnom Penh, Bavet, Poipet, and Phnom Penh International Airport) and in regional cities. Six action programs have been identified under this strategy: i) Bavet Border Area Improvement, ii) Poipet Border Area Improvement, iii) Logistics Complex Development, iv) Air Cargo Hub Development, v) Urban Transport Facilitation, and vi) Regional Development Support. Under these six action programs, a total of 14 projects have been identified over the short, medium, and long terms.

Figure 2.8: Logistics Hubs (2025)



Sources: Draft Cambodia Logistics Master Plan

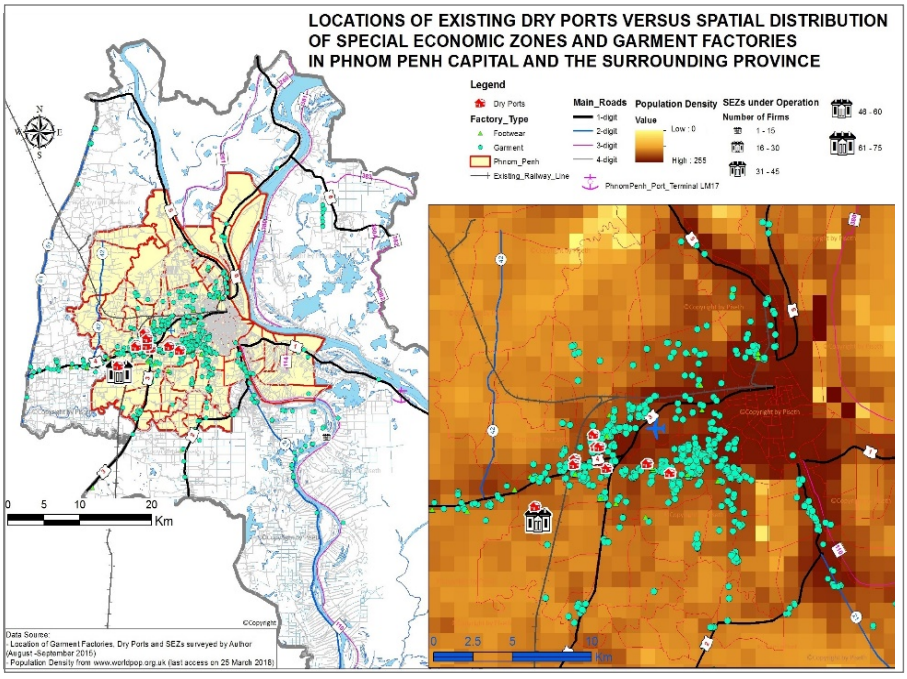
The goal of the Logistics Complex Development Program is to smooth out goods movements in local and capital logistics hubs. Key issues identified are: (i) long waiting time and lack of smooth logistics operations within the Phnom Penh area; (ii) high logistics costs due to inefficient operations and number of trans-shipments/transloading requirements; (iii) lack of modern logistics services available for businesses (e.g., cold chains, VMI and LCL services). There will be large CapEx requirements for implementing this program, including the construction of logistics complexes. Projects include: Phnom Penh Logistics Complex Project, Sihanoukville Logistics Complex Project, and Regional Logistics Complex Project. While most operational investments will be incurred by the private sector, the government may want to secure the land (i.e., in-kind contribution) and play a coordination role with the private sector.

A Case Study on the Necessity for the Development of the Phnom Penh Logistics Complex

The Phnom Penh Logistics Complex (PPLC) was identified as the first priority project due to trade volumes, the concentration of population, and economic infrastructure in Phnom Penh. The MPWT conceptualized the PPLC as an integrated multimodal logistics complex that is spread over three sites aggregating to an area of approximately 70 ha with facilities to handle containerized cargos. An initial assessment of the PPLC project was undertaken to arrive at the value proposition of the logistics complex, develop the scope of the project, and identify key issues to enable the project to succeed.

Phnom Penh city is a key international logistics hub for Cambodia. It is on the transport route from Bavet at the Vietnam border to the Phnom Penh Metropolitan area on National Road 1, and on National Road 5 from the Phnom Penh Metropolitan area to the Thailand Border. The city also forms part of the international shipping logistics routes through Phnom Penh and Sihanoukville Ports. The international container logistics for Cambodia were about 494,000 TEUs in 2015, and about 82% of these containers moved through Phnom Penh. There are about 10–12 privately run dry ports in the outskirts of Phnom Penh city that cater to these container movements (Figure 2.9). Currently, these dry ports are clustered around a radius of five km from the intersection of National Road 3 and National Road 4, towards the outskirts of the city.

Figure 2.9: Locations of Existing Dry Ports in Phnom Penh Capital City



Source: Analysis made by the Author

The dry ports offer services ranging from cargo handling, warehousing, container storage yards, loading of containers, etcetera. They also offer freight forwarding, customs clearance, and transportation services. The operators of the dry port handle both export and import cargoes; the import cargoes are for the consumption of Phnom Penh city and for value addition in the nearby industrial areas. The export cargoes originate from Phnom Penh SEZs and other industrial setups in the vicinity of the city. The MPWT has identified three alternative sites for setting up the PPLC. The first site is located within the existing cluster of dry ports next to the Railway dry port, and the second site is located towards south of the first site along the railway line and can be accessed through the Phnom Penh SEZ; the third site is towards the northwest of the first site at a substantial distance from the existing cluster of dry ports. Thereafter, the need for PPLC was established based on the following considerations:

1. There is an increasing demand for inland container handling depots and intermodal connectivity.
2. Inefficiencies in the existing value chain are leading to high logistics costs that need to be addressed.
3. Urbanization pressure from Phnom Penh city is restricting cargo movements and reducing access to existing dry ports.

a. Increasing demand for dry port capacities in Phnom Penh

Cambodia's international container logistics were at 494,000 TEUs in 2015. About 82% of the container traffic moved through Phnom Penh. The trade movements were between the Phnom Penh and Laem Chabang Ports in Thailand through Poipet; Phnom Penh and Sihanoukville Port; Phnom Penh and Ho Chi Minh City in Vietnam through Phnom Penh Port and Bavet. The movement of about 406,000 TEUs was managed by existing dry ports in the vicinity of Phnom Penh. The dry port capacity is about 200 ha and currently operating at a capacity utilization of about 55–60%. The current capacity of dry ports in the city is expected to be saturated by 2020, given the growth trends of the logistics industry. Provided below is the demand projection for International Container Logistics. There will be a requirement of additional dry port capacity in Phnom Penh from 2020 onwards, which could be in the range of 125 ha by 2025 and 300 ha by 2030. New dry port facilities will be required to address this increased demand.

b. Need to improve efficiency in the existing logistics chain in Phnom Penh

While increasing dry port capacities is a requirement, there are inefficiencies in the logistics chain that need to be addressed. Consultations with stakeholders and various reports on the sector indicate that logistics inefficiency is as high as USD $350 per 40-foot container. There are various reasons that can be attributed to an increase in logistics costs:

1. Lack of coordination mechanisms;
2. High freight forwarding charges;
3. Imbalance in cargo flows;
4. Lack of Electronic Data Interchanges (EDI);
5. Insufficient and uneven capacities across the supply chain of ports, dry ports, road capacities, rail movements, etcetera.

Suggested soft and hard infrastructure measures to bring efficiency in the sector may include:

- *Related to Information, communication and technology (ICT)*: i) there is an urgent need to harmonize processes and procedures across customs and ports and enable better data sharing; ii) there is a need to create a single window for customs procedures, obtaining clearances, freight operations, etc.; iii) manage data electronically to save time and multiple processes, establish linkages with trade partners for smooth inter-country data exchange; iv) eliminate multiple permits; and v) introduce cargo tracking, safety, security and coordination amongst all agencies.
- *Related to infrastructure*: i) there is a need to upgrade road capacities and facilitate intermodal linkages; ii) provide common infrastructure facilities like scanners to eliminate

physical inspections and save time; and iii) provide common infrastructure facilities at a single location to reduce the cost of setting up dry port operators.

- *Expectation from Stakeholders that PPLC will*: i) bring all agencies under one roof and enable facilitation to reduce process time; ii) enable multimodal transport interchange; iii) introduce electronic data interface and facilitate linkages with port systems and systems operated by Customs; iv) invest in common infrastructure facilities and reduce per unit cost of logistics operations, like scanners; v) consolidate operators at one location to obtain benefits of clustering and synergy in operations; and vi) will not directly compete for handling logistics cargo, but will help to develop the dry ports sector and introduce professionalism.

c. Urbanization pressure could push dry port operators further away from the city

Currently, dry ports are clustered on the outskirts of the city near the junction of NR3 and NR4. However, these dry ports are facing restrictions in the movement of cargoes and traffic-related issues due to its proximity to the city. There are restrictions on the movement of heavy trucks during the daytime at various locations, which severely affects dry port operations. Based on urbanization studies conducted by JICA, there will be substantial densification of the population in the vicinity of the dry ports. The population density is expected to increase from 65 persons/ha to about 180 persons/ha by 2035 along the NR3 and NR4, which will further increase traffic and cargo movement issues for the existing dry port operators.

Figure 2.10 below shows the urbanization trends of Phnom Penh city. In response to this pressure in urbanization, it is expected that dry port operators may shift their operations to a location further away from the city, and existing setups may get converted into specialized distribution warehouses for retail trade in Phnom Penh. Some dry port operators may commercially exploit the land at these dry ports by setting up residential, commercial, or retail facilities, which may give them better realization for the land. From stakeholder consultations, we understand that some dry port operators have already procured land further away from the city for future operations, and in the past, a few of the operators have converted their old dry port lands for real estate exploitation while moving out of the city.

2.7. National Strategies and Plans for the Development of Economic Corridors and International Gateways

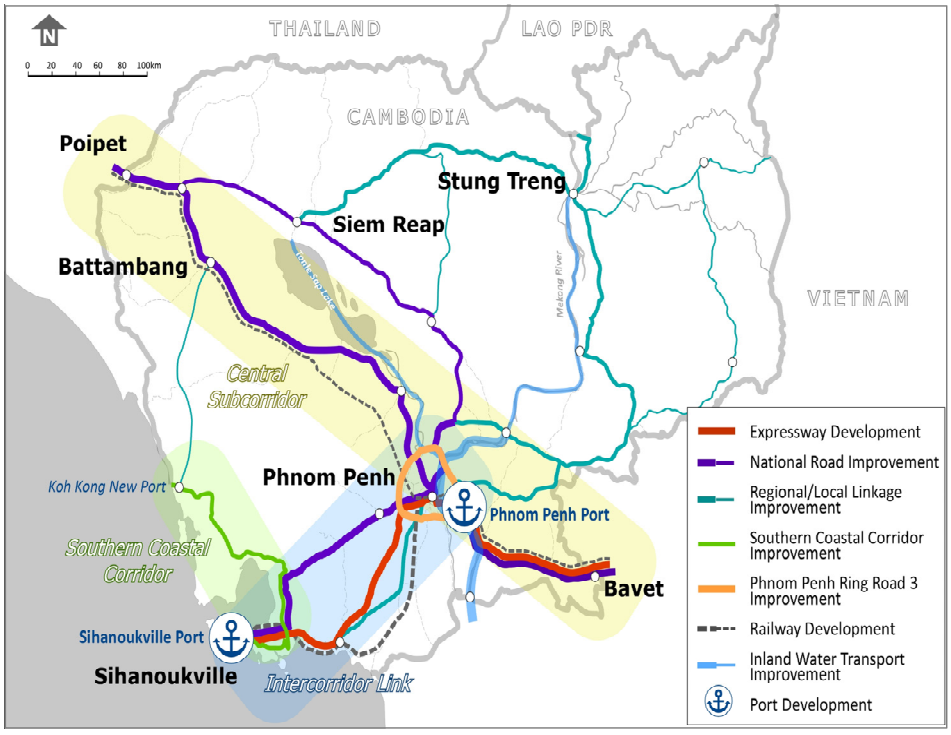
Cambodia's Prime Minister made a statement at the sixth Mekong Greater Sub-Region Summit (GMS-6) and 10th Cambodia-Laos-Vietnam Development Triangle Summit (CLV-10) on 30th March 2018 in Hanoi that Cambodia is actively building physical infrastructure, especially focusing on the economic corridor development and linking Cambodia to the region through the integration of multi-transport systems. Moreover, Cambodia is developing a non-physical infrastructure by upgrading logistics and services to turn Cambodia into a center of logistics in GMS through implementing cross-border transport agreements.

The Prime Minister also added that global economic growth was improving in 2017 and will continue to grow in 2018 and 2019. He suggested that in order to improve the flow of future regional growth, the Greater Mekong Sub-region requires accelerated regional integration and connectivity, which should focus on finance, e-commerce, and urban development in border areas. At the same time, the Cambodian Prime Minister addressed the five challenges, including failure in taking the fullest potential of the Greater Mekong Sub-region Economic Corridor, issues derived from rapid urbanization growth, congestion on border gates caused by trade and business activities, ineffective and untimely infrastructure systems and trade facilitation, and high dependence on natural resources and low wage labor force, which will result in failure to achieve sustainable development.

Strategy 1 of the Draft Cambodia Logistics Master Plan has been proposed to enhance physical connectivity with neighboring Mekong Region countries and global markets to meet the expected increased volume of logistics requirements as well as to provide stable and faster transport along major corridors (Figure 2.10). The transport network should be improved, especially in terms of capacity and efficiency along the GMS Southern Economic Corridor and its international gateways. Also, alternative modes, such as railway and inland waterway transport, should be developed to provide expanded choices and a variety of transport services with multimodal transport. Both the Phnom Penh Port and Sihanoukville Port should be improved so that there is competition between ports in the transport market. Five action programs have been identified under this strategy: i) Road Transport Capacity Enhancement Program, ii) Promotion of Railway Freight Transport, iii) Inland Water Transport Improvements, iv) Sihanoukville Port Development, and v) Phnom Penh Port Development.

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

Figure 2.10: Economic Corridors and International Gateways (2025)



Sources: Draft Cambodia Logistics Master Plan

2.8. Financing the Development of Logistics Infrastructures

While the Government's budget for public investment continues to grow, it might not be enough to satisfy the huge infrastructure needs of a growing population, changing demographics, and the productivity enhancement needs in major sectors of the economy. Consequently, the government, through the Ministry of Economy and Finance (MEF), is promoting the Public-Private Partnerships (PPP) mode of public investment and is increasingly asking line ministries to think of PPPs as an alternative for achieving their sectoral development plans. The MEF would like to see that all public investments, whether financed through the national budget, ODA, or PPP, be conducted under an effective, transparent, accountable, consistent, and interlinked system.

The private sector is still and shall continue to be seen by the Royal Government of Cambodia as the major driving force of sustainable economic growth, and this is reflected in the national development strategies, plans, and policies, including the Rectangular Strategy Phase 3 and National Strategic Development Plan.

There has been a remarkable upsurge of the private sector in Cambodia in the last decade as shown by increased foreign direct investments, private-sector bank deposits, business registrations, profit tax revenues, and the increased investment proposals for Build-Operation-Transfer (BOTs). Private investors and financial institutions also have high liquidity due to the internationally low-interest rate environment and are searching for places to invest their funds, which includes public infrastructure projects. Altogether, these indicate that the market for PPP investments has great potential if there is an enabling environment. Therefore, it is vital to engage with the private sector, both nationally and internationally, to promote the PPP program and projects in Cambodia and attract them to come and invest.

Major development partners are reducing grants and concessional loans and are interested in new financing strategies that utilize PPPs to finance public investment projects. Therefore, they are ready and willing; indeed, they have already begun to provide both technical and financial support to develop the PPP program and projects in Cambodia.

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

For the airport operations, 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 for 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 operations are conducted by the Royal Railways under a 30-year concession agreement, signed in 2009, that covers the Southern Line and Northern Line. The agreement sets the demarcation as: assets and infrastructure to be owned and maintained by the government, and wagons/locomotives are the 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, and mechanisms of PPP by the end of 2020. During the process, it is expected that a new PPP law will 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 operations without the need for subsidies. As a financial support mechanism, a Project Development Facility (PDF) will be established to provide support to the ministries for project development. A Viability Gap Fund (VGF) manual will also be created, but 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 to enhance private sector involvement.

2.9. Laws and Regulation for the Development of Logistics Infrastructures

As highlighted in Strategy 5 of the Draft Cambodia Logistics Master Plan, it is necessary to strengthen the legal framework for the logistics system and to develop a self-sustaining mechanism to implement the logistics master plan and future logistics improvements. With increased international trade and transport volumes, global agreements and the capacity of domestic institutions responsible for transport and logistics should be enhanced. Also, it is necessary to enhance the capacity to implement programs and projects under this master plan. For this purpose, the following four action programs have been identified under this strategy: i) Capacity Development of the General Department of Logistics (GDL), ii) Development of Logistics Regulatory Framework, iii) Facilitation of Trade Agreements and Borderless Transportation, and iv) Optimization of Logistics Costs. Under these four action programs, a total of 10 projects have been identified over the short, medium, and long terms.

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 a key factor 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.

The 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. Rules and standards should be set to prepare for regional connectivity with Thailand for railways to advance and increase the private sector presence.

There is a need for new comprehensive laws and regulations for logistics services, including warehouse and dry port businesses, to secure safe and reliable logistics services. The General

Department of Logistics is in the process of drafting laws and regulations relating to logistics businesses, including the Freight Forwarding Business Act, Logistics Business License, Warehousing Act, and Logistics Complex.

2.10. Diagnosis on Current System for Developing Logistics Infrastructures

The Study on the Development of Logistics Master Plan has conducted an analysis and diagnosis of the current logistics system and has proposed **SMART Logistics 25-Sufficient capacity and variety by Multi-modality and Advance technology for Reliable Transport and Logistics-**that is proposed to provide a strong foundation for further economic growth and urbanization in Cambodia emphasizing the following main directions:

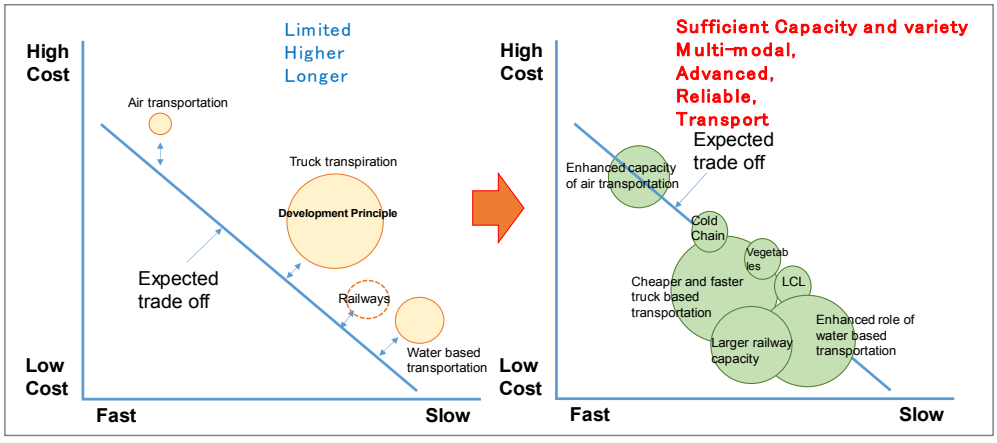
- Sufficient response to an increased volume of cargo;
- Sufficient response to diverse types of cargo;
- Efficient logistics (lower cost, reliable, and stress-free) to enhance the Thai+1, Vietnam+1, and China+1 approaches;
- Variety of Logistics Services/Private Providers in Fair and Transparent Market;
- Modern logistics with ICT technology.

Simplifying current logistics in Cambodia with the analysis model, Figure 2.12 shows the time on the X-axis and cost on the 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 is 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 to achieve scale of economy.
- Truck transport: the transport cost is relatively higher compared to Thailand and Vietnam due to the single direction freight transport (caused by the unbalance of import/export volumes), higher energy costs, and higher export/import procedure costs. Transport time is relatively longer due to current road conditions.
- Rail transport: the rail transport cost itself is lower, but it is necessary to include track costs, loading/unloading costs, and storage costs. It makes rail transport costs higher without an effective multi-modal facility.
- Sea transport: the sea transport cost is relatively higher compared to the ports in Thailand and Vietnam due to the higher terminal cost and higher export/import procedure cost.

The model analysis clearly indicates that improving logistics to enhance the sufficient capacity and more variety of logistics services theoretically requires a shift of each transport services to the trade-off line and the generation of more transport services along the trade-off line with certain public interventions. The public intervention means that the public sector takes certain actions to encourage/promote the shift of each transport to the trade-off line, which can be realized through the reduction of transport costs and time. Various logistics services can be created with fair competition among the logistics service providers under a fair and transparent market. In particular, current logistics costs are a critical issue not only for existing factories and transport companies to reduce profits but also for attracting more foreign investments.

Figure 2.11: Logistics Improvement Principles (model analysis)



Sources: Draft Cambodia Logistics Master Plan

SMART Logistics 25 Vision Statement (draft)

The Royal Government of Cambodia 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 the 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 the Mekong Region and seamless transport;
3. Diversified logistics services to respond to various demands;
4. High quality and efficient logistics with "Cutting-edge" technology and business model, and
5. Enhancement of competition in the logistics market.

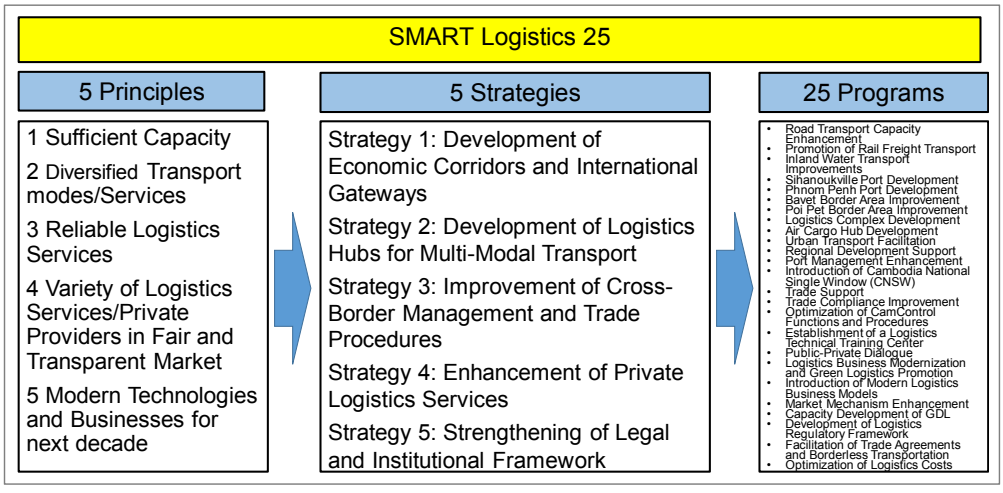
The Royal Government will pay close attention to drive the structural-change in the current logistics system in three important phases: 1) debottlenecking current logistics obstacles in the short-term, 2) reaching global standards in the medium term, and 3) activating logistics business regional hubs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

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

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 the Legal and Institutional Framework

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

Figure 2.12: The 5 Principles and 5 Strategies of SMART Logistics 25



Sources: Draft Cambodia Logistics Master Plan

2.11. Conclusion and Suggestions

Cambodia has experienced steady economic growth during the last decades, which significantly increased import and export volume. On the other hand, the population continues to increase in Cambodia, especially the urban population in major cities. The people in urban areas can rapidly improve their income levels if there is an increase in better job opportunities due to favorable economic growth. It accelerates to expand goods demand in volume and to diversify the type of goods demanded. Accordingly, the volume of transported goods increases, and the types of goods are diversified. Many types of goods with lower prices are lightweight but big capacity, goods with lower price, heavy weight, the goods with a higher price with lower weight

and small capacity. Cargoes with low unit prices, such as cloths or equivalent bulky material, tend to demand big capacity compared with those with a higher price like electric parts, etcetera.

The Government of Cambodia formulated the "Cambodian Industrial Development Policy 2015-2025," 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 that imports materials, produces with a lower wage, and exports under the GSP based on the advantages of production costs and the GSP against the surrounding countries. Higher value-added industries, like machinery, electric parts, assembling manufacturing, as well as the sophistication of the current light industry, would be strategically attracted to accomplish the relocation of factories from Thailand, Vietnam, and China under "Thai+1," "Vietnam+1," and "China+1." Based on the accumulation of these industries, manufacturing and logistics businesses targeting markets in the Mekong Region and ASEAN will be attracted to Cambodia by enhancing VMI (vendor management inventory) and other modern logistics services.

In this regard, the lower production costs should be maintained as the advantage of Cambodia. The logistics should be improved to effectively maintain Cambodia's advantage by realizing the lower cost, reliable, and less-stressed logistics in terms of documentation, inspection procedures, and practice. On the other hand, the current society is generally an information society. People in not only the advanced country but also countries in the Mekong Region and Cambodia simultaneously share information through the internet, including cutting-edge information like music, fashion, new equipment, food and beverage, and so on. The middle-income urban people strongly demand this cutting-edge information and goods, so it is necessary to respond with modern logistics, like last mail logistics for e-commerce and internet shopping.

As previously discussed, there is a real need for the development of a logistics complex that will cater to the future needs of the logistics sector. There is an incremental demand due to growth in container traffic. Further, due to urbanization pressures, there will be demand from the shifting of existing logistics facilities with limited services such as dry ports. The complex should be set up to cater to incremental demand for dry port facilities, consolidation of operators shifting existing operations, and bringing efficiencies in the sector. In line with the expectations of the Ministry of Public Works and Transport and key stakeholders, a successful complex needs to deliver the following:

1. Bring all agencies under one roof to facilitate better coordination.
2. Introduce ICT measures to bring in efficiencies.

3. Cater to new demands rather than competing with existing operations.
4. Enable clustering of operators and provide common user facilities.
5. Enable multimodal transport linkages,
6. Strategically located along key transport axis, while avoiding the urban sprawl.

Depending on the outcome of the financial viability assessment from the future project feasibility study, development options to balance costs and risks in the project will be proposed later. Setting up the logistics complexes through PPP partners and lease of land to dry port operators could be one of the options.

However, the development of logistics hubs cannot be implemented without bringing in reforms in the sector and introducing ICT measures. In order to precede the development of such logistics facilities, policies and reforms led by the National Logistics Council (NLC) and National Logistics Steering Committee (NLSC) have to take place. The Ministry of Public and Transport (MPWT), who chairs the NLSC, and permanent vice-chair of NLC have to lead in legal and regulatory reforms in the logistics sector, and such reform implementation plans have to be implemented in a time bound manner. Rationalization, harmonization of procedures, and integrated ICT interface will drive the value proposition for the Logistics Complex. The MPWT through the NLC and NLSC would need to coordinate the harmonization of the approval processes of various government agencies by: i) introducing simplified processes for cross border arrangements, rationalizing port charges, interfacing with customs, etcetera; ii) introducing tracking and tracing systems, one-stop inspection procedures, carriers' haulage, etc.; iii) thereafter, developing an integrated e-enabled single window platform for managing all transactions electronically.

Government-industry partnerships will need to drive the development option choice and demand build up at the logistics complex. The MPWT will need to set up a project steering group with key industry participants to shape the policy reforms and project development option for the complex. The MPWT will also need to conduct continued consultations to fine tune the plan to ensure buy-in by industry players. There is a need for further scoping of the project in terms of soft and hard infrastructure. The project scoping is dependent on many variables that are not under the control of one agency. Extensive discussions will be needed amongst industry players supported by the highest levels in the government to arrive at a reasonable scope for the project.

Improvement of public-private dialogue is also an important action to deepen collaboration and cooperation logistics improvements among the public and private sector. The mutual understanding and cooperation between the public and private sectors may effectively and

flexibly function to solve further problems. Such dialogues among relevant stakeholders could be carried out through the Technical Working Group meetings coordinated by the General Department of Logistics under the MPWT, who plays a role as the Secretariat to the NLC and NLSC.

Establishing Legal and Institutional Basis for Efficient Dry Ports Development in East Asia

Chapter 3

Status and Importance of Dry Port Development in Land-Locked Lao PDR

Bounta ONNAONG
Department of Transport, Ministry of Public Works and Transports, Lao PRD

Chansada Souvanlasy, Vannilay Phommalath, Vipapone Aphayvanh
Indochina Research Ltd, Lao PRD

3.1 General Information _ 66
3.2 Logistics Status in Lao PDR _ 68
3.3 Government Organization _ 72
3.4 Institutional and Legal Framework _ 73
3.5 Development Plan for Dry Ports _ 77
3.6 Strategies and Plans Regarding the ASEAN Highways and Trans Asia Railway _ 79
3.7 The Development Process of Logistics Infrastructures: Administration and Financing _ 81
3.8 Case Study: Savan Logistics Dry Port _ 82
3.9 Laws and Regulations for the Development of Logistics Infrastructure _ 83
3.10 Diagnosis of the Current System for Developing Logistics Infrastructure _ 87
3.11 Legal Loopholes or Subjects of Improvement in Developing Logistics Infrastructures _ 90
3.12. Conclusions and Suggestions _ 91

3.1. General Information

Lao People's Democratic Republic, from now on referred to as Lao PDR, is a land-locked country, yet it is one of the fastest growing economies in East Asia and the Pacific (The World Bank, 2017). The official population is 6.492 million (Lao Statistic Bureau, 2015). It is one of the lower-middle income economies with a GNI per capita of $2,150 and an average GDP growth rate of 7.8% per annum (The World Bank, 2017).

Figure 3.1: Map of Laos and its Bordering Countries

In 1997, Lao PDR made a big step in its political history by joining the ASEAN community, and in 2015, it accepted the ASEAN Economics Community (AEC) agreement. The regional, and to some extent, global, integration has resulted in increased communications across the world. The main objective of the AEC is to transform ASEAN to a single production base and market and to

strengthen the free flow of goods, services, and investments, and it has created an opportunity for logistics development in the region (Ministry of Public Works and Transports, 2015). Compared to other countries in the ASEAN economic bloc, Laos is still the country with the least GDP and one of the countries with low per capita GDP.

Table 3.1 Selected ASEAN Statistics

	GDP (USD in million)	GDP Growth Rate (2010-2015) (%)	GDP Per Capita (US$)	Population (million)	Population Growth Rate (in %)
Brunei	12,909	-1.5	30,942	0.4	1.3
Cambodia	18,463	7.2	1,198	15.4	1.5
Indonesia	857,603	4.9	3,357	255.4	1.3
Lao PDR	12,639	7.8	1,831	6.9	1.4
Malaysia	294,390	5.3	9,657	30.5	0.7
Myanmar	65,392	7.4	1,246	52.5	1.9
Philippines	289,503	5.9	2,850	101.6	1.7
Singapore	291,938	4	52,744	5.5	1.2
Thailand	395,726	2.9	5,737	69	0.5
Vietnam	193,407	5.9	2,109	91.7	1.1
ASEAN	**2,431,969**	**4.8**	**3,867**	**628.9**	**1.3**

Source: ASEAN Statistics year-book (2015).

The largest volume of goods is transported through Lao–Thai Friendship Bridge of Vientiane Capital, which accounts for 48% of the total imports-exports value. Volumes of goods imported-exported through other borders are: Khammaune Province (17%), Savannakhet Province (13%), Champasak Province (9%) and Borikhamxay Province (4%). Goods imported-exported through the Lao–Thai Border cover 80%. The major goods imported to Lao PDR are fuel (26%), minerals (21%), industry materials (15%), industry goods (12%), and general goods (Ministry of Public Works and Transports, 2015).

Table 3.2 Proportion of Import–Export Volume

Border	Import-Export volume in percentage
Lao–Thai Friendship Bridge	48%
Khammaune Province	17%
Savannakhet Province	13%
Champasak Province	9%
Borikhamxay Province	4%

In 2007/2008, Lao PDR exported 1,430 million tons (900 million dollars) of goods through main border checkpoints, including Bokeo Province (30%), Khammaune Province (17%), Savannakhet Province (15%), and Vientiane Capital (14%). Major goods exported from Lao PDR are as follows: minerals (29%), fuel (28%), rice and corn products (19%), timber and furniture made from wood (15%). Information on the C2000 customs system should be considered carefully because it was found that some numbers are not reliable. For example: fuel that is a major import into Lao PDR is then exported through the Bokeo Province (Ministry of Public Works and Transports, 2015). In 2007/08, the volumes of goods transported through Lao PDR at two major border checkpoints achieved 122 million tons through Savannakhet Province (71%) and Borikhamxay Province (16%). The major goods transported through Lao PDR are vegetables and annual crops (35%), industrial goods (22%), and sugar (16%), respectively (Ministry of Public Works and Transports, 2015).

The cost of logistics among the developed countries covers 4-9% of production values, and for the least developed countries, the logistics cost covers 15-20% of the total production values. Lao PDR envisions that a good logistics management system and lower logistics costs will help Laos' products to compete with foreign markets (Ministry of Public Works and Transports, 2015). To seize this opportunity, the Government's vision is to transform a land-lock country to a land-bridge country in the Greater Mekong Sub-regions (GMS) by 2020, beginning with the signing of the GMS Cross Border Trade Agreement (CBTA) in 1999 (Ministry of Public Works and Transports, 2017b).

The objectives are to provide efficient and reliable transport infrastructure and facilities, particularly the transit transport routes, and to facilitate cross-border transport of goods and people between and among neighboring countries (Ministry of Public Works and Transports, 2017b).

3.2. Logistics Status in Lao PDR

Lao PDR is advantageously located in the center of GMS and has network transportation routes by roads, rivers, and air connecting to countries that are suitable for central communications and transportation to the region. Also, it shares borders with 5 ASEAN countries as well as the Republic of China, the largest and one of the most powerful markets in the region. This allows Lao PDR to easily perform the role of a land-linked country to others in the region and more importantly connect ASEAN and China (Ministry of Public Works and Transports, 2015). If Lao PDR can provide services via communications and transportation, it will be a great opportunity for the nation to generate income from attracting neighboring countries to use Lao PDR as a trading,

investment, and tourism gateway (Ministry of Public Works and Transportation, 2015).
In terms of policy advantage, Lao PDR is also a party of the Greater Mekong River Subregion–Cross Border Trade Agreement (or GMS-CBTA) and bilateral logistics contracts with all neighboring countries except Myanmar, which can contribute to the integration of markets in the Greater Mekong River Sub-region (Ministry of Public Works and Transports, 2015).

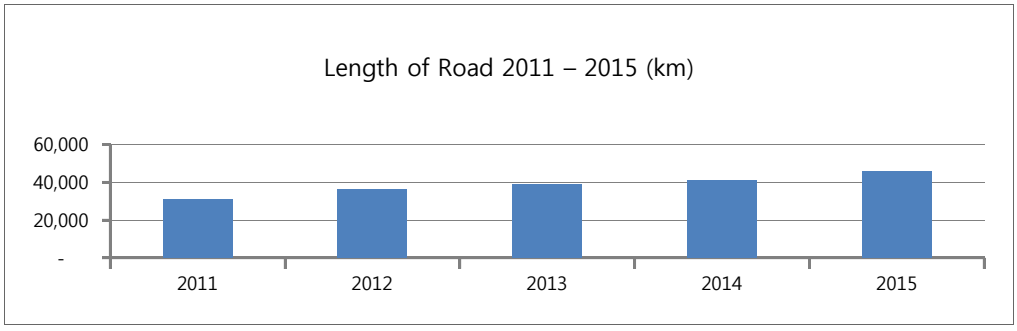
Laos is currently rated 152nd in the Logistics Performance Index (LPI) in 2016 by the World Bank with an LPI average score of 2.07 out of 5, which brings the country to the lowest rank in the ASEAN region (not including Timor-Leste). Compared to the performance of other countries in the region, Singapore has the highest LPI in the ASEAN region with a score of 4.14 (and ranked 5th in the world). Thailand is scored 3.26 and at 45th, and Vietnam is scored 2.98 and at 64th. Cambodia is at 73rd with the score at 2.8, and Myanmar is at 2.46 and ranked 113th (The World Bank, 2016).

Table 3.3 Logistics Performance Index in ASEAN Countries(The World Bank, 2016)

Country	Year	LPI Rank in the World	LPI Rank in ASEAN Countries	LPI Score
Singapore	2016	5	1	4.14
Malaysia	2016	32	2	3.43
Thailand	2016	45	3	3.26
Vietnam	2016	64	4	2.98
Brunei	2016	70	5	2.87
Philippines	2016	71	6	2.86
Cambodia	2016	73	7	2.80
Myanmar	2016	113	8	2.46
Lao PDR	2016	152	9	2.07

Road transportation in Lao PDR is growing rapidly due to the addition of supporting infrastructures that help to realize the vision of becoming a land-linked country. The length of the highways has increased from 23,000 kilometers in 2001 to 43,600 kilometers in 2013 (50,331 km in 2017) (Ministry of Public Works and Transports, 2015). The volume of goods transportation has increased from 1.5 million tonnes in 2001 to 4.2 million tonnes in 2013, and transportation vehicles had increased from 11,841 in 2001 to 38,454 in 2013. Transportation companies had increased from 28 in 2001 to 68 in 2013; the number of international border checkpoints between countries in 2001 was eight, but now there are 24, four by air and 20 by land including eight cross-border points between Laos-Thailand, nine points between Laos-Vietnam, one with Cambodia, and two with China (Ministry of Public Works and Transports, 2015).

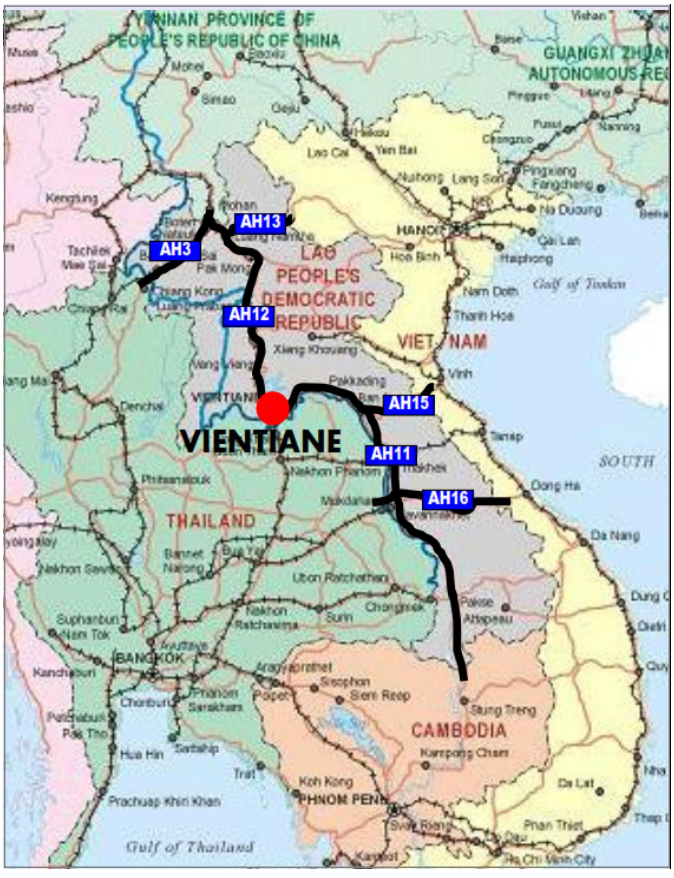
Figure 3.2: Length of the Roads



Source: Ministry of Public Works and Transports (2015).

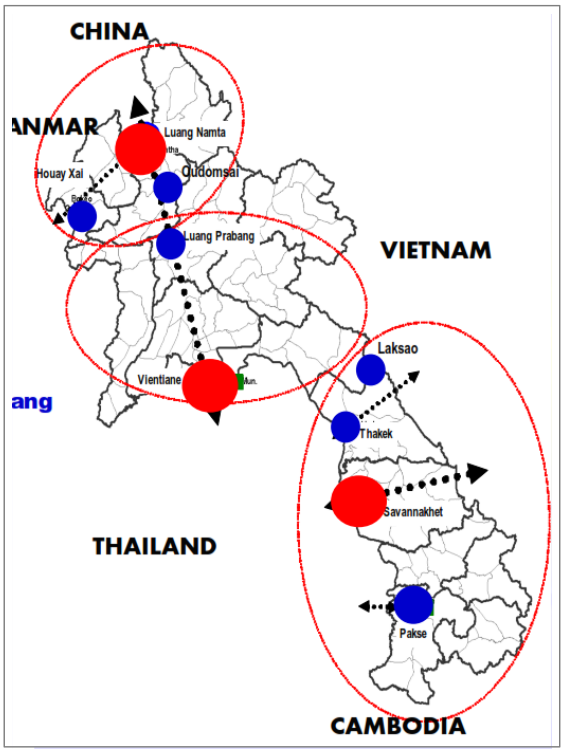
There are 12 national highways that connect with neighboring countries and the region —National Highway No. 2, 3, 4, 6, 7, 8, 9, 12, 13 (North-South), Route No. 15, 16 and 18. Of these 12 routes, six have been assigned as ASEAN Highway "AH" such as: Route No. NR3; NR13 North; Route No. NR13 South; Route No. NR8, and NR9 (Ministry of Public Works and Transports, 2015).

Figure 3.3: Roads Linked to Neighboring Countries



Most importantly, there are also nine dry ports nominated under the Intergovernmental Agreement on Dry Ports. The status of Dry ports in Lao PDR will be discussed in detail in the following sections.

Figure 3.4: Nine Potential Dry Ports in Lao PDR



Currently, we have only warehouses for storing products under control of the customs sector, but they are not warehouses for logistic services; also, there is no system that links warehouse and transportation entrepreneurs. There is also no logistics complex, cargo terminal distribution facilities, etcetera with the current plan being to build these facilities at Thanaleng, Vientiane Capital.

Plans have been put in place to build a storage and distribution center with the specific functions listed below:

- Logistic Zone for storing and distribution of fuel and petroleum products at Huay Xai District.
- Logistic Zone for storing fuel at Vientiane Capital.
- Logistic Zone with a cool room for storing agriculture products at Pakse.

3.3. Government Organization

The Ministry of Public Works and Transports is taking the lead in implementing and expanding the transportation development strategy and jointly cooperating with relevant government agencies to implement plans effectively. Table 3.4 shows different tasks and responsibilities that were allocated to different government agencies.

Table 3.4 Related Government Entities in Charge of the Development of Transport and Logistics (Ministry of Public Works and Transports, 2017)

Government Entities	Roles and Responsibilities
Ministry of Public Works and Transports	The lead agency in implementing public works and transports projects. The main roles are: 1. To develop transports infrastructure; 2. To develop laws, legislations as well as transports agreements (bilateral, trilateral, international, regional, sub-regional); 3. To facilitate general transports (for instance, border crossing, road signs, bus stations).
Ministry of Planning and Investment	To promote investments in the transportation industry.
Ministry of Finance	To facilitate trade and financing of logistics projects.
National Assembly	To legislate laws and allocate budgets for ministries on the work of transports and logistics.
Ministry of Public Security	To carry out national security operations such as the deployment of immigration police, tourist police, border police, local police and traffic police to monitor illegal drug trades, and human trafficking at borders.
Ministry of Agriculture and Forestry	To operate quarantine: to inspect imported plant materials, livestock and animal products.
Ministry of Science and Technology	To operate quarantine: to inspect dangerous and prohibited goods.
Ministry of Health	To operate quarantine: to control communicable diseases and inspect food and drugs.
Ministry of Industry and Commerce	To monitor imports and exports, and legislate and implement trade policies.
Local provincial authorities in relevant locations	Relevant provinces that are geographically located in economic zones, ports and other transports infrastructure. The main roles are to implement laws and policies at a local level.
Private sector	To operate businesses and represent the industry in the policy-making process. The main trade representatives in the transport industry are Lao International Freight Forwarders Association (LIFFA).

The operation of logistics and dry ports in Laos is still a new concept, and facilities are currently being constructed. The responsibility allocations between ministries are still ongoing.

Table 3.5 Logistics Infrastructure at Different Stages and the Responsibilities of Each Government Agency.

Stages	Ministries Involved
1. Introduction of new investment projects.	Ministry of Planning and Investment
2. Reviewing the proposal, specifically related to infrastructure-related investments and development.	Ministry of Public Works and Transports
3. Related ministries provide inputs on the specifications, planning, feasibility, and other possible challenges. The information is used in the selection process.	Ministry of Finance National Assembly Ministry of Public Security Ministry of Health Ministry of Agriculture and Forestry Ministry of Industry Ministry of Science and Technology
4. Select the appropriate operators based on the information discussed. If the proposal is at a business level (i.e., business registration), the MPWT can make a final decision. If the project is at a large scale (i.e., dry port development), the proposal is forwarded to the Prime Minister for a final decision.	Ministry of Public Works and Transport
5. Prime Minister makes the final selection on dry port development.	Prime Minister
6. The Ministry of Public Works and Transports provides licensing to operate.	Ministry of Public Works and Transport
7. The selected operators register at the Ministry of Industry and Commerce.	Ministry of Commerce
8. The Ministry of Public Works and Transports monitors the construction of a dry port to ensure that it fits with the proposed specifications.	Ministry of Public Works and Transport

3.4. Institutional and Legal Framework

In 2011, the transportation sector completed the preliminary feasibility study of a master plan regarding the logistics transportation system in Lao PDR in cooperation with the Japan International Cooperation Agency (JICA) (Ministry of Public Works and Transports, 2015). Later in 2012, a committee responsible for overall road transportation strategies has initiated and completed the initial draft of strategic logistics transportation development based on various important documents. Of those, several important documents include:

- Vision for 2030 and the Ten-Year Strategy Development Plan of Logistics based on the Order of the Prime Minister on Visions Research until 2030, the Ten-Year Social-Economic Development Plan (2016–2025)
- The Eighth Five-Year National Social-Economic Development Plan (2016–2020), No. 24 /PM, dated 7 May 2014
- The Instruction of Planning and Investment Minister on Vision Researching until 2030, the Ten-Year Social-Economic Development Plan (2016–2025)
- The Eighth Five-Year National Social-Economic Development Plan (2016–2020), No. 2028/MPI, dated 02 September 2014.(Ministry of Public Works and Transports, 2015)

The 2030 vision is to make the logistics transportation of Lao PDR a "Highly effective and efficient connection services and domestic logistics that is competitive and sustainable." The Ten-Year Strategy Development Plan of Logistics (2016–2025) laid out four key directions for the development of logistics transportation summarized as follows:

- The product collection points shall be defined in each region that connects with the neighboring countries and the connection points to secure and facilitate returning transported goods, which will focus on construction of international logistics zones in 3 areas: Vientiane Capital City, Luang Namtha and Savannakhet[22], and construction of 6 regional logistics zones along Laos-Vietnam and Laos-Thailand borders.
- Improve domestic transportation businesses, especially logistics freight companies, by strengthening company models, allowing them to improve services and capabilities to compete with foreign firms and link with international transportation companies along with improving the Transportation Entrepreneurs' Association.
- Open more logistics transportation businesses to make services highly competitive and be able to connect with local and international markets while building high credibility and confidence amongst domestic and foreign consumers.
- Create and improve administrative authority and enhance logistics businesses for rapid development, so they are able to integrate internationally and improvement of coordination mechanisms to address obstacles at each stage of the logistics process such as: custom clearance, infrastructure, international goods transportation, efficiency of public, and private companies' logistics services and also create the inspection and monitoring system and provide the services according to schedule set.

22 Note that there is a consideration to replace Savannakhet with Thakhek due to higher volume of goods transportation (Ministry of Public Works and Transports, 2017b).

This development strategy has defined the principle targets until 2025 as follows(Ministry of Public Works and Transports, 2015):

- Endeavor to achieve a logistics performance index score of more than 3 (LPI>3) for Lao PDR, which is currently at 2.39.
- Upgrade the quality of transportation services and safety levels of traffic, and endeavor to achieve 9,000,000 tonnes of transport volume (currently 4,206,270 tonnes) with an average increase of around 7% per year; increase the volume of goods transactions from 2.2 billion tons at present to about 4.6 billion tons or an average increase of 7% per year.
- Increase goods transport arrivals by more than 50% in 2025; currently departing goods transport is only 6%.
- Decrease transport costs by 10% from the current US$1.90/km to US$1.70/km in 2025 with the present corresponding costs in Thailand and Vietnam being US$1.80/km.
- Encourage Lao transport companies to gradually become at least 20% of total logistics companies and the capacity of the management transportation association and all international transport companies. One important measure to achieve this target is by encouraging all forms of domestic and foreign investments, including Public-Private Partnership (PPP).

The above directions and objectives have been translated into a specific action plan for the development and improvement of supporting intermodal transportation infrastructures for dry ports including roads, railways, waterways, air, as well as regional integration of transport facilitation. The key actions are summarized as follows:

Creating regional connectivity by roads:

- National road network development by **3911**: three Vertical (North- South) Roads, nine Horizontal (East-West) Roads, and 11 Linked Roads between Vertical & Horizontal;
- ASEAN Standards: minimum two lanes, 3.5 m width and 2 m shoulder, 9 m total width and bearing capacity 11 tons/axle;
- Mekong Bridge: Paksan-Beungkan, Paktaphan-Khemmalad, Mekong railway bridge: Vientiane -Nongkhai and Mekong bridge: Laos-Cambodia;
- A joint study with Vietnam on the shortest roads between Vientiane and Hanoi.

Creating regional connectivity by railways:

- Completion and operation of the Laos-China High-Speed Train Boten-Vientiane (417 km) – priority plan to be completed by 2021.
- Completion of the Detailed Design of the Vientiane-Thakhek-Mugia railway (Laos-

Vietnam); feasibility study was completed in November 2017.

- Supervision on the construction of the Savannakhet-Laobao railway (Laos-Vietnam) Build-Operate-Transfer (BOT). BOT is one of the mechanisms of the PPP approach which envisaged private companies to build and operate the services and transfer the business to the government after generating profits to an agreed level.
- Feasibility Study on the Savannakhet-Champasak-Laos-Cambodia border and Champasak-Vangtao (Laos-Thailand).

Creating regional connectivity by waterways:

- Continue improving the navigating signs and marks on the Mekong, improving navigation from Houaysai to Luangprabang to meet the same standard of Houaysai-Simao (China).
- Upgrading Mekong ports that are used for small local movement of goods and trading.
- Link between road and river transport by building an access road and sharing a logistics park and warehouse.

Creating regional connectivity by air:

- Improvement of the air traffic control system and new air traffic management to be able to provide safe over flights services particularly at the four main international airports.
- Improvement of the air traffic control system of domestic airports located in mountainous areas for short field landings.
- Create more regional connecting flights for domestic, international and over flights.
- Upgrading the facilities of air terminals and airports of both domestic and international airports, at least meeting regional requirements.
- Study on new international airports in Vientiane and Seno as regional transit airports.
- Promoting and upgrading Lao airline(s) for better services same as regional ones.

Creating regional integration by transport facilitation:

- Target for transport volume to increase 7% per year.
- Logistics operation at four logistics parks: Thanalaeng, Seno, Vangtao, and Houaysai.
- Upgrade transport operators to logistics providers at least 20% of total members; the association will be able to manage foreign operators.
- Road accident management, fatality rate seven death per 100,000 people, and establishing a community road accident management system.
- All long-distance buses must be 12 years old or less, equipped with GPS and technical inspection systems at the bus terminal; online ticketing system.

3.5. Development Plan for Dry Ports

Under the Intergovernmental Agreement on Dry Ports, which Lao PDR signed on the 7th of November 2013(ESCAP, 2015), nine hubs have been nominated as dry ports in Lao PDR. Of those, three ports, namely Thanaleng (Vientiane Capital), Nateuy (Luangnamtha), and Seno (Savannakhet), are on the priority list for a detailed feasibility study and construction under the five-year development plan (2016–2020); Thanaleng is the first priority. The other six dry ports include Houayxai (Bokeo), Laksao (Borlikhamsay), Luangprabang (Luangprabang), Muangsay (Oudomxay), Pakse (Champasak), and Thakhek (Khammouane).

The reasons for prioritizing the three dry ports are determined by the volume of imports and exports. Also, the Thanaleng (Vientiane Capital), Nateuy (Luangnamtha) and Seno (Savannakhet) dry ports are priorities because of their strategic locations, which connect Laos to regional and international ports. On the other hand, the objectives of the six smaller ports are to serve national transport and logistics purposes. They have a function to reduce the burden on the three priority ports as well as to decrease the distance and gain efficient accessibility to mountainous areas.

The Vientiane-Nongkhai borders (Thanaleng port) cover 48% of all imports and exports in Laos, while Savannakhet (Seno port) covers 13%. Savannakhet is also strategically positioned because it connects Laos to the world by linking with the East-West Economic Corridor (EWEC) between Myanmar, Thailand, and Vietnam, mid-way between the nearest Vietnamese seaport of Danang, and Thai ports in Bangkok and Laem Chabang.

The main reason for developing a dry port in Savannakhet first is due to the strategic location of the port and the readiness of the location. The Savan Seno dry port is a part of the development of the Trade Free Zone, which has various manufacturing and value-added business activities nearby. Therefore, a dry port can function to attract businesses to invest in the area because they can save on transportation costs.

Moreover, the Japanese Government has supported the feasibility studies for the Thanalaeng dry port since 2005 and later encouraged a Japanese Logistics Company, Nippon Express (NE), to partner with the Lao Government under the PPP scheme. However, the preparation and decisions from NE are relatively slow, which delays the development of the Thanaleng port.

Luangnamtha (Nateuy port) strategically connects Laos and China. Although the current import and export volumes are not as high as the other locations, they are expected to increase after the completion of the high-speed rail. Currently, Khammoune (Thakhek port) has exceeded

Savannakhet in volumes, covering 17% of imports and exports. As a result, Khammoune has been considered as one of the priorities.

Estimation on the volume of transportation as well as the roles and duties of the three prioritized dry ports are summarized in the table below.

Table 3.6 Roles and Duties of the Three Prioritized Dry Ports

Logistic Transportation Zone	Main Route	Estimated volume of transportation (Tonnes/Year) in 2025	Role & Duties
Logistic Transportation Zone, Vientiane Capital	Route No. 13 North, Route No. 13 South	Imports: 2,384,000 Exports: 281,000 Domestic: 2,817,000 Cross Border	• Connecting freight with Thailand for imports-exports and cross border goods • Gathering goods along Route No. 13 North including domestic, cross border and import-export goods to reduce empty return trucks • Loading and packaging • Compile a list of goods and services for storage areas along Mekong River including Thai Borders
Logistic Transportation Zone, Savannakhet	Route No. 9 and Route No. 13 South	Imports: 1,186,000 Exports: 736,000 Domestic: 845,000 Cross Border	• Connecting freight with Thailand for imports-exports and cross border goods • Gathering goods along Route No. 13 North including domestic, cross border and import-export goods to reduce empty return trucks • Loading and packaging • Compile a list of goods and services for storage areas along Mekong River including Thai Borders
Logistic Transportation Zone, Luang Namtha	Route No. 13 North, Route No. 3	Imports: 77,000 Exports: 33,000 Domestic: 217,000 Cross Border	• Connecting freight with China for imports-exports and cross border goods • Gathering goods along Route No. 13 North including domestic, cross border and import-export goods plus loading and packaging

A feasibility study was completed for Thanaleng by the Nippon Express Logistics Co., supported by JICA. The feasibility study report was submitted to the government for consideration and approval. A negotiation committee will be established to negotiate the Loan Fund and PPP procedure with Japan. The cost for construction was estimated to be approximately $6.8 billion US Dollars with reserved areas of 45 Ha. The container yard was supported by NEDA Thailand and is being constructed with an estimation of 90% complete to support future freight transport by rail.

Aside from Thanaleng, a feasibility study has also been completed, with the financial support from JICA, for Seno (Savannakhet) and Pakse (Champasak) (Ministry of Public Works and Transports, 2017b). A great step was made in 2015 when the Savannakhet dry port commenced its operation (Ministry of Public Works and Transports, 2017b).

While for Nateuy, a feasibility study on location selection has been completed by the UNESCAP. MOU for railway construction was made soon afterward (13 November 2015), and construction was planned for early 2016 (Ministry of Public Works and Transports, 2017b). However, due to budget limitations, a full feasibility study for the Nateuy dry port only started in early 2018. Feasibility study plans for the remaining five dry ports has not been established due to budget limitations (Ministry of Public Works and Transports, 2017b).

3.6. Strategies and Plans Regarding the ASEAN Highways and Trans Asia Railway

ASEAN Highways

As of 2013, the length of the routes was expanded from 23,000 Km in 2001 to 43,600 Km. There are 12 routes that connect with neighboring countries and the region—National Highway No. 2, 3, 4, 6, 7, 8, 9, 12, 13 (North-South), Route No. 15, 16, and 18. Of these 12 routes, six routes have been assigned as ASEAN Highways "AH". The six ASEAN highways are: AH3 (Houaxay–Boten, 251 Km), AH11 (Vientiane Cambodia border, 861 Km), AH12 (Thanaleng–Nateuy, 682 Km), AH13 (Mueng Ngeum–Oudoxay, 391 Km), AH 15 (Ban Lao–Vietnam border, 132 Km), and AH 16 (Savannakhet–Dansavanh, 240 Km) (Ministry of Public Works and Transports, 2015). Please refer to Figure 3.6 for a Map of ASEAN Highways.

The priority plan is to establish two more highways, namely AH131 that connects Thakhek–Yommalath–Naphao (146 Km) and AH132 that connects Piafai-Samakhee-Phukuea (Lao–Vietnam border) (218 Km). This will make the total length of AH 2,816 Km. Note that only AH3 and AH16 have a road bearing capacity of 50 tonnes max. The other AHs still need to be upgraded to reach these standards.

Trans Asia Railway

Lao PDR has a railway route of 3.5 Km that connects from Nongkhai, Thailand to Thanaleng, Lao PDR. The Public Works and Transportation sector has completed the long-term plan for railway construction as a priority to connect with neighboring countries such as: a railway from Boten-Vientiane Capital City; from Vientiane Capital City–Thakhek-Muya (Lao– Vietnam borders); from Thakhek–Savannakhet–Champasak–Nong Nok Khien (Lao-Cambodia borders); and from Champasak–VangTao (Lao–Thai borders) (Ministry of Public Works and Transports, 2015).

The four priority plans include:

- Boten–Luang Prabang–Vientiane: 417 KM, will be completed in 2021.
- Nongkhai–Vientiane–Thakhek–Mu Dia (400 Km) – feasibility study completed in November 2017.
- Vangtao (Lao-Thai border)–Pakse–Savannakhet–Laobao (452 Km). No deadline has been set due to budget limitations.
- Mukdahan (Lao–Thai border)–Savannakhet–Lao Bao (222 Km). No deadline has been set due to budget limitations.

To integrate and connect communications-transportations, the Government enacted national laws and signed several international agreements. The details on the relevant laws and regulations are discussed in the following section.

The four priority Trans Asia Railway routes depicted in Figure 3.5 below are strategically planned to connect the three prioritized ports and the bordered countries. The ports and countries are color coded as follows: Boten–Luang Prabang–Vientiane is color coded as green; Nongkhai–Vientiane–Thakhek–Mu Dia is color coded as orange; Vangtao (Lao-Thai border)– Pakse–Savannakhet–Laobao is color coded as blue, and Mukdahan (Lao–Thai border)–Savannakhet –Lao Bao is colored red.

Figure 3.5: Map of 9 Dry Ports of International Importance and Railways Connecting Between Ports

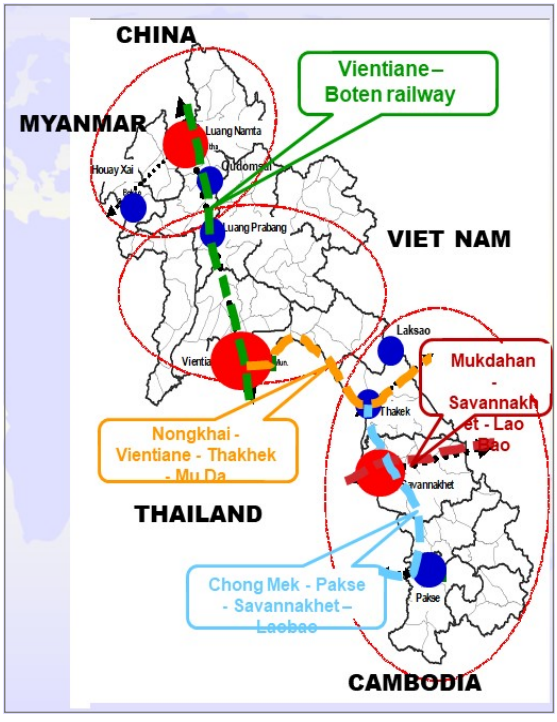
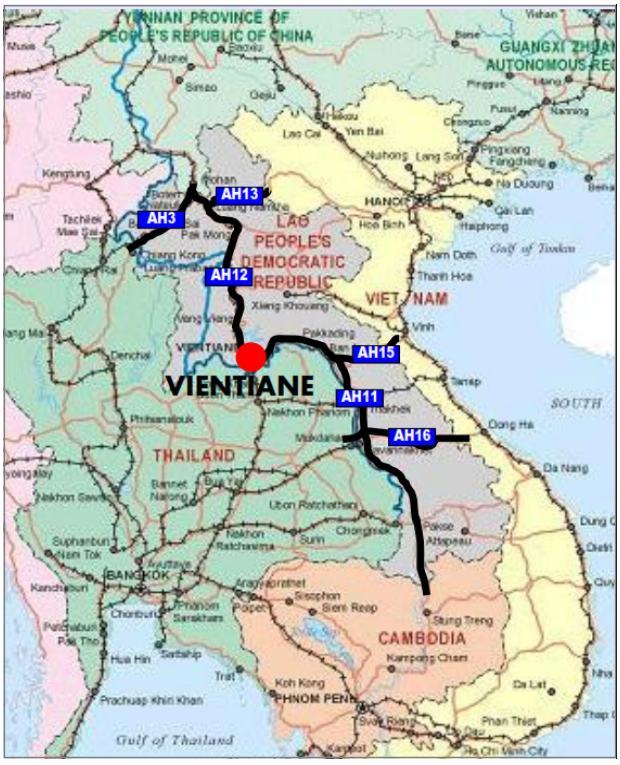


Figure 3.6 shows how the ASEAN Highways act as intermodal connections, linking logistics parks, and bordering countries. This system allows for efficient freight and cargo transportation between the dry ports/logistics parks within the country and ports in the neighboring countries and the region.

Figure 3.6: Map of ASEAN Highways



3.7. The Development Process of Logistics Infrastructures: Administration and Financing

Communications within the country are mainly for transport, but the distribution of goods and logistics processes, such as product collection, is still at the development stage. The administration is mainly the responsibility of the Ministry of Works and Transportation, who oversees the operation and development of logistics infrastructure. The Ministry also manages the financing side of infrastructure development by obtaining funds from various sources to finance projects. The funding sources for the development of logistics infrastructures are:

- Public budget: This includes the central budget, the budget from the Ministry of Public Works and Transportation, as well as from the local provincial budget.

- **Development funds:** The Ministry received funding from foreign countries and international organizations in the form of grants and loans. Moreover, bilateral and multilateral cooperation from neighboring countries is another way of financing the development of logistics infrastructure.
- **Private sector investment:** The private sector contributes to the development of logistics transportation through investment such as freight and passenger bus services.
- **Public-Private Partnership:** This is also a source of financing logistics infrastructure with joint partnerships in business with the government sector. This partnership is mostly responsible for managing and operating logistics transportation zones.

3.8. Case Study: Savan Logistics Dry Port

The Savan Seno Economic Zone was established under three government decrees (No. 2 of 2002, No. 148 of 2003, and No. 177 of 2003) (Suzuki, 2008). Within the total area of 840 hectares, 220 hectares was for dry port development. The dry port is an example of the PPP between the Government of Laos and the Malaysian-based Pacifica Streams Development Co. Ltd. The Government of Laos owns the dry port infrastructure (Savan Park Zone C) while Savan Logistics is the operator (Vientiane Times, 2017).

As seen in Figure 3.7, the development of the dry port is in Phase 1. The facility comprises the Savan Logistics Office, bonded warehouse, fridge container station, maintenance and repair container, empty space, container years ICD, and dangerous goods area. In Phase 2 and Phase 3 of the development, the dry port will extend areas such as container yards and dangerous goods areas, as seen in Figure 3.8 (Khounsaknalaath, 2017).

Figure 3.7: Phase 1 Development of the Savan Seno Dry Port

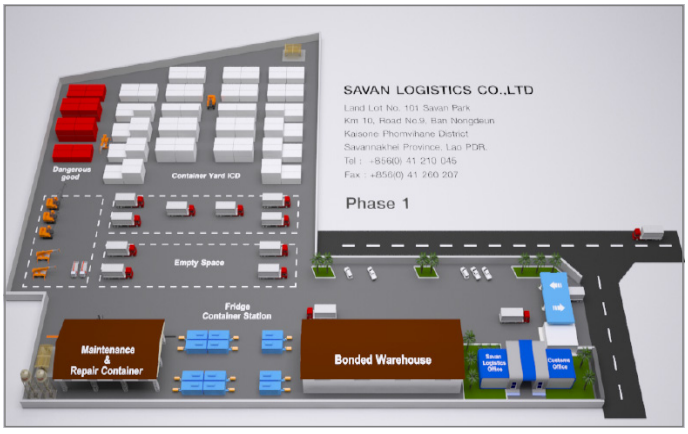
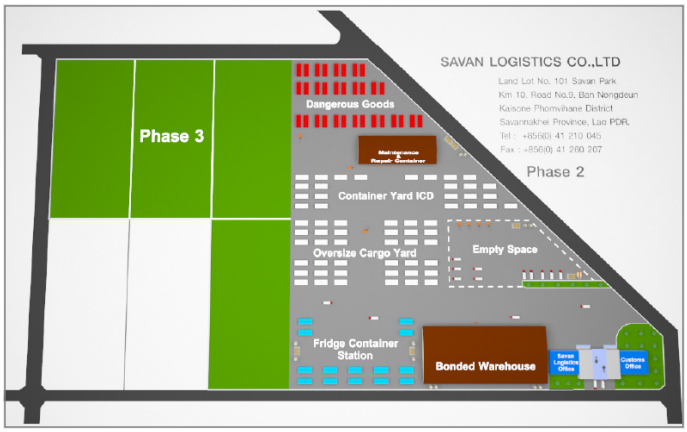


Figure 3.8: Phase 2 and 3 Development of the Savan Seno Dry Port



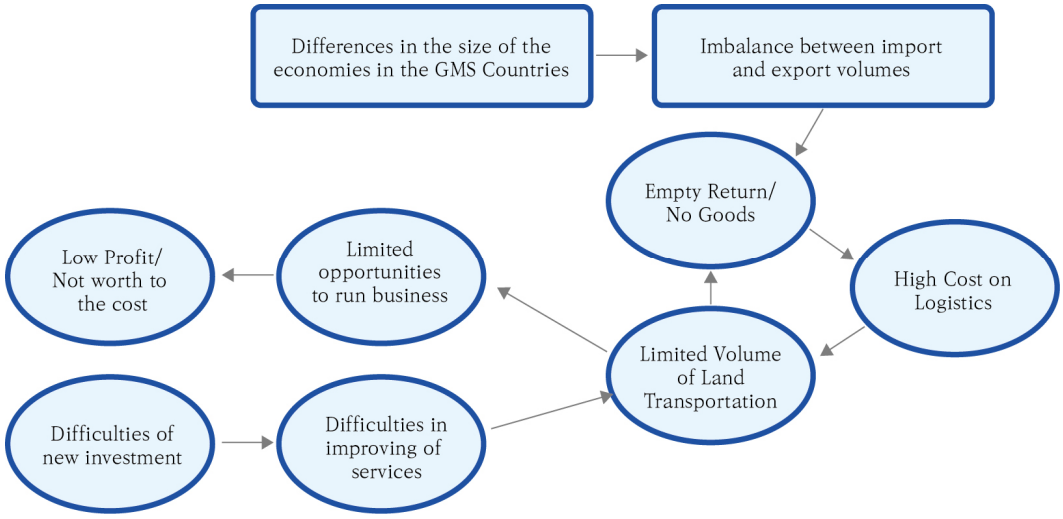
Savan Logistics is considered to be the first dry port model for Laos. The relevant laws on different stages of ratification of the dry port are not officially in place, and the consideration from the Prime Minister is on a case-by-case basis. The approval of the port is based on the Concession Agreement between the company and the Government. However, the development of the Savan Dry Port was based on the following references:

- UNESCAP Intergovernmental Agreement on Dry Port
- National Logistics Strategy and Action Plan
- Law on Land Transport
- Law on Multimodal Transport
- MPWT Ministerial Agreement on Savannakhet Dry Port Management
- Law on Investment Promotion

3.9. Laws and Regulations for the Development of Logistics Infrastructure

The Government of Laos has focused on improving logistics transportation and transforming the country from a land-locked to a land-linked country. A single-based market of GMS and ASEAN will allow the free movement of production bases, labor, goods, and capital in the framework of implementing the ASEAN Free Trade Area (AFTA), Cross Border Transport Agreement (CBTA), and the ASEAN Single-Window service (ASW).

Figure 3.9: Challenges of Logistics Transportation in Lao PDR (JICA Feasibility Study).



Therefore, the government created and improved legislation to expand the law on transportation and facilitate the implementation of international transportation agreements, primarily to address the vicious cycle that hinders the progress of logistics transportation in Lao PDR (see Table 3.7). The present logistics situation in Laos means that there is a limited volume of land transportation due to reasons such as high costs that impact the flow of goods through the country. This determines the investments because of the low return on investment, which also leads to minimal improvement of the services overall (Ministry of Public Works and Transports, 2015).

Therefore, national laws and international agreements between Laos and other countries in the region aim to address the issues by improving the physical logistics infrastructure and, at the same time, encourage participation from the private sector to build network infrastructure and logistics transportation services (Ministry of Public Works and Transports, 2015).

The development strategy was formed to facilitate the development of logistics infrastructure and is based on the Resolution 9th General Meeting of the Party. The resolution leads to the development of a strategic plan such as:

- Ten-Year Logistics Development Strategy
- The Ten-Year Social-Economic Development Plan (2016–2025)
- Eighth Five-Year National Social-Economic Development Plan (2016–2020)

To achieve the strategic goals, it is necessary to have international transport integration between countries in the region. Lao PDR signed an International Convention and Region Agreement to establish cooperation and recognition on the construction and management of transport to facilitate the movement of goods, vehicles, and people(Ministry of Public Works and Transports, 2017a). The integration is important for the national social and economic development of the countries because better regional integration means improved production, trade, investment, and tourism (Ministry of Public Works and Transports, 2017a).

There are several international agreements between Laos and the neighboring countries and region that ensure the implementation of the ASEAN Agreement Frameworks to facilitate cross-border transportation and the ASEAN Agreement Frameworks on multi-transportation models. This overall goal is to improve the logistics infrastructure, improve transportation services, and integrate systems in the region (Ministry of Public Works and Transports, 2017a).

Moreover, recent international agreements on logistics also attempt to address the issues that impact the success of AEC economic integration such as uncompetitive and low capacity logistics operations, which in turn can delay the implementation of AEC economic integration. In other words, the cost of logistics within the country is currently high, and the system is complicated, which results in higher cost of exports. Logistics services for most ASEAN countries are still weak, small, not systematic, independent, and lack networks (Ministry of Public Works and Transports, 2017a).

Agreements on road transport with neighboring countries:

- Agreement on Road Transport Between Lao PDR and Vietnam Laos – Vietnam (23 Apr 2009)
- Agreement on Road Transport Between Lao PDR and China Laos – China (12 Mar 1993)
- Agreement on Road Transport Between Lao PDR and Thailand Laos–Thailand (03 May 1999)
- Agreement on Road Transport Between Lao PDR and Cambodia Laos-Cambodia (21 Oct 1999)

Agreements at a regional level:

- Framework Agreement on the Facilitation of Goods in Transit ASEAN (16 Dec 1998)
- Cross-Borders Transport Agreement GMS (1999)

MOUs with neighboring countries:

- MoU on Road Transportation between and Among Cambodia–Laos– Vietnam
- MoU on Road Transportation between and Among Laos– Thailand– Vietnam

Intergovernmental Agreements:

- Intergovernmental Agreement on Asian Highway Network

- Intergovernmental Agreement on Trans-Asian Railway Network
- Intergovernmental Agreement on Dry Ports signed on 7 Nov 2013

The recent enaction of laws and regulations aim to increase the transparency of logistics regulations and to improve the infrastructure systems for transportation services to implement the integration plan within the country and the region. Additionally, the new laws also aim to improve the logistics infrastructure to meet the demands of multi-transportation models such as links between roads, rails, ports, airports, and other necessary infrastructure facilities as included in:

Table 3.7 Laws and Regulations to Increase the Transparency of Logistics

Laws	Contents in relations to logistics development
Law on Land Transport 2012 (No. 24/NA, dated 12 December 2012)	The objective of this law is to carry out operation, management, monitoring and inspection of business related to domestic and cross-border land transport in order to facilitate and control the development of passengers and good Part III specifically covers the regulation and requirement to establish logistical zones and manage cross-border transport of freight and passengers. The establishment of land transport enterprises needs to be approved by the Ministry of Public Transport.
Law on Land Traffic (Amended) No. 23/NA, dated 12 December 2012	This law covers the management of activities related to land traffic. It facilitates the convenience, safety, and order of the road, environments, and those who utilize the roads. Chapter IV, Article 43-44, 52 specifically refers to the requirement that businesses related to land traffic should attain approval in order to operate. The requirements and documentation are stated under the article in details as a business under this industry is specified in the **Enterprises Law and Investment Promotion Law.** Chapter IX, article 67 states that the rights and responsibility of the Ministry of Public Works and Transports is to research and develop policies on land traffic and planning of projects that improve the land infrastructure. The articles also mention the responsibility of the Ministry to seek funding and cooperate with the international organization to develop land traffic infrastructure. Moreover, it also states the rights and duties of the Ministry of Defense and its provincial departments regarding the land traffic activities.
Civil Aviation Law	The Civil Aviation law covers the operation and safety of air transportation and cargo management.
Multimodal Transport Law 2012. (No. 28/NA, dated 18 December 2012.)	This law was enacted in 2012 to regulate the transferring of goods via multi-transport modes. This facilitates the operation of the dry port as it states the rights, obligations, and responsibilities of the goods sender, the multi-transport operator, and the goods receivers. The law also covers the dispute solutions between parties involved, and it also assigns the Ministry of Public Works and Transports to be in charge as the management authority.

3.10. Diagnosis of the Current System for Developing Logistics Infrastructure

Evaluation of the Government Organization, Policy, Strategy and National Plan

The success of the development of logistics infrastructure and the operation of dry ports depends on many factors, both hardware and software, with the ultimate goal of increasing efficiency and minimizing logistics costs between ultimate cargo origins and final destination. Through assessing the current status of logistics infrastructure development of Lao PDR, room for improvement on both hardware and software attributes have been identified. This section discusses the six most crucial factors determining the success of logistics development and management in Lao PDR.

Infrastructure

The first and most visible areas that require attention from the government are the improvement and development of infrastructure that supports the intermodal transportation between roads, rails, water, and air ways as well as other necessary infrastructures that are still lacking in Laos (Ministry of Public Works and Transports, 2015). Once in operation, the sudden arrival of a large number of container ships and the requirements for fast turnaround of vessels will test not only the ports itself but also land transport infrastructure networks and hubs (ESCAP, 2015). Poor linkages between different intermodal transportation can cause significant delays in the transport of products. High-performing integration between intermodal networks is, thus, an important factor for efficient and cost-effective logistics.

In addition to the lack of some intermodal linkages, some of the currently available connecting routes do not meet safety standards, and procedures for maintenance are still lacking (Ministry of Public Works and Transports, 2015). Although we have route connectivity to the region, some routes do not meet the Grade III safety standard that ASEAN countries have set. Only routes No. R3 and No. 9 that connect to the region support weights pursuant to the standards of the region; the other connected routes within the country are not able to support weights pursuant to the standards of the region (Ministry of Public Works and Transports, 2015).

There is also still a lack of other supporting logistics infrastructures. Currently, we only have infrastructure on communications-transportation, but logistics such as product collection and distribution centers have not yet been developed, due to a need for business entrepreneurs in logistics, who are important to serve as a gateway (Ministry of Public Works and Transports, 2015).

In terms of supporting technologies, there is no modern system for controlling traffic on the roads (Intelligent Transport System "ITS"), and no system to monitor and store transportation information (Ministry of Public Works and Transports, 2015). Currently, the customs sector controls warehouses for storing products, but there are no warehouses for logistics services and no system linking warehouses and transportation entrepreneurs (Ministry of Public Works and Transports, 2015).

Low Capacities of Companies in the Sector

The competitive abilities of logistics in Lao PDR are still at a low level compared with other countries in the region; Laos is still ranked 152nd in the LPI survey conducted in 2016 by the World Bank across 161 countries (The World Bank, 2016). This indicates that the capacity of public and private service providers in Lao PDR was very low; additionally, other factors are lagging, including its transportation infrastructure and ICT systems, cross-border freight, and systems for monitoring and verifying products, including punctual services (Ministry of Public Works and Transports, 2015).

This illustrates a strong need for support on capacity building to the current companies as well as the encouragement of new businesses into the market. Although this need has been realized in the National Development Plan for logistics (Ministry of Public Works and Transports, 2015), there is no evidence of a clear action plan or policy to meet this need. Two areas need to be addressed in order to improve the capacity of the companies in this sector; the first is to improve supporting policies, and the second is to improve the labor markets that supply the experts for the sector. These two components will be discussed next as two of the success factors for the logistics development.

Policy Problems

The national development plan for logistics also mentioned the target of encouraging PPP, yet there are no clearly defined policies about how the government and related stakeholders will achieve this. While private sector ownership and operation of dry ports is not necessarily a condition for their sustainability, there appears to be a widespread acceptance that the operation of these facilities is optimized when they are managed by companies with logistics expertise (ESCAP, 2015). Aside from financial benefits, a PPP approach may be a good approach for Laos to adopt in the early stage of establishing dry ports in terms of capacity building for local businesses. The government can design policies that encourage knowledge transfers between international firms that have the technical expertise and local firms who have a good understanding of local contexts.

There are also other ways in which the government can encourage businesses into the sectors. Policies used by other countries include applying government subsidies, implementing regulations to protect local companies from fierce competition from foreign competitors in the early stage, tax waivers, etc. (ESCAP, 2015).

Aside from having clearly defined supporting policies, it is also important to make such policies visible to private enterprises. As this is a capital-heavy investment business, it is crucial for private enterprises to be able to assess the risks and potential benefits of entering the sector. Awareness of the supporting government policies/subsidies will attract local and well as international investors into the market.

Lack of Competitive Human Resources

The capacity of local labor markets to supply personnel for the logistics industry is still limited, if not lacking. There is currently a limited availability of institutions that provide courses related to transportation and infrastructure, namely the Road Construction and Transportation Engineering Science of the Faculty of Engineering from the National University of Laos and a few institutes under management of the Ministry of Public Works and Transports including the Public Works and Transportation Institute, Training Centre for Public Works, and Transportation and Aviation Training Center (Ministry of Public Works and Transportation, 2015). Unfortunately, courses relating specifically to developing and managing logistics and dry ports are still lacking.

More importantly, the concept of logistics is still very new to Laos, and there is still inadequate knowledge among government agencies who manage the development of legislation. This is evident because many agreements, including sub-regional, regional, and international, have been signed, yet national legislation regarding the process for PPP and definition of eligibility criteria for companies, still lack clarity, if it existed at all.

Pertaining to capability and capacity to operate logistics services, there is still insufficient knowledge on establishing integrated IT systems, managing logistics and the actual operations of dry ports, and the full system of logistics including managing intermodal links. The above human resources issues are some of the bottlenecks for the development and the success of logistics services.

Lack of a Genuine Single-Window System for Processing Trade Consignments

It is important that, once established, dry ports should continue operating, generating a reasonable level of profit for their operators and/or developers, and at the same time minimizing transport and cargo handling costs between cargo origins/destinations and ports. Government

policies can assist in achieving these objectives, particularly through measures designed to accelerate the turnaround of containers in terminals and to maximize rail haulage of containers to/from ports.

It is estimated that if the average dwell time of import containers in a terminal can be reduced from seven to three days, the annual throughput of that terminal can be expanded nearly 2.5 times, meaning that handling revenues can more than double without a commensurate increase in costs because fixed costs will be spread over a greater throughput (ESCAP, 2015).

Given that operating efficiency and border control processes are the most significant contributors to the detention of containers in a terminal, Governments should, therefore, increase the efficiency to ensure better integration between their customs, quarantine, and border security processes. This can be achieved through having a single and centralized IT system that connects each of the crucial actors and ensure a fully integrated process.

Lack of Budget

All of the above issues are interlinked and, significantly, determined by budget availability. To address these issues, significant financial resources are required. Budget limitations have always been a major bottleneck for the government to develop the logistics industry, which is multifaceted and capital intensive. This budget limitation issue is thus the key rationale behind the government's move towards the PPP approach. To address budget limitation issues through the PPP approach, the government and its related agencies need to develop clear legislation for private sector partnership as one of its priority actions. The legislation should also clearly define the conditions for the government to secure reasonable shares on the return on investment generated from the partnership.

3.11. Legal Loopholes or Subjects of Improvement in Developing Logistics Infrastructures

The policies, strategy, laws, and regulations were formed based on evidence (e.g., feasibility study, etc.), but there are challenges in the implementation due to several factors (Ministry of Public Works and Transports, 2015):

- Provincial and local authorities in strategic locations do not understand the importance of the logistics strategy from the central level.
- Transportation operators and other businesses of Lao PDR mainly ignore the significant

contents of the region's treaties and agreements on transportation.

- The knowledge and capacity of local transportation businesses are still limited. The future increase of foreign transportation businesses will lead to the domination of foreign transportation companies. Lao companies might not be able to compete and develop.
- Coordination mechanisms between customs, police immigration, trade, quarantine protection, transportation entrepreneurs, and import-export entrepreneurs to promote logistics services have not been yet implemented in the same direction.
- The government's understanding regarding logistics and integration is not deep, thus policies and scope to promote foreign investment in transportation logistics is not evident and cannot attract foreign investors to join with domestic companies in developing logistics.
- Policies and scope on foreign investments in the Public Works and Transports Sector have not been clearly defined. In actual practice, there have been conflicts between foreign and domestic entrepreneurs, which led to a cycle of problems in logistics.
- There should be policies to encourage foreign investments that utilize advanced technology in their operations under the condition that there are joint ventures with local companies to facilitate the transfer of knowledge and strengthen the capacity of Lao companies (Ministry of Public Works and Transports, 2015).
- Laos is currently experiencing increased investments in mineral explorations, hydropower constructions, and other major construction projects. Therefore, there are opportunities for domestic transport businesses to transport production materials to and from those project sites. Government needs to have policies in place to support these businesses to thrive in the current economic environment (Ministry of Public Works and Transports, 2015).

3.12. Conclusions and Suggestions

In conclusion, this chapter has discussed the current logistics status in the Lao PDR, its government organization, national policy and action plan, legal institutions, and identified challenges for the development and success of logistics infrastructure and dry ports. To address the challenges, the following actions are suggested:

- The top priority is to source financial support. This can be done through the PPP approach, the government's own funding, or funding from donors.
- Establishing supporting infrastructure for the most efficient mode of transportation and connecting intermodal hubs should also be one of the priorities. The government and its

related organizations should set a clear action plan and secure resources for the improvement of intermodal links and its supporting infrastructures. The government can consider sourcing financial support from local and international businesses through its PPP approach. This approach takes away not only the financial burden from the government but also contributes to capacity building for local firms in the sector.

- Equally important to the infrastructure would be implementing regulations and agreements to provide a logistics facility to achieve and develop a logistics and integration plan. This includes increasing transparent regulation of logistics, implementing the ASEAN Agreement Frameworks on facilitating cross-border transportation, implementing the ASEAN Agreement Frameworks on multi-transportation models, improving infrastructure systems for transportation services to achieve the integration plan, increasing the participation of the private sectors in building network infrastructures and logistics transportation services.
- The Government should have clear policies promoting foreign investments in logistics involving high technology, which domestic companies are not able to provide, in the form of joint ventures with Lao companies and/or PPP to develop logistics as well as strengthen domestic companies via knowledge transfers. The government can also consider tax exemptions for various services that support its economy to reduce the business' cost of logistics. Going hand-in-hand with this step would be to identify mechanisms to ensure a reasonable amount of return on investment is secured in Laos.
- Policy interventions are necessary to ensure least-cost intermodal solutions to container and cargo haulage between trade sources and seaports (ESCAP, 2015). In particular, planning of terminal development, regulation of road vehicle dimensions and weights, and more rail-friendly port layout plans should aim to optimize the use of the roads for local delivery and of rails for line-haul transport of containers and cargo. This will be necessary in order to ensure that terminal and transport operations are both financially and environmentally sustainable.
- The Government should also create and improve legislation to expand the Law on Transportation and facilitate the implementation of an international transportation agreement (Ministry of Public Works and Transports, 2015).
- Feasibility studies and research should continue to gain deeper insights of Lao contexts in terms of transportation and logistics operations on the micro level to understand the needs of service providers' capacity to thrive and be sustainable in the industry. Needs assessment research is also required to understand the current capacity of human resources and areas to be focused on for improvement.

The above courses of action will lay the groundwork for Lao PDR to achieve its vision of becoming a land-linked country with a logistics system that best minimizes costs between ultimate cargo origins and final destinations. Lao PDR will become one of the most cost-efficient logistics hubs in the ASEAN region through intermodal transport efficiency, strong and clear regulations, capacity improvements of the sector, and its strategic location. Once the operation of dry ports commences, the target of progressing from the least-developed countries by 2020 will not be farfetched.

Establishing Legal and Institutional Basis for Efficient Dry Ports Development in East Asia

Chapter 4

Issues and Challenges of Dry Port Development in Myanmar

Aung Khin Myint
Director, Myanmar International Freight Forwarding Association, Myanmar

4.1 General Information _ 96
4.2 Issues in the Field of Logistics _ 97
4.3 Government Organizations _ 103
4.4 Institutional and Legal Framework _ 104
4.5 Diagnosis on the Current System for Developing Logistics Infrastructures _ 108
4.6 Conclusion and Suggestions _ 111

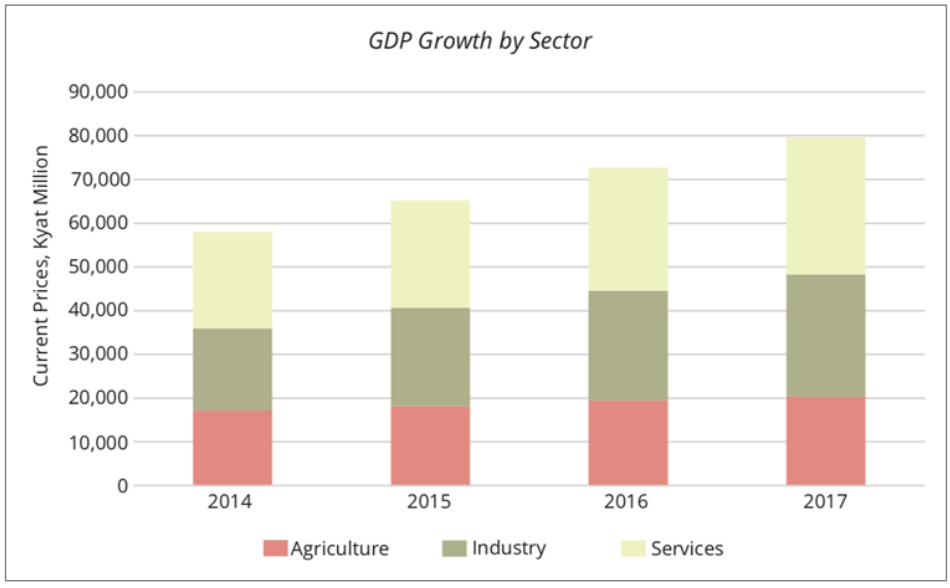
4.1. General Information

With a total coastal length of 2228 km, Myanmar is the largest country on the mainland South East China. Myanmar has a population of 51.5 million and a total of nine ports. Myanmar was ranked the world's fastest growing economy with a GDP growth of 8.6% due to the country's strong economy, increasing purchasing power, and relatively young population compared with its neighboring countries of China, Thailand, India, Lao PDR, and Bangladesh.

Myanmar could potentially become a logistics hub, surpassing its regional counterparts. Initiated by several economic and political reforms and the opening of the market, Myanmar has experienced tremendous growth in terms of trade. To provide services for the growing demand, the Government of Myanmar implemented infrastructural developments, including new airports, special economic zones, deep-sea ports, and dry ports in the form of joint investments between local and foreign partners. Among them, dry ports are key infrastructure developments that would enable Myanmar to extend access to international markets and position Myanmar as another potential logistics hub in the region.

The political and economic reforms that were initiated in 2011 have fostered economic development and high GDP growth in its main segments of the economy—agriculture, industry, and services.

Figure 4.1: GDP Growth by Sector



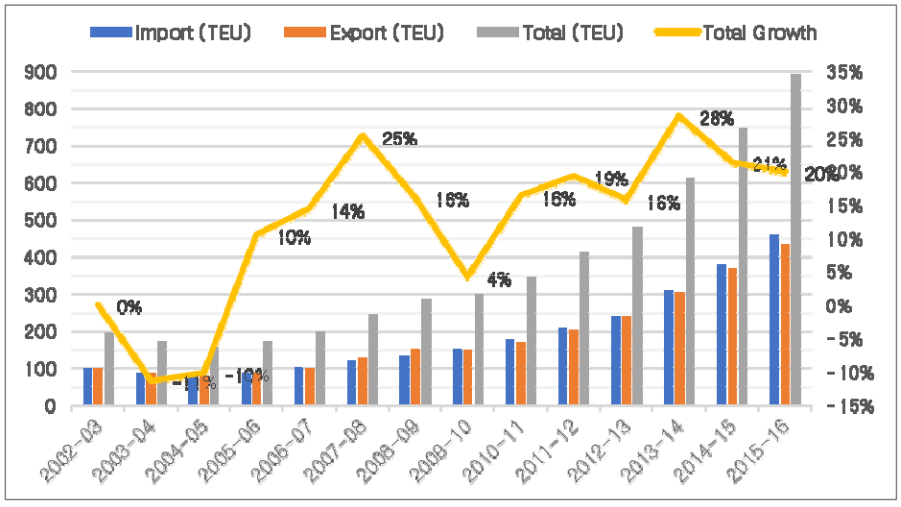
Source: Euro Chambers of Commerce

Dry ports are key infrastructure developments that would enable Myanmar to extend access to international markets and position Myanmar as another potential logistics hub in the region. Myanmar should develop dry ports in a timely manner because the number of containers handled by existing ports has dramatically increased. As can be seen in Figure 4.2 below, the volume of container handling (TEU) has grown steadily according to the data from the Myanmar Port Authority (MPA) and private wharfs.

4.2. Issues in the Field of Logistics

Containerization was introduced in Myanmar in 1981. The first container terminal became functional in 1990. Myanmar has eight ports to handle coastal and international maritime traffic. Until now, Yangon has been the major port and handles about 95% of the country's exports and imports. The year-on-year growth of the cargo throughput, as well as containerized cargo using the Yangon Port and Thilawa area, has increased significantly. Similarly, the border trade, especially the border trade volume and value with China, has increased significantly every year. As shown in Figure 2 below, the TEU has increased with an average annual growth of 20%.

Figure 4.2: International Trading Volume in TEU



As the volume of containerized trade grows, related businesses need to be further developed to meet the growing demand for the Inland Container Depot (ICD), including empty container depots, container freight station (CFS) services, and container transportation from the wharfs. In order to utilize the opportunities that come with trade liberalization, businesses in Myanmar should provide packaging for and re-export of value-added services. The wharfs should be

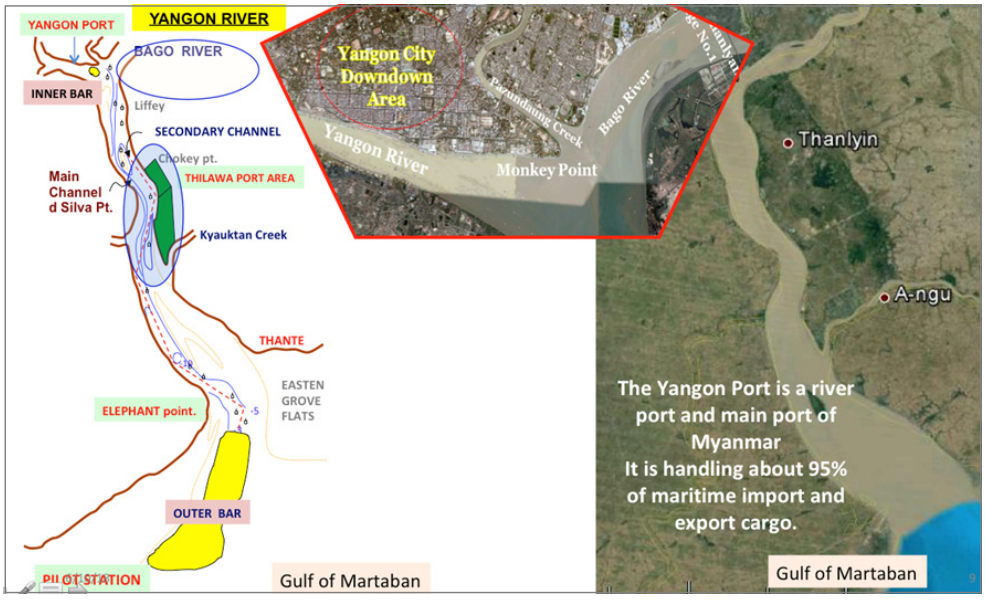
extended to provide custom bonded warehouse services and container-related services. An extensive network of railways should be constructed to provide inland container transportation for dry ports. In developing logistics infrastructure, the Government of Myanmar needs to account for the development conditions and the proper management of the increasing number of containers.

Yangon Port is situated on the left side of the Yangon River and is the meeting point for River Transport, Coastal Transport, and Marine Transport. The wharfs are situated in two separate places—(i) along the Yangon River and Bago River in the Yangon area, and (ii) at the Thilawa area. The volume of containers moving through the port of Yangon has increased very rapidly. Even though the private sector developed the facilities and operational capacity to handle the increased container traffic quite efficiently, it would be a challenge to handle the increasing number of containers without further expansion.

Currently, it is impossible to further expand the Yangon Port due to the following physical constraints:

- Limited depth, significant tidal variations, and a relatively narrow channel of the riverine port.
- Limited backup area because many of the berths are converted general cargo berths.
- Limited landside access due to the proximity to the downtown area and increasing urban congestion.

Figure 4.3: Situation of Yangon Port

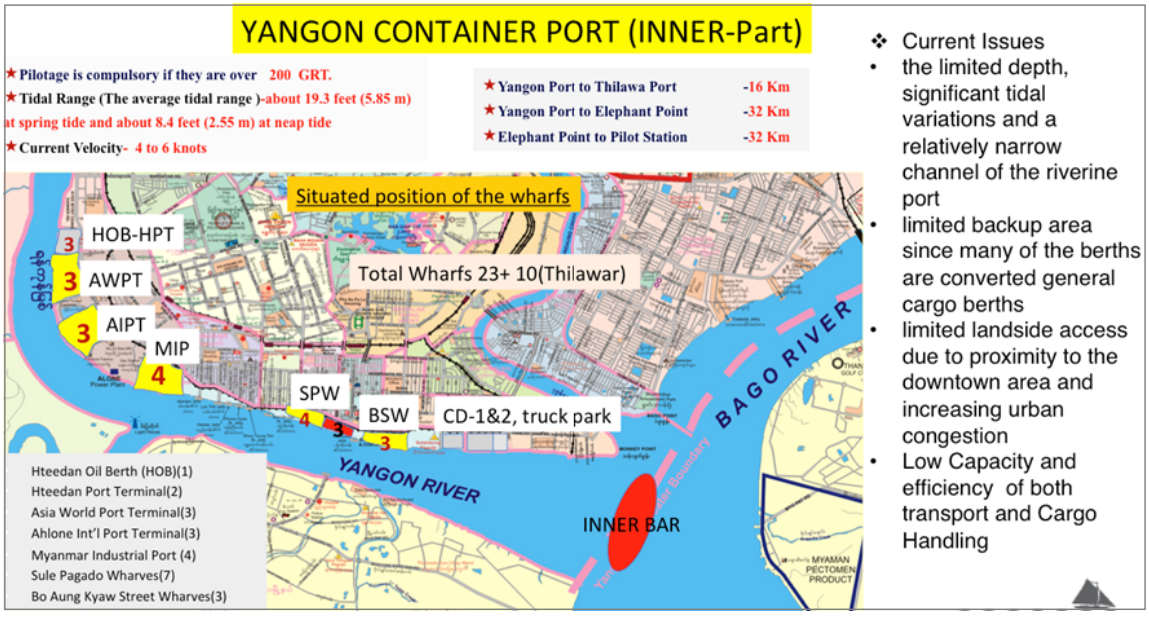


When there is a long holiday or a significant increase of containers to be cleared, problems occur with port congestion, queuing of vessels, increased freight surcharges, and disruption of the flow of imported goods.

The transportation of freight in containers started in Myanmar in 1990. There are three inland container deports at the Yangon Port area as follows:

- Inland Container Deport, Botahtaung (a joint venture between Myanmar Port Authority and Singapore Allied Container Services Pte)
- Inland Container Deport, Botahtaung (Myanmar Port Authority)
- Myanmar Industrial Inland Deport (national, privately-owned port)

Figure 4.4: Yangon Container Port



The existing truck terminal in Yangon is old and congested. The lease for the existing truck terminal has now expired, and the truck terminal will be relocated.

Figure 4.5: Current Truck Operations in Myanmar

Trucking Data Related with Tamu, Monywa, Mandalay (October 2017)

Route		Distance		Rate Per Truck		Tonne-mile		Tonne-km		Rate Kyat per tonne/mile		Rate Kyat per tonne/km		Travelling Time
From	To	Miles	Kilometer	Semi-trailer (32 ton)	12-wheeler (17 ton)	Semi-trailer (32 ton)	12-wheeler (17 ton)	Semi-trailer (32 ton)	12-wheeler (17 ton)	Semi-trailer (32 ton)	12-wheeler (17 ton)	Semi-trailer (32 ton)	12-wheeler (17 ton)	Hours
Yangon	Tamu	616	991		1,600,000	19,712	10,472	31,723	16,853		153		95	96
Yangon	Mandalay	430	692	1,200,000	1,000,000	13,760	7,310	22,145	11,764	87	137	54	85	40
Yangon	Monywa	522	840	1,500,000	900,000	16,704	8,874	26,882	14,281	90	101	56	63	40
Mandalay	Tamu	296	476		800,000	9,472	5,032	15,244	8,098		159		99	14
Mandalay	Kale	153	246		600,000	4,896	2,601	7,879	4,186		231		143	11
Mandalay	Muse	287	462	1,200,000	700,000	9,184	4,879	14,780	7,852	131	143	81	89	50
Pathein	Monywa	567	912		600,000	18,144	9,639	29,200	15,512		62		39	22

22 wheeler

The Current Weight Limits in Myanmar

12 wheeler

Vehicle Type	Axle Configuration and Axle Weight			Total Weight (national)	Total Weight (ASEAN)
Semi-Trailer (6 axles)	5	18	27	50	50.5
Semi-Trailer (5 axles)	5	18	18	41	46
Semi-Trailer (4 axles)	5	10	18	33	34
Single Rigid Vehicle (4 axles)	5	5	18	28	27
Single Rigid Vehicle (3 axles)	5	18		23	23
Single Rigid Vehicle (2 axles)	5	10		15	15-16

The current operations in the truck terminal have several drawbacks including:

- Inefficient cargo handling without loading docks, palletization, or cargo handling equipment.
- Most of the operations are conducted at night with limited area lighting.
- Operating within the urban area is becoming increasingly expensive due to traffic congestion.
- Insufficient overnight parking for the intercity trucks results in trucks parking along the roadside in the area around the truck terminal.

It is expected that relocation to the new site would (i) reduce the number of containers traveling through the city and parking on the roadside, and (ii) introduce modern ways for handling cargo to improve turnaround times for the trucks. It is also expected that the new site would allow for more efficient transport of consumer goods in Yangon by using smaller vehicles. It can also be used as an inland container depot for clearing imported goods that would then be transferred to the distribution warehouses.

The development issues in Myanmar's domestic cargo traffic can be summarized as follows:

- No scheduled cargo transport operations—Trucking, Rail freight transport, IWT.

- Very low speed (truck band and traffic congestion).
- No alternative routes (Myawaddy-Muse, Myawaddy-Tamu, Yangon-Myawaddy).
- Freight transport cost is high (when compared with Thailand's domestic transport cost).
- Inbound and outbound logistics lead time are long.
- Freight transport is not seamless.

Table 4.1 summarizes the duration of various import/export processes in Myanmar. The waiting time to process imports/exports in Myanmar takes too long compared to international or regional best practices.

Table 4.1 Duration of Import and Export Processes

Import/Export Process	Myanmar-Thailand/China	
	Cycle Time (days)	Waiting Time (days)
E1. Licensed Export with letter of credit (Normal trade) (Licensed commodities)	15.5	41
IM1. Licensed Import Process with letter of credit (Normal trade) (Licensed commodities)	17	88
E5. Border Trade Exportation at Muse (China Border trade)	6	19
IM8. Border Trade Importation at Myawaddy (Thai border trade)	13	37.5
IM 15. Special Economic Zone (SEZ)	12.5	27.5

For unclassified goods, imported goods are released within a month for sea freight and under a month for air freight. Due to such inefficiencies, Myanmar does not have a comparative advantage in the region in terms of trade logistics and lags behind its regional counterparts.

It is also important to take note of the freight rates, which are a key factor in distributing cargo in Myanmar. Freight rates in Myanmar vary wildly and are strongly related to the harvest season because much cargo is agricultural produce. Factors influencing the rates are below:

- Seasonal fluctuations (e.g., quantity of individual crops and their harvest time within a year);
- The weather pattern (e.g., monsoon influencing the quantity harvested between years);
- The permissible axle load (e.g., enforcement of axle load regulations);
- The number of trucks and their individual loading capacity (total fleet capacity).

Due to such operational inefficiencies, Myanmar ranks 113 in the logistics performance index (LPI) prepared by the World Bank.

Table 4.2 Logistics Performance Index Comparison

Logistics Performance Index 2016 (World Bank)								
	2016		2014		2012		2010	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Cambodia	73	2.80	83	2.74	101	2.56	129	2.37
People's Republic of China	27	3.66	28	3.53	26	3.52	27	3.49
Lao PDR	152	2.07	131	2.39	109	2.50	118	2.46
Myanmar	113	2.46	145	2.25	129	2.37	133	2.33
Thailand	45	3.26	35	3.43	38	3.18	35	3.29
Viet Nam	64	2.98	48	3.15	53	3.00	53	2.96

LPIs are measured using various variables. Three LPIs—customs, infrastructure, and services—are considered the key areas for policy regulations (INPUTS), while the other three LPIs—timeliness, international shipments, tracking and tracing—provide OUTCOMES for service delivery performance. A good logistic performance is important because it is a crucial factor in attracting foreign investments and ensuring economic growth. Policymakers across the world believe that the logistics sector is one of the key pillars for development; inefficient logistics results in unnecessary costs of trade and barriers for global integration.

Relevant stakeholders should be aware of the overall development issues relevant to the domestic cargo traffic. Challenges in the freight transport logistics sector in Myanmar are as follows:

- The low utilization ratio of existing infrastructures;
- Long turnaround and dwell time (Ygn-Mdy trucking, IWT, rails, coastal shipping);
- Low load factor (inter-city trucking);
- No scheduled cargo transport operation (trucking, rail freight transport, IWT);
- Low AV speed (traffic congestion);
- Low truck productivity—1 trip per 1.5 Days (truck band 8PM-6PM);
- No alternative routes (Mdy-Muse, Mdy-Tamu, Ygn-Myawaddy);
- Freight transport cost is high (compared with Thai domestic transport costs);
- Inbound and outbound logistics lead time are long;
- Freight transport is not seamless;
- Lack of DC, PC, TC facilities;
- Lack of truck terminal;
- Lack of ICD, logistics hub and dry port.

In Yangon, container-on-barge services would face the same navigational constraints as other inland water transport services, but the potential impact would be greater. These constraints include:

- Lack of aids to navigation limits barge movements to daylight hours.
- Strong river current increases the power required for the barges.
- River current combined with bridge structures favor the use of self-propelled barges rather than more economical tug-barge combinations.
- Significant tidal variations prevent the use of more efficient RoRo services and require larger cranes and longer cycle times for LoLo operations.
- Air drafts beneath bridges limit the stacking height for barges, especially when transporting empty containers.

4.3. Government Organizations

Developing dry ports involves various governmental agencies concerned with transport, trade, commerce, finance, environment, customs, ports, and logistics as well as private sector organizations. In Myanmar, the key government agency responsible for the dry ports is Myanma Railways under the Union Ministry of Transport and Communications (MoTC). All the government agencies related to the development of dry ports and a brief description of their roles and responsibilities are described next.

The Union Ministry of Transport and Communications (MoTC) oversees the planning and development of dry ports and coordinates with other institutions involved in the planning, development, and operations of dry ports. The Union Ministry of Construction is in charge of developing roads and the connectivity required for dry ports. The Union Ministry of Commerce issues import/export regulations and various types of licenses. It is also responsible for ensuring the facilitation of trade by removing trade barriers.

The Myanmar Customs Department under the Union Ministry of Planning and Finance works closely with the Ministry of Commerce and facilitates trade. It is the focal agency for implementing the Myanmar Automated Customs Clearance System (MACCS). It evaluates import/export declaration forms and determines the customs valuation of imported goods based on the WTO-Kyoto convention.

The Union Ministry of Home Affairs controls security measures and monitors illegal trade/drug flows. It also issues permits to use land for the development of dry ports.

The Food and Drug Administration Department under the Union Ministry of Health and Sports provides recommendations that the goods are safe to stabilize public health.

The Department of Mines under the Union Ministry of Natural Resources and Environmental Conservation issues recommendations for exports of minerals.

The Myanmar Investment Commission (MIC) and Directorate of Investment and Company Administration (DICA) are tasked with reviewing and approving large scale local and foreign investment projects. The MIC recently permitted international and Myanmar citizen investors to invest in the development of dry port services, bonded warehouse services, high-way bus and freight terminals, warehouses, and wholesale centers.

4.4. Institutional and Legal Framework

National Plan for Logistics Infrastructures

Myanmar does not have a single policy or regulation exclusively designated for dry ports. The Multimodal Transport Law and other rules and regulations govern the development and operation of dry ports. Due to its strategic location, Myanmar has a large potential to become a regional hub of the continental South East Asia and Greater Mekong Sub-region (GMS). Myanmar is keen to develop the transportation sector with its own resources and through better cooperation and integration with development partners locally and overseas. The key national plans for logistic infrastructure focusing on dry ports are as follows:

- Myanmar Transport Master Plan (2014)
- Myanmar Transport Sector Policy Note (2016)
- Myanmar National Logistics Master Plan (2016)
- Logistics Development Vision

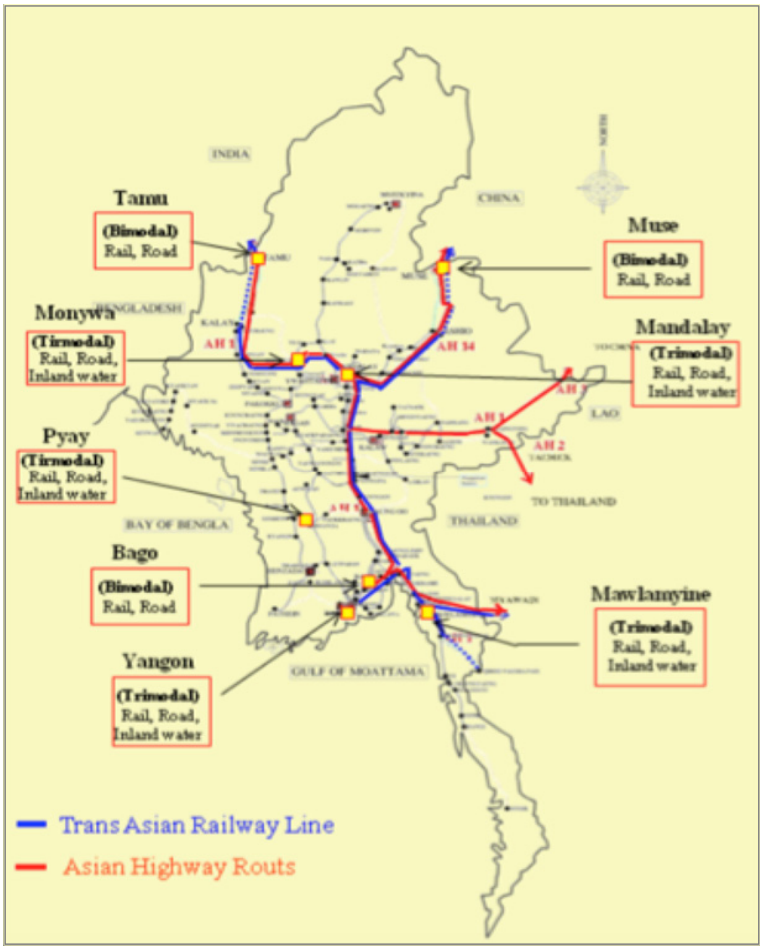
As a member of the UNESCAP, the Myanmar Government's policy has to be in line with UNESCAP's intentions. Myanmar has already proposed eight potential sites of international importance for dry ports in accordance with the liberalized economic policy of the newly elected government. The proposed places for the dry ports in Myanmar are Yangon, Mandalay, Tamu, Muse, Mawlamyine, Bago, Monywa, and Pyay. Table 4.3 shows the priority implementation list of these potential places for Dry Ports of International Importance in Myanmar. The details of the eight proposed sites are provided in Appendix 1.

Table 4.3 Logistics Performance Index Comparison

	Name of City	Modes of Transport	Description
1	Yangon		
2	Mandalay	Rail, Road, Inland Water	Capital of the Mandalay Division. The 2nd largest economic city; AH1, AH14, TAR S1, TAR S2; On the bank of Irrawaddy River, Adjacent to the industrial zone.
3	Tamu	Rail, Road	Border station to India; Transshipment (break of gauge); AH1, TAR S1, TAR S2.
4	Muse	Rail, Road	Border station to China Transshipment; AH14, TARS1.
5	Mawlamyine	Rail, Road, Inland Water	Capital of Mon state; AH14, TARS1.
6	Bago	Rail, Road	Capital of the Bago Division; Junction railway station of TAR S2 and Yangon-Mandalay rail line, AH 1, Junction of Yanogn-Mandalay line & Mawlamyine-Bago line.
7	Monywa	Rail, Road, Inland Water	Large hinterland; Capital of the Sagaing region; AH 1, TAR S1, TAR S2; On the bank of Chindwin River.
8	Pyay	Rail, Road, Inland Water	Large hinterland; On the bank of Irrawaddy.

Most of the proposed places are located on the paths of Asian Highway (AH1) and the future Tran-Asian Railway (TAR-S2). International players like UNESCAP and the neighboring countries have urged Myanmar to develop its roads network and rail networks necessary to connect with the Asian Highway and Trans Asia Railway. However, the Government of Myanmar has not started the implementation process despite the assistance offered by the international community.

Figure 4.6: Locations of Proposed Dry Ports



In November 2013, Myanmar signed the Intergovernmental Agreement on Dry Ports under UNESCAP. The Government has planned to develop a total of eight dry ports in Yangon, Mandalay, Tamu, Muse, Mawlamyaing, Bago, Mon Ywa, and Pyay. The dry ports will be implemented through private-public partnerships (PPP). Of the planned dry port projects, two projects in Yangon (Ywa Tha Gyi) and Mandalay (Myit-Nge) have been tendered out. The Kerry Logistics Network and Resource Group won the tender and are currently negotiating contracts with the Government of Myanmar.

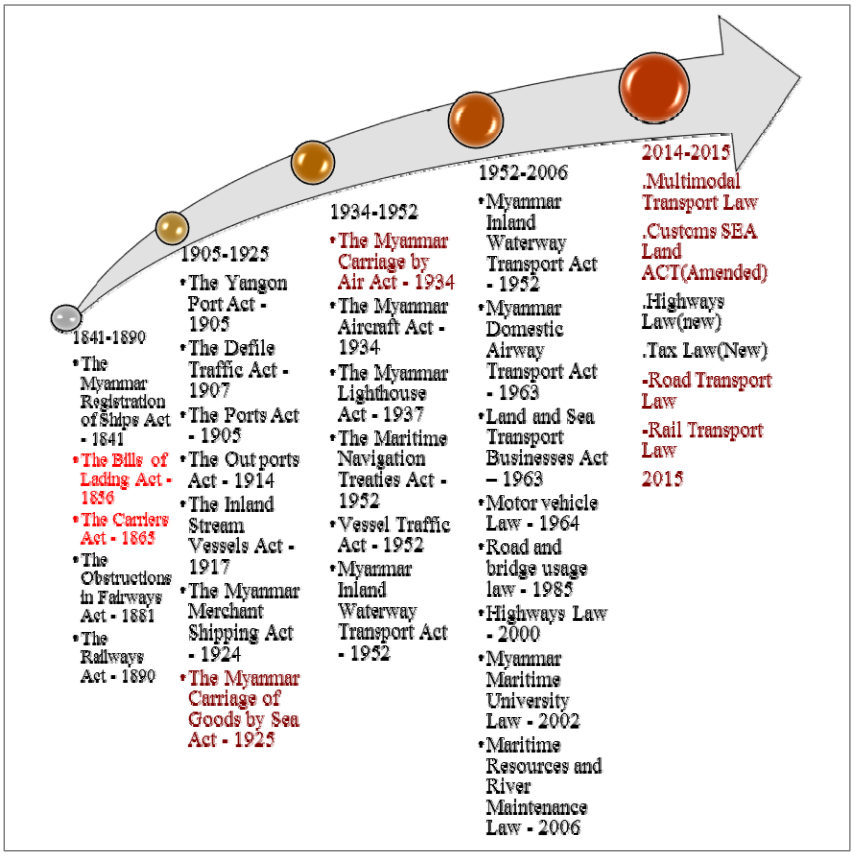
The Government of Myanmar has recently allowed both foreign and local investors to develop warehouses/dry ports in Myanmar. While the foreign investors and logistics service providers are keen on this opportunity, Myanmar citizens are not aware of the implications of investing in such services. Thus, it is likely that foreign investors will take advantage of such opportunities. Players like DKSH/Denko/Unilever, DHL, Yusen, and OV have built their own facilities. The Government

indicated that it welcomes the private-public partnerships. However, local investors are not ready yet. The Government needs to better educate the public about providing services related to dry ports, custom bonded warehouses, and warehouses.

Laws and Regulations for the Development of Logistics Infrastructures

Myanmar does not have laws or regulations dedicated to the development of dry ports. A series of notifications were issued and announced by the relevant government departments and organizations. The following laws, regulations, and notifications have direct impacts on the establishment and operations of a dry port.

Figure 4.7: Laws Related to Dry Ports



The Vacant, Fallow and Virgin Land Law, Foreign Investment Law, and the Farmland Law govern land acquisition in Myanmar. These laws were all passed in 2012 and were designed to increase investments and encourage large-scale land use. These laws allow for state appropriation of "waste land" for a "public purpose" and re-present it in the current context of economic opening and investment promotion.

The Central Committee for the Management of Vacant, Fallow, and Virgin Land (CCVFV) is responsible for reallocating "vacant" or "fallow" land to domestic and foreign investors for periods from 30 to 70 years, while the Myanmar Investment Commission (MIC) grants land to foreign investors.

The Multimodal Transport Law has been written according to the "ASEAN Framework Agreement on Multimodal Transport" and UNCTAD's "Implementation of Multimodal Transport Rules." The import/export law is the main governing law for the trade sector. This law is administered by the Ministry of Commerce, and from time to time, necessary orders, notifications, and directives have been issued on all export/import matters.

The laws relating to customs in Myanmar are the Sea Customs Act 2015, the Land Customs Act 2015, and the Tariff Act. The Customs Department made reforms in its administrative procedures to ensure greater facilitation of trade. The Myanmar Customs Department is drafting a new customs law by combining these three laws. The Myanmar Investment Law 2017 is designed to provide incentives for both local and foreign investors.

The law also considers infrastructure developments as one of the promoted sectors and provides incentives such as tax holidays. The new Myanmar Companies Law permits foreigners to take up to a 35% stake in local companies. The law allows more foreign investors to invest in sectors that were previously closed to foreigners.

4.5. Diagnosis on the Current System for Developing Logistics Infrastructures

As a member of ASEAN, Myanmar is committed to forming the ASEAN Economic Community (AEC). Building dry ports, establishing related works in these facilities, and starting containerization is essential for the free flow of goods. Establishing dry ports and related infrastructures for connectivity are essential for making a robust economy and transport service in Myanmar.

Myanmar is a party to the Intergovernmental Agreement on Dry Ports in the Asia-Pacific region. It was signed on 7 November 2013 and concluded under the auspices of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). Myanmar should develop dry ports for the following reasons.

- To develop the trade and transportation sector.
- To benefit from economic development.
- To take advantage of Myanmar's strategic location.
- To develop maritime trade and to promote the Mekong Sub-region.
- To offer services in transporting, delivering, receiving and transporting goods by trains as Myanmar lies at the center for trading between China and India.
- To link inland and seaports to export and import goods in containers.
- To contribute to container services for ensuring effective goods transportation.
- To reduce the paperwork at seaports.
- To provide logistic services because there is high demand for trans-border services through cool storage for vegetables, fruits, and marine products.

Even though there are several logistics and transport master plans, there are no single policies or regulations exclusively designated for dry ports in Myanmar. Myanmar has formed a National Trade Facilitation Committee and National Transport Facilitation Committee. However, the effectiveness of such committees is in question. With Myanmar being a member of the UNESCAP, its government policy has to be in line with UNESCAP's intentions. In order to do that, Myanmar needs to develop a policy and regulations dedicated to the development of the dry ports. Myanmar also needs to develop necessary logistical infrastructures, such as road and rail networks, to connect to the Asia Highway and Trans National High Way.

Myanmar Customs Department (MCD), one of the key stakeholders in developing the dry ports, has acknowledged the importance and urgent need to develop dry ports. The MCD commented that dry ports are essential for loading and unloading, warehousing, regular inspections, and aligning customs' procedures in using air, water, and road transportation for global trade around the world. The MCD stated that dry ports should continue to implement the nation's policy and guidance, and MCD will keep cooperating on the dry port projects by complying with the agreements on Asian Highways and Trans-Asian Railways at the regional level; additionally, it will continue making the member states aware of dry ports in other countries and fulfilling the need to support strategically on policy and issues relating to the development of dry ports under the International Agreement on Dry Ports.

The Myanmar Government adopted a logistics development vision and articulated the need to create an efficient, competitive, and environmentally friendly logistics system in accordance with regional and international perspectives, including the enhancement of multimodal transportation for the economic development and the poverty reduction of Myanmar. To realize the vision, the Government has laid out the following action plans as listed below.

- Trade cargoes: Legislation of laws and regulation thoroughly for bonded transport and bonded warehousing operation.
- Better logistics services: Foster specialized private entities to undertake the logistics services at regional and international levels.
- Better access to finance: Establish an institutional financing system for SMEs engaging with the logistics services.
- Defragment current transport business system: Strengthen the organization of trucking and forwarding associations under the Union of Myanmar Federation of Chamber of Commerce – UMFCCI); and Myanmar Transport and Logistics Federation (MTLF).
- Institutional development: Reinforcement of the National Transport Development and Project Implementation Committee.

In realizing the visions, the following can be implemented:

- Roads: Upgrading and widening of roads and bridges to comply with the requirement of Heavy Loaded Vehicle (GVW 40 or more).
- Truck Terminals: Development of wider and modern Public Truck Terminals throughout the country at strategic locations.
- Inland Water Transport: Development of Multi-modal River Port Hubs, and improvement of channels and vessels for scheduled inland water transport.
- Railways: Development of railway freight station hubs for scheduled container block train operations to enhance modal shift and increase freight transport efficiency.
- Coastal Shipping: Improvement of Local Sea Ports to increase cargo handling, productivity, and efficiency by shortening berthing time at the ports and ensure scheduled shipping services.
- Gateways: Improvement of goods clearance operations at seaports and cross-border transit facilities. (CBTA, CBTI)

The Myanmar Government has set hard and soft components in developing a comprehensive network of logistics systems. Soft components include institutional development (regulation, organization) including Legislation of Bonded Transport, Truck Transport, Road Safety Programs, Freight Rail Services, Warehouse Law, Freight Forwarders Law, Capacity Building of Administrative Organizations (MOTC, Customs, MoC), and Fostering Professional Logistics Providers (mainly private sector). The term “dry port” was exclusively reserved for the Kerry Logistics and Resource Group as part of their tender contract.

4.6. Conclusion and Suggestions

The Government of Myanmar is committed to economic development and has initiated ongoing economic reforms that have resulted in tremendous trade growth. In order to provide services for the growing demand, the Government of Myanmar has implemented infrastructural developments, including new airports, special economic zones, deep-sea ports, and dry ports in the form of joint investments between local and foreign partners. Among them, dry ports are key infrastructure developments that would enable Myanmar to extend access to international markets and position Myanmar as another potential logistics hub in the region. The Government of Myanmar should adopt the following actions plan in order to develop dry ports, which will provide an efficient logistics infrastructure in Myanmar.

- Dry Port/Hub
- Bonded warehouses, DC, TC, PC
- Truck terminals along major transportation corridors and in important transport nodes
- Introduce modern ICT tools at transport and logistics companies
- Track and trace system
- Cargo matching system
- Increase efficiency by promoting the development of integrated services
- Development of skills and adoption of best practices
- Integration by Myanma Railways to facilitate cross border transport shipment
- Promote and develop cold chain logistics
- Introduce a standard cargo manifest system and ensure its adoption by road and rail logistics
- Facilitate a more efficient trade environment
- Need training for drivers, financial, and technical assistance
- Improve facilitation and logistical capacities
- PPP will be implemented by the members of MTLF (donors, investors, OBOI)

MTLF will act as the liaison for these implementations. Members of the MTLF will take the initiative to implement the projects and start policy dialogue with the government. Myanmar cannot keep up in international maritime sea borne trade. However, Myanmar has the opportunity to provide door-to-door logistics services in land and rail transport in the region. In order to be competitive, Myanmar needs to focus on intermodal and multi-modal transport and implement dry port/truck terminals to provide efficient and unique logistic services.

Appendix 1
Potential Sites for the Development of Dry Ports

Yangon

- Capital of Yangon region of Myanmar
- The biggest industrial city
- Commercial city
- Transportation network linked by any means of transport
- Linked with Asian Highway, and in the future with Asian Railway
- Close to the Agro base production areas and industrial estates
- Measures can be taken by transportation modes of rail, road, water, and air
- Center for national development
- Three main freight transport roads exist:
  - Yangon-Naypyitaw-Mandalay
  - Yangon-Hpa An-Myawaddy
  - Yangon-Pyay-Magway

Mandalay

- Capital of Mandalay region of Myanmar
- The second biggest industrial city
- Located on ASIAN Highway (AH1), Myawaddy-Phayargyi-Meikhtilar-Mandalay-Tamu Road (AH2), and can link to AH14 (Muse-Lasho-Mandalay)
- Located on the Yangon-Naypyitaw-Mandalay-Myitkyina route
- Located on (Trans-Asian Railway networks)
  - TAR-S1(Muse-Lasho-Mandalay-Tamu)
  - TARS2 (Thanphyuzayat-Bago-Mandalay-Tamu)
- City of inland waterway port (on the bank of the Ayeyarwaddy River)
- Close to the Agro base production areas and industrial estate
- Measures can be taken by transportation modes of rail, road, and water
- One of the centers for national development

Tamu

- A border town between India and Myanmar
- Border trade allowed
- Located on ASIAN Highway (AH1) and Trans-Asian Railway networks TAR-S1 and S2
- Measures can be taken by two transportation modes of rail and road

- One of the centers for small-scale developments (a town with a population of 50,000 and above)
- Located on the Mandalay-Tamu route

Muse

- A border town between China and Myanmar
- Border trade allowed
- Located on ASIAN Highway (AH14) and TAR-S1
- Measures can be taken by two transportation modes of rail and road
- One of the centers for small-scale developments (a town with a population of 50,000 and above)
- Located on the Mandalay-Tamu route, which is the main route for freight transport

Mawlamyaing

- Capital of Mon State
- Located on ASIAN Highway (AH1) and Trans-Asian Railway TAR-S2
- City of inland waterway port (on the bank of the Than-lwin River)
- Measures can be taken by three transportation modes of rail, road, and water
- One of the centers for secondary level regional development
- Located on the Yangon-Mawlamyaing-Dawei route

Bago

- Capital of Bago Region
- Located on ASIAN Highway (AH1), and Trans-Asian Railway TAR-S2
- Located at the junction of Yangon-Mandalay and Yangon-Mawlamyaing roads and railways
- Measures can be taken by two transportation modes of rail and road
- One of the centers for secondary level regional development
- Located on the Yangon-HpaAn-Myawaddy route, which is the main freight transportation route

Monywa

- Capital of the Sagaing Region
- Can connect with ASIAN Highway (AH1), and Trans-Asian Railway TAR-S1, TAR-S2
- City of inland waterway port (on the bank of the Chin-Dwin River)
- Close to the commodity areas (production areas) and industrial estate
- Measures can be taken by transportation modes of rail, road, and water
- Located on the Mandalay-Tamu route

Pyay

- City of inland waterway port (on the bank of the Ayeyarwaddy River)
- Potential for development
- Junction of motorways and railways
- Close to the commodity areas (production areas)
- Measures can be taken by three transportation modes of rail, road, and water
- One of the centers for small-scale developments (a town with a population of 50,000 and above)
- One of the centers for (farming) land and industry
- Located on the Yangon-Pyay-Magway route

Chapter 5

Logistics Issues and Regional Dry Port Development in Japan

Naohisa Okamoto
Professor, University of Tsukuba, Japan

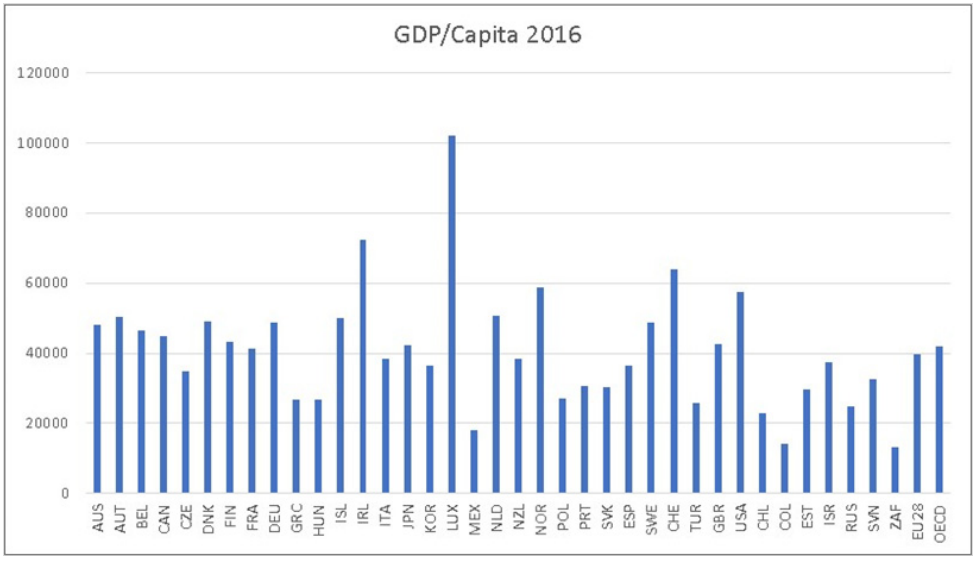
Motohisa Abe
Professor, Hokkaido University, Japan

5.1 General Information _ 116
5.2 Issues of Logistics in Japan _ 117
5.3 Japanese Government Organizations related to Logistics _ 120
5.4 Legislation and Policy _ 123
5.5 Case Studies _ 129
5.6 Challenges and Conclusions _ 135

5.1. General Information

Japan today has a population of 127 million people and an economy (GDP) of the scale of $4,960 billion. Per capita GDP is about $40,000 that, along with South Korea, is about level with the OECD average (Figure 5.1).

Figure 5.1: GDP per Capita



In terms of trade, exports include many items related to the manufacturing industry, such as automobiles and related parts, iron and steel products, semiconductor parts, etc. In addition to natural resources, there are many imports of consumer goods such as food, clothing and miscellaneous goods.

In recent years, a sluggish economic growth rate has been an issue, and a rapidly aging society has also become a social problem. In terms of the latter, this shows that the population share of the total labor force has been declining. Some industries where labor shortages have become obvious have been noted, and the construction, food, drink, and nursing care industries also include logistics functions within the transportation industry.

5.2. Issues of Logistics in Japan

Hinterland transportation in international shipping container transportation is an important link connecting ports and hinterland shippers within the transportation chain. After WWII, port activities in Japan were carried out primarily for the trade of processed goods during the high economic growth period since the 1960s. This involved the import of bulk cargo, such as iron ore from overseas, product development in coastal industrial zones, and the subsequent re-export to other countries. For this practice, hinterland transport was not needed.

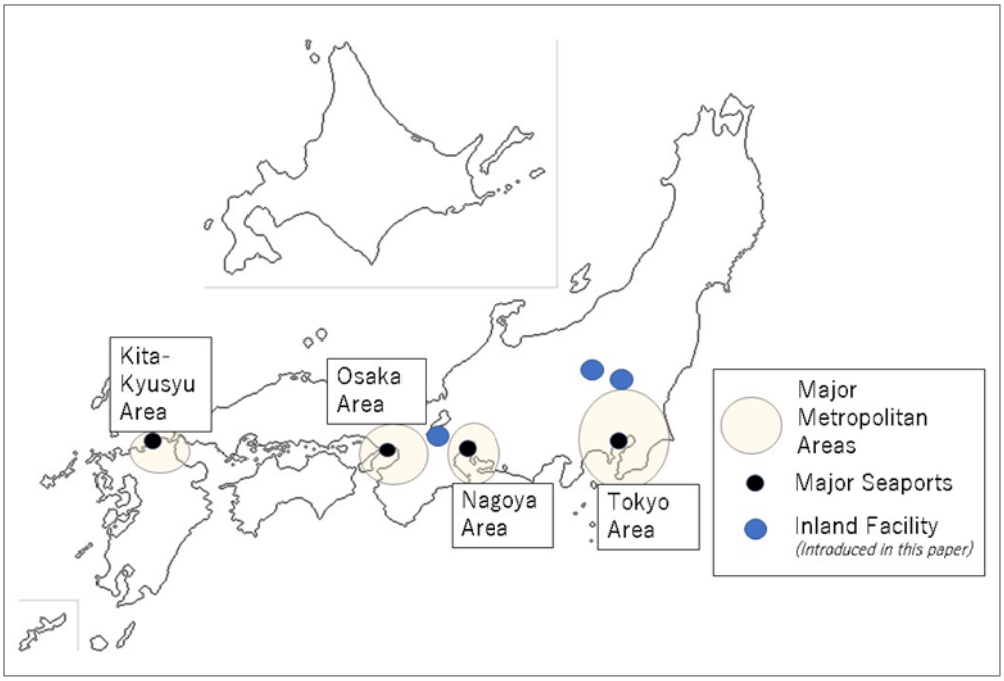
International shipping container transportation began in the 1970s. With the move from large-sized heavy industries to global distribution of labor, the globalization of supply chains, economic globalization, the importance of door-to-door transportation, and transportation from ports to hinterland shippers increased.

Domestic cargo transportation was carried out by rail, but since the 1970s, the ratio of truck transportation gradually increased, and today, more than 90% of hinterland transportation in Japan is carried out by trucks. This is due to the progress of motorization, an associated withdrawal by national rail from cargo transportation, prioritization of passengers by rail facility operators, and the lack of direct trains to port terminals.

Also, there have been clear cases of congestion in port areas in recent years. One example of this is the congestion near the gate at the Tokyo Port. Congestion has become constant at the gate entrance, and this affects the inefficiency of hinterland transportation. The rapid increase in international shipping container cargo in recent years could be one reason for this, but the limits on receiving times at terminal gates may factor into the inefficient hinterland transportation (times are limited to the morning through evening, and gates are also closed during lunch breaks).

Since the beginning, Japan's economic development focused on coastal harbors, and with large-scale ports such as Keihin Port and Hanshin Port. The four major metropolitan areas (Tokyo, `Osaka, Nagoya, and Kitakyushu) are the main locations for the origination and consumption of container cargo, making hinterland transportation distances short. Figure 5.2 shows the location of Japan's major ports and large metropolitan areas. Origin/destination of container cargo is concentrated in the four areas.

Figure 5.2: Japan's Major Port Locations



Source: Own Elaboration

Table 5.1 shows how much cargo is concentrated in each major metropolitan area. Approximately 70% of container cargo goes to/from the four major areas.

This has led to little need for efficient hinterland transportation outside of these metropolitan areas because the volume of cargo has been small even though the distances are farther. Therefore, there has been no general policy to establish dry ports in Japan.

Table 5.1 Concentration of Container Cargo to Major Cities

	Container Cargo(FT)	Share
Tokyo Met.	4,952,000	27.7%
Nagoya Met.	3,162,000	17.7%
Osaka Met.	2,936,000	16.4%
Kita-Kyusyu Met.	845,000	4.7%
Sub Total	11,895,000	66.4%
Other	6,011,000	33.6%
Total	17,906,000	100.0%

Source: Own Elaboration

Hinterland transport is well developed in North America and Europe. Table 5.2 displays distances from major ports to/from major inland cities where production or consumption activities occur.

For instance, in the U.S., they are more than 2,500 km from major ports on the West Coast (LA/LB) and inland city (Chicago) or East Coast city (New York). Railway services are utilized to link ports and cities. In Europe, there is about a 1,000 km range from Northern ports to inland countries or major cities. In the case of China and Korea, large cities are located inland.

In Japan, they are about 700 km between the Keihin Port and Aomori Prefecture. However, railway services have not been considered because the population and cargo volume (population) is not very large in the prefecture.

Table 5.2 Distance Between Seaports/Inland Cities

	Container Volume of Port (in 1,000 TEU)	Inland City	Distance of Port/ City(km)	City Population (1,000)
LA/LB	15,352	Chicago	2,800	9,461
LA/LB	15,352	NY	3,940	18,897
Rotterdam	12,235	Milan	1,040	1,324
Rotterdam	12,235	Duisburg	200	491
Rotterdam	12,235	Geneva	920	192
Tianjin	14,100	Beijin	120	21,700
Shanghai	36,537	Xian	1,500	8,250
Busan	19,469	Seoul	400	9,904
Kehin	7,416	Tokyo	27	13,736
Kehin	7,416	Ustunomiya	126	1,989
Kehin	7,416	Aomori	740	1,383

Source: Own Elaboration

However, this issue is gaining greater social recognition because a shortage of drivers may lead to insufficient supply of services from truck operators that carry hinterland transportation, and improved productivity is considered an issue for all of government.

For example, at the second meeting of the "Productivity Improvement Citizen's Movement Promotion Council" (Chaired by Prime Minister Abe) (June 2017), improving the productivity of truck operators was raised as a concern. Truck operators raised issues such as "long-term driver labor reductions" and "appropriate freight and toll income collection based on costs," and Prime

Minister Abe noted the need for understanding this concern from shippers.

Also, the transportation and export transportation system from harbors to hinterland shippers is based on round-trip units, and in many cases empty containers are forwarded, leaving room to improve efficiency for both shippers and truck operators. This has led to a move towards the re-use (round-use) of empty containers, and the establishment of dry ports for this purpose is expected to lead to further development.

5.3. Japanese Government Organizations related to Logistics

Outline of Logistics-related Government Organizations

The Ministry of Land, Infrastructure, Transport, and Tourism and the Ministry of Economy, Trade, and Industry are the government organizations related to logistics in Japan. The Ministry of Land, Infrastructure, Transport, and Tourism has a wide range of responsibilities; the organization was formed in 2001 with the reorganization of the Ministry of Construction, which was mainly responsible for infrastructure development, and the Ministry of Transport, which was responsible for the transport industry and transportation-related infrastructure (ports, rails, airports). The Ministry of Economy, Trade, and Industry is also involved in logistics-related policy because the logistics function is important for the efficiency of shippers that are engaged in economic activity through their management of global supply chains. These two ministries cooperate in preparing outlines for the top logistics policy plans of the government, and these are then determined by the Cabinet.

An overview of the Ministry of Land, Infrastructure, Transport, and Tourism is provided in Figure 5.3. In terms of logistics, it has departments that develop roads and port infrastructure and supervise businesses, such as truck operators. There is also a department that works horizontally to compile the work of other departments within the ministry, which took the initiative to develop the General Logistics Policy.

Prior to the establishment of the Ministry of Land, Infrastructure, Transport, and Tourism, the negative impact of the vertically divided administration was noted, and today the various departments are developing a system of cooperation. With relation to logistics, there is a Logistics Representative within the Policy Bureau that coordinates between the ministries and with the Ministry of Economy, Trade, and Industry. In terms of customs clearance systems, coordination is also carried out with the Customs and Tariff Bureau within the Ministry of Finance.

Dry Port Development and Operation Systems and Related Organizations

As mentioned above, there has not been any specific legislation for the development of a dry port system for international container cargo because of the short transport distances for hinterland transportation in Japan.

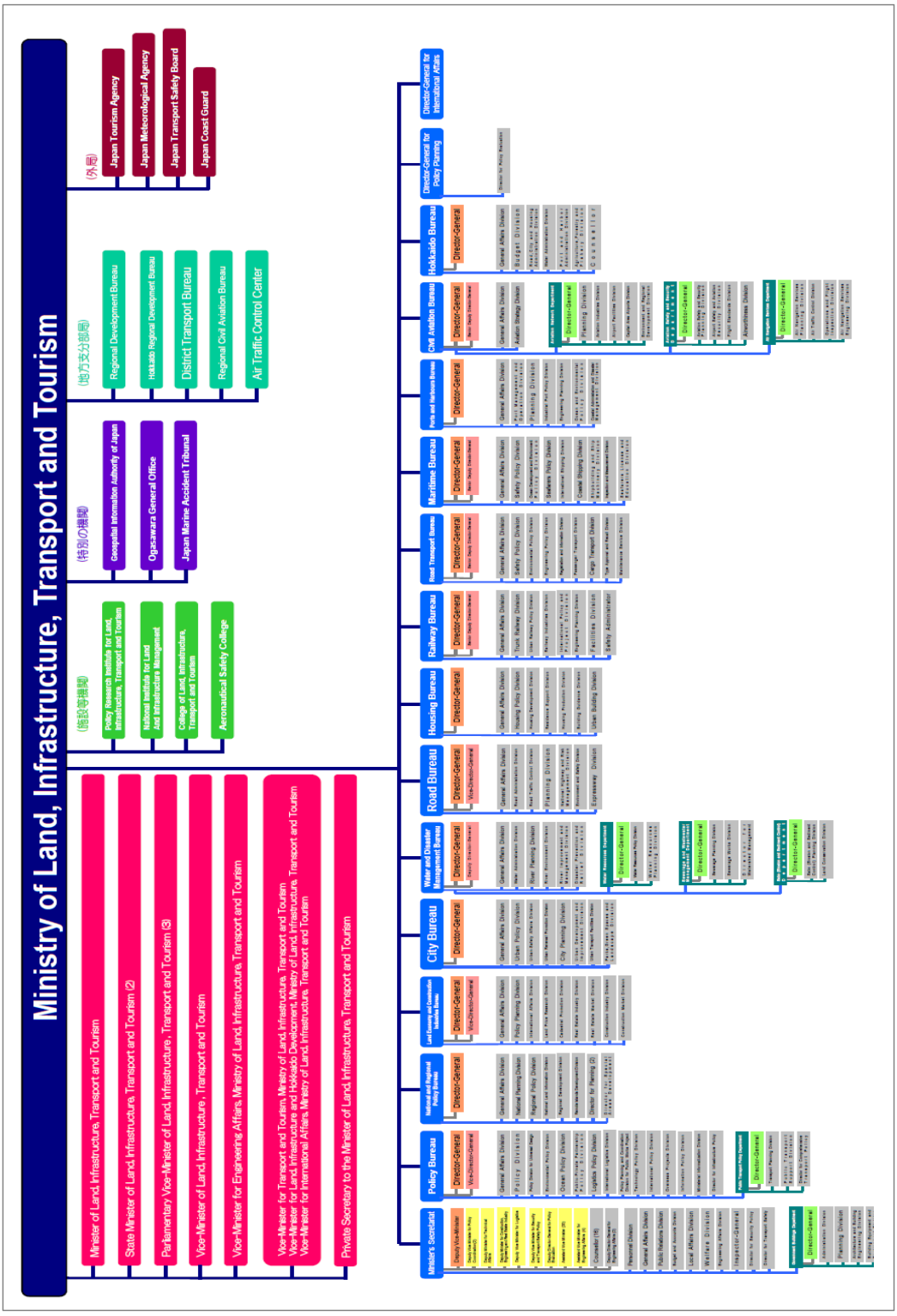
There have been examples of inland international container terminals established inland with container depot functions (Ota City in Gunma and Sano City in Tochigi), but these have been established under the leadership of local municipalities looking to improve local logistics functions and to attract firms.

It is not that the central government is not involved at all in such inland logistics facilities; it does operate subsidy systems where there are matches with certain other policy objectives, such as reduced environmental loads, but this is not exclusively aimed at dry ports.

Public organizations are currently involved in the establishment and operation of inland ports in the following ways.

- Setting up and organizing local development and management entities. These are currently mainly led by local governments.
- Coordination with the central government on development plans and confirming that there are no issues in these development plans from the perspective of urban planning. Coordination along with establishment as to whether subsidies are available.
- Operational coordination with the government. Coordination with customs regarding the designation of bonded areas etc., and the acquisition of licenses from the Ministry of Land, Infrastructure, Transport and Tourism for operators (truck operators, etc.).

Figure 5.3: An overview of the Ministry of Land, Infrastructure, Transport, and Tourism



5.4. Legislation and Policy

Logistics-related policies in Japan include policies that cross relevant ministries and agencies and policies and establishment/management systems for individual modes of transport within the harbor transport chain.

Government Policy

The General Logistics Policy Outline is the government's top-level policy. Because of the increasing importance of logistics functions to the Japanese economy, the policy has been formulated every 5 years since 1997. The policy is formulated through cooperation between the Ministry of Land, Infrastructure, Transport, and Tourism, and the Ministry of Economy, Trade, and Industry; the Cabinet then decides the final government policy. The following is an overview of these Outlines from recent years.

General Logistics Policy Outline (2013-2017)

Determined by Cabinet decision in June 2013; this contained the following logistics issues.

- Deepening of Global Supply Chains and Changes to Logistics Structures
  - Increase overseas production while leaving high value-added fields for the Japanese industry, and expand procurement, production, and sales networks throughout Asia. To achieve this, efforts are required to expand the Japanese logistics systems overseas and to contribute to local competitiveness.
- Environmental Issues such as Global Warming
  - As energy supply and demand tightened following the Great East Japan Earthquake, reduced energy consumption has become important for energy security.
- Safety and Security of Logistics
  - Based on experience from the Great East Japan Earthquake, it is important to enhance safety and security in various fields.

The Outline also contains initiatives related to the improved efficiency of hinterland transportation through measures that enhance local competitiveness in response to global supply chain issues. These individual matters are described below.

- Work to improve the depth of container terminals at strategic international container ports and promote the enhancement of port functions to cater larger ships to promote "international feeder routes" connecting domestic ports with strategic international container ports with domestic vessels, aggregate cargo over wide areas utilizing container

round use at inland depots, and integrate and optimize the operation of ports by consolidating management into special port management companies. Also, improve the efficiency of port infrastructure and strengthen international competitiveness by working to promote the aggregation of distribution processing functions to hinterlands and to improve the satisfaction of various services related to port logistics.

- In addition to increasing container terminal capacity, and improving processing capacity, and utilizing IT to comprehensively eliminate congestion around container terminals, examine supply chain conditions and business practices to determine the need to extend terminal gate open hours.
- Develop high-standard trunk road networks, including the ring roads in the three major metropolitan areas. Work to eliminate traffic obstructions for international shipping container loading vehicles. Develop access roads to ports. Facilitate traffic flow by promoting ITS, and promote the effective use of existing highway networks by developing smart interchanges.
- Promote the use of rail and domestic shipping, and promote infrastructure development to enhance transport capacity.

General Logistics Policy Outline (2017 – 2021)

Determined by Cabinet decision in July 2017. Continuing from the previous outline, this contains continued major policies, such as support for the increased efficiency of supply chains and the enhancement of logistics functions. The following seven points are major policy objectives.

- Contribute to the enhanced efficiency and value creation of overall supply chains and the creation of high value-added through the transformation of logistics from competition to co-creation (Modal Connect).
- Realize work style reforms through increased transparency and efficiency in logistics (visualize working condition).
- Realize efficient logistics by strengthening infrastructure functions for effective asset management. (Maintenance).
- Improve the overall function of social infrastructure, including both hardware and software.
- Develop sustainable logistics in response to disaster risks and global environmental issues (Preparedness).
- "Logistics Revolution" through the utilization of new technologies (IoT, BD, AI, etc.) (Revolutionary Change)
- Secure and train personnel and educate the citizenry to deepen their understanding of logistics (Public Awareness for logistics)

The features of this outline require cooperation among business operators, transparency of logistics costs, and a clarification of the need for improved productivity because declining birthrates and the aging society cause shortages in truck drivers. One specific example of this made it possible to reduce costs and secure personnel through joint transportation among business operators. It also notes the need to visualize unseen costs that were borne by truck operators due to waiting times and re-delivery and to allow the collection of costs appropriate to the service. It also targets the long-term utilization of new technologies, such as IoT (the Internet of Things), BD (Big Data), and AI (Artificial Intelligence), which will be used to improve productivity.

In this way, one of the policy objectives includes maintaining logistics as social infrastructure based on future socio-economic circumstances. Also, other specific measures include:

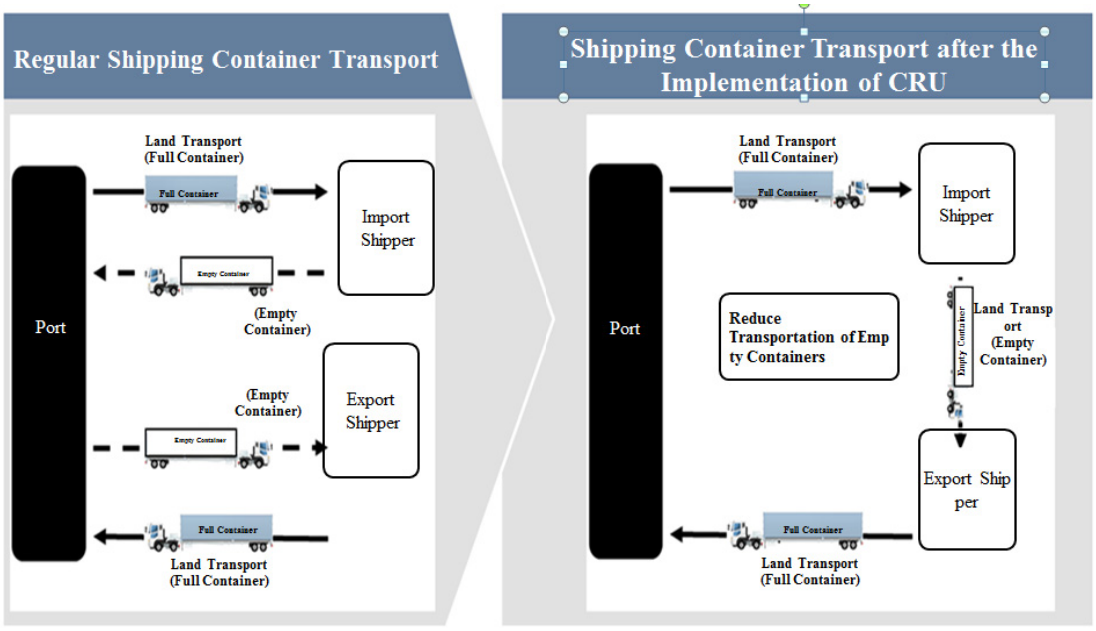
- Promoting modal connectivity to improve connectivity between harbors and roads/rail.
- Promoting efficient port logistics, such as reduced congestion, around container terminals by promoting the use of inland depots and container round use.
- Investigating the need for extensions to gate opening times at container terminals based on supply chain conditions and needs.

These measures contribute to the improved efficiency of hinterland transportation for international shipping container transport. Container Round Use (CRU) refers to the flexible use of empty containers in inland regions to not transport empty containers and to reduce the transportation of empty containers for import and export (see Figure 5.4).

There has been a significant policy shift; efficiency has focused on the policy from the perspective of supporting business operations. However, more and more social aspects, such as labor shortage, working conditions, and preparedness have been emphasized in the policy; logistics is regarded as one significant function to sustain the Japanese economy itself.

While these Outlines are determined by Cabinet decision, formulating execution plans and specific measures are currently left to stakeholders such as government-related entities and local governments that are responsible for various infrastructure and private enterprises. Thus, support for the execution of these objectives is important.

Figure 5.4: Concept of Container Round Use



Legal system: A case of port

In Japan, the development and operation systems for each major infrastructure (roads, rails, airports, and ports) are legislated, and the development and management entities and financial resources for the development of infrastructure are stipulated and well developed. Here, we will look at the example of ports.

The major issues related to the developing and operating of ports in Japan is stipulated in the Port and Harbor Act. Port Administrators, regulated by the Port and Harbor Act, play a central role in developing and operating necessary port facilities through Port Development Projects that are based on Port Plans formulated by the Port Administrator. Port Administrators also play a role in port management.

Port facilities, which are developed by public Port Development Projects, include breakwaters, shipping routes/anchorages, quay walls, port transportation facilities, fixed cargo handling machinery, wharf lots, warehouses, and other port and harbor-related sites. In these cases, facilities are regarded as public; thus subsidies are granted.

On the other hand, buildings, plants, and warehouses used by individual private businesses (port transport operators, logistics operators, and manufacturers) are developed by private businesses (see Figure 5.5). Port transport operators, truck operators, logistics companies, and other private

businesses that utilize these kinds of facilities to handle cargo at ports carry out their own business activities.

Financial subsidies are also available for facilities that are mostly used by private businesses but that have a public character and meet policy objectives. For example, an interest-free loan system allows logistics facilities in port areas to cover development costs if they satisfy certain conditions. These support systems can be utilized to develop logistics facilities in port areas that are divided up by Port Administrators to be used by businesses for storing inventory and distributing processing activities.

The development of hinterland transportation is carried out as part of Port Development Projects on port transport facilities within the port area (usually roads, but in some rare cases may include port rail), but outside of the port area, this development is carried out by Road Development Projects or Rail Operators. Also, the operation of truck and rail businesses is outside of the purview of port administrators, and there is no coordination between different modes of transport. Port Administrators are only partially involved in transportation to inland shippers within a geographical range of a few kilometers on the inland side of the port area; even when they are involved in activities outside of the port area, it is necessary for them to cooperate with other entities that have responsibility for these areas. Good coordination and cooperation with road and rail infrastructure development is an important issue.

The Government (Ministry of Land, Infrastructure, Transport, and Tourism) sets basic policies for developing and operating ports and is responsible for the planning and managing of development and operation systems, including the Port and Harbor Act, the confirmation of port plans, and budgetary measures for Port Development Projects.

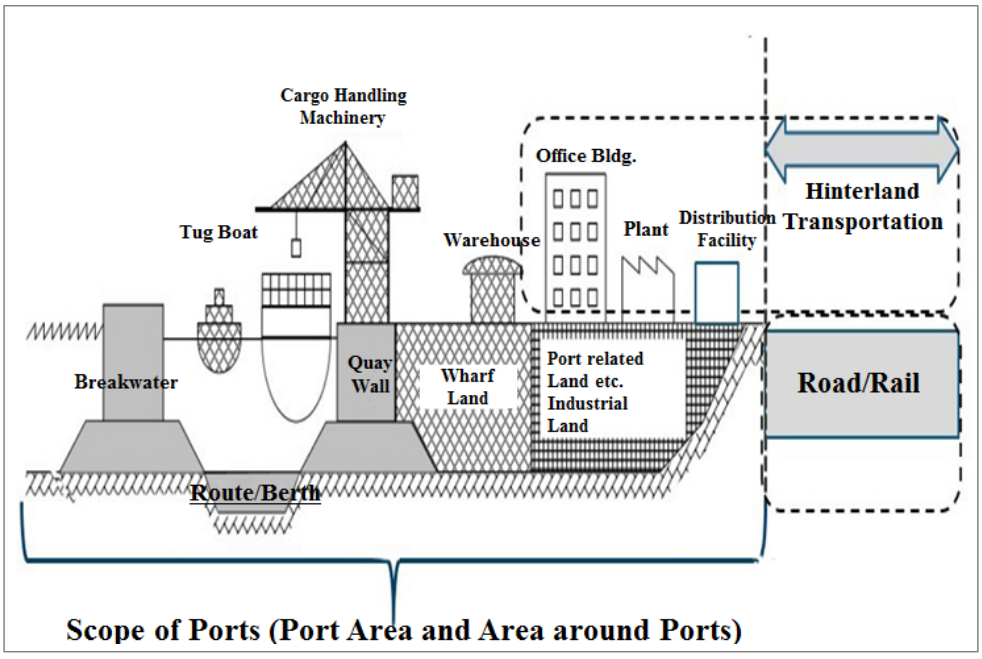
Port Administrators are responsible for developing and managing ports in Japan. They play a role in the operating of ports, managing facilities, and formulating development plans. Many Port Administrators are local governments because ports have historically played a significant role in contributing to local industry.

However, the Port and Harbor Act was revised in Japan in 2011, establishing port management companies for the Keihin and Hanshin Ports. These ports have the status of internationally strategic ports and meet the policy objective of securing core shipping routes.

The purpose of establishing these organizations, unlike the activities of port administrators, was for the port management company to efficiently manage wharfs, such as container terminals, and

to carry out marketing for collection. They were also able to perform non-wharf-related activities such as the developing and operating of distribution facilities with logistics functions. Hanshin Port is developing and operating an inland depot in the Shiga prefecture.

Figure 5.5: Port Development System and Relationship with Hinterland Transportation in Japan



Source: MLIT

We have discussed systems for ports, but those for other infrastructures, such as roads and airports, differ from ports. Hinterland is a unique element for the development and management of ports.

Cases of other private logistics facilities

Well-organized systems have been developed by the legislation for public infrastructure for each transport mode, but there has been quite limited support for other logistics (private) facilities. This is because the business capability of logistics companies is already at a sufficient level in Japan; therefore, their facilities are regarded as private.

JNR (Japan National Rail), a national rail company, was privatized in the 1980s. Currently, railway stations/depots are developed and operated by private entities (JR group). In the trucking sector, such companies sometimes need to secure inland depots or track terminals to manage empty containers. These facilities have been regarded as a pure private business. In the past, some public terminals were developed for this purpose, but they are now privatized.

Also, various logistics firms (forwarding companies, 3PLs, and logistics property developers) develop and manage various types of logistics facilities. In Japan, government support (at central and local government) is normally not applied.

Currently, in Japan, there are very limited cases where development for such private facilities can receive government support; in these cases, the public benefit must be clearly identified and expected. The public benefits include issues like cooperation among firms for higher efficiency or a high degree of efficiency of logistics functions, which bring lower CO2 emissions or other social benefits. These schemes are described in the law, such as the General Logistics Efficiency Act in 2005. This act is not only for international container transport but for various logistics activities in general.

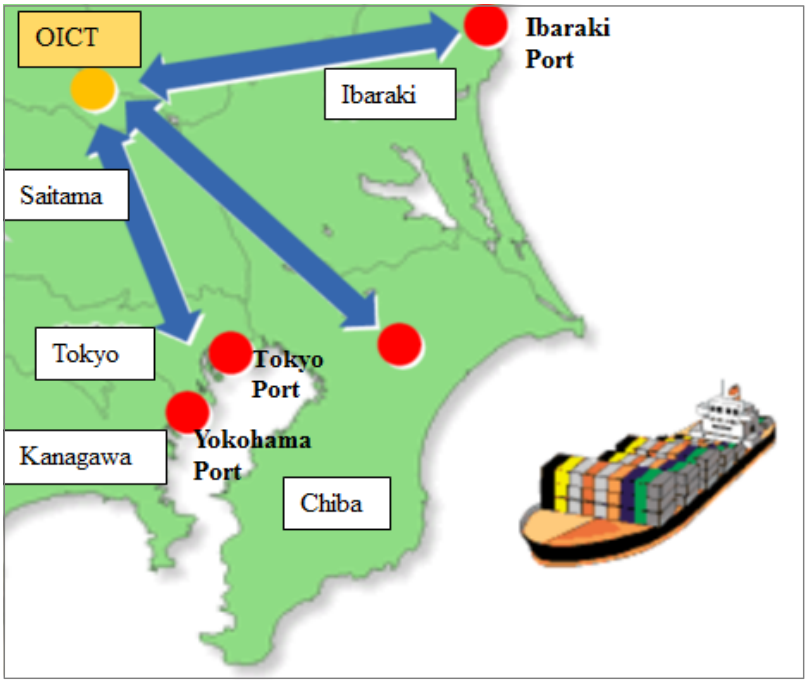
5.5. Case Studies

OICT (Ota International Container Terminal)

OICT is a leading case in Japan. Ota city in Gunma Prefecture is located at the inland area of Japan, about 130 km away from the Yokohama Port (Fig. 5.6). The history of the case goes back to the 1990s. Because some big manufacturers were located in the area, local firms recognized a need to introduce a customs function in this area, and they submitted a request to the local government for negotiation with the customs office.

Backed up by such efforts of local firms, Ota city and the Gunma Prefectural Government decided to develop inland logistics facilities. In order to accommodate the customs function, they needed to build some facilities, and this was the start of the inland logistics facility in Ota city. For this purpose, an organization called OICT (Ota International Container Terminal) was established under financial support by the local public sector in 1999. The facility was opened in 2000. This case is under close cooperation between local firms and local government.

Figure 5.6: Location of Ota City



Source: OICT HP [4)]

At the beginning the function was related to customs, such as bonded warehouses and customs clearance. However, various logistics functions were gradually added, such as cargo handling spaces, temporary stocking spaces, or facilities for value-added functions (Fig. 5.7). The area is about 3.7 ha wide. Even hinterland transport can be arranged (but the transport mode is only by trucks).

One of the striking expansions was the development of an inland terminal for maritime container cargo in 2013 (Fig. 5.7). The area is about 6.6 ha wide and is utilized as an inland depot by shipping companies. The area is considered to be a bonded area for stocking of cargo. Moreover, the facility provides round-use service, and containers can be maintained. According to OICT, this is a significant development of an "inland port." OICT indicates that the case brings advantages not only in higher efficiency of logistics but also in contribution to the local economy and environmental issues.

Figure 5.7: OICT (Inland Port Area)

Source: OICT HP [4)]

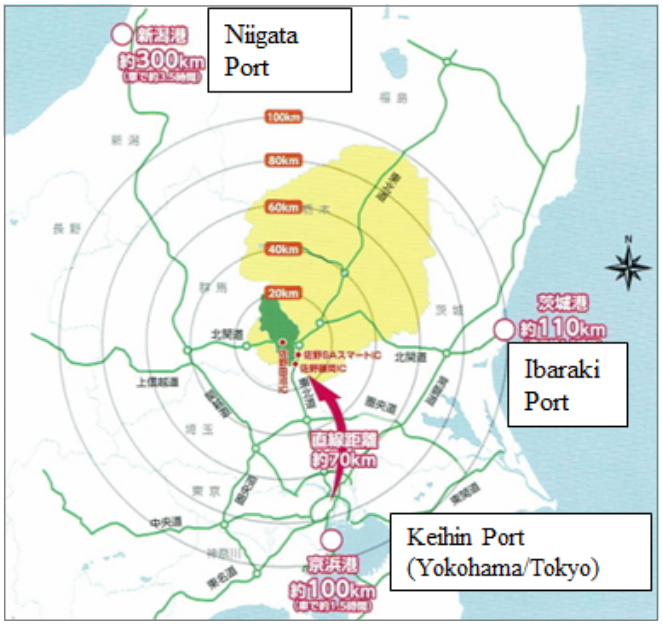
Sano Inland Port

Background

Sano Inland Port (SIP) was opened recently, in November 2017. Sano city in the Tochigi Prefecture is located at the inland area of Japan, about 100 km away from the Yokohama Port. The Sano City Government has taken the initiative to develop the case. Introducing this logistics function to the city was a political agenda. One of the striking features of the development was a focus on the round-use function of containers. Also, the port is conveniently located near a good road network, which is an advantage (Fig. 5.8). By utilizing the highway, shippers can choose other ports such as Ibaraki. In the region, the number of manufacturing firms has increased somewhat, which is also an advantage of this project.

Also, the city expects that a significant number of jobs will be created by this newly introduced logistics facility.

Figure 5.8: Location of Sano

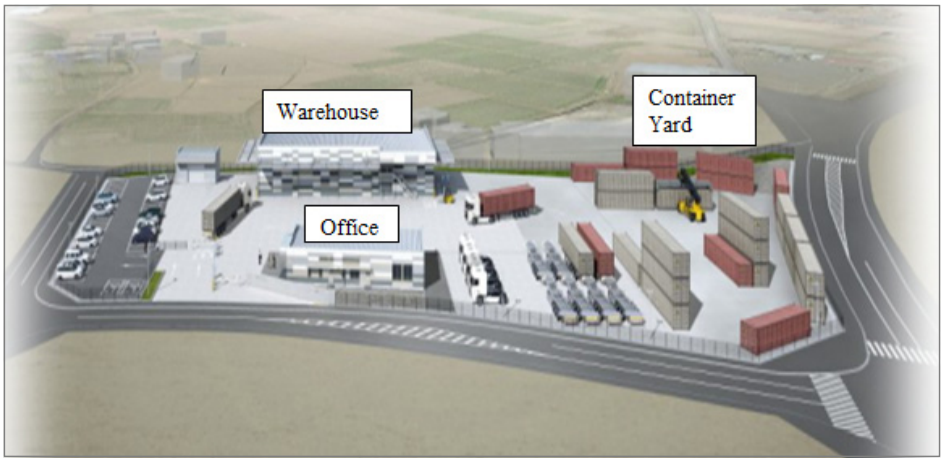


Source: SIP HP

Layout and Components

Figure 5.9 depicts the layout of the first phase. The total area is about 1.1 ha, including a warehouse area that is about 700m2. In the container yard, 200TEU can be stocked. In addition to the round-use function, temporary stock of container/cargo, consolidation, and tracking service to seaports can be provided. From/to the inland port to/from shippers located nearby, distribution service can be arranged.

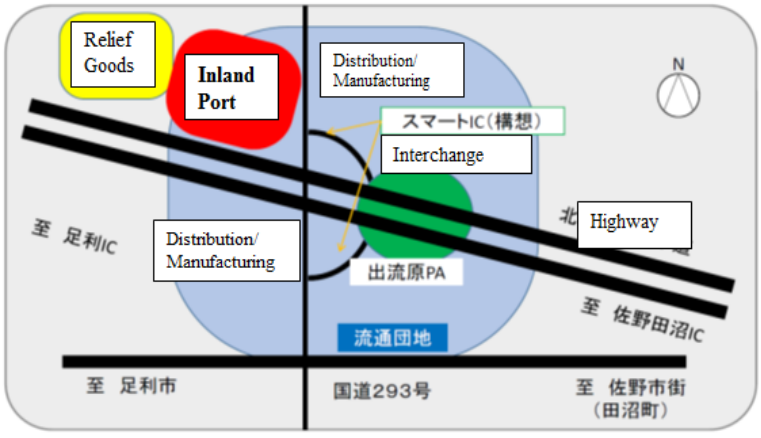
Figure 5.9: Sano Inland Port (1st Phase)



Source: SIP HP

Sano city has a long-term development plan as well, as shown in Figure 5.10. When cargo volume increases, inland ports will be developed near the highway interchange in the future. In this plan, inland ports will function as "ports" or "logistics hubs" in this area. The city will develop distribution facilities as well as industrial zones in this area. Also, emergency relief goods will be stocked.

Figure 5.10: Sano Inland Port (Future Plan)



Source: Sano City

By utilizing the inland port, container transport costs are expected to decrease. This will attract logistics/manufacturing firms to the area, and jobs are expected to be created. This is the long-term strategy of the city.

Development Scheme

The facility (1st Phase) was developed by the city as a public inland terminal. A subsidy from the MLIT was granted partially because the facility forms a part of a container facility that contributes to the efficiency of maritime logistics. The Tochigi Prefectural Government also granted some funding.

The private company that operate the facility was selected by the city. In normal concession schemes, operators pay a fee to the owner of the facility/land; the basic idea is the same for this case. However, the city will consider the financial condition of the operator in case it cannot gain a sufficient profit in the first several years when the demand base is not stable. This is an example of strong interest and intervention by the city government.

Current Status and Challenges

It is too early to evaluate the success of this case. According to the operator, they have tried to

improve the round-use of empty containers. The operator arranged the matching. Some shipping companies are utilizing the facility as a container depot. Also, the operator provides trucking services from/to seaports. Currently, the shortage of truck drivers has been actualized, and the cost is getting higher in Japan. Therefore, the round-use function will be an essential for logistics. The case is expected to help solve such a social challenge; more attention will be paid to this issue.

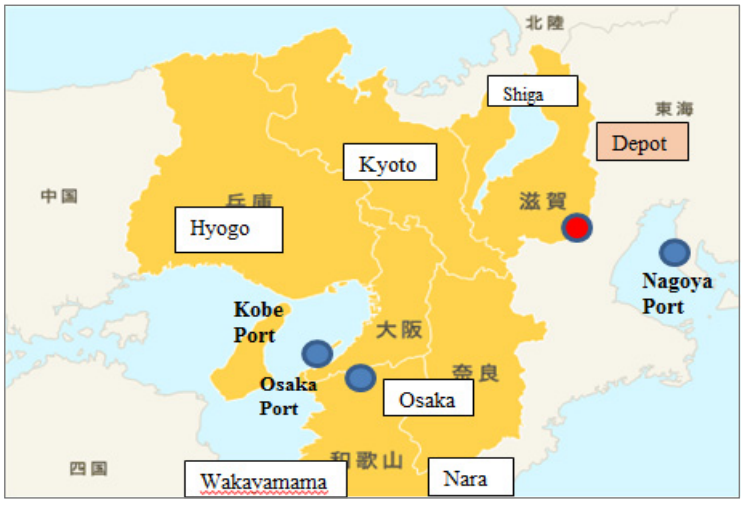
Around Tokyo, port traffic congestion still exists, and the 2020 Olympics game will be held in the same area as the Tokyo Port. Therefore, improving traffic congestion is an urgent challenge that will make round-use function even more significant. Also, good connections to/from seaports are expected. Frequent and reliable services would make this case more successful.

Shiga Inland Depot

The Hanshin-Osaka International Port Corporation (HIPC) was established in 2014 to gain competitiveness of the containers and other terminals of Hanshin Port. Because this organization is implementing government policy, the central government, Kobe city, and Osaka city are shareowners. In particular, marketing is a significant role in this organization.

In order to improve the efficiency of container transport and attract cargo, the HIPC secured container depots, primarily for round-use functions. In 2017, the organization opened a container depot in the Shiga Prefecture, about 130 km from the Kobe Port (Fig. 5.11. The area of the depot (Fig. 5.12) is about 3,000m2. The HIPC secured the facility by itself, and operations are outsourced to a local company. Some shipping companies use the depot. It is unique that a seaport organization is collaborating with an inland terminal.

Figure 5.11: Location of Container Depot



Source: Own Elaboration

Figure 5.12: Layout of the Depot

Source: HIPC [6]

5.6. Challenges and Conclusions

As mentioned previously, there is no development system for dry ports in Japan. This causes some challenges. Firstly, a development system needs to be examined for each case, and a more systematic approach is worth examining. The seaport development system that is based on the Port Law is well established as introduced above.

Secondly, cooperation with seaports shall be the foremost priority. In Japan, the hinterland can only be accessed by road transport. In the case of a rail connection, coordination and cooperation between seaports and dry ports are essential. Dry ports are not well recognized in Japan, although various forms of cooperation are possible. The dry ports side tried to build relationships with seaports, but the seaports side did not necessarily show interest; therefore, coordinating the two sides is a significant challenge.

The following is an evaluation of the logistics policy in Japan. In government organizations, different systems are formed and function for each type of infrastructure. We learned that there was unproductive vertical administration in place in the past, but today, there are mechanisms that allow cooperation between relevant ministries and agencies and between departments within these ministries. The Government is positioned to lead logistics policy where relevant ministries and agencies create drafts that are finally decided on by the Cabinet.

The Government also has control over individual infrastructure, and legislation is in place for its development and operation. In the case of ports, the State Government and Port Administrators

share roles; development resources are explicitly legislated, and all ports in the country function as a complete system because their basic policies are set by the state government. The Central Government considers the arrangement of container ports from a national perspective, taking measures to prevent excessive competition. Other nationwide infrastructures are also managed systematically by the central government.

If the development of hinterland transportation and dry ports continues in the future, it is critical to increase the efficiency of the hinterland transportation. Even if there were, a mechanism would be required to allow stakeholders to cooperate during the development and operation processes.

Hinterland access/dry ports were not well recognized in the past. However, due to the current challenges, such as the shortage of drivers, the issue is gaining social attention. If we look at the current development system of infrastructure, "coordination in the hinterland transport chain" is not necessarily sufficient. In order to make the logistics system in Japan sustainable, research on the subjects should be strengthened to guide future policy.

A serious labor shortage in logistics is predicted for the future, including truck drivers, but at the same time, logistics functions play a significant role in society; the maintenance of these functions will be an important policy issue going forward. For example, in the field of home delivery with Amazon and others, logistics companies are working to improve, and cooperative transportation between companies is also moving forward.

These will become increasingly important issues in the future of hinterland transportation for international container transport and dry ports. Further discussions should address the following issues: how to build hinterland transportation systems from major ports, including conversion to other modes of transport such as railways, that are capable of mass transportation; how this would cooperate with the roles of dry ports; and how this can be systemized throughout the country.

Society is gaining an understanding of these issues, as evidenced by their inclusion in the Logistics Policy Outline. A further challenge is the formation of mechanisms to execute policy, and while government involvement in dry ports in Japan is limited, rising social demands will make the improvement of such mechanisms an issue for the future.

While a system to develop and operate individual infrastructure exists today, it is important to see whether systems for developing and managing hinterland transportation and dry ports will be established and whether cooperation can be secured between modes of transport.

Chapter 6

Legal and Institutional Framework of Dry Port Development in Korea

ChoongYeol Ye
Vice President, the Korea Transport Institute, Korea

Sungmoon Kim
Research Specialist, the Korea Transport Institute, Korea

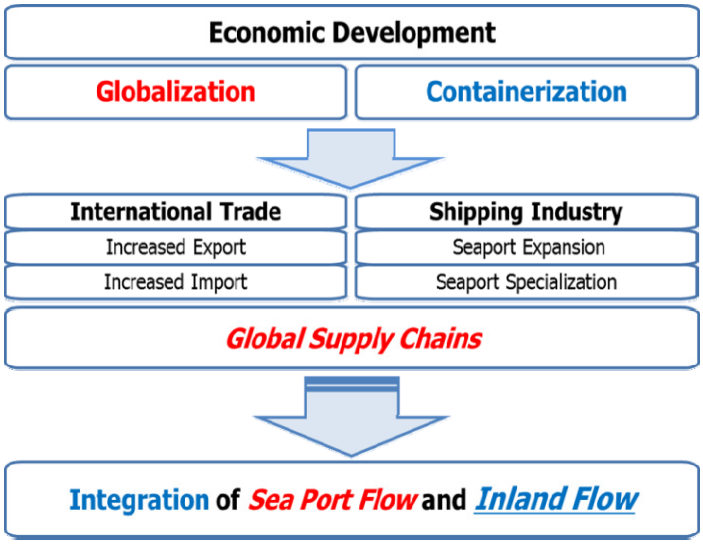
Jiwon Kang
Research Specialist, the Korea Transport Institute, Korea

6.1 Introduction _ 138
6.2 Dry Port Development in Korea _ 140
6.3 The Process of Dry Port Development _ 144
6.4 Case Study: Uiwang ICD _ 145
6.5 Legal and Institutional System for Developing a Dry Port in Korea _ 149
6.6 Conclusion and Suggestions _ 163

6.1. Introduction

As the global economy has grown and maritime trade has become more active, the shipping logistics industry using containers has continued to grow. Seaports have become the most important mode in the international logistics network for linking the marine and land supply chains. Globalization and containerization have led to the development of a global supply chain system that demands integration of seaport flow and inland flow. However, the activation of these ports has caused external effects such as increasing road congestion, difficulties in expanding seaport facilities, and environmental pollution. As a result, it was necessary to deal with the increased import and export volume of seaports and to meet the social needs to solve congestion and pollution around the port areas simultaneously.

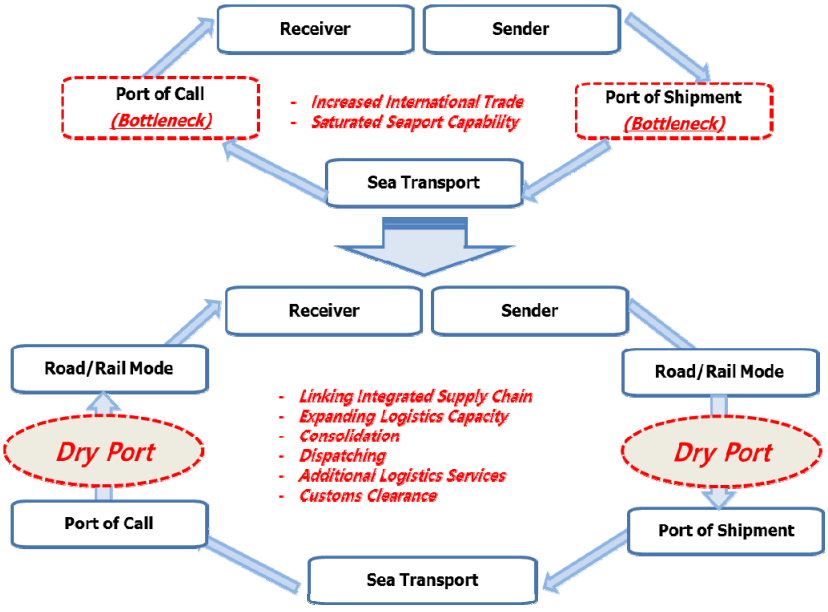
Figure 6.1: Background of Dry Port Development



Source: KOTI Research Team

In order to expand the capacity of the seaport's operation capacity, it is generally necessary to construct new ones or to expand existing ones with investment in equipment. Although the construction of new seaports or the expansion of the existing ones is the most effective measure to increase their operation capacity, those options need huge amounts of financial investment and are time-consuming civil works that are difficult to construct in the appropriate timeframe. The capacity of seaports tends to be saturated in the beginning stage of integrated global supply chains, which makes the ports bottlenecks. Therefore, dry ports are needed to solve this situation. Especially, the operators have been seeking to improve the efficiency of supply chains and resolve the bottleneck situation of seaports with the development of dry ports.

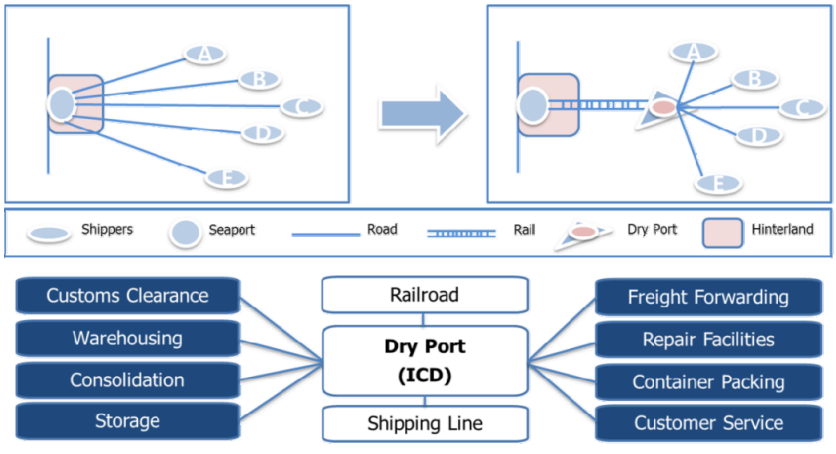
Figure 6.2: Background of Dry Port Development



Source: KOTI Research Team

The dry port concept has been addressed in several articles over the past years. Previous researchers define a dry port as an inland intermodal terminal that is connected directly to seaports with high capacity transport modes, frequently railroad, so that customers can drop off and pick up their cargoes as if directly to a seaport. UN-ESCAP defines a dry port as an inland logistics center directly connected to one or several seaports with one or several modes of transport for the handling, storage, and regulatory inspection of goods moving in international trade and the execution of applicable customs control and formalities.

Figure 6.3: Definition of a Dry Port

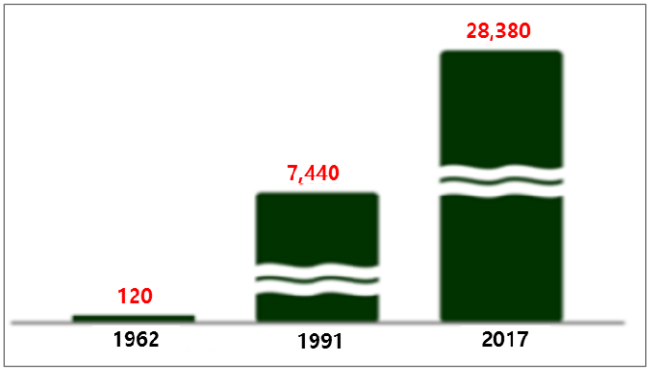


Source: KOTI Research Team

6.2. Dry Port Development in Korea

Korea has been one of the world's most rapidly developing countries for the last 60 years. Korea's per capita gross national income has increased from USD 120 in 1962 to USD 28,380 in 2017 and has grown to become the 10th largest economic power.[23] However, the abduction of resources during the Japanese colonial period and the Korean War in 1950 destroyed Korea's entire major infrastructure, and Korea was the poorest nation in the world at the time. Korea tried to develop the economy by receiving international aid. However, the absence of transportation and logistics systems due to the destruction of the national infrastructure was one of the biggest obstacles to national economic activity.

Figure 6.4: Growth of Per Capita GNI in Korea[24]



Various factors have influenced Korea's economic growth strategy. One of the most important factors is an investment in transportation logistics infrastructure at an appropriate time. Social infrastructure investment for an efficient transportation logistics system, which is essential for economic growth, contributed to economic development by promptly supporting the movement of people and goods. Also, the development of social infrastructures contributed to the balanced development of the country and contributed to the development and operation of the industrial complex specialized in each region.

A five-year economic development plan in the 1970s was a master plan for economic development in Korea. In this plan, investment in transport infrastructure was planned and implemented as the top priority. In 1970, the construction of the Gyeong-bu Expressway connecting Seoul and Busan was constructed, and the construction of logistics facilities including

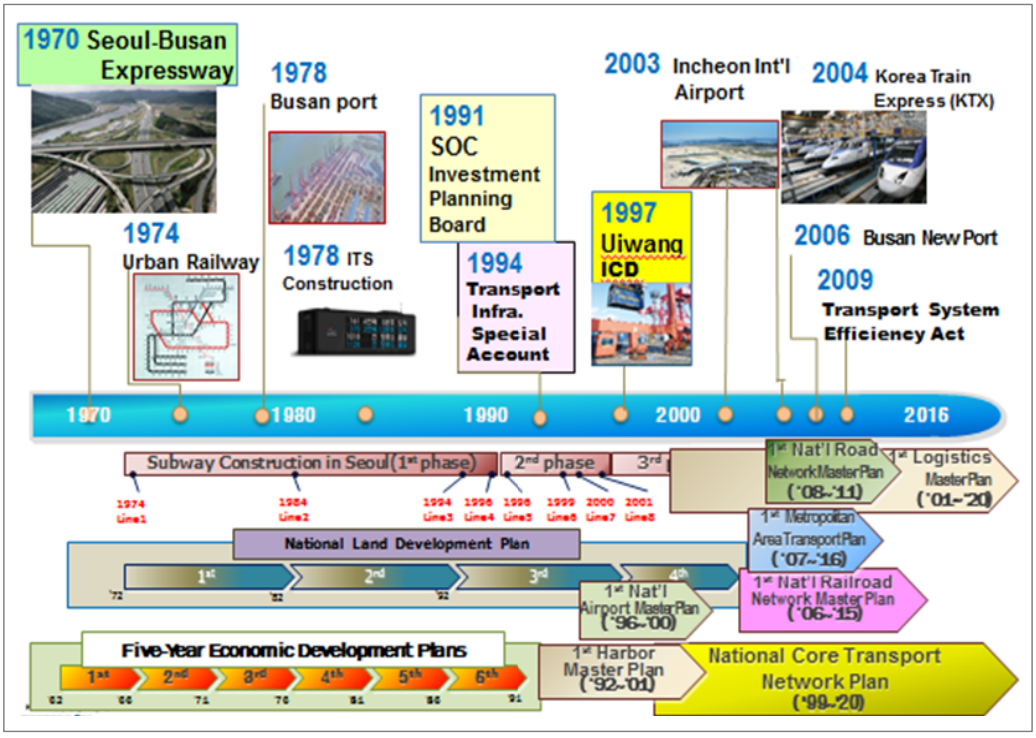
23 https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=KR&view=chart

24 https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=KR&view=chart

urban railways, ports, airports, and inland freight bases followed. The construction of the Gyeongbu Expressway has played a pivotal role in linking the Busan seaport and Seoul, thereby promoting Korea's economic development. The travel time between Seoul and Busan, which took 8 hours before the construction of the Gyeongbu Expressway, decreased to 4 ~ 5 hours. Import and export freight transportation in the Seoul Metropolitan Area was also activated.

After building the Gyeongbu Expressway, Korea established a national road network plan with accessibility to highways within 30 minutes from anywhere in the nation. By completing this plan, it is expected that highways can be accessed within half an hour from most cities and counties in 2020.

Figure 6.5: History of Transport and Logistics Infrastructure in Korea

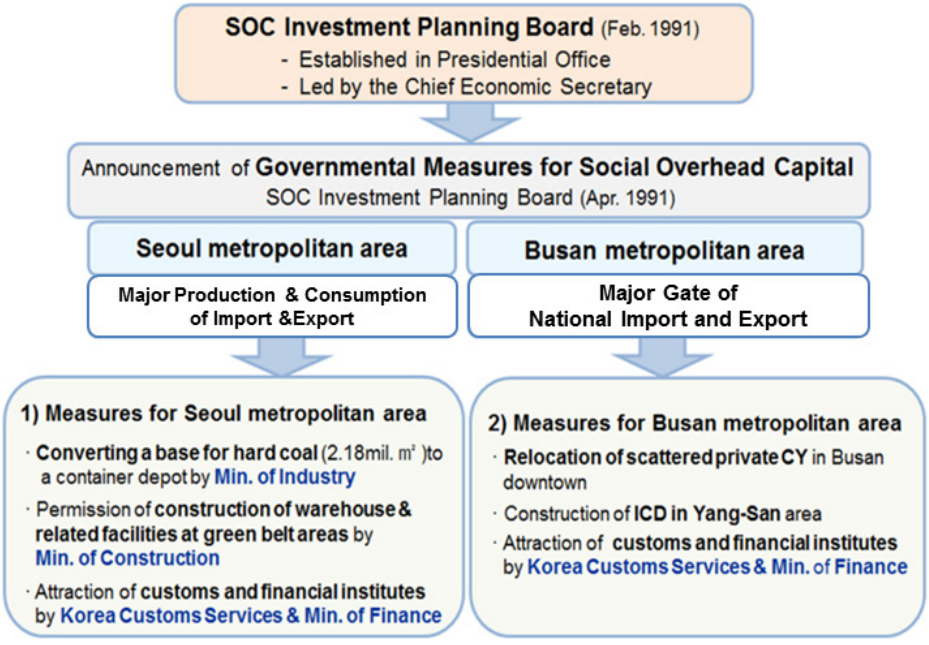


Source: KOTI Research Team

Because Gyeongbu Expressway links the two biggest economic regions in Korea, the Seoul Metropolitan Area has about a half of the population and economic activities of Korea and the Busan Metropolitan Area; it is a gateway of Korea where the world top-class Busan Port is closely linked with a southeast industrial belt that is located along the seaside. Consequently, heavy traffic of containers and general cargoes were concentrated on the corridor, and efficient multimodal transportation between the two regions was required.

Rapidly increased import and export volumes led to the saturated operation capacity in the Busan Port in the 1990s. Heavy congestion and environmental pollution in the surrounding area have been huge social problems. In this regard, measures to prevent these problems were required. So, the Korean Government established the SOC Investment Committee under the direct control of the president in 1991 and responded to the social and economic demands. The SOC Investment Committee announced plans for the government's social overhead capital expenditure, which included dry port development in the Seoul and Busan Metropolitan Areas.

Figure 6.6: SOC Investment Planning Board in Korea



Source: KOTI Research Team

The Ministry of Land, Infrastructure, and Transport established the national logistics facility master plan for 2013~2017 in December of 2012 in order to prevent redundant investment in logistics facilities and to support efficient national logistics systems; it is based on the Act on the Development and Management of Logistics Facilities. According to the master plan, logistics facilities in Korea are categorized into three different types. Unit facilities are the smallest unit logistics facilities such as warehouses, container yards, and logistics terminals. Cluster facilities are complexes that consists of more than two units of facilities including an inland container depot (ICD) and intermodal freight terminal (IFT). Connected facilities include transportation infrastructures that support the freight flow between the pre-mentioned logistics facilities. A dry port can be defined as a cluster facility that has more than two units of facilities.

Figure 6.7: Types of Logistics Facilities in Korea[25]

Unit	Minimum Unit Logistics Facilities; **Warehouse, CY, Logistics Terminal**
Clustered	More than Two Units Logistics Facilities; **ICD, IFT**
Connected	Transport Facilities to support connection; **Road, Railroad etc.**

The Korean Government decided to establish five major inland logistic bases nationwide in order to manage increasing freight demand with national economic growth. The inland container base is a large-scaled logistics facility that can handle connected functions between ports, roads, railways, and airports. It is a comprehensive freight terminal that performs all types of logistics activities and consists of an inland container depot and inland freight terminal. ICD handles import and export cargoes with customs clearance, and IFT handles domestic ones. These inland logistics bases are public-private-partnership projects.

Figure 6.8: Five Major Inland Logistics Bases in Korea[26]

An inland logistics base in the Seoul Metropolitan Area has been the most actively operated among the five bases. The metropolitan area is Korea's largest economic zone with more than 40% of Korea's population concentrated in Seoul. The Uiwang ICD and Gunpo IFT are the inland logistics bases in the capital region. The Incheon Port, Incheon International Airport, and Pyeongtaek Port are located within the Seoul Metropolitan Area, and all major national highways including the Gyeongbu Expressway, Youngdong Expressway, and West Coast Expressway are connected through

25 Sangbum Seo, 2012, 2nd National Logistics Facility Development Master Plan, p. 27.

26 Dongsun Shin, 2002, Study related to Laws and Roles of Government, p. 43.

the area as well. Therefore, Uiwang ICD and Gunpo IFT work as a logistics hub for the Seoul Metropolitan Area, and its role is quite critical from the perspective of national logistics networks.

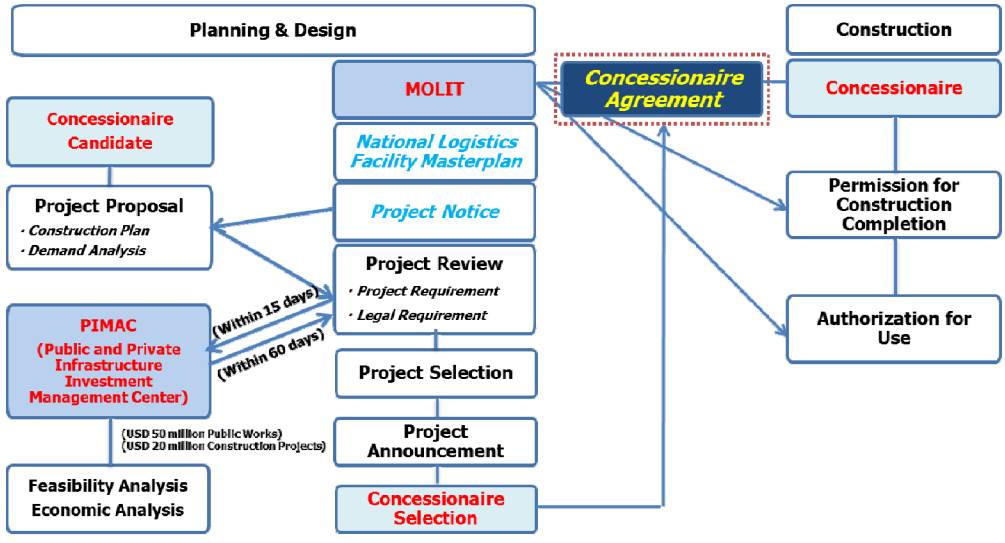
6.3. The Process of Dry Port Development

The Ministry of Land, Infrastructure, and Transport (MOLIT) will establish a national logistics masterplan for logistics facility development in Korea, and when there is demand for the logistics facility based on the plan, the MOLIT will make an announcement of the project notice to the public. The potential concessionaire will make its project proposal for developing logistics facilities t and submit it to the MOLIT for project review.

The MOLIT will conduct a review process under the project and legal requirement. If the project is a public work with more than USD 50 million or a construction project with more than USD 20 million, the MOLIT should submit a request to the Public and Private Infrastructure Investment Management Center (PIMAC) to conduct a feasibility and economic analysis within 15 days, and the PIMAC should report the results to the MOLIT within 60 days.

The logistics development project will be selected after the review process, and the project will be announced to the public to invite project concessionaires on bidding. A concessionaire agreement will be made between the MOLIT and a confirmed concessionaire to launch a PPP-type logistics facility project.

Figure 6.9: Process of Dry Port Development



Source: KOTI Research Team

6.4. Case Study: Uiwang ICD

Korea began to grow rapidly from the 1960s, so it pursued the construction of a national transportation network as the major national policy for economic development. Such rapid economic growth and the construction of the national transportation network caused a drastic increase in the amount of domestic and international freight transports in Korea. This increase led to huge urban logistics problems in the Seoul Metropolitan Areas, where more than 40% of Korea's population is concentrated. The Uiwang ICD was constructed to alleviate the logistics problem and to handle more efficiently import and export freight from the Busan Port to Seoul metropolitan areas or vice versa.

Figure 6.10: Location of Uiwang ICD in Korea

Source: KOTI Research Team

Uiwang ICD was the first dry port development project in Korea; therefore, the way it developed was a little bit different from those recently developed. The final decision of Uiwang ICD development was confirmed by Social Overhead Capital Committee under the president in 1991. The concept of public and private partnerships was not formed in Korea at that time, so the Special Purpose Company (hereinafter SPC) named as Uiwang ICD Co., Ltd was established for Uiwang ICD construction. Stakeholders of the SPC consist of public and private sectors. A stakeholder from the public sector is Korea Railway, which is a government-owned public company with 25% of equity. Stakeholders from the private sector are 15 private logistics companies. The government provided land owned by Korea Railway to SPC for ICD development. Korea Railway, which is a stakeholder from the public sector, was in charge of financing base facilities, including roads and railway, while stakeholders from the private sector were in charge

of financing building and logistics facilities in ICD with their construction costs paid proportionally according to their ratio of shares. The government permitted the SPC to use the developed ICD for 30 years, and the ICD will be returned to the landowner, Korea Railway. Thus, 15 private logistics companies received their right to operate their logistics business in Uiwang ICD, and land spaces for their business were allotted according to their ratio of shares. In this regard, the type of investment for Uiwang ICD development can be concluded as build-operate-transfer (BOT).

Table 6.1 Equity Structure of Uiwang ICD Co., Ltd[27]

(Unit: million Korean Won)

Category	May 1st, 1992 (established)		Dec. 31st, 2016	
	Price	Ratio	Price	Ratio
Public	963	25%	1,250	25%
Private	2,887	75%	3,750	75%
Total	3,850	100%	5,000	100%

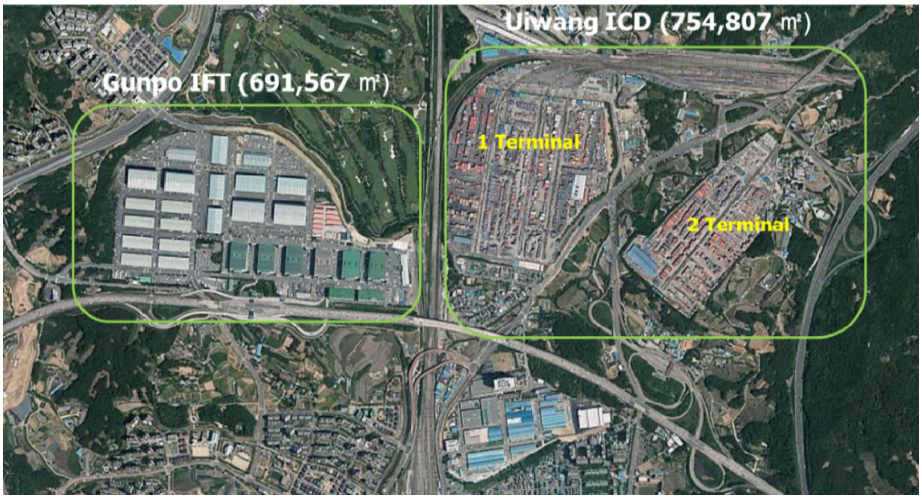
Uiwang ICD in the Seoul Metropolitan Area is the biggest inland logistics facility in Korea. The main functions of Uiwang ICD can be categorized into the collection, storage, and classification and sorting of cargo, customs clearance for import-export cargo, simplified bonded transportation, railway transportation depots, bill of landing issuance, and vegetation quarantine. Uiwang ICD Co., Ltd takes full responsibility for the overall operation, and 17 companies with railway transport licenses take charge of actual transportation. The facility is considered as an extension of piers in Busan Port to inland areas.

One of the significant roles of Uiwang ICD is a complementary facility of the Busan Port. Specifically, the mitigation of customs procedures in Busan Port, Anyang Customs in Uiwang ICD is in charge of customs clearance on behalf of Busan Port. Railway transportation from the Busan Port to Anyang Customs in Uiwang ICD is a simplified bonded transportation. The rate of using ICD for weight cargo has steadily increased with the merit of bonded rail transportation.

There are eleven industrial railway tracks within Uiwang ICD, and the total length of the railway is 6,262 meters. The ICD can be divided into Terminal 1 and Terminal 2, and each terminal has container yards, container freight stations, and common facilities and roads, respectively. The ICD has 96 refrigeration facilities that consist of 72 units of 440V and 24 units of 220V. The capacity of Uiwang ICD is approximately 1.3 million TEU per year. In Terminal 1, currently, 10 total logistics companies are using the facilities, and four logistics companies use facilities in Terminal 2.

27 Accounting Note of 2016 Accounting Audit Report of Uiwang ICD Co., Ltd.

Figure 6.11: Uiwang ICD and Gunpo IFT



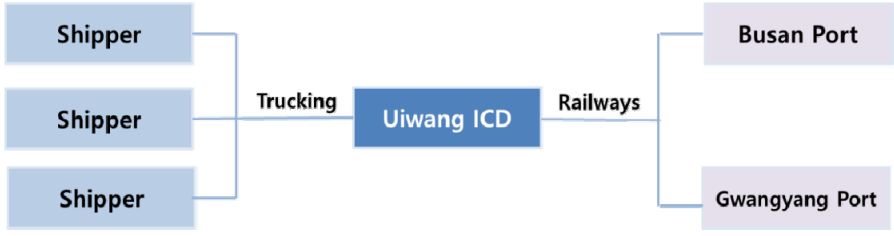
Uiwang ICD consists of two terminals. Terminal 1 has about 490,000 m2, and Terminal 2 has about 260,000 m2, respectively. The total area of CY is about 387,932 m2, and the port railway contains 11 lines. Ninety-six facilities for reefer containers were installed. The port railway is a place where trans-shipment processes are performed for the purpose of mass transportation of containers through the railway. Generally, it is common to arrange the port railway and CY in close proximity because of the container handling linkage.

In the case of Uiwang ICD, there are eight lines in Terminal 1. These diverge into two lines, three lines, and three lines, as shown in the figure below. In Terminal 2, three lines are available. A rich stacker carries containers up and down two lines, and RTC is used for three lines.

Figure 6.12: Railways of Uiwang ICD Terminal 1

Railways are used for freight movement between the Busan or Gwangyang Ports and Uiwang ICD, and Trucking is used between Uiwang ICD and shippers in the Seoul metropolitan area. Logistics cost and time can be saved with the shippers.

Figure 6.13: Structure of Uiwang ICD Operation[28]



Total container throughput of Uiwang ICD was 938,895 TEUs in 2016, and the ratio of the share of trucks and railroads was 59.6% and 40.4%.[29] The total throughput has been in a downturn since 2013 due to the effort of reducing empty containers.

Table 6.2 Total Container Throughput of Uiwang ICD[30]

(Unit: TEU)

	2012	2013	2014	2015	2016
Railroad	527,731	495,464	444,585	448,622	379,676
Truck	564,396	583,659	563,175	536,073	559,219
Total	1,092,127	1,079,123	1,007,760	984,695	938,895

Total container throughput by the railroad of Uiwang ICD was 379,676 TEUs in 2016 and the ratio of the share of arrivals and dispatches was 44.4% and 55.6%.[31] The total throughput by railroad has been in a downturn from 2013 with an effort to reduce the number of empty containers by Korea Railway, which is a major shareholder and an operator of railway facilities in Uiwang ICD.

28 http://www.uicd.co.kr/10_introduction/10_tran.html
29 http://www.uicd.co.kr/40_search/40_info2.html
30 http://www.uicd.co.kr/40_search/40_info2.html
31 http://www.uicd.co.kr/40_search/40_info2.html

Table 6.3 Total Container Throughput by Railroad of Uiwang ICD[32]

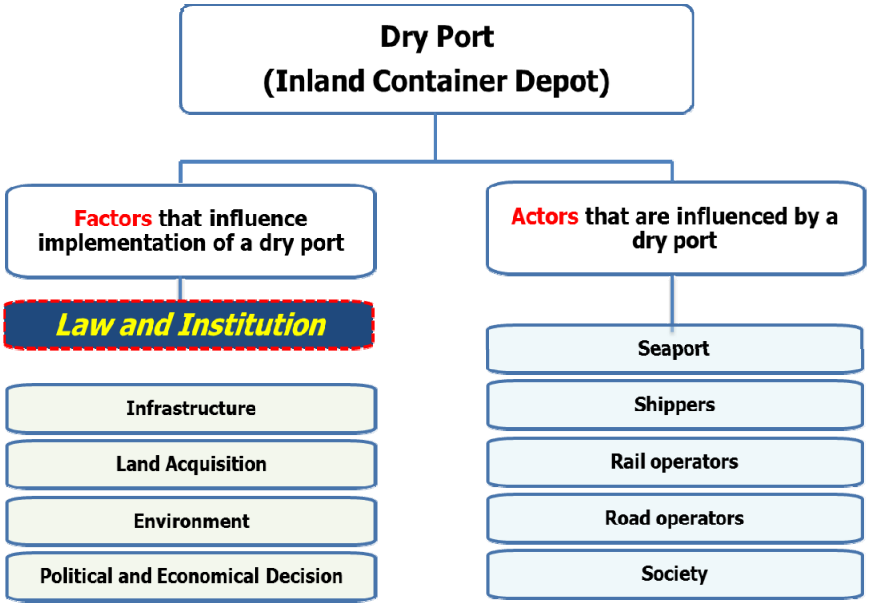
(Unit: TEU)

	2012	2013	2014	2015	2016
Arrival	243,067	222,721	193,391	202,051	168,648
Dispatch	284,664	272,743	251,194	246,571	211,028
Total	527,731	495,464	444,585	448,622	379,676

6.5. Legal and Institutional System for Developing a Dry Port in Korea

It can be said that there are factors and actors for dry port development. Seaports, shippers, rail operators, road operators, society and others are actors that are influenced by a dry port laws and institutions, infrastructure, land acquisition, environment, and political and economic decisions are factors that influence the development of a dry port. Laws and institutions are the basis for all factors of dry port development. Appropriate laws and institutions are needed for successful dry port development. Korea has modified its laws and institutions regarding logistics facilities development according to social and administrative demands.

Figure 6.14: Actors and Factors for Dry Port Development in Korea



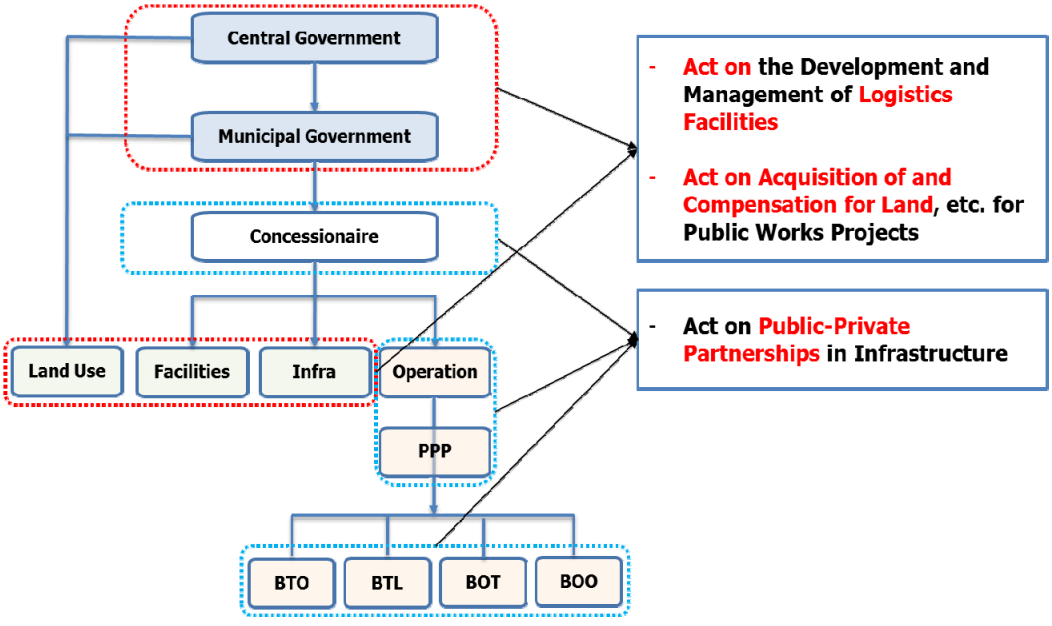
Source: KOTI Research Team

32 http://www.uicd.co.kr/40_search/40_info2.html

The procedures and methods used to develop dry ports in Korea are based on a legislative system related to three major Acts: (1) the Act on the Development and Management of Logistics Facilities, (2) the Act on Private Participation in Infrastructure, and (3) the Act on Acquisition of and Compensation for Land for Public Works Projects. The Act on the Development and Management of Logistics Facilities was revised in 2007 to reflect changes from the previous legislation under the Promotion of Distribution Complex Development Act from 1995. The Act on Private Participation in Infrastructure was drafted in 1998 to reflect changes to the Promotion of Private Capital into the Social Overhead Capital Investment Act that was established in 1994. The Act on Acquisition of and Compensation for Land for Public Works Projects was established in 2003 and has been revised as needed.

The general process for dry port development includes planning, authorization, construction, operation, and financing. The three Acts are applied to the logistics facility development process in Korea according to each role and need. The Act on the Development and Management of Logistics Facilities is applied to processes for project planning, government authorization, facility construction, and operations. The Act on Private Participation in Infrastructure is applied to concessionaire agreements and project financing. The Act on Acquisition of and Compensation for Land for Public Works Projects is applied to securing land space and resolving legal conflicts for land compensation. This chapter explains details of each Act and their major articles for logistics facility development, including dry ports.

Figure 6.15: Major Acts Applied to Dry Port Development in Korea



Source: KOTI Research Team

The Act on the Development and Management of Logistics Facilities

The purpose of the Act on the Development and Management of Logistics Facilities is to strengthen national competitiveness and to contribute to the balanced national economic development. The Act was established to support the development of the national economy by rationally laying out management and operational procedures for logistics facilities, effectively supplying the land for logistics facilities and facilitating the development of the logistics industry. The main points for this Act are guidelines for the registration of complex logistics terminal businesses, authorization and support for development, and activation of complex logistics terminal businesses.

According to the Ministry of Land, Infrastructure, and Transport, dry ports including ICDs are clustered for regional logistics facilities with more than two equivalent units. Therefore, dry ports shall be applied as logistics terminals or logistics complex facilities, and dry port operating corporations as logistics terminal businesses under the Act on the Development and Management of Logistics Facilities. Under Article 2, these terms are defined as follows:

- **Logistics Terminal:** A facility that has functions required for consolidating, loading, and unloading cargo and functions required for sorting, packing, storing, processing, and assembling cargo, or clearing customs for cargo in relation to the aforementioned functions: Provided, that facilities for processing and assembling shall be those equivalent to or smaller than the scale specified by Presidential Decree.[33]
- **Logistics Terminal Business:** A business of running a logistics terminal, which is divided into complex logistics terminal business and ordinary logistics terminal business. Not only support and auxiliary facilities within the airport zone and harbor zone but also facilities for the transportation, loading, unloading, or storage of cargo which a railroad enterprise operator uses shall be excluded from logistics terminal business. Facilities for the collection and delivery or a joint collection and delivery center shall be excluded as well.[34]
- **Logistics Complex Facilities:** Facilities installed within a logistics complex for transporting, consolidating, loading, unloading, sorting, packing, processing, and assembling cargo, clearing customs for cargo, storing and selling cargo, processing information for cargo, etc.[35]

33 ACT ON THE DEVELOPMENT AND MANAGEMENT OF LOGISTICS FACILITIES Article 2 (Definitions).

34 ACT ON THE DEVELOPMENT AND MANAGEMENT OF LOGISTICS FACILITIES Article 2 (Definitions).

35 ACT ON THE DEVELOPMENT AND MANAGEMENT OF LOGISTICS FACILITIES Article 2 (Definitions).

All logistics facilities in Korea, including dry ports, shall be built in accordance with a comprehensive plan for the development of logistics facilities (hereinafter referred to as the "Logistics Facility Development Plan"). The Logistics Facility Development Plan is drawn up by the Ministry of Land, Infrastructure, and Transport (MOLIT) and is updated every five years. If a proposed logistics facility project is not included in the plan, it cannot be disqualified for getting permission for project proposal from the MOLIT.

When the MOLIT establishes a logistics facility development plan, it shall be discussed with the head of the relevant central administrative department after the department has collected plans and opinions that contain input from the heads of the local government. Lastly, the MOLIT shall confirm the plan as an official Logistics Facility Comprehensive Plan after deliberation by the Logistics Facilities Subcommittee. The plan should be aligned with the National Logistics Master Plan and should include the following contents:

Matters concerning the future demand for logistics facilities.

- Matters concerning policies for the supply of logistics facilities.
- Matters concerning the designation and development of logistics facilities.
- Matters concerning the layout and priority of logistics facilities by region, scale, and year.
- Matters concerning the improvement of functions and efficiency of logistics facilities.
- Matters concerning the joint operation and clustering of logistics facilities.
- Matters concerning the establishment of domestically and internationally linked transportation networks of logistics facilities.
- Matters concerning the environmental conservation and management of logistics facilities.
- Matters concerning the improvement and relocation of urban logistics facilities to suburbs.
- Other matters specified by Presidential Decree.

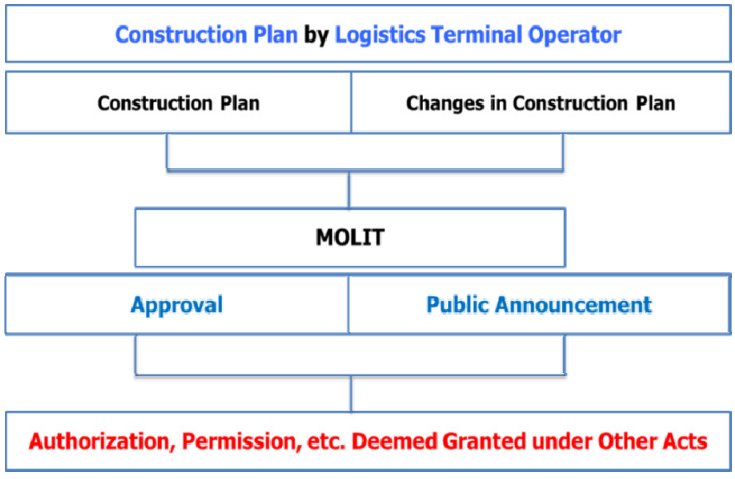
Any business operator who is registered as a complex logistics terminal operator shall establish a construction plan and obtain a construction approval from the MOLIT. When there is a change in the construction plan, the registered company must obtain approval from the MOLIT. The MOLIT shall decide whether to approve the construction plan or changes in the plan after consultation with the head of the appropriate local government entity. If the complex logistics terminal operator does not receive the mandatory approval on construction plans or changes to construction plans from the appropriate government office, its business registration can be revoked.[36]

36 ACT ON THE DEVELOPMENT AND MANAGEMENT OF LOGISTICS FACILITIES Article 9 (Authorization for Execution of Projects).

Matters on which the MOLIT or a Mayor/Do Governor consults with the heads of the relevant administrative agencies are pursuant to authorization, permission, approval, or decision at the time the agency grants authorization for the execution of construction or revision. Authorization, permission, approval, or decision, shall be deemed granted by the relevant agency, as well as the public notice of authorization for the execution of construction or revisions.[37]

The central or local government can support development and activation of logistics complex facilities, including dry ports, in both direct and indirect ways. Financial support includes granting loans or funds for construction and expansion of logistics complex facilities as well as their expansion or improvement of scale, structure, or equipment. Administrative support for dry port development can be obtained by requesting the competent mayor or governor to cooperate in securing the project site or installing urban or local planning facilities necessary for project development.

Figure 6.16: Collective Authorization for Dry Port Development in Korea



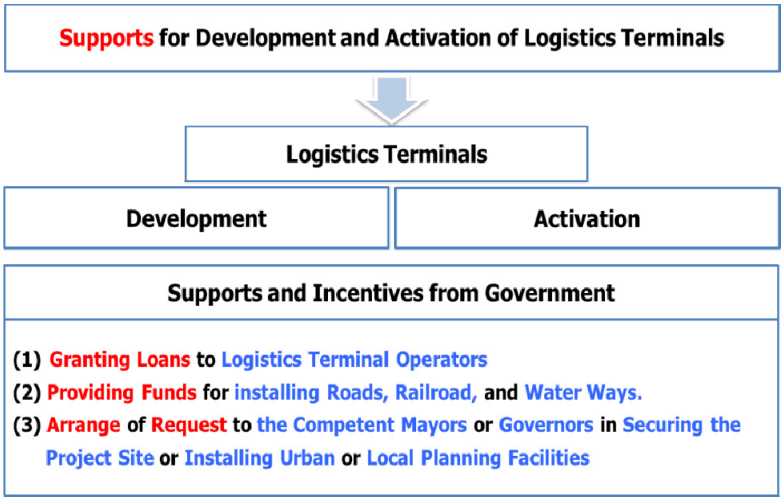
Source: KOTI Research Team

The funding needed to install or improve infrastructures, such as roads, railways, and water facilities, to activate logistics terminals can be supported by the central or local government. Administrative support for the activation of terminals also includes granting authorization for the installation of a manufacturing facility and its ancillary facilities in logistics terminals or logistics complex facilities.[38]

37 ACT ON THE DEVELOPMENT AND MANAGEMENT OF LOGISTICS FACILITIES Article 21 (Authorization, Permission, etc. Deemed Granted).

38 ACT ON THE DEVELOPMENT AND MANAGEMENT OF LOGISTICS FACILITIES Article 20-2 (Support for Activation of Logistics

Figure 6.17: Supports and Incentives for Dry Port Development in Korea



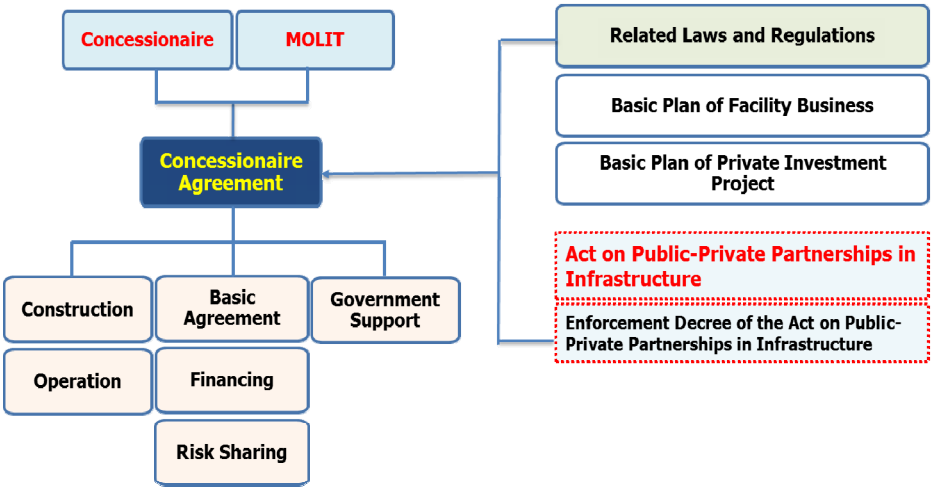
Source: KOTI Research Team

The Act on Public-Private Partnerships in Infrastructure

The purpose of the Act on Public-Private Partnerships in Infrastructure is to contribute to the development of the national economy by encouraging the efficient construction and operation of infrastructure. The Act is intended to encourage economic development by introducing private sector investments into the national infrastructure. The Act defines terms and conditions regarding the implementation methods of PPP projects and supplementary projects as well as the incorporation of PPP Project Corporation and its rights. The framework of the Act consists of the selection of a concessionaire at the initial stage of the project, the management and operation of the project, and the financial support for private investments. A concessionaire agreement that is mostly based on the act on Public-Private Partnerships in Infrastructure is concluded between the competent authority and a potential concessionaire to implement a public-private partnership project concerning the conditions for the implementation of a PPP project.

Terminals).

Figure 6.18: Concessionaire Agreement and Related Laws



Source: KOTI Research Team

This section describes the process for selecting and approving PPP projects under the Act on Public-Private Partnerships in Infrastructure. The contents of this chapter will include addressing master plans for PPP and designation of potential PPP projects. This will be followed by articles regarding laws that address the PPP master plan, processes for designating the concessionaire, and confirmation of PPP project implementation and construction completion. Lastly, the government supports needed for PPP financing according to the PPP Act will follow.

Master Plan for PPP Projects and Designation of Potential PPP Projects

The government should establish and publicize the master plan for the private investment project and determine the final project budget before the fiscal year.[39] Also, the master plan should include a discussion of the private investment policy as it relates to social infrastructure, the scope of investment, methods, and conditions for the project, matters concerning the management and operation of the project, and other policies related to private investment projects.[40]

In terms of promoting social infrastructure projects within the PPP framework, the competent authority shall designate the projects and ensure that project facts are disseminated to the public. Projects that receive private investment shall be considered with regard to mid- and long-term

39 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 7 (Formulation and Public Notification, etc. of Master Plans for Public-Private Partnerships in Infrastructure).

40 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 8 (Details of Master Plans for Public-Private Partnerships in Infrastructure).

plans for social infrastructure to ensure that they are profitable enough to encourage the participation of the private sector.[41] The private sector can propose a project to implement with private funding if it is not included in the projects established by the competent authority.[42]

When recognizing an opportunity for private sector investment in infrastructure projects, the competent authority shall develop a master plan for PPP facility projects within one year after the potential project is designated. The master plan is subject to the deliberation of the PPP committee.[43] The master plan for PPP facility projects shall include the following:[44]

- Matters concerning the estimated investment amount of solicited projects and matters concerning construction, such as the duration, location, and scale thereof.
- Matters concerning the result of preliminary feasibility studies and feasibility studies of the solicited project.
- Matters concerning the profits of the concessionaire, such as the user fee, and supplementary projects.
- Matters concerning the implementation method involved in a public-private partnership project, including the designation or non-designation of a facility as a revertible facility.
- Matters concerning the State or local government subsidies, such as the amount and the method thereof.
- Matters concerning the management and operation of the infrastructure facilities which were constructed through a public-private partnership project.
- Matters concerning the eligibility of the concessionaire.
- Other matters which the competent authority deems necessary.

Designation of Concessionaires and Incorporation of Public-Private Partnership Project Corporation

Those who intend to conduct a PPP project shall prepare a project plan and submit it to the competent authority. The competent authority shall then select the concessionaire from the pool of applicants who submitted business plans. If a project plan includes conditions that are aligned with the public interest of the competent authority, the long-term investment fund for that project shall be evaluated with preference. The competent authority shall then establish a

41 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 8-2 (Designation of Potential Public-Private Partnership Project).

42 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 9 (Unsolicited Project Proposal, etc. by Private Sector).

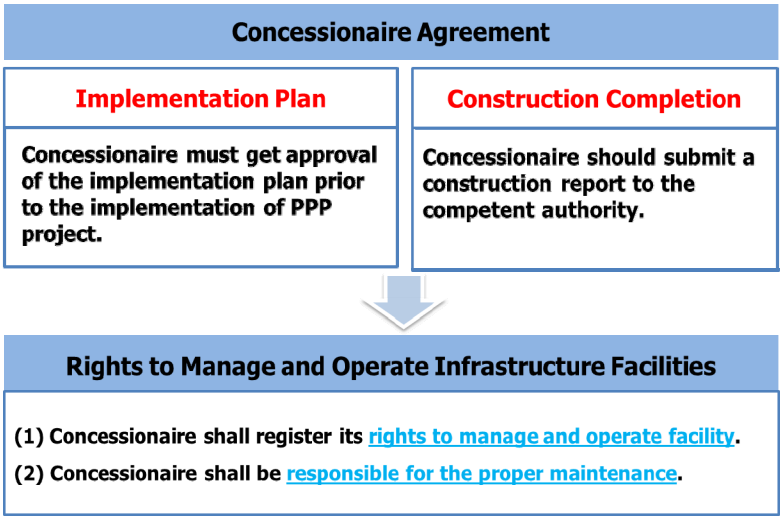
43 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 10 (Formulation and Public Announcement, etc. of Master Plans for Public-Private Partnership Facilities Project).

44 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 11 (Specifics for Master Plan for facilities Project).

concession agreement with the designated negotiator. The agreement shall include the conditions for the implementation of the project, including the total cost and period of use. The concessionaire shall be designated after deliberation of the PPP committee. As the designated project developer, the concessionaire must apply for approval of the implementation plan to the competent authority.[45]

A concessionaire can incorporate a corporation to conduct a PPP project. In such cases, the concessionaire shall include the incorporation plan in its project plan when submitting it to the competent authority. The corporation of the concessionaire shall be incorporated before applying for approval of the implementation plan. The incorporated corporation cannot conduct any business other than the business recognized by the competent authority when the concessionaire is designated.[46]

Figure 6.19: Concessionaire Agreement and Right to Manage and Operate



Source: KOTI Research Team

PPP Project Implementation and Confirmation of Construction Completion

As described previously, the concessionaire must receive approval on the project implementation plan from the competent authority prior to the implementation of the PPP project.[47] When the competent authority approves the implementation plan, it shall be deemed that the

45 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 13 (Designation of Concessionaire).

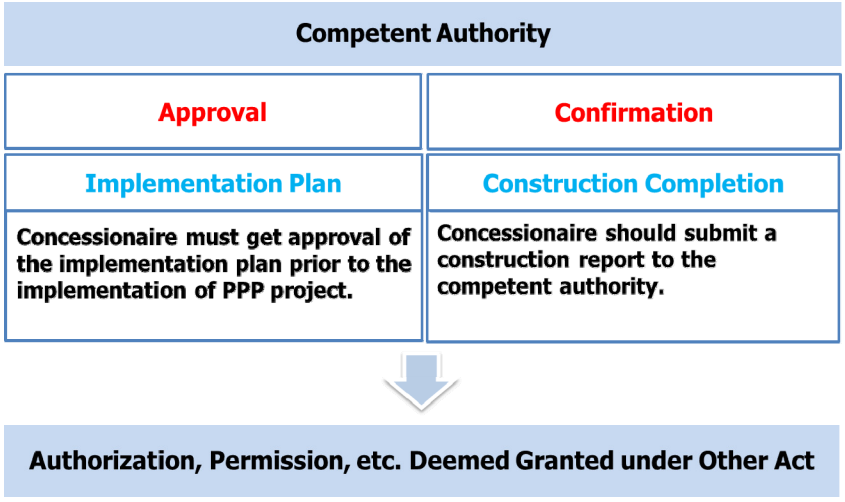
46 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 14 (Incorporation of Public-Private Partnership Project Corporation).

47 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 15 (Approval or Approval of Modification, etc. of Specific Implementation Plan).

concessionaire has received the legal authorization to carry out the project. However, the concessionaire must prepare notices in accordance with relevant laws.[48]

When a concessionaire completes a project in accordance with the notified implementation plan or completes an auxiliary project approved by the competent authority, it shall submit a construction completion report to the competent authority and obtain a completion confirmation. The competent authority shall conduct the completion inspection and issue a certificate of completion to the concessionaire. Acquisition of the completion inspection certificate signifies completion and approval of the project. The concessionaire cannot use the land and social infrastructure established or installed as part of the PPP project before issuance of the completion certificate without prior approval of the competent authority.[49]

Figure 6.20: Authorization and Confirmation of Competent Authority to Concessionaire



Source: KOTI Research Team

Private investment facility projects shall be managed and operated in accordance with the provisions of the Concession Agreement.[50] The use of facilities is classified based on the type of private investment project. In BTO and BTL schemes, which are the most common types of partnerships, the concessionaire is granted the right to manage and operate the infrastructure facilities and to collect the user fee for a certain period.

48 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 17 (Authorization, Permission, etc. Deemed Granted under Other Acts).

49 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 22 (Confirmation of Construction Completion, etc.).

50 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 24 (Management and Operation of Infrastructure Facilities).

Facility Use of PPP Projects

Under BTO agreements, the concessionaire can use the project facility free of charge for a certain period of time after completion. Under BTL agreements, the concessionaire can own the project facility and generate profits for a certain period of time after completion of the facility within the scope of total project investment expenses.[51]

Right to Manage and Operate Infrastructure Facilities

Under both BTO and BTL agreements, the concessionaire shall be granted the rights to manage and operate the infrastructure facility of the PPP project (hereinafter referred to as "management operation right"). The concessionaire shall register its management operation right to the competent authority and be responsible for the proper maintenance and management of the facility.[52] The competent authority cannot change the provisions of the management operation right except in cases where the central or local government directly or publicly permits use on the Presidential Decree.[53]

In order to finance PPP projects, the government installs an industrial credit guarantee fund to ensure the smooth procurement of private investment funds with governmental credit guarantee on financial obligations of private investors. The Korea Credit Guarantee Fund shall manage the funds and develop a plan for the operation of the fund under the Ministry of Strategy and Finance until the commencement of the fiscal year.[54]

Establishment and Management of Infrastructure Credit Guarantee Fund

The Infrastructure Credit Guarantee Fund, managed and operated by Korea Credit Guarantee Fund, is funded by contributions from central and local governments, contributions from other institutions, guarantee fees, and borrowings from financial institutions or other funds.[55]
This fund can be used for the purpose of guaranteeing loan obligations, repayment of principal and interest on loans, expenses for the establishment, operation, and management of the fund, research and development for the promotion of the fund, and the development of the private investment system.[56]

---

51 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 25 (Use of Facilities).

52 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 26 (Rights to Manage and Operate Infrastructure Facilities).

53 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 29 (Change in Details of Facilities Use).

54 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 30 (Establishment and Management of Infrastructure Credit Guarantee Fund).

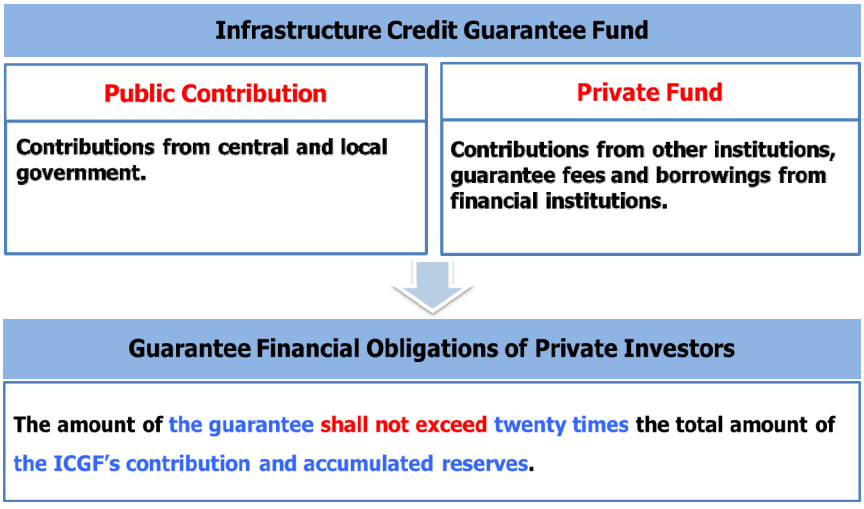
55 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 31 (Establishment of Fund).

56 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 31 (Establishment of Fund).

Warranty Object and Limit of Infrastructure Credit Guarantee Fund

The Korea Credit Guarantee Fund is responsible for guaranteeing credit of private investors, which are made from the financial obligation of loans and issuance of social infrastructure bonds. The amount of the guarantee shall not exceed 20 times the total amount of the Fund's contribution and the Fund's accumulated reserves. The Korea Credit Guarantee Fund shall fairly and diligently investigate the management status, business prospects, and credit status of the institutions subject to guarantee. The Korea Credit Guarantee Fund will collect the guarantee fee from the guarantor (such as the project developer) for the guarantee amount. In addition, when the obligation is fulfilled by the burden of the fund, the management agency can claim the right of exploitation.[57]

Figure 6.21: Infrastructure Credit Guarantee Fund by Government



Source: KOTI Research Team

Act on Acquisition of and Compensation for Land for Public Works Projects

The purpose of the Act on Acquisition of and Compensation for Land for Public Works Projects is to ensure the promotion of public welfare and the appropriate protection of property rights through the efficient implementation of public works by prescribing matters for compensation for any loss incurred in the acquisition or use of land required for the public works through consultations or expropriation. The parts to be mainly referred for dry port development in this Act are definitions regarding public works and those subject to the application and process of land acquisition and compensation. Concrete definitions regarding subjects to application are critical for all construction projects because the amount of compensation can be assumed from

57 ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE Article 40 (Rights of Indemnity).

the subjects to application. Those subject to application can be applied to any project operator who acquires and uses any of the following land, goods, and rights as below.[58]

- Land and rights other than the ownership thereof.
- Standing trees, buildings and other fixtures on land, and rights other than the ownership thereof, which are all required for public works, together with such land.
- Mining rights, fishing rights, or rights to use water.
- Rights over soil, stones, sand, or gravel belonging to land.

Concrete definitions of public works are also very important because construction and development projects for public purpose only can be the subjects for land acquisition. Therefore, public projects for which land can be acquired or used are stated in this Act as below.[59]

- Projects for national defense and military affairs.
- Projects for public interests by obtaining permission, authorization, approval, and designation under related Acts, in relation to railroads, roads, airports, harbors, parking lots, public garages, cargo terminals, rail tracks, rivers, dikes, dams, canals, water supply and waterworks systems, sewerage systems, terminal sewage treatment, wastewater treatment, erosion control, windbreak, fire prevention, tide embankments, water embankments, reservoirs, irrigation and drainage canals, petroleum reservation, oil supply, wastes treatment, electricity, telecommunications, broadcasting, gas, and meteorological observations.
- Projects in relation to office buildings, plants, research institutes, laboratories, health facilities, cultural facilities, parks, arboretums, squares, athletic fields, markets, graveyards, crematories, slaughter houses, or other public facilities to be established by the State or local governments.
- Projects for public interests by obtaining permission, authorization, approval, designation, and othersunder related Acts, in relation to the establishment of schools, libraries, museums, and art galleries.
- Projects for the construction of houses or creation of housing lots and industrial complexes for the purposes of lease or transfer, which are to be implemented by the State or local governments, public institutions under Article 4 of the Act on the Management of Public Institutions, local public enterprises under the Local Public Enterprises Act, or persons designated by the State or local governments.

58 ACT ON ACQUISITION OF AND COMPENSATION FOR LAND, ETC. FOR PUBLIC WORKS PROJECTS Article 3 (Those Subject to Application).

59 ACT ON ACQUISITION OF AND COMPENSATION FOR LAND, ETC. FOR PUBLIC WORKS PROJECTS Article 4 (Public Works).

- Projects in relation to pathways, bridges, cable lines, material storages, or other accessory facilities necessary for implementing the projects under subparagraphs 1 through 5.
- Projects for the development of relocation complexes, such as houses, factories, necessary for implementing the projects under subparagraphs 1 through 5.
- Other projects for which land. can be expropriated or used under the Acts prescribed in the attached Table.

Central or land tribunals shall be established to render adjudication on the expropriation and use of land. The central land tribunal shall be established under the Ministry of Land, Infrastructure, and Transport, and a local land tribunal shall be established under the Special Metropolitan City, a Metropolitan City, Do or Special Self-Governing Province (hereinafter referred to as "City/Do"), respectively.[60] These tribunals shall adjudicate matters as below within the scope requested by project operators, landowners, or persons concerned.[61]

- Zones of land to be expropriated or used, and methods of use.
- Compensation for losses.
- Commencement date of expropriation or use, and the period thereof.
- Other matters prescribed by this Act and other Acts.

The most important part of this Act is regarding the process and ways of compensation. A project operator shall compensate landowners or persons concerned for any loss incurred in the acquisition or use of the land required for the public works.[62] All compensation shall be done before commencing his/her works for the relevant public works by a project operator.[63] Compensation for any loss shall be paid in cash as otherwise expressly provided for in other Acts.[64] A project operator shall compute the amount of compensation with selected appraisal business entities, and the appraisal results shall be adjudicated by central or local tribunals to confirm the amount of compensation.[65]

60 ACT ON ACQUISITION OF AND COMPENSATION FOR LAND, ETC. FOR PUBLIC WORKS PROJECTS Article 49 (Establishment).

61 ACT ON ACQUISITION OF AND COMPENSATION FOR LAND, ETC. FOR PUBLIC WORKS PROJECTS Article 50 (Matters to be Adjudicated).

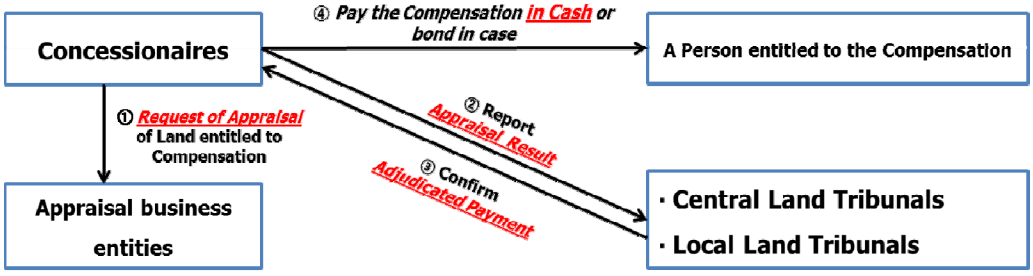
62 ACT ON ACQUISITION OF AND COMPENSATION FOR LAND, ETC. FOR PUBLIC WORKS PROJECTS Article 61 (Compensation by Project Operators).

63 ACT ON ACQUISITION OF AND COMPENSATION FOR LAND, ETC. FOR PUBLIC WORKS PROJECTS Article 62 (Advance Compensation).

64 ACT ON ACQUISITION OF AND COMPENSATION FOR LAND, ETC. FOR PUBLIC WORKS PROJECTS Article 63 (Compensation in Cash, etc.).

65 ACT ON ACQUISITION OF AND COMPENSATION FOR LAND, ETC. FOR PUBLIC WORKS PROJECTS Article 68 (Computation of Compensation).

Figure 6.22: Process of Land Compensation



Source: KOTI Research Team

6.6. Conclusion and Suggestions

The Korean Government acknowledged the importance of the dry port and has developed inland logistics facilities based on a 5-region hub and spoke network connected with seaports and airports in Korea. The government needs to make a relevant master plan with reference to national supply chains and international trade. The relevant legal system shall be supported to resolve legal conflict with the proper authorization process.

The Korean Government went through trials and errors to come up with the current legal framework for dry port development. The Act on the Development and Management of Logistics Facilities was enacted in 1995. The Act on Public-Private Partnerships in Infrastructure was enacted in 1994. The Act on Acquisition of and Compensation for Land for Public Works Projects was enacted in 2002. These three major Acts were firstly enacted from 1994 to meet social and economic demands on social overhead capital infrastructure, including dry ports or logistics facilities. The PPP projects are trends in infrastructure development worldwide; therefore, adequate financial and administration supports from the government with the appropriate legal framework are essential to developing the dry port.

Establishing Legal and Institutional Basis for Efficient Dry Ports Development in East Asia

Chapter 7

Conclusion and Suggestions

ChoongYeol Ye
Vice President, the Korea Transport Institute, Korea

Sungmoon Kim
Research Specialist, the Korea Transport Institute, Korea

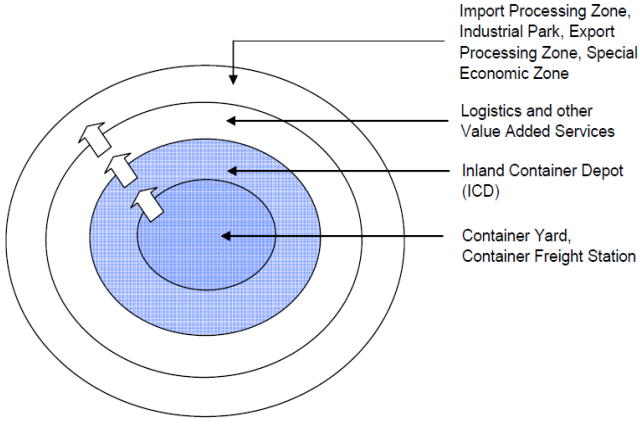
Containerization, which has become common after World War II, has made great changes in the global supply chains with the liberalization of global trade. The volume of imports and exports through the seaports has sharply increased, and there has been a severe overload in the ports and the hinterlands where the main logistics services, such as land and marine transport, storage, customs clearance, and quarantine, are conducted.

As a result, many countries in the world have built dry ports to carry out the functions of customs clearance, quarantines, and storage of import and export containers by granting functions of seaports to inland areas where demand for import and export freight is concentrated. Through the dry ports, it is possible to reduce the time and expense from the congestion of seaports and to reduce the unnecessary shipping of empty containers. A multimodal transport system was constructed between the seaports and the dry ports with roads and railways for large-scale and long-distance shipping.

The dry ports bring functions of the seaports from the supply chain to the inland cities with the transport of hinterland enhancing and transferring the logistics functions to the city. Various functions provided by the dry ports promote the investment in the inland areas.

A dry port is broadly defined as an inland logistics terminal that is directly connected by rail and/or road to a seaport and where shippers can leave and/or collect standardized units as of directly at a seaport. Its function, size, and type vary from country to country. In Korea, a dry port is used as an inland container depot only for import and export containers. In other countries, it is used for containers as well as for conventional goods. The inland port concept continues to evolve, and a new type of inland port appears, which is a global phenomenon referencing regional characteristics.

Figure 7.1: Potential expansion of functions at an inland intermodal facility[66]



66 "Cross-Cutting Issue for Managing Globalization Related to Trade and Transport: Promoting Dry Ports as a Means of Sharing the Benefits of Globalization with Inland Locations", UN-ESCAP, 2006,

A dry port functions as more than just an inland compound terminal; it performs shipping container logistics, additional supply value chain provision, customs clearance, quarantine, empty container depot, various value-added logistics activities, and road-rail transshipment services. There are various value-added logistics activities such as light manufacturing at dry ports, and the synergy effect is achieved by arranging domestic manufacturing and distribution facilities. In the case of inland countries, dry ports are also built on the borders that function as import and export gateways. The advantages of inland portals include helping to alleviate many barriers to trade as well as lower costs and time savings.

It is important to link roads, railways, waterways, and others from the port or border entry point to the destination, mainly the metropolitan area, but it is especially important to have a rail shuttle system for efficient massive transportation of containers.

Therefore, building a national logistics system that efficiently links export and import ports with major industrial and metropolitan areas under a globalized supply chain environment is very important for enhancing national competitiveness. The dry port plays a key role in building the hub and spoke national logistics system. However, in order to construct a dry port, it is necessary to secure a large land site near the city area and to link with the roads and railway. Therefore, it is not easy for the private sector to carry out the project, and it is desirable to be led by the public sector. It is desirable to be pursued by a long-term national plan in line with the national logistics system.

Normally, politicians and logistics companies are interested in the construction of dry ports, but if they do not have enough institutional and administrative support or regulations for large-scale development, they will have difficulties in constructing the dry ports. Since a large number of freight vehicles are triggered with dry ports, conflicts with local communities and residents could occur. Social and political consensus is needed to define clearly what services and what functions will be conducted in the dry ports and what infrastructure is to be integrated with it. Therefore, it is very important to have appropriate administrative procedures in the public sector or to provide a desirable regulatory framework. In many cases, it is mentioned that the relaxation of the relevant regulations was the biggest driver of the inland port construction.

For dry port construction, various issues such as freight volume, mass transportation systems, improvement of customs clearance services, and investment in logistics facilities should be reviewed. In addition to physical integration, operational integration and information integration are also important. Information and communication technologies are essential for intermodal transport. In order to build such a system, the regulatory and legal framework has been

considered as the most critical factor. In other words, knowledge and legal infrastructure are so critical in addition to physical infrastructure.

The link between the port / border point and the hinterland is important not only for the physical linkage but also for the financial linkage of information and payment. Proper support and regulation are also needed for information integration, harbor and railway integration, site selection, sizing, inland port functions, physical configuration, financing, and operation methods. Dry ports can act as a trigger for attracting other economic activities, but it should also be noted that a minimum volume of trade shall be based for mandatory project investment.

In developing countries, such as Myanmar, the lack of containerization and poor rail services serve as barriers to establishing logistics networks in the inland port. For inland ports to function properly, containerization, a dedicated link between the seaport and dry port, and cargo massification are required.

The number and size of dry ports should account for not only the geographical conditions but also the extent and diversity of economic activity, industrial production, and the size of commerce in the area to be served by the facility. In the case of constructing dry ports in multiple places, there may be problems like inadequate planning, financial conditions, non-standardization, separated operation between facilities, and differences. Standardization is needed in advance, and the government needs to lead it for the harmonious operation.

However, private sector involvement is also important because the logistics business is of a commercial nature, and the financing of the public sector could be limited. Participation of private stakeholders is essential for the dry ports to be successfully operated. It is possible to secure the minimum amount of multimodal cargoes and to connect with hubs in other regions, or to work closely with port operators with private sector participation.

It is important to be confident that the use of a dry port is more efficient than the individual logistics facilities. It is also critical for relevant organizations and companies to participate and cooperate with a clear vision. Among the functions of dry port, the railway transportation and CY business tend not to be lucrative; private companies are not able to take it by themselves. For this reason, cooperation between the public and private sector is needed. A dry port project is preferable to PPP financing because it is desirable for the private sector to participate under the leadership of the government.

In Korea, the government acknowledged the importance of dry ports and has developed inland logistics facilities based on a 5-regional hub and spoke networks connected with seaports and airports in Korea. In the case of Japan, there are no direct policies related to the construction of a dry port at the central government level. However, there are a few cases of supporting and constructing a small-scale dry port in order to promote industrial development at the local level.

Many East Asian countries are planning to construct several dry ports under the UN-ESCAP initiative, but they need to be coordinated and planned under a comprehensive, long-term national logistics system. Also, there are no specific procedures and systems in place for the development of such facilities, and public sector support is negligible or insufficient. In Laos and Myanmar, there are cases of government-led PPP projects, but in Cambodia, small private facilities are being used for specific companies.

The government needs to establish a relevant master plan with reflecting national supply chains and the trend of international trade. The relevant legal system should be supported to resolve legal conflict with the proper authorization process. The PPP projects are trends in infrastructure development worldwide, therefore, adequate financial and administration supports from the government with the appropriate legal framework are essential to developing dry ports.

The Korean Government went through trials and errors to come up with a legal framework for dry port development. Korea's laws, such as the Act on the Development and Management of Logistics Facilities, Act on Public-Private Partnerships in Infrastructure, and Act on Acquisition of and Compensation for Land for Public Works Projects for dry port development could be referenced. To establish an efficient national logistics system through dry port construction, East Asian countries are recommended to establish an institutional framework with the following factors.

1) National master plan for logistics networks and facilities.
2) Procedure and evaluation method for demand estimation of logistics facilities and their location.
3) Coordination and support by central and local governments.
4) Laws and regulations to facilitate land acquisition and private investment.
5) Establishment of integrated transportation infrastructure through the coordination of relevant ministries.

Reference

1. Rikard Bergqvist, Gordon Wilmsmeier, and Kevin Cullinane, "Dry Ports – A Global Perspective Challenges and Development in Serving Hinterlands", Routledge, 2012
2. Raghu Dayal, "Dry Port: The India experience and what the future holds – India needs to think out-of-the-box", ibid
3. UN-ESCAP, "Intergovernmental Agreement on Dry Ports, Annex II", 2016
4. World Development Indicators, World Bank, 2019
5. IMF's World Economic Outlook in 2016
6. Draft Cambodia Logistics Master Plan (March 2018)
7. Cambodia Custom Law (2007)
8. JICA (2015). Data Collection Survey on International Logistics Function Strengthening in the Kingdom of Cambodia.
9. ESCAP. (2015). Economic and Social Comission for Asia and the Pacific: policies and issues relating to dry ports. Working Group on Dry Ports. Bangkok.
10. Government of Lao PDR. (2015). Five Year National Socio-Economic Development Plan VIII (2016-2020). Vientiane Capital, Lao PDR: Government of Lao PDR.
11. Khounsaknalaath, S. (2017). Second Meeting of the Working Group on Dry Ports, UN Bangkok.
12. Lao Statistic Bureau. (2015). Results of Population and Housing Census. Ministry of Planning and Investment.
13. Ministry of Public Works and Transports. Vision for 2030 and 10 year Logistic Transportation Development Strategy for (2016-2025) of Lao PDR and Five -Year Plan (2016-2020).
14. Ministry of Public Works and Transports. (2017). Teachnical meeting agenda "systematically addressing challenges faced by the Ministry of Public Works and Transportation". Vientiane: Ministry of Public Works and Transportation.
15. Ministry of Public Works and Transports. (2017). Teachnical meeting agenda "systematically addressing challenges faced by the Ministry of Public Works and Transportation". Vientiane: Ministry of Public Works and Transportation.
16. Ministry of Public Works and Transports. (2017a, 12 13). Lao PDR: ways forwards regional transport integration. Vientiane: Department of Transport.
17. Ministry of Public Works and Transports. (2017b). Lao National Logistic Strategy.
18. Savan Park. (2008, February 24). Savanakhet Special Economic Zone – Savan Park. Savannakhet, Lao PDR.
19. Suzuki, M. &. (2008). Perspective of Savan Seno Special Economic Zone and Vientiane Industrial Park in Lao PDR.
20. The World Bank. (2017). Lao PDR Profile Home Page. Retrieved from http://www.worldbank.org/en/country/lao

21. Vientiane Times. (2017, August 8). SAVAN DRY PORT KEEN TO LINK WITH BELT, ROAD. Vientiane Capital, Lao PDR.

22. http://www.mlit.go.jp/seisakutokatsu/freight/seisakutokatsu_freight_tk1_000036.html

23. http://www.mlit.go.jp/seisakutokatsu/freight/seisakutokatsu_freight_tk1_000128.html

24. Round-Use Promotion Council (2015), Report on Promotion of Round-Use http://www.meti.go.jp/press/2015/05/20150512003/20150512003.html

25. http://www.meti.go.jp/press/2015/05/20150512003/20150512003.html

26. http://www.oict.co.jp/E/index.html

27. http://sano-inlandport.com/aisatsu.html

28. https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=KR&view=chart

29. Sangbum Seo, 2012, 2nd National Logistics Facility Development Master Plan

30. Dongsun Shin, 2002, Study related to Laws and Roles of Government

31. Accounting Note of 2016 Accounting Audit Report of Uiwang ICD Co., Ltd.

32. http://www.uicd.co.kr/10_introduction/10_tran.html

33. http://www.uicd.co.kr/40_search/40_info2.html

34. ACT ON THE DEVELOPMENT AND MANAGEMENT OF LOGISTICS FACILITIES of the Republic of Korea

35. ACT ON PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE of the Republic of Korea

36. ACT ON ACQUISITION OF AND COMPENSATION FOR LAND, ETC. FOR PUBLIC WORKS PROJECTS of the Republic of Korea

37. Cross-Cutting Issue for Managing Globalization Related to Trade and Transport: Promoting Dry Ports as a Means of Sharing the Benefits of Globalization with Inland Locations, UN-ESCAP, 2006

2017-2018 KOTI-EASTS
SPECIAL RESEARCH PROJECT REPORT

Establishing Legal and Institutional Basis for Efficient Dry Ports Development in East Asia

YE ChoongYeol
Naohisa OKAMOTO
Heng Salpiseth
Bounta ONNAONG
Aung Khin Myint

THE KOREA TRANSPORT INSTITUTE

Eastern Asia Society for Transportation Studies 1994 EASTS

93530
9 791163 840503
ISBN 979-11-6384-050-3